Power structure and joint decision-making in B2B relationships

Nurhayati, K.

DOI
10.4233/uuid:470c2d59-b3f5-474e-8c08-946a000a0c23

Publication date
2025

Document Version
Final published version

Citation (APA)
Nurhayati, K. (2025). *Power structure and joint decision-making in B2B relationships*. [Dissertation (TU Delft), Delft University of Technology]. https://doi.org/10.4233/uuid:470c2d59-b3f5-474e-8c08-946a000a0c23

Important note
To cite this publication, please use the final published version (if applicable).
Please check the document version above.

POWER STRUCTURE AND JOINT DECISION-MAKING

IN B2B RELATIONSHIPS

KARTIKA NURHAYATI

Power structure and joint decision-making in B2B relationships

Dissertation

for the purpose of obtaining the degree of doctor

at Delft University of Technology

by the authority of the Rector Magnificus, Prof.dr.ir. T.H.J.J. van der Hagen,

chair of the Board for Doctorates

to be defended publicly on

Monday 7 April 2025 at 17:30 o'clock

by

Kartika NURHAYATI

This dissertation has been approved by the promotors.

Composition of the doctoral committee:

Rector Magnificus	Chairperson
Prof.dr. J. Rezaei	Delft University of Technology, promotor
Prof.dr.ir. L.A. Tavasszy	Delft University of Technology, promotor
Independent members:	
Prof.mr.dr. J.A. de Bruijn	Delft University of Technology
Prof.dr. A. Gunasekaran	Penn State Harrisburg, United States
Prof.dr.ir. M.F.W.H.A. Janssen	Delft University of Technology
Prof.dr. D. Olson	University of Nebraska-Lincoln, United States
Dr.ir. M.Y. Maknoon	Delft University of Technology, reserve member

This research was funded by Ministry of Finance, Republic of Indonesia, and also partially supported by the PPM Manajemen and personal contribution.

Keywords: Power Dynamics, Joint Decision-Making, Supply Chain Management, High-Tech Industry, Semiconductor Industry, B2B Relationships, Collaboration

ISBN: 978 90 361 0791 4

Printed by: Haveka - www.haveka.nl

Cover by: Kartika Nurhayati

An electronic version of this dissertation is available at http://repository.tudelft.nl

Table of Contents

List of Figures

List of Tables

Summary

This dissertation investigates the dynamics of power structures, joint decision-making, and compliance within high-tech business-to-business (B2B) relationships, with a particular focus on the semiconductor industry. Given the rapid technological advancements and intricate interdependencies within this sector, understanding how power dynamics shape decision-making and collaboration between suppliers and customers is vital for sustaining competitive advantage and fostering innovation. The research is structured around four primary research questions that guide an in-depth exploration of power bases, joint decision-making facilitators, and compliance mechanisms.

The first research question addresses the role of power structures in shaping decision-making processes in high-tech B2B relationships. It is built up around an extensive literature review on the topic. By examining various power bases, such as coercive, expert, legitimate, reward, and referent power, this study sheds light on the interplay between power and decision-making. The findings identifies key decision domains (e.g., pricing, sourcing, sustainability) shaped by power dynamics. It highlights how power influences both decision processes and outcomes, emphasizing the need for empirical research on power perception, power-shifting strategies, and conflict management in supply chain relationships.

The second research question delves into the drivers and facilitators of joint decision-making in supply chains, as well as the barriers that companies face. In high-tech supply chains, joint decision-making is essential for managing complex interdependencies and ensuring aligned strategic goals. The research identifies several key facilitators of joint decision-making, including trust, mutual dependence, and transparency in information sharing. Conversely, power imbalances and lack of trust are significant barriers that prevent effective collaboration. The findings emphasize that successful joint decision-making is not merely a function of contractual agreements but relies heavily on relational dynamics and the willingness of partners to share both risks and rewards.

The third research question explores how power sources of high-tech companies lead to the exercise of specific power bases, and how these dynamics impact joint decision-making outcomes. It was found that the type and extent of power exercised depend on the underlying power sources, such as resource availability, market position, and technological capability. For example, companies with superior technological capabilities were more likely to exercise expert and reward power, which facilitated greater influence over joint decisions. The dynamics of these power bases also played a role in determining the level of involvement of decision-makers and the degree of compromise they were

willing to make. The study concludes that understanding these dynamics is crucial for firms aiming to create more balanced and mutually beneficial decision-making processes.

The fourth research question examines how different power bases shape compliance and satisfaction in B2B supplier-customer relationships within the high-tech semiconductor industry, drawing on a qualitative multiple-case analysis of 22 B2B partnerships. Unlike previous views that treat power as merely a control mechanism, the findings reveal nine distinct power pairings, showing that coercive power can indeed secure immediate compliance but typically erodes long-term satisfaction. In contrast, expert and referent power often foster stronger collaboration and trust, though their impact is contingent on ongoing respect, perceived fairness, and the continued relevance of expert knowledge. Legitimate power proves the most frequently observed base—particularly when coupled with supplier expertise—illuminating how formal authority and specialized capabilities can balance each other. Building on these insights, the study develops propositions that refine existing theoretical perspectives by highlighting the dynamic, context-dependent interplay of structural (e.g., dependency-based) and relational (e.g., reciprocity-based) power factors. Taken together, these findings underscore that, in innovation-driven industries like semiconductors, power is not solely a tool for short-term compliance but can also be harnessed strategically to enhance long-term satisfaction, trust, and competitive advantage.

The contributions of this dissertation are twofold. First, it advances theoretical understanding by offering a comprehensive framework that integrates power theory and supply chain management to analyze how power dynamics shape decision-making processes in high-tech B2B contexts. This nuanced perspective deepens knowledge of how different power bases operate and their implications for collaboration and conflict resolution. Second, the research provides actionable insights for managers in the semiconductor and high-tech sectors, emphasizing strategies to leverage non-coercive power bases for fostering joint decision-making and sustaining positive relationships.

Finally, this dissertation highlights the pivotal role of power dynamics in shaping collaboration, compliance, and satisfaction in high-tech B2B relationships. By showcasing the risks of coercive power and the value of trust, mutual respect, and shared expertise, the findings encourage a shift toward relationship-building strategies that enhance resilience and long-term effectiveness in supply chain partnerships. For practitioners, the study offers a guide to navigating power imbalances and cultivating partnerships that drive both innovation and sustainability.

Samenvatting

Deze dissertatie onderzoekt de dynamiek van machtsstructuren, gezamenlijke besluitvorming en compliance binnen high-tech business-to-business (B2B) relaties, met een specifieke focus op de halfgeleiderindustrie. Gezien de snelle technologische vooruitgang en de complexe onderlinge afhankelijkheden binnen deze sector, is het van cruciaal belang te begrijpen hoe machtsdynamiek besluitvorming en samenwerking tussen leveranciers en klanten beïnvloedt. Het onderzoek is gestructureerd rond vier primaire onderzoeksvragen met betrekking tot machtsbases, facilitatoren van gezamenlijke besluitvorming en nalevingsmechanismen.

De eerste onderzoeksvraag richt zich op de rol van machtsstructuren bij het vormgeven van besluitvormingsprocessen in high-tech B2B-relaties. Het onderzoek bestond uit een uitgebreide literatuuranalyse. Door verschillende machtsbases te onderzoeken, zoals coercieve, expert-, legitieme, belonings- en referentiemacht, werpt deze studie licht op de wisselwerking tussen macht en besluitvorming. De bevindingen identificeren belangrijke besluitvormingsdomeinen (bijv. prijsstelling, inkoop, duurzaamheid) die worden beïnvloed door machtsdynamieken. Het benadrukt hoe macht zowel besluitvormingsprocessen als -resultaten beïnvloedt en onderstreept de noodzaak van empirisch onderzoek naar machtperceptie, machtsverschuivingsstrategieën en conflictbeheer in supply chain-relaties.

De tweede onderzoeksvraag gaat in op de drijfveren, facilitatoren en barrières van gezamenlijke besluitvorming in toeleveringsketens. In high-tech toeleveringsketens is gezamenlijke besluitvorming essentieel voor het beheer van complexe afhankelijkheden en het waarborgen van afgestemde strategische doelen. Het onderzoek identificeert verschillende belangrijke facilitatoren van gezamelijke besluitvorming, zoals vertrouwen, wederzijdse afhankelijkheid en transparantie in informatie-uitwisseling. Daarentegen vormen machtsonevenwichtigheden en een gebrek aan vertrouwen belangrijke barrières die effectieve samenwerking in de weg staan. De bevindingen benadrukken dat succesvolle gezamenlijke besluitvorming niet alleen afhangt van contractuele overeenkomsten, maar ook sterk steunt op relationele dynamiek en de bereidheid van partners om zowel risico's als beloningen te delen.

De derde onderzoeksvraag verkent hoe machtsbronnen van high-tech bedrijven leiden tot de uitoefening van specifieke machtsbases, en hoe deze dynamieken de resultaten van gezamenlijke besluitvorming beïnvloeden. Het bleek dat het type en de mate van macht die wordt uitgeoefend, afhankelijk zijn van de onderliggende machtsbronnen, zoals de beschikbaarheid van middelen, markpositie en technologische capaciteit. Bedrijven met superieure technologische capaciteiten waren bijvoorbeeld meer geneigd om expertise- en beloningsmacht uit te oefenen, wat leidde tot een grotere invloed op gezamenlijke beslissingen. De dynamiek van deze machtsbases speelde ook een rol

bij het bepalen van het niveau van betrokkenheid van besluitvormers en de mate van compromissen die zij bereid waren te sluiten. De studie concludeert dat inzicht in deze dynamieken essentieel is voor bedrijven die streven naar evenwichtige en wederzijds voordelige besluitvormingsprocessen.

De vierde onderzoeksvraag onderzoekt hoe verschillende machtsbases compliance en tevredenheid vormgeven in B2B-relaties tussen leveranciers en klanten in de hightech halfgeleiderindustrie, op basis van een kwalitatieve meervoudige-casestudie van 22 B2B-partnerschappen. In tegenstelling tot eerdere opvattingen die macht slechts als een controlemechanisme zien, onthullen de bevindingen negen verschillende machtscombinaties waaruit blijkt dat dwang (coercive power) weliswaar kan zorgen voor directe naleving, maar doorgaans leidt tot een afname van langetermijntevredenheid. Daarentegen bevorderen expertmacht en referentmacht vaak sterkere samenwerking en vertrouwen, hoewel hun invloed afhankelijk is van doorlopend respect, ervaren billijkheid en de blijvende relevantie van specialistische kennis. Legitieme macht blijkt het vaakst voor te komen—vooral wanneer die wordt gecombineerd met de expertise van de leverancier—waardoor formeel gezag en gespecialiseerde capaciteiten elkaar in balans kunnen houden. Op basis van deze inzichten ontwikkelt de studie proposities die bestaande theoretische perspectieven verfijnen door de dynamische, contextafhankelijke wisselwerking tussen structurele (bijvoorbeeld afhankelijkheid) en relationele (bijvoorbeeld wederkerigheid) machtsfactoren te benadrukken. Al met al onderstrepen de bevindingen dat macht in op innovatie gerichte sectoren zoals de halfgeleiderindustrie niet alleen een middel is om kortetermijncompliance af te dwingen, maar ook strategisch kan worden ingezet om langetermijntevredenheid, vertrouwen en concurrentievoordeel te bevorderen.

De bijdragen van deze dissertatie zijn tweeledig. Ten eerste bevordert het de theoretische kennis door een uitgebreid kader te bieden dat powertheorie en supply chain management integreert om te analyseren hoe machtsdynamieken besluitvormingsprocessen in high-tech B2B-contexten vormgeven. Dit genuanceerde perspectief verdiept het begrip van hoe verschillende machtsbronnen functioneren en welke implicaties ze hebben voor samenwerking en conflictbeheersing. Ten tweede biedt het onderzoek praktische inzichten voor managers in de halfgeleider- en high-techsectoren, met nadruk op strategieën om niet-coercieve machtsbronnen te benutten voor het bevorderen van gezamenlijke besluitvorming en het onderhouden van positieve relaties.

Tot slot benadrukt dit proefschrift de cruciale rol van machtsdynamieken bij het vormgeven van samenwerking, naleving en tevredenheid in high-tech B2B-relaties. Door de risico's van dwangmatige macht en de waarde van vertrouwen, wederzijds respect en gedeelde expertise aan te tonen, moedigen de bevindingen een verschuiving aan naar strategieën voor relatieopbouw die de veerkracht en langetermijneffectiviteit in supply chain-partnerschappen verbeteren. Voor praktijkmensen biedt het onderzoek een leidraad om machtsonevenwichtigheden te navigeren en samenwerkingen te cultiveren die zowel innovatie als duurzaamheid stimuleren.

1 Introduction

In today's dynamic high-tech industry, the interplay between power dynamics and decision-making processes significantly influences the structure and performance of business-to-business (B2B) relationships. The increasing complexity of supply chains, coupled with the need for rapid innovation, makes understanding these dynamics essential for both academic scholars and industry practitioners (Miles & Snow, 2006; Gomes & Silva, 2018; Huang et al., 2020; Alkhawaldeh & Shawabkeh, 2023; Tracey & Neuhaus, 2013). This dissertation, comprised of four research articles, delves into the nuanced role of power in B2B relationships, particularly within the high-tech semiconductor industry, and explores how power structures shape decision-making processes, compliance, and long-term collaboration.

This introduction chapter provides an overview of the themes explored across the four research papers, highlighting how each paper contributes to a deeper understanding of power dynamics in supply chain decision-making. The research articles are organized in a logical sequence, starting from a systematic review of power structures in supply chains (PAPER 1), followed by an exploration of joint decision-making mechanisms (PAPER 2), an empirical analysis of power dynamics in high-tech decision-making (PAPER 3), and concluding with an in-depth case study on power bases and compliance (PAPER 4). Together, these articles offer a comprehensive view of how power influences B2B relationships, decision-making, and collaboration.

1.1 Research background and motivation

The study of power dynamics in B2B relationships has evolved from a focus on control and dominance to a more nuanced understanding of how power can foster collaboration, innovation, and long-term success (Hingley et al., 2015; Meehan & Wright, 2013; Chicksand, 2015; Touboulic et al., 2014; Schaerer et al., 2020; Keegan et al., 2021). High-tech industries, such as the semiconductor sector, are ideal contexts for exploring these dynamics due to their reliance on interdependent relationships and rapid technological advancements (Wang & Hsu, 2013). The motivation for this research stems from the need to understand how power structures can be leveraged not only for immediate gains, such as compliance, but also for building sustainable partnerships that drive innovation and competitive advantage. Below are the topics and concepts discussed throughout the dissertation.

Power Dynamics in B2B Relationships

Power dynamics in B2B relationships refer to the ways in which companies influence each other's decisions and behaviors through various power bases (Meehan & Wright, 2013; Hingley et al.,

2015). French and Raven's (1959) seminal framework identified five bases of power: coercive, legitimate, reward, expert, and referent. These power bases have been widely studied in organizational and inter-organizational contexts, particularly in industries where collaboration and negotiation are key to success.

In supply chains, power structures are often shaped by the interdependencies between buyers and suppliers (Reimann & Ketchen, 2017). The ability of one firm to influence another is frequently linked to factors such as control over resources, market positioning, or technological expertise (Huo et al., 2016). This creates a power imbalance, where dominant firms can dictate terms or influence decisions (Kim & Fortado, 2020; Huo et al., 2016). However, this dissertation argues that power exercise is not merely about achieving dominance but can also be strategically managed to create mutually beneficial partnerships.

Joint Decision-Making in B2B Contexts

Joint decision-making refers to the collaborative process where two or more firms work together to make decisions that affect their shared operations or goals (Marqui et al., 2013; Schleper et al., 2019; Kumar, 2020). This concept is particularly relevant in high-tech semiconductor industries, where the interdependence between supply chain partners necessitates collaborative approaches to problem-solving, product development, and operational efficiencies (Lei & Yang, 2022; Ku et al., 2006; Yang et al., 2013; Zapp et al., 2012; Pai & Yeh, 2015; Bhaskaran & Krishnan, 2009).

Power and Involvement Levels across Joint Decision-Making

Collaboration in B2B relationships often involves joint decision-making, where power dynamics play a crucial role in shaping outcomes. French and Raven (1959) identified five key power bases—legitimate, reward, coercive, referent, and expert—that companies leverage based on their resources and strategic positioning (Rahim, 1989; Pfeffer & Salancik, 1978). These power bases impact how companies participate in decision-making, with some firms withdrawing to signal unmet interests or engaging intensively to shape choices. For instance, expert power may drive early involvement in problem recognition, while coercive power could assert influence during implementation phases, underscoring the role of power bases in moderating involvement levels in joint decision-making (Holden & O'Toole, 2004). It is recognized that several other factors such as supply chain infrastructure, technological capability, and broader collaboration frameworks can influence decision-making and performance outcomes (Janssen et al., 2017). However, given the specific focus of this dissertation on power dynamics, factors such as infrastructure, though relevant, are treated as contextual background rather than focal points of analysis. Future research could extend this work by exploring these additional dimensions and their interplay with power dynamics.

Power, Compliance, and Satisfaction in B2B Relationships

Power not only affects decision-making but also plays a critical role in shaping compliance and satisfaction within B2B relationships (Kim & Kim, 2008; Chicksand, 2015). Compliance refers to the extent to which one party adheres to the terms or expectations set by another, often influenced by power imbalances (Leonidou et al., 2007; Huo et al., 2016). However, compliance does not necessarily equate to satisfaction. In fact, excessive reliance on coercive power can lead to compliance but also dissatisfaction and strained relationships (Kiyak et al., 2001; Luckenbill, 1981; Ahmad et al., 2023).

1.2 Problem statement

Despite the considerable research on power dynamics in B2B relationships, there are several critical gaps that this dissertation addresses. Existing studies tend to emphasize power as a tool for control, focusing primarily on short-term outcomes such as compliance and financial performance. However, these studies often overlook the broader implications of power on long-term collaboration, trust, and innovation, especially in industries that are heavily dependent on technological advancement, such as the semiconductor industry (Perrons, 2009; Kapoor & Mcgrath, 2013; Logar et al., 2014).

Moreover, much of the literature treats power bases as static and unidimensional, ignoring the fluid and evolving nature of power in real-world contexts. In complex, interdependent industries, firms often shift between different power bases depending on relational dynamics, market pressures, and technological needs (Cox et al., 2004; Blois & Hopkinson, 2013). There is a need to understand how firms strategically manage these shifts to optimize both immediate and long-term outcomes in their partnerships.

While the role of coercive power in shaping compliance has been extensively studied, the interplay of other power bases—such as expert, reward, legitimate, and referent power—remains underexplored, particularly in relation to satisfaction and long-term relationship sustainability (Chae et al., 2017; Hoppner et al., 2014). This dissertation aims to fill these gaps by providing a more comprehensive view of power dynamics and their impact on decision-making, compliance, and collaboration in high-tech B2B relationships.

1.3 Research questions

The overarching objective of this dissertation is to deepen our understanding of power dynamics in B2B relationships within the high-tech semiconductor industry. To achieve this, the following research questions are posed in the following articles.

Paper 1

This study establishes the theoretical grounding by examining existing literature on power dynamics in supply chains. The research questions for this paper are:

a. ***Which terminologies and theories are referred to in past studies indicating the impact of power structure on supply chain decision-making?***

This question addresses the conceptual foundation and theoretical frameworks used in prior studies to explore power dynamics within supply chains. It seeks to clarify how past research has defined, categorized, and analyzed power structures, providing a background on how power relationships are interpreted in B2B contexts.

b. ***What does the literature say about how inter-organizational power structure affects both the process and the outcome of supply chain decision-making?***

This question investigates the practical implications of power imbalances between firms and how these power dynamics influence decision-making processes and outcomes. By examining this relationship, the authors explore how power might affect strategic decisions, such as pricing, investment, and quality standards, and ultimately, the performance and sustainability of supply chains.

c. ***What are the recurrent domains of supply chain decisions that have been discussed in the study of inter-organizational power structure?***

The third question focuses on specific areas within supply chains where power plays a significant role, such as sourcing, inventory management, and sustainability practices. This question seeks to map out the types of decisions most affected by power and how these decisions shape overall supply chain efficiency and collaboration.

Paper 2

This paper explores the conditions that support or hinder joint decision-making between suppliers and manufacturers in high-tech supply chains, where interdependencies demand collaborative approaches. The research questions for this study are:

a. ***What are the main sets of drivers and facilitators that allow joint supply chain decision-making to happen across high-tech suppliers and manufacturers?***

This question investigates the factors that promote effective joint decision-making, focusing on drivers such as mutual goals, information sharing, and aligned incentives. By examining these enablers, we seek to identify the conditions that foster successful collaboration in high-tech supply chains.

b. What are the barriers for these companies to make joint decisions?

Joint decision-making is essential for managing interdependencies in complex supply chains. This question investigates the conditions that inhibit joint decision-making, such as conflicting interests, resource limitations, or power imbalances. In addition, we examine how power dynamics either facilitate or hinder joint decision-making.

Paper 3

Building on the foundation of power structures established in Paper 1, this study investigates how different power sources are exercised and the resulting effects on decision-making outcomes in the high-tech supply chain. The research questions for this study are:

a. How does a set of power sources of high-tech companies lead to their exercise of certain power bases?

This question examines how power sources, such as financial strength or technical expertise, influence companies' ability to exercise specific power bases, like coercive or referent power. This analysis aims to reveal how power is enacted in supply chains and its implications on supplier-manufacturer relationships.

b. How do the dynamics of power bases impact the outcomes of joint decision-making?

Here, we explore how power dynamics influence the decisions made jointly by high-tech supply chain partners. This question considers the compromises and adjustments that decision-makers make as a result of exercised power, impacting areas such as contract terms, resource allocation, and strategic alignment.

Paper 4:

How do different power bases—coercive, legitimate, expert, referent, and reward—shape compliance and satisfaction in B2B supplier-customer relationships, and how might these dynamics foster (or undermine) collaboration and innovation?

The focus here is on understanding how the use of various power bases influences both compliance with contractual and relational agreements and the sustainability of long-term partnerships.

1.4 Research methodology overview

The methodology employed in this dissertation combines both systematic literature reviews and qualitative case studies. This approach provides a comprehensive view of power

dynamics in B2B relationships and allows for both theoretical exploration and empirical validation.

Systematic Literature Review (PAPER 1)

The first paper in the dissertation employs a systematic literature review to examine the role of power in supply chain decision-making. The review synthesizes findings from 281 research papers published between 1994 and 2020, providing a critical analysis of how power structures shape decision-making in various supply chain domains. The review also identifies key research gaps, which the subsequent papers aim to address.

Case Study Methodology (PAPER 2, PAPER 3, PAPER 4)

The remaining papers adopt a qualitative case study methodology, focusing on Dutch high-tech firms in the semiconductor industry. These case studies are based on semi-structured interviews with supply chain professionals, providing rich, real-world insights into how power dynamics influence decision-making and collaboration.

PAPER 2 focuses on joint decision-making mechanisms, exploring the drivers, facilitators, and barriers that shape collaborative decision-making in high-tech industries.

PAPER 3 investigates the role of power bases in influencing the involvement levels of decision-makers in high-tech B2B relationships, highlighting how firms use different power strategies depending on the phase of decision-making.

PAPER 4 examines how power bases—particularly coercive, expert, legitimate, reward, and referent power—influence compliance and satisfaction in long-term B2B partnerships, with a focus on the semiconductor industry.

The unit of analysis across the dissertation primarily focuses on the organizational level, specifically examining dyadic relationships between individual buyer and supplier firms within high-tech supply chains. Although each paper concentrates on organizational interactions, the scope slightly varies depending on the research objectives. Paper 1 analyzes the organizational and supply chain literature broadly to identify power structures. Papers 2, 3, and 4 specifically focus on dyadic inter-organizational relationships, examining how individual firms strategically interact and leverage power dynamics in decision-making and collaboration.

1.5 Dissertation outline

This dissertation is organized into six chapters (see Figure 1), each addressing a key aspect of power dynamics in B2B relationships.

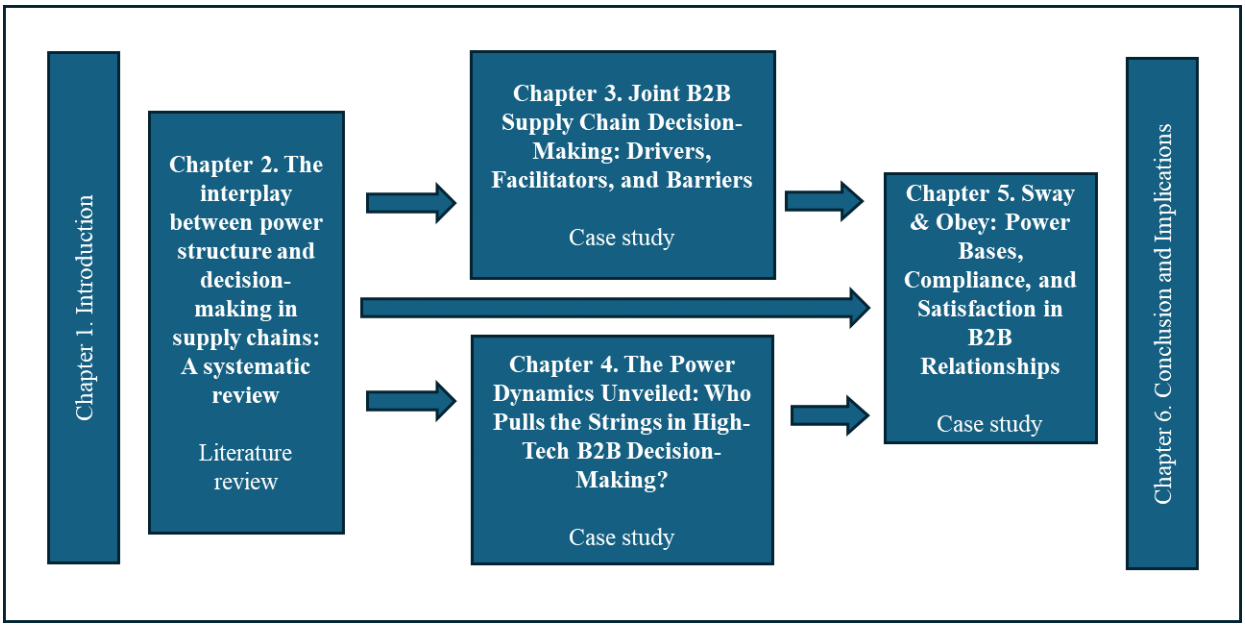


Figure 1.1. Organization of the thesis

Chapter 1 (Introduction) provides an overview of the research background, problem statement, research questions, and contributions of the dissertation.

Chapter 2 (The interplay between power structure and decision-making in supply chains: A systematic review, PAPER 1) presents the findings from the systematic literature review, highlighting key themes and gaps in the literature on power dynamics and decision-making in supply chains.

The paper systematically reviews 281 studies from 1994 to 2020, investigating the impact of power structures on supply chain decision-making. It emphasizes how power—stemming from sources like control over resources or network positioning—can significantly shape the strategies and outcomes within business-to-business (B2B) relationships. Using bibliometric and thematic analyses, this paper identifies key decision-making areas affected by power dynamics, such as pricing, quality, sustainability, and investment. Power imbalances can influence joint decision-making, where dominant actors may direct choices to their advantage, leading to shifts in costs, resource allocation, or strategic focus.

In PAPER 1, the systematic review of power structures in supply chains reveals that firms use different power bases to influence supply chain decisions related to pricing, quality management, sustainability, and innovation. Understanding how these power structures operate helps companies navigate the complexities of modern supply chains, especially in industries where rapid decision-making is crucial.

Chapter 3 (Joint B2B Supply Chain Decision-Making: Drivers, Facilitators, and Barriers, PAPER 2) explores the drivers and facilitators of joint decision-making in B2B relationships, with a focus on high-tech industries.

In PAPER 2, the study investigates how companies in Dutch high-tech industries engage in joint decision-making and the factors that drive or inhibit this process. The paper highlights that while joint decision-making can enhance operational performance, it also requires the alignment of goals and resources between partners. The barriers to effective collaboration, such as misaligned drivers or external pressures, are explored in depth, providing insights into how firms can overcome these challenges to foster better partnerships.

Chapter 4 (The Power Dynamics Unveiled: Who Pulls the Strings in High-Tech B2B Decision-Making? PAPER 3) investigates how power bases influence decision-making processes in high-tech B2B relationships, focusing on involvement levels and compromise complexities.

In PAPER 3, the paper delves into the intricacies of how power bases influence involvement levels in decision-making processes. It examines the dynamics between buyers and suppliers in Dutch high-tech firms, revealing that firms strategically use different power bases depending on the phase of decision-making. The study provides a framework for understanding how power dynamics evolve during the decision-making process, influencing the nature of compromises and the complexity of collaboration.

Chapter 5 (Sway & Obey: Power Bases, Compliance, and Satisfaction in B2B Relationships, PAPER 4) examines the role of power in shaping compliance and satisfaction in long-term B2B partnerships in the semiconductor industry.

In PAPER 4, the study explores the delicate balance between power and compliance in the semiconductor industry. It highlights how firms can use different power bases to achieve compliance while also fostering long-term satisfaction and collaboration. The findings suggest that firms need to adopt a more dynamic approach to managing power, recognizing that control must be balanced with long-term relational goals to sustain innovation-driven partnerships.

Chapter 6 (Conclusion and Implications) summarizes the key insights from the dissertation, discusses managerial implications, and provides recommendations for future research.

1.6 Contribution of the dissertation

This dissertation makes several theoretical and practical contributions to the study of power dynamics in B2B relationships, with a particular focus on the high-tech semiconductor industry. These contributions are outlined below:

Theoretical Contributions

i. An Overview of Involvement and Compromise in Decision-Making

One of the primary contributions of this dissertation is the development of a comprehensive framework that integrates the five power bases—coercive, legitimate, reward, expert, and referent—and explores their role in shaping the process and the outcome of joint decision-making. The dissertation also reveals how the distribution of power shapes the

degree of involvement and the nature of compromises in joint decision-making. This insight bridges power theory and decision-making models by incorporating the relational and contextual dimensions of power in high-stakes, innovation-driven environments.

ii. Insights into the Fluidity of Power Dynamics

By integrating coercive, legitimate, expert, referent, and reward power into a single, dynamic framework, this work challenges classic perspectives such as French and Raven's (1968) bases of social power and Power Dependency Theory (Emerson, 1964). Rather than treating power as fixed, it shows that firms strategically shift between power bases to adapt to changing contexts and relationships in complex B2B settings.

iii. Extension of Power Theory into Collaborative and Innovation-Driven Contexts

Extending Social Exchange Theory (Blau, 1968), the study demonstrates that when managed strategically, power can build trust and foster long-term collaboration and innovation—not merely enforce compliance. In particular, expert and referent power promote reciprocal, mutually beneficial exchanges, challenging the view that power is solely adversarial.

Practical Contributions

i. Managerial Implications for Power Management in Supply Chains

The findings of this dissertation offer practical insights for managers on how to effectively manage power in supply chain relationships. In particular, it provides recommendations on how to balance short-term compliance needs with long-term relational goals, fostering partnerships that are both resilient and innovation-driven.

ii. Diagnostic Tools for Power and Decision-Making in High-Tech Industries

The research provides diagnostic tools that firms can use to assess their power structures and decision-making processes. By understanding their own power bases and how they are perceived by partners, firms can develop strategies that enhance collaboration, trust, and mutual satisfaction.

iii. Strategies for Fostering Joint Decision-Making

Given the importance of joint decision-making in managing complex supply chains, this dissertation offers strategic guidelines for fostering effective collaboration. By aligning goals and leveraging complementary power bases, firms can overcome barriers to joint decision-making and build more sustainable partnerships.

References

Ahmad, R., Nawaz, M. R., Ishaq, M. I., Khan, M. M., & Ashraf, H. A. (2023). Social exchange theory: Systematic review and future directions. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.1015921

Alkhawaldeh, A. E., & Shawabkeh, K. M. A. (2023). The impact of strategic orientations on supply chain performance: The mediating role of organizational ambidexterity at Jordanian extractive

and mining companies. International Journal of Academic Research in Business and Social Sciences, 13 (6). https://doi.org/10.6007/ijarbss/v13-i6/17166

Bhaskaran, S. R., & Krishnan, V. (2009). Effort, revenue, and cost-sharing mechanisms for collaborative new product development. Management Science, 55 (7), 1152-1169. https://doi.org/10.1287/mnsc.1090.1010

Blau, P. M. (1968). Social exchange. International encyclopedia of the social sciences, 7(4), 452-457.

Blois, K., & Hopkinson, G. (2013). The use and abuse of French and Raven in the channels literature. Journal of Marketing Management, 29 (9-10), 1143-1162. https://doi.org/10.1080/0267257x.2013.784711

Chae, S., Choi, T. Y., & Hur, D. (2017). Buyer power and supplier relationship commitment: A cognitive evaluation theory perspective. Journal of Supply Chain Management, 53 (2), 39-60. https://doi.org/10.1111/jscm.12138

Chicksand, D. (2015). Partnerships: The role that power plays in shaping collaborative buyer-supplier exchanges. Industrial Marketing Management, 48, 121-139. https://doi.org/10.1016/j.indmarman.2015.03.019

Cox, A., Watson, G., Lonsdale, C., & Sanderson, J. (2004). Managing appropriately in power regimes: Relationship and performance management in 12 supply chain cases. Supply Chain Management: An International Journal, 9 (5), 357-371. https://doi.org/10.1108/13598540410560748

Emerson, R. M. (1964). Power-Dependence Relations: Two Experiments. American Sociological Review, 27(3), 282-282.

French, J. R. P., Jr., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), Studies in social power (pp. 150-167). Univer. Michigan.

Gomes, P. J., & Silva, G. M. (2018). The value of supply network for product innovation. IEEE Engineering Management Review, 46 (4), 36-45. https://doi.org/10.1109/emr.2018.2883617

Hingley, M., Angell, R. J., & Campelo, A. (2015). Introduction to the special issue on power in business, customer, and market relationships. Industrial Marketing Management, 48, 101-102. https://doi.org/10.1016/j.indmarman.2015.03.012

Holden, M. T., & O'Toole, T. (2004). A quantitative exploration of communication's role in determining the governance of manufacturer-retailer relationships. Industrial Marketing Management, 33(6), 539-548.

Hoppner, J. J., Griffith, D. A., & Yeo, C. (2014). The intertwined relationships of power, justice and dependence. European Journal of Marketing, 48 (9/10), 1690-1708. https://doi.org/10.1108/ejm-03-2013-0147

Huang, Y., Han, W., & Macbeth, D. K. (2020). The complexity of collaboration in supply chain networks. Supply Chain Management: An International Journal, 25 (3), 393-410. https://doi.org/10.1108/scm-11-2018-038

Huo, B., Wang, Q., Zhao, X., & Schuh, S. C. (2016). Threats and benefits of power discrepancies between organisations: A supply chain perspective. International Journal of Production Research, 54 (13), 3870-3884. https://doi.org/10.1080/00207543.2016.1159744

Janssen, M., van der Voort, H., & Wahyudi, A. (2017). Factors influencing big data decision-making quality. Journal of business research, 70, 338-345. https://doi.org/10.1016/j.jbusres.2016.08.007

Kapoor, R., & Mcgrath, P. J. (2013). Unmasking the interplay between technology evolution and R&D collaboration: Evidence from the global semiconductor manufacturing industry, 1990-2010. Research Policy. https://www.sciencedirect.com/science/article/pii/S004873331300142X

Keegan, B. J., Canhoto, A. I., & Yen, D. A. (2021). Power negotiation on the tango dancefloor: The adoption of AI in B2B marketing. Industrial Marketing Management, 100, 36-48. https://doi.org/10.1016/j.indmarman.2021.11.001

Kim, B., & Kim, J. (2008). Values of the balanced decision making between supply chain partners. Journal of International Business Studies, 15 (5), 623-649. https://doi.org/10.1111/j.1475-3995.2008.00632.x

Kim, D., & Fortado, B. (2020). Outcomes of supply chain dependence asymmetry: A systematic review of the statistical evidence. International Journal of Production Research, 59 (19), 5844-5866. https://doi.org/10.1080/00207543.2020.1791999

Kiyak, T., Roath, A. S., & Schatzel, K. (2001). An examination of the coercive power-satisfaction relationship within a relational exchange. Journal of Business & Industrial Marketing, 8 (3-4), 3-27. https://doi.org/10.1300/j049v08n03_02

Ku, K., Gurumurthy, C. K., & Kao, H. (2006). Inter-firms collaboration of joint venture in IC foundry business. Technovation, 27 (5), 296-305. https://doi.org/10.1016/j.technovation.2006.08.004

Kumar, G. (2020). Collaboration between supply chain partners: When does it matter? Evidence from collaborative profiles. Journal of Business & Industrial Marketing, 36 (6), 1042-1057. https://doi.org/10.1108/jbim-07-2020-0307

Lei, Y., & Yang, M. (2022). Transformation and upgrading path for midstream manufacturers in the chain: Taking Shennan Circuits as an example. Frontiers in Environmental Science, 10. https://doi.org/10.3389/fenvs.2022.1050976

Leonidou, L. C., Talias, A., & Leonidou, C. N. (2007). Exercised power as a driver of trust and commitment in cross-border industrial buyer-seller relationships. Industrial Marketing Management, 37 (1), 92-103. https://doi.org/10.1016/j.indmarman.2007.08.006

Logar, N., Anadon, L. D., & Narayanamurti, V. (2014). Semiconductor Research Corporation: A case study in cooperative innovation partnerships. Minerva, 52 (2), 237-261. https://doi.org/10.1007/s11024-014-9253-2

Luckenbill, D. F. (1981). Generating compliance. Social Problems, 10 (1), 25-46. https://doi.org/10.1177/089124168101000102

Marqui, A. C., Moura, K. S. D., & Alc⊠ntara, R. L. C. (2013). Collaborative supply chain: A conceptual model for operationalisation. International Journal of Manufacturing and Distribution Management, 12 (3), 195-195. https://doi.org/10.1504/ijmdm.2013.056458

Meehan, J., & Wright, G. H. (2013). Power priorities in buyer-seller relationships: A comparative analysis. Industrial Marketing Management, 42 (8), 1245-1254. https://doi.org/10.1016/j.indmarman.2013.07.023

Miles, R. E., & Snow, C. C. (2006). Organization theory and supply chain management: An evolving research perspective. Journal of Operations Management, 25 (2), 459-463. https://doi.org/10.1016/j.jom.2006.05.002

Nair, A., Blome, C., Choi, T. Y., & Lee, G. (2018). Re-visiting collaborative behavior in supply networks. International Journal of Production Economics. https://www.sciencedirect.com/science/article/pii/S1478409217300997

Pai, F., & Yeh, T. (2015). The effects of interdependence and cooperative behaviors on buyers satisfaction in the semiconductor component supply chain. Sustainability, 8 (1), 2-2. https://doi.org/10.3390/su8010002

Perrons, R. K. (2009). The open kimono: How Intel balances trust and power to maintain platform leadership. Research Policy, 38 (8), 1300-1312. https://doi.org/10.1016/j.respol.2009.06.009

Raven, B. H. (2008). The bases of power and the power/interaction model of interpersonal influence. Journal of Social Issues, 8 (1), 1-22. https://doi.org/10.1111/j.1530-2415.2008.00159.x

Reimann, F., & Ketchen, D. J. (2017). Power in supply chain management. Journal of Supply Chain Management, 53 (2), 3-9. https://doi.org/10.1111/jscm.12140

Schaerer, M., Teo, L., Madan, N., & Swaab, R. I. (2020). Power and negotiation: Review of current evidence and future directions. Current Opinion in Psychology, 33, 47-51. https://doi.org/10.1016/j.copsyc.2019.06.013

Schleper, M. C., Blome, C., & Stanczyk, A. (2019). Archetypes of sourcing decision-making. International Journal of Operations & Production Management, 40 (2), 117-143. https://doi.org/10.1108/ijopm-07-2017-0397

Touboulic, A., Chicksand, D., & Walker, H. (2014). Managing imbalanced supply chain relationships for sustainability: A power perspective. Decision Sciences, 45 (4), 577-619. https://doi.org/10.1111/deci.12087

Tracey, M., & Neuhaus, R. (2013). Purchasing's role in global new product-process development projects. Journal of Purchasing and Supply Management, 19 (2), 98-105. https://doi.org/10.1016/j.pursup.2013.02.004

Wang, C., & Hsu, L. (2013). Building exploration and exploitation in the high-tech industry: The role of relationship learning. Technological Forecasting and Social Change, 81, 331-340. https://doi.org/10.1016/j.techfore.2013.04.008

Yang, J., Weber, C. M., & Gabella, P. (2013). Enabling collaborative solutions across the semiconductor manufacturing ecosystem. IEEE Transactions on Semiconductor Manufacturing, 26 (4), 465-475. https://doi.org/10.1109/tsm.2013.2258414

Zapp, M., Forster, C., Verl, A., & Bauernhansl, T. (2012). A reference model for collaborative capacity planning between automotive and semiconductor industry. Procedia CIRP, 3, 155-160. https://doi.org/10.1016/j.procir.2012.07.028

2 The interplay between power structure and decision-making in supply chains: A systematic review[1]

This study provides a systematic review of the literature and a conceptual framework of the interplay between power structure and supply chain decision-making. This systematic review studies 281 research papers published in peer-reviewed journals between the year 1994-2020 and uses content analysis and network visualization of major themes and keywords. Thematic analysis was conducted to examine growing discussion in the literature and to identify research gaps. The findings of this review highlight the component of power structure across business-to-business (B2B) relationships, including its impact on companies' decision-making. Past literature indicates that power, originating from various sources, could be deliberately exploited and exercised by a company to influence the process and outcome of supply chain decisions. The findings demonstrate the mechanics of power and the prevalent domains of decision that are discussed in the organizational power literature: pricing, quality management, sustainability, alliance building, sourcing, investment, inventory, product development and power shifting efforts. The main contribution of this paper is that it provides a critical synthesis of the role of power structure in supply chain decision-making, identifying 7 novel themes and related future research avenues. For managers and decision-makers, this study helps to raise situational awareness to comprehend power structures among supply chain collaborators. This awareness may help managers to identify threats to and opportunities for future supply chain decisions.

Keywords: power structure, supply chain collaboration, business-to-business, B2B, decision-making, buyer-seller relationships, partnerships

2.1 Introduction

In the context of supply chain collaborations, power is seen as the vital attribute that influences the operational performance and behaviour of supply chain partners (Cox, 1999; Cox et al., 2001).

[1] This chapter was originally published as Nurhayati, K., Rezaei, J. ., & Tavasszy, L. (2021). The interplay between power structure and decision-making in supply chains: A systematic review. Journal of Supply Chain Management Science, 2(3-4), 85–114. https://doi.org/10.18757/jscms.2021.6112

The role of power is significant, such that it can be used as an enabler to dictate the level of participation of collaborators in order to satisfy a company's business interests. Inherently, however, power structure manifests itself disparately across different relationships, so the degree is not always easy to identify. Literacy on power structure is increasingly needed, if companies wish to make better use of their resources and lead their collaborators to achieve business target.

Historically adopted from the social sciences, the concept of 'power' is increasingly recognized across the supply chain (Dahl, 1957; Emerson,1962; French,1956) as well as within the marketing management discipline (El-Ansary and Stern, 1972; Etgar, 1976; Gaski, 1984; Hunt and Nevin, 1974; Wilkinson, 1973). It has recently focused more specifically on the topic of supply management and purchasing (Caniëls and Gelderman, 2005; Cox,1999; Gelderman et al., 2008; Kraljic, 1983; Ramsay, 1994; Van Weele and Rozemeijer, 1996). Power is also considered as one of the fundamental aspects of supplier relationship management (Giannakis, 2012; Lintukangas, 2011).

Power, specifically in an inter-organizational or inter-firm context, is defined as an actor's potential to convince another actor to behave in a manner they would not behave otherwise (Emerson, 1962). Power is also defined as the ability to influence another actor's decision-making criteria (El-Ansary and Stern, 1972). According to Pfeffer and Salancik (1978), power is the ability to accomplish one's own goals, even when they conflict with those of others, via the ability to inflict sanctions, because other businesses depend on their resources. In relation to that, Gaski (1984) suggests that an actor's reliance on the other actor leads to power imbalances which eventually limits an actor's freedom and conduct to make business decisions. The goal of inter-organizational power, according to Cox (2004), is owning and managing critical assets that allow an actor to appropriate and grow wealth via continuous leverage of customers, competitors, and suppliers. Apart from inter-organizational power, there are also other types of power that may impact supply chains to some extent, such as intra-organizational power between functions in a company, power between a labor union and employers, power in state governance impacting policy making in commodity trade and industry, and also power structure in trade between countries. In this paper, however, our focus is limited to inter-organizational power structure between companies.

The past decades have witnessed a proliferation of studies on inter-organizational power structure in the field of supply chain management (Zhao, X., Huo, B., Flynn, B.B., Yeung, J.H.Y., 2008; Cox, A., 2004; Hingley, M.K., 2005; Maloni and Benton, 2000; Pfeffer and Salancik, 1978; Lawler and Bacharach, 1981, 1987). Prior studies have examined the impact of power structure on supply chain aspects such as profitability, relationship quality, and supply chain efficiency. Specifically, among others, the extensive literature studied the influence of power: on synergistic resource development in a co-opetitive buyer–supplier relationship (Nair, 2011), on strategic distribution channel decisions under power asymmetry (B. Z. Li, Y.;Wang, X. (2013), on suppliers' normative relationship quality to the buyer and on collaborative innovation (Kim, Lee, & Lee, 2019), on service level of a logistic service

provider, its profit, and the overall supply chain efficiency (M. Zhang, Fu, Zhao, Pratap, & Huang, 2019), on the depth of collaboration, whereby it is minimal if there is power asymmetry (A. K. Kähkönen, 2014), on RFID implementation and infrastructure building (Boeck, 2008), on profit distribution among multi-echelon SC actors under uncertainty (Gupta, Biswas, & Kumar, 2019) on the equilibrium prices, rate of returns, and channel performance in dual-channel closed loop supply chains (Zheng, 2017), on the efficiency of collection activities in a closed-loop supply chain (Mi, 2018), on the amount of strategic inventory in a green supply chain (Dey, 2018), on the implementation of sustainability practices, and on the management of its values and risks (A. C. Touboulic, D.;Walker, H., 2014), and on channel strategies and profitability (Gao, 2016).

Meanwhile, the discussion of the interplay between power structure and decision-making process continues to grow. Decision-making processes are an inevitable aspect of supply chains, occurring at operational, tactical and strategic levels, and are not immune to the influences of governing powers. This paper aims to investigate what the literature has found in regards to this influence of power structure on decision-making in a supply chain context (see Figure 2.1).

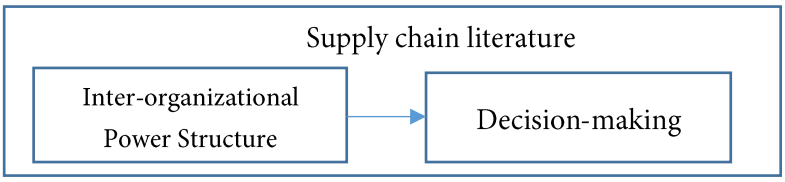


Figure 2.1. The investigated relationship between power structure and decision-making

Using different methods and departing from different theories, multiple attempts have suggested that power may influence various aspects of decision-making. For example:

- Gong, Chen, and Zhuang (2019) suggests that in a closed loop supply chain, the dominant member of a supply chain will be the one who ensures the optimality of decisions such as a strategy and profitability.
- Yu & Han (2019) suggests that power influences the choice of product between green or regular products. Power also influences product differentiation and pricing decisions of two competing manufacturers.
- L. Liu, Zhang, & Ye (2019) suggests that expert power, the power coming from good knowledge base, may influence the adoption of sustainable practices in supply chains. This will help global firms to align their sustainability vision with its suppliers around the world.
- In the context of supplier management, R. A. Terpend, B. (2012) suggests that power coming from the size of a supplier network may influence the performance of a supplier, including the value of collaborative decision-making within the buyer-supplier relationship.

- Ebers (2015) suggests that power influences the decision of members to invest on a specific asset. When there is power asymmetry, a more powerful member of the chain will force the weaker member to bear more cost and invest more, such as in development stage and research. This will create a hostage effect in which the weaker member will follow the influential member's decisions because otherwise they will have jeopardized profits.
- Kurtuluş (2012) suggests that power balance and contractual structure contribute to the implementation of joint forecasting decisions. Unlike the general expectation, power does not necessarily improve the value of collaborative forecasting. On contrary, when a supply chain member becomes too powerful, in a way that it appropriates the most value, the other member becomes reluctant to invest more effort in collaborative forecasting. This behaviour will eventually lead the influential member to have a less than optimal value of joint forecasting decisions.

Given this plausible interplay between power structure and decision-making in the supply chain literature, this paper thus looks to discuss the following research questions:

i. Which terminologies and theories are referred to in past studies indicating the impact of power structure on supply chain decision-making?
ii. What does the literature say about how inter-organizational power structure affects both the process and the outcome of supply chain decision-making?
iii. What are the recurrent domains of supply chain decisions that have been discussed in the study of inter-organizational power structure?

The overarching goal of this review paper is to synthesize previous research across a number of fields that elucidates the apparent research gap between supply chain power structure and supply chain decision-making, while providing a framework and suggestions for future research.

The manuscript is organized as follows. Following the introduction, Section 2.2 explains the methodology conducted for the systematic review. Section 2.3 presents the bibliometric analysis through network visualisation and reference analysis. Section 2.4 discusses the categories of supply chain decisions being studied in the power literature, and presents a conceptual framework and agendas for future research avenues. Finally, Section 2.5 concludes the paper with suggestions.

2.2 Methodology

This study employs the systematic literature review method to provide synthesis and analysis of the past evolution of power literature across supply chain contexts. The research is conducted in the following order: (i) network visualization of major themes and keywords; (ii) content analysis of each paper and (iii) thematic analysis to define major themes and research directions.

To gather relevant information on the apparent impact of power structure on supply chain decision making, we built on the Scopus database with several inclusion and initial exclusion criteria.

We focus on the articles with either title, abstract, or keywords that includes two sets of keywords within itself: keyword set 1 contains phrases commonly written in power-related literature (e.g. power structure, power base, power source, power relation, power regime, power use, power imbalance, power balance, power hierarchy, and power dominance), and keyword set 2 contains words and phrase used in the supply chain literature (e.g. supply chain, supplier and buyer, supplier and manufacturer).

This study conducted a search using a search string in Scopus database to get all relevant papers published dating back 1994 to 2020. We narrowed down the search to two document types which are journal articles (type "ar") written in English. The search string was made using Boolean logic and is written as below[2]:

> TITLE-ABS-KEY ("power structure" OR "power base" OR "power source" OR "power relation*" OR "Power regime" OR "power use" OR "power *balance" OR "power hierarchy" OR "power dominance" AND "supply chain" OR (supplier AND buyer OR manufacturer)) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (LANGUAGE , "English"))

From 432 search results, the list of papers was then cleaned through several criteria. The list was then cleaned further through the following protocol:

i. Read title and abstract. Delete the irrelevant topics.
ii. Some papers are slightly related to power, which we decide to
    i. Include, if these studies refer to power between firms, i.e.,
        a. On the impact of industry deregulation in industry transformation (Sinclair, Curtis, Mendham, & Mitchell, 2014, 2015)
        b. On the impact of a policy to enterprises in China (Guo, Guo, & Yuan, 2015)
    ii. Exclude, if the studied object is other than power between firms, i.e.,
        a. On trade power structure between countries (Matsushita, 2014)
        b. On intra-organizational power (J. Li, Wu, Zhu, & Xu, 2018); (Helin & Babri, 2015; Souza, Guerreiro, & Oliveira, 2015)
        c. Feminist political economy / Exploitation of labour (Dragojlovic, 2012; Hauf, 2017; Lebaron, 2015; Taylor, 2011)
        d. Political power in elite exporters of a country who has more rights to harvest certain commodities (Cunningham, Anoncho, & Sunderland, 2016); (Koenig-Archibugi & Macdonald, 2017).

[2] Note: Boolean "*" allows for inclusion of various prefixes. Boolean "ar" refers to 'article' types of publication, which means it excludes books and conference papers. Boolean "re" refers to a correction of a previously published article.

After reading each abstract, we excluded papers which discuss power in a context which is not relevant for our purposes e.g.: power source in energy and electricity context, power in state governance, power expression and identity in architecture, tribal power, trade power structure between countries, intra-organizational power, power themes in feminist political economy, labor-employer relationships, and political power in elite exporters of a country who has more rights to harvest certain commodities. We decided to retain (at this stage) papers that refer to power between firms, namely on the impact of industry deregulation in industry transformation, and on the impact of a policy to enterprises in a specific region.

As a result, 281 articles remained shortlisted for review. We proceeded with bibliometric analysis using two tools: VOSviewer and SciMAT. VOSviewer is a software to help visualize bibliometric networks. We specifically looked into the networks of keywords appearing in the selected literature to identify the major themes by creating keyword clusters, and other potentially useful information i.e. the most frequently used methodology and theory. SciMAT is then used to examine the co-occurrence of keywords across literature.

Further, we conducted a content analysis of each paper. We elicited the data from each paper by answering each of the following questions in a spreadsheet format: what is the objective of the study? How is power defined? What power reference is used? What areas are related to power? What theory was used to describe power? What sources of power are considered? What types of supply chain related decisions were considered? How is this decision made? What methodology was carried out? If empirical, what is the sampling size? If interview, who are the interviewees? What is the context of the actors' relationship (vertical/horizontal)? How many actors are considered? Where is the location sampling/geography? What is the type of industries being involved? What are the main findings? The data elicited is then coded. The result is presented in the next section. Finally, we conducted a thematic analysis to define the major theme and research directions. This is discussed in Section 4.

2.3 Results

The result of this systematic literature review is a mix of descriptive statistics of bibliometric values along with authors' interpretation of the collected data. We discuss bibliometric results immediately below in subsection 3.1, including the trends in the number of publications and the co-occurrence of keywords. In the next subsections, we turn to the content analysis, reporting about the ways in which power appears in the supply chain literature.

2.3.1 Bibliometric analysis

We identified journal sources that contribute the most in this particular topic of power in supply chains. According to the frequency, *Journal of Supply Chain Management* is the top contributor (15 articles), followed by *International Journal of Production Economics* in the second

position (14 articles). The third top contributor is occupied by *Sustainability (Switzerland)* (13 articles), in the fourth position is *European Journal of Operational Research* (10 articles) and in the fifth is *International Journal of Production Research* (9 articles).

Based on the frequency of publication each year, we find an increasing trend of total number of articles published (Figure 2.2). The highest number of relevant publications was in 2017 (39 articles), then in 2018 (38 articles), in 2019 (29 articles) and in 2020 (27 articles).

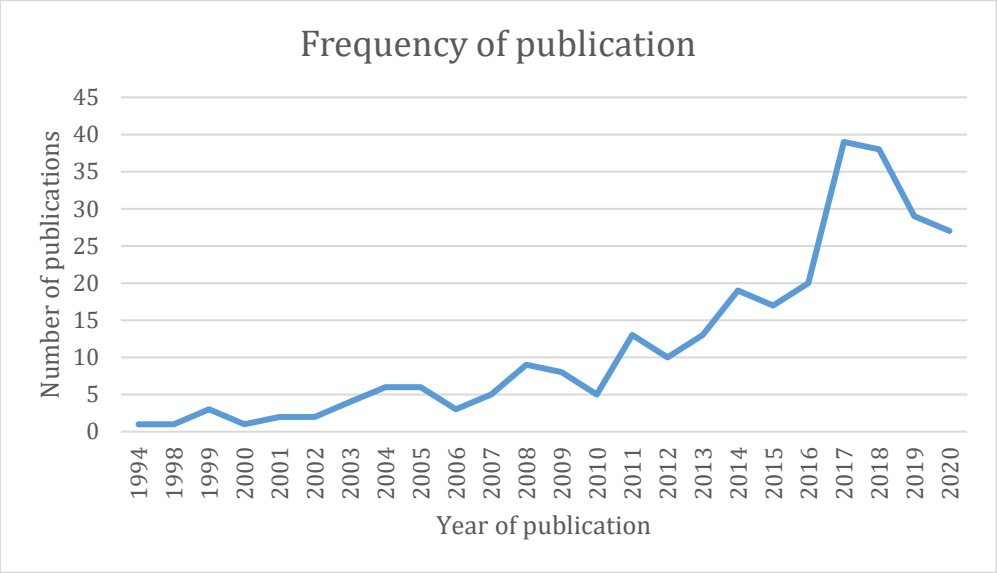


Figure 2.2. Increasing trend of publications

Using the database of shortlisted articles, we examine the popular terminologies and concepts being mentioned and discussed throughout. To do this, three techniques are employed: 1) keyword occurrence per article, 2) a *density visualization* technique, and 3) *network visualization* technique. To count keyword occurrence for each article in the database, we used SciMAT software. *Density visualization* technique is then employed using VOSviewer software to analyse the saturation and co-occurrence of certain keywords throughout the content of the reviewed articles. This density is represented in an image. Finally, to clarify this plausible association between concepts or keywords, we conducted a *network visualization* technique using VOSviewer software.

Keyword occurrence using SciMAT[3]

Using SciMAT software as the following step, we then analyse the occurrence of keywords which specifically occur across article titles instead of across the whole content (Table 2.1). We find that 'game theory' is the most frequently occurring keyword across all articles. This may indicate that

[3] Note: only keywords occurring in at least 5 documents are shown in Table 2.1. Each document (article) may contain several concepts being present together. Only documents that have >5 repeat keywords are displayed.

power structure within supply chain context is mostly illustrated mathematically through game theory techniques.

Table 2.1. Word statistics based on journal article titles, analysed through SciMAT

Keywords appear in article titles	Number of documents
Game theory	41
Sales	32
Manufacture	31
Profitability	27
Power	24
Costs	23
Power structure	21
Power structures	18
Pricing	16
Decision making	13
Supply chain	19
Pricing decision	12
Power relations	12
Costs	12
Sustainability	10
Food industry	10
Competition	10
Trust	8
Dual channel supply chain	8
Decision theory	8
Commerce	8
Closed loop supply chain	8
Sales	7
Retailing	7
Marketing	7
Channel power	7
Chains	7
Stackelberg games	6
Power asymmetry	6
Optimal decisions	6
Economics	6
China	6
Case study	6
Buyer seller relationships	6
Sustainable development	5
Supply chain coordination	5
Stakeholder	5
Sensitivity analysis	5
Resource dependence theory	5
Pricing strategy	5
Power balance	5
Online channels	5

Density visualization

Using VOSviewer software, the keywords written in articles were color-coded based on the year of publication. Although the term 'supply chain management' was coined already in the 1980s, we notice that the terms 'power structure' and 'decision theory' are relatively new as co-occurring terms in the supply chain literature. Based on our Scopus search this could only be found from 1994 onwards. Figure 2.3 shows 50 most frequent keywords occurring in relevant articles until 2020.

Based on Figure 2.3, we notice that the term 'power', 'power balance' and 'channel power' have appeared more than a decade ago (colored in blue) yet they are located further away from the centre of the field or from the oldest term of 'supply chain management'. This means that power has been acknowledged in ancient supply chain literature, however distant and isolated they were discussed. We see a new term 'power structure' (colored in yellow), however, that is located closer to the central term, which may indicate that power structure has been increasingly considered an important topic of discussion. In addition, it is also found that some terms e.g. 'game theory', 'manufacture', 'profitability', and 'competition' are located closer to the center yet have been discussed longer (colored in green) than the term 'power structure' in a supply chain context.

Using this density visualization, we created clusters based on the frequency of co-occurences of terms across articles. The total of 50 items in Figure 2.3 is then categorized into 6 clusters:

- The first cluster consists of the following keywords: *cost effectiveness, costs, green supply chain, managerial implications, power structures, pricing, sales, sensitivity analysis, Stackelberg game, wholesale prices.*
- The second cluster consists of: *decision making, environmental impact, governance, governance approach, marketing, power relations, retailing, stakeholder, supply chain management, sustainability, and sustainable development.*
- The third cluster consists of: *China, chains, competition, economics, power, power structure, supply chain.*
- The fourth cluster consists of: *game theory, game-theoretic model, non-cooperative game, optimal decisions, power balance, pricing decision, profitability, and supply chain coordination.*
- The fifth cluster consists of: *commerce, dual channel, dual channel supply chain, online channels, pricing strategy, and structural optimization.*
- The sixth cluster consists of: *channel power, closed-loop supply chain, decision theory, manufacture, and numerical experiments.*

This clustering system depicts the closeness between keywords within the same cluster. From these clusters, we identify that the term 'power' often co-occurs with the term 'decision' in an article. This is shown, for example in the second, fourth, and sixth cluster. In other clusters, though we do not see the literal term of 'decision', we see related words such as 'pricing' in the first and fifth cluster. Although we do not know yet, at this stage, what the two terms of 'power' and 'decision' have to do with each other in a supply chain context, we may infer that they are associated regularly.

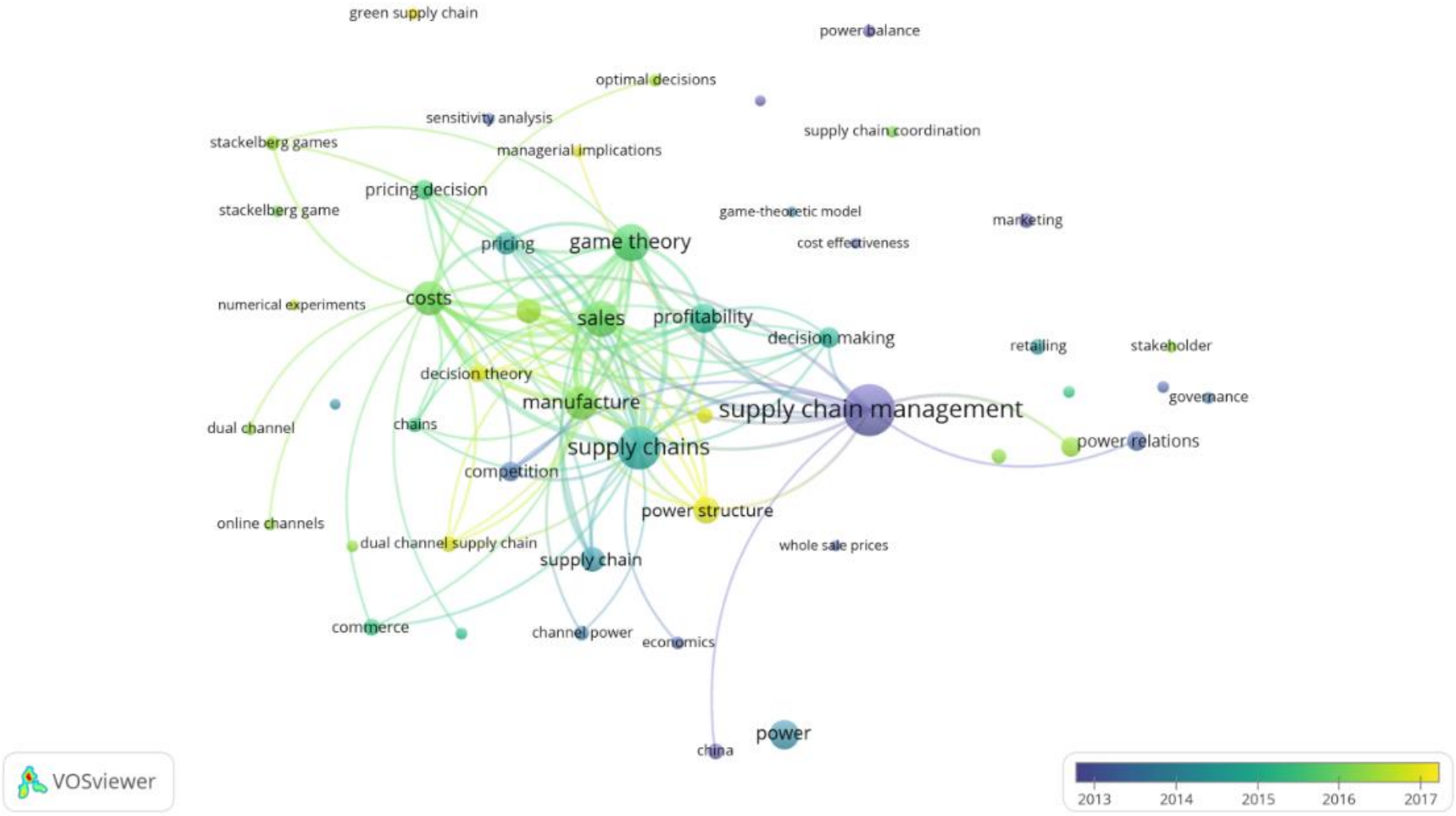


Figure 2.3. Overlay visualization of keywords

Network visualization

The analysis used the association strength method, with attraction value '2' and repulsion value '1', which results in a zoomed-in view of associations and closeness between keywords. There are 40 items displayed across 2 clusters[4] (Figure 2.4):

- The first cluster consists of 22 items including the following recent keywords (colored in yellow): *channel, channel power structure, consumer, contract, cost, decision, demand, leader, manufacturer, manufacturer Stackelberg, member, optimal decision, power structure, price, pricing decision, product, profit, retailer, retailer Stackelberg, scenario, supply chain power structure, and vertical Nash.*
- The second cluster consists of 18 items, which are: *ability, business, buyer, case study, coercive power, company, dynamic, interview, knowledge, manager, network, power relation, power relationship, power source, relation, relationship, and research.*

We notice that in the first cluster, there is a recent affinity shown between the term 'power structure' and 'decision' (colored yellow). This means that the association between the two keywords has become increasingly apparent though time.

Based on these clusters, we can develop an impression of research types being used across articles. The first cluster displays some keywords that are commonly used in numerical representation of power structure within game theoretical modelling: leader, manufacturer Stackelberg, optimal decision, power structure, pricing decision, retailer Stackelberg, scenario, and vertical Nash. Since the term 'power structure' and 'decision' also appear in this cluster, this may indicate that most studies discussing power-decision associations are game theory based modelling-focused instead of real life empirical studies. On the other hand, the second cluster indicates keywords that adopt multidisciplinary organizational management literature from various fields focusing on managerial and 'soft' aspects of supply chains, which could include either conceptual, empirical, or both studies.

[4] Note: Between these two distant clusters, a couple of connections are identified. The two lines (Figure 2.4) that connect one cluster to another represent the relationships between the term 'power structure' and 'retailer' on one pole and 'relationship' on the other pole.

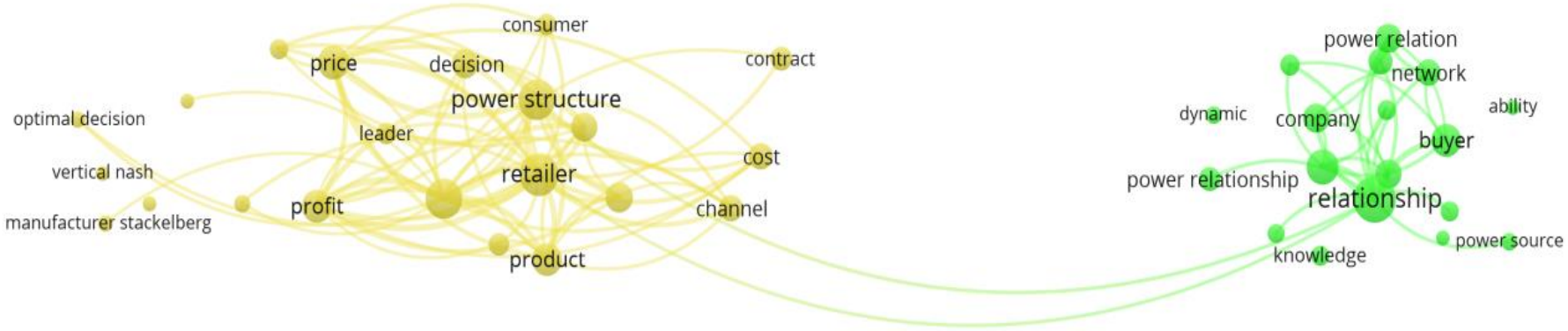


Figure 2.4. Network visualization of keywords

2.3.2 Proposed definitions of power

To better understand the perspectives of power across articles, we examine the various definitions of power used throughout. The widely accepted definitions of power in a supply chain context, as referenced by several articles in our database, are presented in Table 2.2.

Based on Table 2.2, we notice that power concepts have been discussed as early as in the 1960s by Dahl and Emerson in a broader social and economical context. Power is illustrated such that A has control over B because A can persuade B to do something B otherwise would not (Dahl, 1957). Extending this concept, Emerson (1962) later suggests that this capacity to persuade others is rooted in the dependencies between actors. If Actor A depends on Actor B, then Actor A's objectives are less likely to be attainable as a result of the relationship with Actor B. Emerson also adds that regardless of whether or not actors intend to utilize power, power is a basic tenet of politics, and it will always be available.

Despite the growing awareness of power in social economical context, the concept of power only appeared in the supply chain and business marketing literature around 10 years later. El-Ansary and Stern (1972) defined power as the ability to influence the decisions of another team member. In B2B contexts, power is defined as the ability of a business to influence the marketing decisions of a transaction partner. Hunt and Nevin (1974) define power as a company's ability to exert influence or control on the decisions and behaviors of other businesses. An organisation is considered powerful if it is able to exercise some kind of influence or control on the decisions and actions of others.

A more extensive definition of power is offered by Pfeffer and Salancik (1978). According to their studies, the ability to inflict penalties gives someone with power the possibility of accomplishing its own goals, even if these are at odds with others'. An organization's reliance on the resources of other organizations opens the door to this kind of punishment. This also means that any company with a sizable source of money has an advantage over other companies. This may lead to an even greater dependence—corporations have leverage or power to the extent that other businesses are reliant on their resources. In addition to this elaborated concept, Pfeffer and Salancik (1978) also suggests that the capacity to direct strategic resources inside a business gives someone power. The amount of resources an organization has to negotiate with, on the other hand, reflects its negotiating power.

Table 2.2. Definitions of power adopted by the reviewed articles' authors

What is power?	Reference to original author
A has control over B because A can persuade B to do something B otherwise would not.	Dahl (1957)
The actor's capacity to persuade someone to behave in a way they otherwise would not. Dependency is regarded as the source of power. Actor A's dependence on Actor B is negatively correlated with the availability of A's goals out of the connection with Actor B. A fundamental principle of power is that it is always there, even when actors do not want to use it.	Emerson (1962)
The capacity to influence another member's decision-making factors A company's capacity to influence a transaction partner's marketing choices	El-Ansary and Stern, (1972)
The capacity to exert influence or control over the choices and behaviors of other companies The capacity to control or restrict another's conduct	Hunt and Nevin (1974)
Possibility of achieving one's own objectives, even while in opposition to others, based on the capacity to impose penalties. An organization's interdependence on one another's resources makes this punishment conceivable. One that represents a significant income stream has sway over another. To the degree that other companies rely on their resources, corporations have power. Power is derived from the ability to direct strategic resources inside the company. Negotiating power represents the sum of resources available to an organization.	Pfeffer and Salancik (1978)
The capacity to direct or influence the conduct of others by a person, group, or organization was first defined in the social and political sciences. One partner's dependence on the other frequently results in power imbalances and advantages for one side, which limits the other's freedom and limits its behavior. Persistent influence on the actions and decisions of others by a single channel member.	Gaski (1984)
A company's capacity to possess and manage key assets that enable it to appropriate and build wealth by continuously leveraging its customers, rivals, and suppliers.	Cox (2003)

Power balance

The terminology of "power balance" is repeatedly mentioned in the reviewed papers. It was discussed that "power relation is the result of power difference between the power positions of a buyer and supplier" (Kähkönen, 2011, p.390). This difference, especially when significant, could lead to an imbalance in the relationship with plausible adversarial consequences for the less powerful, and a potential abuse from the more powerful. This difference, or imbalance, or asymmetry, when perceived and identified, could be the first step towards mitigating the future collaboration risks for both parties.

In some of the reviewed papers, the notion of power imbalance is described along with its possible causes and consequences. Gaski (1984) suggested that in a bilateral connection partners' dependence often results in a power imbalance and advantage for one side, which may restrict the autonomy and behavior of the other party. Van de Ven and Poole (1995) added that power balance is a relative concept and, consequently, whether a negotiator is in a strong or weak position can only be determined by his adversary. According to Casciaro and Piskorski (2005, p.170), power imbalance is described as "the difference in the interdependence of two players, or the ratio of the more powerful actor's power to that of the weaker actor." In another study, (X. Chen, Wang, & Jiang, 2016) propose that power imbalance is associated with trustworthiness of counterparts, the danger of opportunism

(resulting from a party's own trade risks) and the risk of mutual hostage taking resulting from the counterparts' exchanges. Cousins and Crone (2003, p.4) suggest that a dependent relationship is a one-sided, negative connection in which the power imbalance works against the weakest partner.

Given the description above, we observe that it is not always easy to identify where power lies within a particular relationship, notably among supply chain actors. A company might not even be aware of their position of power relative to their counterpart. When they are aware of any power imbalance the presence of this imbalance will not automatically lead to power abuse (Cox, Sanderson, Watson, & Lonsdale, 2001). The literature has not only described power aspects in the supply chain, but has also helped in the identification of circumstances in which power is exercised, abused or left unused.

The sources of power

The next term being repeatedly used across the database is 'power source' which we understand as the characteristics that define a power structure and allow for it to develop. The term has been discussed in supply management research in the context of dyadic buyer-supplier interactions (Kähkönen, 2015). Maloni and Benton (2000) suggest that in supply chains, power source is often classified as 'mediated power' and 'non-mediated power.' Reward and coercion are examples of mediated power sources. The buyer utilizes reward power to persuade suppliers by providing reward that the supplier may find attractive, while the buyer employs coercive power to induce supplier fear as a result of this disadvantage. Non-mediated power sources are more relational and optimistic in nature, including referent power, which is based on the parties' emotional and personal connection, and expert power, which indicates the buyer's expertise that the provider recognizes (Zhao, Huo, Flynn, & Yeung, 2008). To further the discussion of power source, other authors elaborate further; for instance, Kähkönen and Virolainen (2011) also categorize power sources into three broad categories based on the context in which they arise: organization, relationship and network. Because of these differences of power sources, one should understand how various power sources may influence collaborative behavior and, therefore, performance (Nyaga, 2013).

We identified several sources of power explicitly discussed within particular articles[5] (Table 2.3). Among the widely discussed power sources are: resources & asset specificity (35 articles), mediated and non-mediated power sources (23 articles), and network positions (17 articles). There are 80 articles that do not use the term of 'power source' explicitly; however, some do indicate that because a decision-maker "moves first" (in a game-theoretic setting) they will gain the upper hand over their counterpart. Of all articles that mention the term 'power source' or 'source of power' 56 that do not specify these terms in any detail.

[5] Note: this table only shows the number of documents that mentioned the keyword of 'power source' or 'source of power'.

Table 2.3. The list of power sources identified in the articles

Power sources	Frequency
Resources & asset specificity	35
The five power sources (theory of French and Raven, 1959, 2016)	23
Network positions	18
Market power	16
Information & know-how	12
Dependency	11
Number of substitutes & alternatives	9
Industrial associations	8
Intellectual property	7
Quality standards	7
No specific definition of 'power source', however an actor is considered to have an upper hand when they can "move first" in a Stackelberg game or decision-making	80
The term 'power source' is mentioned but not explained in detail	55

2.3.3 The plausible impact of power on inter-organizational decision-making

The definitions of power (Table 2.2) already reveal that power may impact supply chain decision-making. To understand this proposition better, below we examine how plausability of impact is established in the literature.

Some articles share very similar references and propositions. For example, some articles refer to the proposition of Gaski (1984) that having power means that you can have an impact on how other people behave and make decisions. This proposition highlights the behavioural aspect of supply chain operations that may be altered depending on what power structure is in place. Similar ideas are proposed by Jonsson and Zineldin (2003) who suggest that power refers to the capacity to affect another's perspective, behavior, or decision-making (p.7). Power is also described as the capacity to exert influence on an external organization's decision-making behaviour (El-Ansary and Stern, 1972; Zhao et al. 2008; Yeung et al. 2009; Cai et al. 2013; Shou et al. 2013). When a company has power, it means it has the capacity to influence the choices and actions of other companies, or to impose its will on them regardless what their actual will. (Brown, Lusch, and Muehling 1983; Hunt and Nevin 1974; Mohr, Fisher, and Nevin 1996).

Since 'behavioural shift' is difficult to observe without a certain measurement, a few articles have proposed to look into this through the decision variables that shift whenever a power situation is in play. For weaker actors, decision variables will likely shift and conform to the will of a more powerful actor. In fact, Emerson's power-dependence theory, which is repeatedly referred to across our database, suggests that power may be exercised without encountering any opposition or resistance at all, because the weaker party—the one who is most dependent on the resources of another party—will conform to what the powerful actor wishes. This tendency of conformity may include a shift in

the decision variables later on. As an example, El-Ansary and Stern (1972) address power as the capacity of a company to shape the marketing decisions of a channel transaction partner.

Another stream of studies regard 'power' and 'control' as two distinct concepts. French and Raven (1968), in respect to this, suggest that power imbalance does not always lead to power exercise or power abuse. Power is seen as a latent concept, inherent to a certain relationship environment, while control is the explicit action that arises out of it. According to Frazier & Antia (1995), power refers to a party's capacity to influence its partner's decision-making, while control is a result of achieving that power. A party having authority may opt to refrain from enforcing it over the actions of the other.

More specifically, a few articles refer to the proposition that power could particularly influence the likelihood of collaborative actions such as joint decision-making to happen. This will depend on how both parties perceive power structure—whether it is seen as a threat or an opportunity—and how far they can leverage the existing power structure to redistribute incentives within transactions. Cox et al. (2003), for instance, suggest that power has an effect on: 1) the two parties' expectations for the commercial share they should gain, and 2) their willingness to engage in future joint operations.

Most ideas identified across our database typically assume that buyer is seen as the more powerful member of a dyadic relationship who can influence the decision-making of their supplier. This is probably because a buyer has purchasing power over the supplier, thus they play a key role in sustaining the supplier's business. The concept of 'buyer power' is repeatedly highlighted across literature as the ability of a buyer to influence a supplier's choices (Brown et al., 1983, 1995; Goodman and Dion, 2001). In another example, Frazier & Summers (1984), suggest that power in supply chains is reflected in a big purchasing firm's potential influence on another in terms of activities, perception, and decision-making. On the other hand, we find few examples of studies where a supplier or a more upstream actor is seen as the more powerful member of the supplier-buyer chain.

Even though, in this study, we focus on a one-directional influence of power upon decision-making, we also take note of ideas that suggest it to be bi-directional. Although there is a contrasting lack of references, some articles refer to Bourgeois and Eisenhardt's (1988) proposition that ideally, decision-making takes into account politics, which is essentially a conscious effort to shift or increase power. This power-shifting effort is triggered by power inequalities. This idea has yet to be explored in depth, but has lent us the possibility to consider that it is likely for an actor to shift power imbalance when they factor in power-related information in their decision-making process.

2.3.4 Theories used to explain the power-decision relationship

Although many articles discuss the impact of power on decision-making, there are differences among them when it comes to the theoretical perspectives they use. We first identified the complete

list of theories[6] used as a lens to examine power aspects within supply chains. It is found that the theory used most frequently of all is game theory. Table 2.4 indicates that game theory (80 articles) could be the one of the very few, if not the only mathematical modelling approach used to depict power structure. The other theories are adopted from multidisciplinary backgrounds, such as resource dependency theory (27 articles), transaction cost theory (23 articles) from economics, and power theory (19 articles) from sociology.

Table 2.4. List of theories used throughout the reviewed articles

What theory was used to describe power?	Frequency
Game theory	80
Resource dependency theory	27
Transaction cost theory	23
Power theory	19
Network theory	13
Social exchange theory	8
Agency theory	7
SCM theory	7
Organization theory	6
Social network theory	4
Coordination approach	3
Grounded theory	3
Social relations/embeddedness	3
Green SCM	2
Value network theory	2
Capacity development theories	1
Classical microeconomic theory	1
Cognitive evaluation theory	1
Collective agency theory	1
Conflict spiral theory	1
Finance redistribution theory	1
Formal inventory	1
Information economics theory	1
Institutional theory	1
Labour process theory	1
Marketing theory	1
Neyman–Pearson theory	1
Opportunistic behavior	1
Point values theory	1
Property rights theory	1
Resource advantage theory	1
Signaling theory	1
Social structural theory	1
Theory of exchange	1
Theory of global commodity chains	1
Theory of merchandise buying behaviour	1
Theory on interorganisational trust	1
Not specified	52

While Table 2.4 demonstrates the sum of all theories used, Table 2.5 shows co-occurrences of a theory and a specific power source in a particular article. Through a theory used as a lens, one may investigate power and break this construct down into several sources as independent variables.

From these co-occurrences, Table 2.5 indicates that "game theory" is the most frequently used theory when it comes to explaining power structure in supply chain settings. However, it is not co-occurring with any specifically mentioned source of power. In game theory studies, the sources of power are often not investigated in depth. The common assumption used in game theory studies is that the most powerful actor in a game theory setting is the one who "moves first" in a decision-making. In other words, the actor who is able or has the privilege to declare its expectations or alternatives or criteria to another actor can then affect how the rest of the decision-making process

[6] Note: Articles that do not refer to a particular theory were not included.

goes, ultimately affecting the outcome of the decision. Note, however, that the term "power" is often used in game theory studies without significant discussion about definitions or the concept of power itself. The second most frequent co-occurrence of a theory and power source is "resource dependency theory" along with "resources" or "asset specificity". The third is "network theory" as the theory along with "network positions" as the power source explained. The fourth is French and Raven's "power theory" along with "power sources".

Decision-making mode

We examine the mode of decision-making, being either a joint decision or individual decisions. Below we investigate what leads a decision-maker to involve or not involve others in their decision-making, and whether this is associated with power structure at all.

Jointly made decisions are those that include criteria proposed by collaborating actors, such that an actors need each other to make the decision.[7] On the other hand, individually made decisions do not allow involvement from others in a decision-making process. This may be due to power imbalance, such as when a buying firm does not see a supplier as a possible partner for strategic collaboration because the they are not dependent on a supplier's capacity and resources. Another reason could also be lack of trust and perception of threat which hampers the involvement of a more powerful actor in a decision-making. This perception could result in a vigilance of a weaker actor and its tendency to protect its own interest by leaving out the criteria of other actors in its decisions.

[7] It also includes research that employed game theory methods. In a Stackelberg model, decisions are to some extent made jointly because both players contribute to shaping the outcome of a particular decision even when there is only one player who can lead or make the first move, while the other one follows. In Nash equilibrium models, players make the decisions simultaneously, where they make individual decisions in parallel.

Table 2.5. Power sources and according to theories across review study

		Sources of power											
		Resources & asset specificity	The five power sources	Network positions	Market power	Information & know-how	Dependency	Number of substitutes & alternatives	Industrial associations	Intellectual property	Quality standards	Not specified	Grand Total
Theory	Game theory												80
	Resource dependency theory	19					6					2	27
	Transaction cost theory	5		1		7	1	3				6	23
	Power theory	3	6				4				2	4	19
	Network theory			13									13
	Social exchange theory		7									1	8
	Agency theory			1				1				5	7
	SCM theory				2							5	7
	Organization theory		2									4	6
	Social network theory		2									2	4
	Coordination approach								2	1			3
	Grounded theory											3	3
	Social relations/embeddedness							1				2	3
	Value network theory			1		1							2
	Green Supply Chain Managemet											2	2
	Capacity development theories	1											1
	Classical microeconomic theory											1	1
	Cognitive evaluation theory		1										1
	Collective agency theory			1									1
	Conflict spiral theory											1	1
	Finance redistribution theory				1								1
	Formal inventory theory											1	1
	Information economics theory					1							1
	Institutional theory											1	1
	Labour process theory				1								1
	Marketing theory				1								1
	Neyman–Pearson theory											1	1
	Opportunistic behavior											1	1
	Point values theory									1			1
	Property rights theory											1	1
	Resource advantage theory	1											1
	Signaling theory		1										1
	Social structural theory											1	1
	Theory of exchange											1	1
	Theory of global commodity chains			1									1
	Theory of merchandise buying behaviour					1							1
	Theory on interorganisational trust	1											1
	Not specified	5	4		11	2		4	6	5	5	10	52
	Grand Total	35	23	18	16	12	11	9	8	7	7	55	281

Table 2.6. Decision-making mode

How is this decision made?	Frequency
Individual	23
Joint	153
Not identified	49

In Table 2.6, the row "not identified" means that the paper does not specify what kind of supply chain decision being observed, or that the paper does not specifically address detailed decision-making aspects in organizations, even though it does discuss the power aspects.

2.4 Discussion

Throughout the set of 281 reviewed journal articles, we find that supply chain related decisions have been discussed and associated frequently together with power aspects. The key observation is that power can have managerial consequences, one of it being the way companies make supply chain decisions. Below, we will draw the insights from these reviewed articles. We provide a synthesis of the literature on the role of power in inter-organization decision making and discuss the gaps in the literature that provide opportunities for new research.

2.4.1 Supply chain decisions: recurrent themes and domains

Although the notion of power is prominent in the B2B supply chain literature, few have been explicitly addressing the mechanics of power in a collaborative decision-making process. In this section, we investigate in depth how actors approach each supply chain decision provided an initial perception of power structure. To do that, we first list the type of most frequent supply chain decisions that occur in our database (see Table 2.7). Then, we further observe the sequences and characteristics of each of these decision processes, along with their vulnerability to power.

In greater detail, below we elaborate some of these decision types along with examples on how power structure may influence these decision-making processes and outcomes.

Pricing decisions

Pricing is the most frequent decision found throughout the reviewed articles, and it might also be the most frequent decision faced by companies on a daily basis. Throughout the literature, the pricing decisions have been mostly studied using game theoretical models. In these models, a given set of scenarios dictates the context of the power structure where these decisions are made. In many articles, the effect of power structure on pricing, price sensitivity, and profitability is studied within the given scenario where the manufacturer has X bargaining power and where the buyer has Y bargaining power and a proposition of a price scheme (Ertek & Griffin, 2002).

Table 2.7. Supply chain decision types

Decision type	General description	Frequency
Pricing	Pricing is the process through which manufacturers calculate what they will get in return for their goods. Pricing is determined by a variety of elements, including production costs, raw material costs, and profit margins.	58
Sourcing & procurement	Sourcing is the act of locating commodities or services, enabling the planning of future procurement requirements, avoiding potentially risky scenarios that might jeopardize the operational functioning of production.	29
Product	Product decisions center around physical attributes of goods e.g. design, size, quality, specifications, lifecycle, range of products, packaging, as well as additional services related to the product.	15
Investment	Investment decision refers to how a firm's funds are invested into various assets to maximize returns for investors.	14
Alliance	Alliance decision centers around forming a long-term relationship based on mutual goals, such as to boost capabilities and flexibility, to gain technical input, to gain accurate planning, to secure demand, and to lower overall buying costs.	11
Sustainability	Sustainability decisions refer to areas such as design, operations, sourcing and logistics where firms integrate environmental efforts as well as social concerns into their decision making.	10
Quality	Decisions on quality refer to setting up minimum standardization or design for products and services and ensuring mechanisms to monitor performances so that they satisfy target indicators and customers	9
Inventory	Inventory decisions uses the information of of raw materials, currency, and completed commodities, to eliminate cash flow problems and to minimize the likelihood of inventory shortages due to fluctuating demand.	7
Marketing channel	The decision of marketing channels entails the selection of channels that will be assigned the responsibility of transporting goods of value from manufacturer to customer.	6
General decisions	The term general decisions here is used to label supply chain decisions across the studies that did not mainly focus or literally state any specific decision, leaving out the details of what decision is actually being discussed.	45

Game theory is employed to solve the competitive pricing problems in the supply chain (Ma, Cheng & Ke, 2018; Jafari, Hejazi, & Rasti-Barzoki, 2017). The main goal is to help consider a sustainable supply chain management viewpoint that will be optimal for both the buyer and the seller. This is helpful to build optimum pricing strategies to increase profit margins for the entire supply chain under different power structures, both in horizontal and vertical context of relationships (Luo, Chen, Chen, & Wang, 2017) and in face of relationship uncertainty (Gupta, Biswas, & Kumar, 2019). However, in some cases, game theory is also employed to discover the conditions where first-mover may benefit the most (L. G. Chen, Ding, & Ou, 2014).

Among the reviewed articles, S. Chen, Wang, Wu, & Ni (2017) introduced the notion of pricing power. This power reflects to the condition where a company acts as the leader of the Stackelberg wholesale price decision, a model where an actor makes the decision first before another actor who follows suit. Other than Stackelberg models, pricing decisions are also studied, throughout game theoretical settings, using Nash equilibrium models when both actors can make decisions simultaneously, independent from one another.

Decisions of quality and standardization

The notion of quality appears across the reviewed articles in different forms, such as traceability, safety, a compliance to a certain quality standard. Quality is considered to be one of the resources where power could stem from. Quality as resources refer to various aspects depending on the industrial sector. For example, in the farming industry, quality is seen in the scale of the farm, the distance from the contractors, and the quality of the farm yields (Fałkowski, Malak-Rawlikowska, & Milczarek-Andrzejewska, 2017).

Improving quality aspects is believed to be a way to improve the bargaining position within the supply chain. For example, the bargaining position of a given agent may result not only from its position to both the downstream as well as upstream sectors, but also the quality of farm throughput, along with other subjective factors such as actual farm performance and also the quality of relationship with collaborators (Swinnen, 2007; Sauer et al., 2012; Gorton et al., 2015).

Past research has tested whether quality is a leverage to get what an actor wants, such as higher price. This leads to a perception that one can demand and might get a higher price when the quality of their products are better than the horizontal competitors'. Through econometric modelling, it is indicated that farmers who regard themselves as having a fairly "powerful position " in the food chain stemming from their products quality earn a higher milk price from dairy firms (Fałkowski et al., 2017). However, this perception that solely quality can lead to a more powerful position might overlook some pitfalls and other key resources needed to develop.

Nevertheless, the relationship between decision-making in quality improvement and power structure remains an important aspect worth observing. Past studies found that supplier and buyer are more contingent toward each other if the buyer's production quality is dependent on the components from supplier (Pai & Yeh, 2016). In another example from the retail industry, it is found that private labels' prices and sales are not affected with major brands' competitive pricing strategies, because of private labels' known quality that generates customer loyalty. Customers are willing to pay for the perceived quality, stemming from the quality maintenance efforts and supported by marketing efforts (Wu, Chen, & Hsieh, 2012)

Although quality is believed to be the resource advantageous for bargaining power, some other studies indicate an opposite direction of the relationship. In other studies, it is indicated that power might be one of the factors that shape the decisions concerning the quality of product throughput. The intertwined effects of power structure on five aspects of supplier performance (cost, quality, delivery, flexibility, and innovation) is, for example, studied by (R. Terpend & Ashenbaum, 2012). The competitive landscape across industries demand that actors offer premium products at competitive price (Ramabulana, 2011).

Within the agriculture industries, for example, when a geographical indication standard is implemented, an extra public eye governance takes place along the supply chain, which requires companies to reallocate and refine quality standards between the public and private governance layers in order to prevent redundancies and to implement more consumer-oriented governance structures in dyadic ties. These changes might take place as actors attempt to balance one another with the private and public layers of governance (M. Fernández-Barcala, González-Díaz, & Raynaud, 2017).

Such quality standards, imposed by not only business counterparts but also by the market, is inevitable, despite the apparent local variability and heterogeneity in agriculture industry. Additional pressure on farmers to adjust their production systems becomes an issue worthy addressing (Ireland, 2004). Such an issue raises questions as to whether or not producers are being involved in a particular formation of specific standard, and whether or not they are merely the ones who suffer forced certification as a victim of powerful players who would like to give barrier to entry (Mithöfer, van Noordwijk, Leimona, & Cerutti, 2017). Another paper also addresses this question to discover the objectives of rigorous quality standards imposed by major brands as a power play aimed to control access to market, as opposed to the public reaction towards consumer safety and quality standards (Thompson & Lockie, 2013).

These findings on quality decisions and its relationships to power structure leads to another question to explore. If access to market signifies power, one can argue whether their unique access to market can influence or dictate other players in the chain as well as the competitors to follow a specific quality standard in order to create an additional barrier to market. In short, power associated with market access might influence the way other actor's build their product quality.

Investment decisions

The theory of transaction costs suggest that the hazards of transactional exchanges across companies lie within the non-transferable investment specific to assets (McEvily, Zaheer, & Kamal, 2017). These relational hazards will be mitigated if a company decides to invest in building or acquiring capacities and critical resources, so that it can reduce its reliance on other actors. Understanding the importance of access to critical resources, some companies proactively and unilaterally make investment decisions. Some manufacturers, for example, generate green products and make investments in green products independently, choose carbon emission reduction technologies, decide the wholesale price of these products and the greenness level of these in order to optimize their own profits (G. Liu, Yang, Wei, & Zhang, 2018)

However, investment decision-making sometimes is influenced in a coercive manner. It can be influenced by the power of a consolidated market, see for example (Amanor-Boadu & Starbird, 2005). The low number of actors affects the power structure of the relationship, leading several industry actors to feel that they have to engage in specific interactions due to insufficient viable alternatives. Similar attitudes have been observed among vendors in sectors with strong downstream

consolidations and restricted alternative partnerships (e.g., automobile, clothing, personal computers and agro-industries) which influences the investment decisions in relationship-specific resources, thereby impacting the willingness of suppliers to fulfil the relationship-specific standards requested by their downstream collaborators.

Decisions on sustainability efforts

Decisions on sustainability efforts relate to product characteristics such as quality, traceability and sustainability which influences quality, safety, cost and sustainability concerns (Mena, Humphries, & Choi, 2013). It also relates to trade-offs between sustainability efforts and (environmental / sustainable) value creation (Brennan & Tennant, 2018). Power could influence the way companies make decisions on sustainability efforts (Xue & Zhang, 2018); (Dauvergne & Lister, 2012); (Sheu, 2014). Also, power affects how actors manage their interactions and how it influences organizational reactions to the execution of sustainability efforts (A. Touboulic, Chicksand, & Walker, 2014). Here, power dependence is important for recognizing compliance in sustainable supply chains and for defining effective relationship strategies for creating more efficient supply chains.

Sustainability efforts could develop a source of power, for example, through marketing features (environmental image, brand recognition, advertising) as referent power sources (Gielens, Geyskens, Deleersnyder, & Nohe, 2018). Sustainability can be an important, scarce, idiosyncratic and non-replaceable asset, a source of competitive edge (S. Chen, Wang, Wu, & Ni, 2017). It is also indicated to have positive impact on the profitability of the company who executes sustainability efforts. With the extent of consumer awareness of the environment, the degree of greening of the commodity will increase, affecting the profit margin and total income of green manufacturers (S. Chen et al., 2017)

Other supply chain decisions

Other operational and strategic decision-making which involve the inclusion of power structure in a dyadic settings discussed in the reviewed articles are displayed in Table 2.8.

During the last decades, these supply chain decisions have been increasingly investigated as the result of power play in a B2B context. Despite the extensive work in providing examples of decisions, the extant literature still poorly addresses fundamental questions of power. New research is needed to understand the mechanics of power beyond the current general assumptions.

Table 2.8. Other supply chain decision domains

Supply chain decision area	Supply chain decision terminology	References
Related to the provision of materials	Supplier selection	(Perry, 2014), (Brooks, 2017)
	Procurement	(Sanderson, 2009), (Ireland, 2004), (Sheu, 2014), (Love, 2005), (Hingley, 2008), (Cox, 2002), (Jain, 2016), (Dey, 2018), (Essabbar, 2014)
	Purchasing	(Finne, 2015), (A. K. V. Kähkönen, V. M., 2011), (Mysen, 2012), (Jafari, 2017)
	Sourcing	(Ireland, 2004), (Burch, 2013), (Dauvergne & Lister, 2012), , (R. Terpend & Ashenbaum, 2012), (Pai & Yeh, 2016), (A. Cox, 2004a), (A. Cox, 2004b), (A. W. Cox, G.;Lonsdale, C.;Sanderson, J., 2004), (Stanczyk, 2015)
	Outsourcing	(Ibrahim, 2018) (Bian, 2017) (Angkiriwang, 2014) (Pinnington, 2009), (Watson, 2004),
Related to the keeping of materials	Inventory	(Sharifi, 2006), (Ferguson, 2003), (Tyan, 2003), (Ryu, 2008), (Ertek, 2002), (Takashima, 2016), (Wang, 2013), (Dey, 2018), (Bichescu, 2009), (Tao, 2018), (Seyedesfahani, 2011)
	Safety stock	(Angkiriwang, 2014), (Zhai, 2017)
	Stock level	(Rehme, Nordigården, Ellström, & Chicksand, 2016), (Kembro, 2017)
	Replenishment	(Wang, 2013)

2.4.2 Conceptual framework

Building on the results and discussion above, we propose a conceptual framework that is sufficiently supported by the collective findings and concepts across our database. Empirical research will be needed to further test a number of hypotheses that could guide future studies. We propose the following:

1) ***In a B2B context, power structure influences the structure or process of supply chain decision-making***

In the context of inter-organizational power hierarchies, the theory of power relations states that power, which is rooted in the interdependence of organizations, dictates how an actor behaves, how relational rules emerge, how tasks and roles are defined, and how hierarchies and statuses are labeled (Emerson, 1962). Based on our observations in the previous sections, it is implied across literature that power, which refers to various power sources and power bases, may also influence the choice between a collaborative and a joint decision-making process. In other words, we hypothesize that these decision-making mechanisms do not solely depend on the domain of decisions and the number of decision-makers involved—beyond that, power structure might also play a substantial role in shaping how decision-making processes works.

Another strategy for analyzing the likely effect of power on inter-firm decisions is to use a game theory approach as in Bacharah and Lawler (1981). In a prescriptive sense, game theory research may provide an interesting perspective on power, in which power sources are used as a tool to achieve a desired objective in negotiations. Given this understanding, it is acceptable to believe that the structure of power affects decision-making, or that the two are linked in some way.

One interesting topic we propose to investigate in the future is if a company's choice to involve other supply chain partners in supply chain decision-making is contingent on their existing power structure. As drawn from Emerson's power-dependence thesis, which implies that power exercise may draw a diversity of reactions from another party, these reactions could manifest into several behaviour, e.g. resistance or acceptance. It is worth examining whether the choice of accepting or refusing collaborator to involve in a joint decision-making would vary depending on perceived power structure, and ultimately, whether each choice leads to different outcomes.

2) ***In a B2B context, supply chain decision-making structure influences the decision outcome***

Throughout the literature, it is understood that the decision-making process comprises many steps, which are: identifying the issue; obtaining information; developing possible solutions; assessing these options; adopting an action approach; and executing it (Witte, Joost, and Thimm, 1972). Schwenk (1984) adds 'goal formulation' phase into the above process and categorizes the whole process into four phases: goal formulation, problem identification, creating possible solutions, and evaluation or selection. Further, Hossler and Gallagher (1987) describe three stages of the decision-making process: predisposition, search, and decision-making. Despite this exploration of phases in decision making process, however, there is a lack of discussion on how the decision-making process and its phases manifests itself differently across various inter-firm relationship structures.

Our study is inspired by Mintzberg et al. (1976) who examined the various structures of decision-making. The structure here refers to how the decision-making process cascades across organizational setting or hierarchy. In decision-making structures, the concerned decision-makers have agreed upon a set of explicit 'ordered responses' or involvement actions for a familiar decision that has been encountered in the past within the same relationship structure. Mintzberg also proposed variables to assess decision-maker involvement levels: (1) the phase in which they engage—is it early or late? (2) their degree of effort—are they willing to commit and execute? (3) how decision-makers perceives their effort, and (4) how frequently they participate in a decision phase.

Adding into this the notion of decision-making structure, we focus on joint decision-making to illustrate how decision-making processes flow through a collaborative relationship. It is worth investigating to what extent the involvement levels differ among decision-makers and how task involvements are assigned. We assume that companies involved do not always participate in the entirety of decision-making process, such as from problem identification through the final execution of and monitoring of the decision. For example, in a certain decision domain such as sourcing, company A as manufacturer may be interested to develop all feasible alternatives and weighing each of them with their own criteria e.g. price and quality requirements, before making the final decision. In this domain of decision, company A may not want to allow company B, their supplier, to be involved prematurely when setting the selection criteria. Only after the criteria and alternatives

shortlisted, company A hands over the shortlist to company B and requests that company B assess the possibilities according to company A's stated criteria using their particular skills and knowledge.

Another scenario that might happen is that company A makes a decision of another domain, such as calculating the selling price. In this decision, company A decides to completely exclude company B to participate because, based on company A's perception, company B's participation will risk exposing their cost structure and inequitable margin, and thus may not add much value to their profitability as decision outcome. In this scenario, a joint decision-making does not happen and it counts as an individual supply chain decision. Thus, these differences between making decisions individually versus jointly may lead to differences of outcomes.

3) In a B2B context, power structure may influence the supply chain decision outcome (and reversely)

Wilkinson (1981) believes that the level of satisfaction between two supply chain decision-makers may be impacted by the power balance between them. Since satisfaction level of decision-makers is one of the indicators measured upon the execution of outcome, it is consequently reasonable to propose that power, in a collaboration context, may impact the structure of decision-making as well as decision outcome.

Once plausibility has been investigated and tested, decision makers can benefit from it by building deeper awareness and judge whether they see power structure as a leverage or as a threat. Eventually, decision makers may reflect and evaluate the outcome of decision-making, providing insights that entice them to improve their decision-making structure and, ultimately, to shift their power structure which governs their relationships. As Driscoll (1978) put it, the decision maker's degree of satisfaction with the decision-making process may be gauged ex post. Decision makers may ask themselves whether the decision-making process was beneficial to them and whether they would alter the process in the future, and if so, what do they wish to achieve differently and how. For example, decision makers may wish to have more control in bringing consensus, enticing commitments, managing disputes, reducing resistance, and mobilizing actions with their collaborators. This desire to control possibly stems for the need to have more predictable and reliable decision outcome. It will encourage them to rethink their political design of power structure and perhaps create a strategy to alter that into something more advantageous. If both the tangible (e.g. profitability, efficiency) and intangible (e.g. satisfaction level) outcomes of decision-making are not as expected, for instance, this will provide grounds for decision-makers to invest in power shifting efforts to gain the most value out of their relationships.

Figure 2.5 summarizes the above considerations.

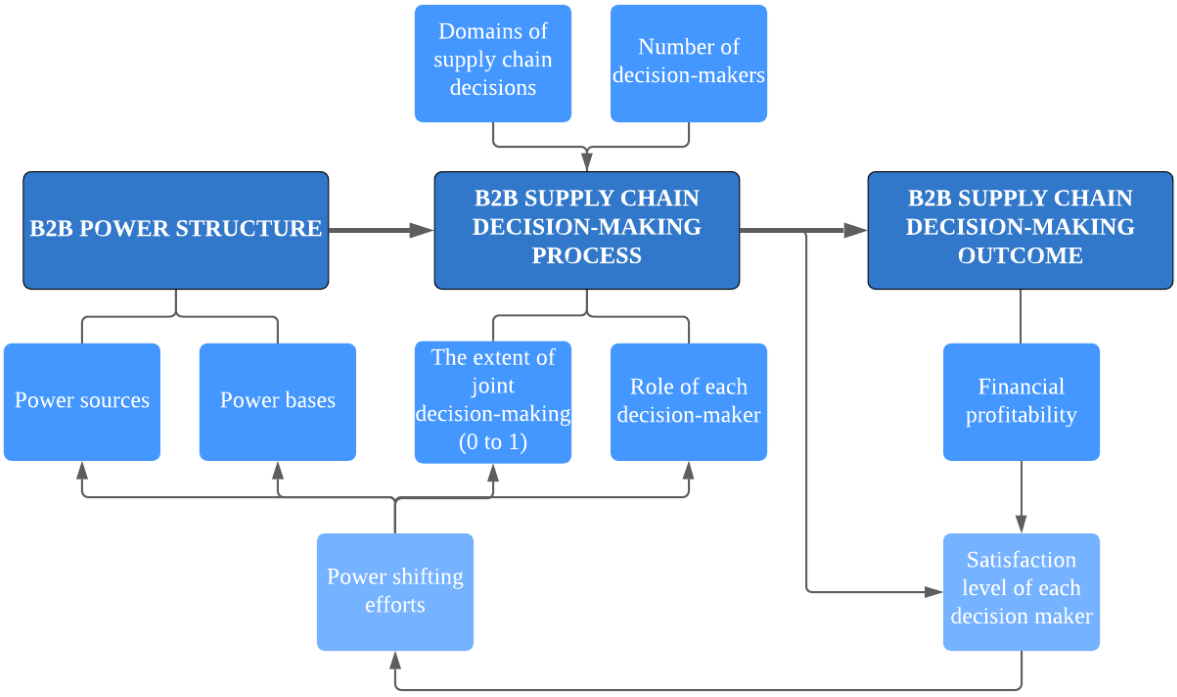


Figure 2.5. A representation of the power-decisions relationship framework

2.4.3 Research gaps and ways forward

Throughout the literature review, several growing interests have been identified. Below we categorize these interests into seven major themes, and provide a research agenda for each theme.

Theme 1: The formation and evolution of power relationships

The notion of power is closely linked to the resources of a company. Those with more resources are usually the ones who benefit from a more powerful position relative to its buyer or its supplier (Shou, 2013). There have been examples where actors with upper hand position in resources attempt to benefit from their power even when it is at the expense of others. (Weston & Robinson, 2008) suggest that the one who owns resources, such as privileged information about end users, and whose core competency involves high level management skills will have more control throughout the supply chain, including the distribution of benefits. (Watson, 2004) also suggests that circumstances such as uncertainty and high levels of pre- and post-contractual risk are the underlying drivers to why a powerful actor reinforces its power over another actor. This is done through various means such as value appropriation and forcing other actors to bear costs upfront.

Resource dependence theory (Pfeffer & Salancik, 2003) helps to illuminate this phenomenon and explains why those with resources can capture more value from transactions. This theory indirectly highlights the importance for firms to look at themselves, examine, and break down all the potential resources they can leverage as power over other members in their supply chains. Ultimately,

the goal should be to have control on how to evolve in a certain power relationship so that it leads to a more desirable business outcomes.

However, shifting power balance is not always a priority according to a less powerful actor, at least in a short term relationship. Those who decide to stay in a non-favorable power relationship may have different reasons, mainly to survive as a business and to maintain a membership in a supply chain. Ideally, if weaker actors want to improve marginal profit, it only makes sense in the long term for them to explore ways to develop power to influence other supply chain members.

The literature has provided a few examples on how to shift this power balance. A first step that a weaker actor can take is to exploit the vulnerabilities of their more powerful counterpart, through examining contract which nature is usually open to updates and reinterpretation (Tokatli, 2008). A second step could be to develop and encroach a core competence of the more powerful actor. For instance, Tokatli (2008) provides an account on how one of a dominant designer clothing retailer's supplier transformed itself into a strong competitor, by outdoing the retailer's strength in branding skills.

In a supply chain context, there is no such thing as an ideal, rigid form of relationship. There is always a fluid process of relationship formation, and this process is subject to change. The changes in a supply chain relationship depend on several factors, such as changes in marketplace environment, in organisation and also in key actors. Therefore, to understand a supply chain relationship, it is important to explore the possibilities of these changes (Hogarth-Scott, 1999).

Research agenda 1: One of the potential factor of change in a supply chain relationship worth studying is how actors attempt to balance out power through strategic decisions.

Theme 2: Who leads the decision-making process in a power relationship?

When it comes to game theory research, there is no notion of stronger and weaker actors. Instead, the opposites are called the dominant leader and the follower. The dominant leader is always the one who decides first, depicting what the real-life stronger actor would do in a decision-making.

Nevertheless, past studies indicate that not only a leader or those who take the first step in a decision making can reap most benefits. In some cases, a leader of a supply chain is incentivized to purposefully act as a follower, by making a decision in the second step after compelling the other actor to make the first step to be in charge with a decision (Tao, 2018).

Research agenda 2: Further studies may benefit from exploring the incentives and risks of different decision-making sequences, and how these sequences take place in face of an existing power regime.

Theme 3: How profit distribution changes when power shifts

In marketing research, some studies have been conducted under the fixed assumption that manufacturers are the leader, and the retailer is a follower. Meanwhile, some studies convey the opposite assumption. We propose that these rigid assumptions are challenged. Since power is fluid and can be manipulated through intervention, power can shift from manufacturers to retailers, and vice versa.

When a firm is more powerful than the other actors in its channel, it is generally assumed that it will reap more marginal profit than the counterpart. However, this is not always the case (Edirisinghe, 2011). (Shi, 2013) suggests that this assumption only holds when the demand model has a linear expected demand, not a constant elasticity demand. When the latter model is in place, a firm experiences a declining performance if they become more powerful in its supply chain. This means that demand model will decide whether a powerful firm will gain more profit out of the power position, and, if yes, when.

In game theory research, it is also expected that in leader-follower models where power is imbalanced, the dominant leader who possesses more power will earn more profit than the follower. However, this assumption has not considered any external influences outside the scope of dyadic transaction. (Patra, 2018) provides an example of a greening improvement decision, where the profit of a leader retailer is a function of not only the greening investment by its manufacturer, but also its customer sensitivity to both greening improvement level and increased prices. This indicates that power relationship may not be the only thing that dictates how profit is distributed among actors.

In general, it is assumed that the weaker actor in a power imbalanced relationship always bears more costs or is less lucrative than the powerful counterpart. However, (Crook, 2007) suggests that this is not always the case. Crook (2007) argues that the weaker member of a supply may also benefit from the relationship, especially when there is a reciprocal task interdependence. Unlike a sequential task interdependence where a powerful actor tends to have more room to exercise its power, a reciprocal, pooled task requires both actors working on it at the same time. A weaker actor may also benefit from a relationship when they develop a switching cost. Once the more powerful actor gets accustomed to a particular product or service, it strengthens a weaker actor's leverage of switching cost, making a powerful actor reluctant to change. A weaker actor can also deliver a good performance as a member of other relationships outside the focal chain and leverage this membership to get better SCM gains.

Power structure in supply chains is not always adversarial for the weaker actor. On the contrary, it can also positively influence the optimality of profits and supply chain decisions for both actors (T. Zhang, Guo, Hu, & Wang, 2019). In a game theory setting, (T. Zhang et al., 2019) studied that when an invested cost information of a follower is known by a dominant leader, the dominant leader may therefore stimulate the follower to modify or increase their investment by sharing his cost,

therefore maximizing the overall supply chain profit margin. This creates a win-win situation favourable for both actors.

Meanwhile, some powerful firms recognize how exercising power can compensate for the vulnerability of their supply chain in retaining profits. In the study about Apple financial growth, (Haslam, 2013) explains that the profit of Apple is a function of power exercise over its suppliers by leveraging its outstanding market share. By looking at the percentage of revenue Apple represents in their suppliers, Apple is aware of the diversity of power relationships with its suppliers, thus the extent of power exercise is also dynamic and adjusted to how powerful a particular supplier is. Foxconn, for example, is dependent on Apple to bring 50% of its revenue, while another supplier Molex only receives 5% of its revenue from Apple. The extent of cost distribution in value creation and also value capture is different when Apple deals with a powerful supplier, Samsung, than when they deal with a financially limited supplier and app developers. By examining Apple's financial performance, one can see that the value capturing business model of Apple is the main contributor of its transformational financial growth. This practice, however, may leave a few suppliers suffer thin margins and force them to offshore to a lower cost regions to maintain profits.

When discussing power balance and its impact to SCM gains of its members, it is noteworthy that the focus should not stay in the idea of sharing the pie. More importantly, it is important to work on expanding the pie. Although many decisions such as cost distribution in inventory, production, and transport are solved in a zero-sum approach, it may not be effective to solve other decisions concerning value creation and expansion. Product improvement and innovation should be continuous decisions shared by all concerned actors, with a dynamic distribution of tasks, investment, and also gains.

Research agenda 3: How profit is redistributed in a dynamic supply chain relationship with the ever shifting power balance thus remain a question worth addressing in future studies.

Theme 4: Self defence against adversarial power exercise

One of the remaining questions in the consequences of exercising power is why there are weaker firms who agree to collaborate in a chain even when there is only small gain, or in the worst case, adversarial impact to revenue. One of the reasons could be that it is a function of control and force exercised by another member in the chain.

However, past studies indicate that the exercise of power does not always result in an expected outcome. The success of power exercise will also depend on the preferred power bases—the way in which power is exercised. (J. Z. Chen, X.;Lewis, M.;Squire, B., 2016) found that suppliers would be more likely to share information and knowledge when they perceive a buyer to have an expert power. On the other hand, suppliers will be discouraged to share the same information if the buyer exercise a coercive power to get it instead.

For the weaker member of a chain, it is important to prepare a preventative measure to hinder the powerful member in exercising control. Product category, for example, may influence the extent of power exercise in a SCM relationship (Sutton-Brady, 2015). In their studies, it is argued that a strong product portfolio and brand name may balance out retailer power over its weaker manufacturer. It will also hinder big retailers to exert maximum power knowing that they depend on certain product brands and product categories more than the other. It is particularly relevant in cases of FMCG retail where retailers are generally not averse to exercising coercive power to get more SCM gains.

Research agenda 4: It is critical to investigate preventive methods that may be used to divert the exercise of absolute power and to safeguard the benefits of a weaker actor.

Theme 5: What hinders firm to make a certain decisions?

(Franco, 2017) suggests that relative power is one of the factors that determines the level of attractiveness of a supply chain member to make joint decisions in radical transformation and innovation. The study provides an account of how a company is reluctant to co-innovate and transform its linear production line to a circular one when there is a huge power gap with its partner. This may become a concerning issue especially when there is already a shared vision in place, but power perception gets in way of co-innovating.

Research agenda 5: It is worth studying the repercussion of power exercise and relative, asymmetrical power perceptions in the efficiency of joint decision making.

Theme 6: Why are different power structures needed to govern different market and products?

To govern different products and markets with different characteristics, different power structure might be needed. Past studies highlight the assumption that a power strategy that works with one market/product might not be suitable for another market/product. For example, when it comes to a geographical indication (GI) product (e.g. prosciutto ham, champagne, Gouda cheese), the power of public quality control is added within the GI supply chain. The public quality control plays the role of an intermediary power between a country (supplier) and a private firm (buyer), such that the interaction is driven by market-orientation (M. G.-D. Fernández-Barcala, M.;Raynaud, E., 2017). This changes the power structure entirely compared to the typical commodity and food retail supply chain due to an addition of intermediate actor between buyer and supplier.

The following is another example of power structure change that is needed when it comes to influencing a certain product decision. Dey (2018) suggests that for producing greener products, where its marginal cost may be higher than its developmental cost if compared to other general existing products, a powerful retailer may not have a great influence over a manufacturer to decide the product greening level. Oppositely, in a manufacturer-led Stackelberg game, retailers are allowed

to retain their strategic inventory therefore improving the marginal profit of both actors while improving the product greening level. These examples show that when there is a power imbalance, the weaker actor will comply in providing greener product as asked by the more powerful actor. Interestingly, in a Nash equilibrium, the marginal profits for either of both actors are suboptimal. This means that for producing greener products, an extent of power imbalance is better than a total balance, even when this is not the case with other existing products where power balance might lead to more favourable outcome.

In supply chains of agriculture and forest products, which general characteristics is that it is produced by rural agrarian farmers, it is also important to recognize the power structure. The concept of a nested market, where actors isolate themselves from global market to conduct transactions locally, is then introduced to empower local actors to as a self-protection mechanism. This, in turns, balances out the power relations within the supply chain (Grivins, 2018) because one giant, powerful actor, is deliberately dismissed from the equation.

Research agenda 6: More research is needed to understand the adapted changes needed to be done in buyer-seller power structure depending on the characteristics of market or product concerned.

Theme 7: On conflict management

Conflict is likely to happen in a power imbalance setting. To reduce conflicts, it is necessary to examine the triggers by which conflict may arise. Generally, in both vertical and horizontal relationships, a collaborative decision making is preferred. (Wallenburg, 2016) suggests that joint action is considered effective in conflict reduction when power is symmetrical. On the other hand, information sharing being the less invested form of collaborative action is equally effective to reduce conflicts in a cooperation with asymmetrical power.

One of the main origins of conflicts in an asymmetrical power situation is the over-dependence on another or more actors (H. W. Liu, Y. P., 1999). On that note, it is important for an actor to avoid over-dependence. In the case of a manufacturer, this means building a direct sales channel that does not require a distributor to interact with customers and end users. This can also be done in parallel with the use of the designated distributor services at the same time. (H. W. Liu, Y. P., 1999) added that unclear formalisation of business contract is also another origin of potential conflict. To address this issue, it is worth noting that all actors in a relationship should know what is expected of them by one another in a congruent manner. All perceptions and working conceptions (e.g. market information, product range, and functions) need to be made congruent as much as possible.

Research agenda 7: Beyond aiming to achieve optimal outcomes out of a relationship, both buyer and seller in a B2B setting need to adapt with all forms of power structure, both symmetrical or asymmetrical, such that potential conflicts can be mitigated. More studies are needed to explore the

potential conflicts, consequences of these conflicts on supply chain operations and ways to manage these conflicts, given a certain structure of power.

2.5 Conclusion

The paper presents an analysis of the literature and conceptual framework, addressing the interaction between the power structure and supply chain decision-making. To conduct this study, we used text analysis and network visualization of significant themes and keywords, examining 281 peer-reviewed research articles published in peer-reviewed journals between 1994 and 2020. A thematic analysis was carried out to identify research gaps and to track the growth of the literature. We find that when it comes to business-to-to-business (B2B) interactions, power structures have a big role in how companies make decisions. A business may use power derived from a variety of sources to influence the course and the result of supply chain decisions. We were able to address different ways in which power works and also identify the most common decision domains in the organizational power literature: price, quality management, sustainability and alliance building.

Further, we examine previous research indicating the plausible influence of power structure on supply chain decision-making. We also identify predominant terminology and theories used in the literature to discuss power. We have highlighted the impact of the inter-organizational power structure on supply chain decision-making, both in terms of decision process and decision outcome. In addition, we find which recurring supply chain decision areas that have been discussed most often across the literature.

With this article, we aim to make a contribution by giving a clearer picture of how power structures affect supply chain decision-making and by suggesting 7 new topics and research objectives for further study as potential directions for future investigation. This research should aid managers and decision-makers in better understanding the power structure in the supply chain. It may assist managers in seeing potential risks or opportunities that may have an impact on future choices about the supply chain.

The literature indicates that supply chain-related decisions are subject to various power influences and power structures that govern the actors. We are not aware of any empirical studies about when and how actors get involved in joint decision-making, especially when power imbalances exist. Game theory research does work with assumptions about decision sequences between actors. Although numerical analysis can be used to predict how phases of decision-making vary under different conditions of power balance, it appears that more empirical work is needed to measure and validate the comprehensive assumptions made in game theory research. One could address detailed questions challenging usual assumptions made in game theory concerning the influence of power on decision-making processes. This could be a potential avenue for future researchers to explore. Here, relationships between power sources and perceptions, decision-making process and decision-making

outcomes should be investigated, especially in the case of extreme power imbalance between companies across various industries.

This paper also highlighted the important gaps in the power structure research in supply chain context. There has been a lack of exploration in the potential aspects of power such as:

a) Actors' misperceptions of power structure circumstances à how accurate is the actor's self-perception of power structure compared to the reality? How could actors tell if their power is balanced enough or imbalanced?
b) Power-shifting tactics and actions to achieve goals à how might accurate perception of power help actors to formulate power tactics suitable for their supply chain goals?

Finally, we propose a research agendas with hypotheses to be tested on the following topics:

1) The way actors try to balance power via strategic choices is an important driver of change in a supply chain relationship.
2) The incentives and threats of various decision-making sequences and how they take place in face of an existing power system.
3) The issue of how profit is shared in a dynamic supply chain relationship with a constantly changing power balance should be investigated.
4) Identifying preventative measures to deflect the use of absolute power and protect the interests of a weaker actor is important.
5) How unequal power perceptions and exercise have an impact on joint decision-making efficiency.
6) How power structures shift or adapt so that they suit the need of certain market or product in question.
7) The effects of conflicts on supply chain operations and how to manage them in light of a particular power structure.

Further studies are needed to address these questions and provide empirical evidences to develop the existing organizational power theories, as well as to contribute to the knowledge for practitioners.

References

Amanor-Boadu, V., & Starbird, S. (2005). In search of anonymity in supply chains. *Journal on Chain and Network Science, 5*(1), 5-16. doi:10.3920/JCNS2005.x050

Angkiriwang, R. P., I. N.;Santosa, B. (2014). Managing uncertainty through supply chain flexibility: reactive vs. proactive approaches. *Production and Manufacturing Research, 2*(1), 50-70. doi:10.1080/21693277.2014.882804

Bacharach, S. B., & Lawler, E. J. (1981). *Bargaining: Power, Tactics and Outcomes.* Jossey-Bass Inc., 433 California Street, San Francisco, CA 94104.

Bian, J. L., K. K.;Hua, Z. (2017). Service outsourcing under different supply chain power structures. *Annals of Operations Research, 248*(1-2), 123-142. doi:10.1007/s10479-016-2228-y

Bichescu, B. C. F., M. J. (2009). Vendor-managed inventory and the effect of channel power. *OR Spectrum, 31*(1), 195-228. doi:10.1007/s00291-007-0102-7

Boeck, H. F. W., S. (2008). RFID and buyer-seller relationships in the retail supply chain. *International Journal of Retail & Distribution Management, 36*(6), 433-460. doi:10.1108/09590550810873929

Brennan, G., & Tennant, M. (2018). Sustainable value and trade-offs: Exploring situational logics and power relations in a UK brewery's malt supply network business model. *Business Strategy and the Environment, 27*(5), 621-630. doi:10.1002/bse.2067

Brooks, S. L., A.;Spence, M.;Elliott, C. T.;Dean, M. (2017). Pragmatic engagement in a low trust supply chain: Beef farmers' perceptions of power, trust and agency. *Competition and Change, 21*(2), 114-131. doi:10.1177/1024529417691053

Brown, J. R., Lusch, R. F., & Muehling, D. D. (1983). Conflict and power-dependence relations in retailer-supplier channels. *Journal of retailing, 59*(4), 53-80.

Brown, James R., Robert F. Lusch, and Carolyn Y. Nicholson (1995), "Power and Relationship Commitment: Their Impact on Marketing Channel Member Performance," Journal of Retailing, 71 (4), 363-92

Burch, D. L., G.;Hattersley, L. (2013). Watchdogs and ombudsmen: Monitoring the abuse of supermarket power. *Agriculture and Human Values, 30*(2), 259-270. doi:10.1007/s10460-012-9412-8

Cai, S., Goh, M., de Souza, R. and Li, G. (2013) 'Knowledge sharing in collaborative supply chains: twin effects of trust and power', International Journal of Production Research, Vol. 51, No. 7, pp.2060–2076.

Caniels, M. C., & Gelderman, C. J. (2005). Purchasing strategies in the Kraljic matrix—A power and dependence perspective. *Journal of purchasing and supply management*, *11*(2-3), 141-155.

Casciaro, T. and Piskorski, M. (2005), "Power imbalance, mutual dependence, and constraint absorption: A closer look at resource dependence theory", Administrative Science Quarterly, Vol. 50 No. 2, pp. 167–199.

Cousins, P.; Crone, M. Strategic models for the development of obligation based inter-firm relationships. *Journal of Operations and Production Management,* Bradford, v. 23, n. 12, p. 1447-74, dez. 2003.

Chen, J. Z., X.;Lewis, M.;Squire, B. (2016). A Multi-Method Investigation of Buyer Power and Supplier Motivation to Share Knowledge. *Production and Operations Management, 25*(3), 417-431. doi:10.1111/poms.12421

Chen, L. G., Ding, D., & Ou, J. (2014). Power structure and profitability in assembly supply chains. *Production and Operations Management*, *23*(9), 1599-1616.

Chen, S., Wang, X., Wu, Y., & Ni, L. (2017). Pricing policies in green supply chains with vertical and horizontal competition. *Sustainability (Switzerland), 9*(12). doi:10.3390/su9122359

Chen, X., Wang, X., & Jiang, X. (2016). The impact of power structure on the retail service supply chain with an O2O mixed channel. *Journal of the Operational Research Society, 67*(2), 294-301. doi:10.1057/jors.2015.6

Cooper, M. C., Lambert, D. M., & Pagh, J. D. (1997). Supply chain management: more than a new name for logistics. *The international journal of logistics management*, *8*(1), 1-14.

Cox, A. (1999). Power, value and supply chain management. *Supply chain management: An international journal.*

Cox, A., Ireland, P., Lonsdale, C., Sanderson, J., & Watson, G. (2001). *Supply chains, markets and power: managing buyer and supplier power regimes.* Routledge.

Cox, A. (2001). Understanding buyer and supplier power: A framework for procurement and suppy competence. *Journal of Supply Chain Management*, *37*(2), 8.

Cox, A. (2004a). The art of the possible: relationship management in power regimes and supply chains. *Supply Chain Management: An International Journal, 9*(5), 346-356. doi:10.1108/13598540410560739

Cox, A. (2004b). Business relationship alignment: On the commensurability of value capture and mutuality in buyer and supplier exchange. *Supply Chain Management, 9*(5), 410-420. doi:10.1108/13598540410560793

Cox, A. I., P. (2002). Managing construction supply chains: The common sense approach. *Engineering, Construction and Architectural Management, 9*(5-6), 409-418. doi:10.1108/eb021235

Cox, A. (2004). Strategic outsourcing: avoiding the loss of critical assets and the problems of adverse selection and moral hazard. Business Briefing: Global Purchasing and Supply Chain Strategies, 67-70.

Cox, A. W., G.;Lonsdale, C.;Sanderson, J. (2004). Managing appropriately in power regimes: Relationship and performance management in 12 supply chain cases. *Supply Chain Management, 9*(5), 357-371. doi:10.1108/13598540410560748

Crook, T. R. C., J. G. (2007). Sources and consequences of bargaining power in supply chains. *Journal of Operations Management, 25*(2), 546-555. doi:10.1016/j.jom.2006.05.008

Cunningham, A., Anoncho, V. F., & Sunderland, T. (2016). Power, policy and the Prunus africana bark trade, 1972-2015. *Journal of Ethnopharmacology, 178*, 323-333. doi:10.1016/j.jep.2015.11.042

Dahl, R. A. (1957). The concept of power. *Behavioral science*, *2*(3), 201-215.

Dauvergne, P., & Lister, J. (2012). Big brand sustainability: Governance prospects and environmental limits. *Global Environmental Change, 22*(1), 36-45. doi:10.1016/j.gloenvcha.2011.10.007

Dey, K. R., S.;Saha, S. (2018). The impact of strategic inventory and procurement strategies on green product design in a two-period supply chain. *International Journal of Production Research.* doi:10.1080/00207543.2018.1511071

Dickhaut, J., Hubbard, J., McCabe, K., & Smith, V. (1995). Trust, reciprocity, and interpersonal history: Fool me once, shame on you, fool me twice, shame on me. Working paper, University of Minnesota.

Dollinger, M. J., Golden, P. A., & Saxton, T. (1997). The effect of reputation on the decision to joint venture. *Strategic Management Journal*, 127-140.

Dragojlovic, A. (2012). Mis-placed Boomerangs: Artistic Creativity Supply Chain Capitalism, and the Production of Ethnic Arts in Bali. *Asia Pacific Journal of Anthropology, 13*(3), 245-261. doi:10.1080/14442213.2012.674055

Driscoll, J. W. (1978). Trust and participation in organizational decision making as predictors of satisfaction. *Academy of management journal*, *21*(1), 44-56.

Ebers, M. S., T. (2015). What drives the allocation of specific investments between buyer and supplier? *Journal of Business Research, 68*(2), 415-424. doi:10.1016/j.jbusres.2014.06.007

Edelenbos, J., & Klijn, E. H. (2007). Trust in complex decision-making networks: A theoretical and empirical exploration. *Administration & Society*, *39*(1), 25-50.

Edirisinghe, N. C. P. B., B.;Shi, X. (2011). Equilibrium analysis of supply chain structures under power imbalance. *European Journal of Operational Research, 214*(3), 568-578. doi:10.1016/j.ejor.2011.05.008

Eisenhardt, K. M., & Bourgeois III, L. J. (1988). Politics of strategic decision making in high-velocity environments: Toward a midrange theory. *Academy of management journal*, *31*(4), 737-770.

El-Ansary, A. I., & Stern, L. W. (1972). Power measurement in the distribution channel. *Journal of Marketing research*, *9*(1), 47-52.

Emerson, R. M. (1962). Power-dependence relations. *American sociological review*, 31-41.

Ertek, G. G., P. M. (2002). Supplier- and buyer-driven channels in a two-stage supply chain. *IIE Transactions (Institute of Industrial Engineers), 34*(8), 691-700. doi:10.1080/07408170208928905

Essabbar, D. Z., M.;Zrikem, M.;Ayadi, A. (2014). Rule-based modelling of dependencies among activities in collaborative partnership. *Journal of Design Research, 12*(1-2), 32-51. doi:10.1504/JDR.2014.060933

Fałkowski, J., Malak-Rawlikowska, A., & Milczarek-Andrzejewska, D. (2017). Farmers' self-reported bargaining power and price heterogeneity: Evidence from the dairy supply chain. *British Food Journal, 119*(8), 1672-1686. doi:10.1108/BFJ-11-2016-0570

Ferguson, M. E. (2003). When to Commit in a Serial Supply Chain with Forecast Updating. *Naval Research Logistics, 50*(8), 917-936. doi:10.1002/nav.10095

Fernández-Barcala, M., González-Díaz, M., & Raynaud, E. (2017). Contrasting the governance of supply chains with and without geographical indications: complementarity between levels. *Supply Chain Management, 22*(4), 305-320. doi:10.1108/SCM-05-2016-0161

Fernández-Barcala, M. G.-D., M.;Raynaud, E. (2017). Contrasting the governance of supply chains with and without geographical indications: complementarity between levels. *Supply Chain Management, 22*(4), 305-320. doi:10.1108/SCM-05-2016-0161

Finne, M. T., T.;Eloranta, V. (2015). Striving for network power: The perspective of solution integrators and suppliers. *Journal of Purchasing and Supply Management, 21*(1), 9-24. doi:10.1016/j.pursup.2014.08.001

Franco, M. A. (2017). Circular economy at the micro level: A dynamic view of incumbents' struggles and challenges in the textile industry. *Journal of Cleaner Production, 168*, 833-845. doi:10.1016/j.jclepro.2017.09.056

Frazier, G. L., & Antia, K. D. (1995). Exchange relationships and interfirm power in channels of distribution. *Journal of the Academy of Marketing Science*, *23*(4), 321-326.

Frazier, G. L., & Summers, J. O. (1984). Interfirm influence strategies and their application within distribution channels. *Journal of Marketing*, *48*(3), 43-55.

French Jr, J. R. (1956). A formal theory of social power. *Psychological review*, *63*(3), 181.

Gaski, J. F. (1984). The theory of power and conflict in channels of distribution. *Journal of marketing*, *48*(3), 9-29.

Gao, J. H., H.;Hou, L.;Wang, H. (2016). Pricing and effort decisions in a closed-loop supply chain under different channel power structures. *Journal of Cleaner Production, 112*, 2043-2057. doi:10.1016/j.jclepro.2015.01.066

Gelderman, C. J., Semeijn, J., & De Zoete, R. (2008). The use of coercive influence strategies by dominant suppliers. Journal of Purchasing and Supply Management, 14(4), 220-229.

Gielens, K., Geyskens, I., Deleersnyder, B., & Nohe, M. (2018). The new regulator in town: The effect of walmart's sustainability mandate on supplier shareholder value. *Journal of Marketing, 82*(2), 124-141. doi:10.1509/jm.16.0276

Gong, Y., Chen, M., & Zhuang, Y. (2019). Decision-making and performance analysis of closed-loop supply chain under different recycling modes and channel power structures. *Sustainability (Switzerland), 11*(22). doi:10.3390/su11226413

Goodman, L. E., & Dion, P. A. (2001). The determinants of commitment in the distributor–manufacturer relationship. *Industrial Marketing Management*, *30*(3), 287-300.

Gorton, M., Angell, R., Dries, L., Urutyan, V., Jackson, E., & White, J. (2015). Power, buyer trustworthiness and supplier performance: Evidence from the Armenian dairy sector. Industrial Marketing Management, 50, 69-77.

Gray, B., 1989, Collaborating: Finding Common Ground for Multiparty Problem. San Francisco, CA: Jossey-Bass.

Grivins, M. T., T. (2018). Benefitting from the global, protecting the local: The nested markets of wild product trade. *Journal of Rural Studies, 61*, 335-342. doi:10.1016/j.jrurstud.2018.01.005

Guo, X., Guo, X., & Yuan, J. (2015). Impact analysis of air pollutant emission policies on thermal coal supply chain enterprises in China. *Sustainability (Switzerland), 7*(1), 75-95. doi:10.3390/su7010075

Gupta, R. B., I.;Kumar, S. (2019). Pricing decisions for three-echelon supply chain with advertising and quality effort-dependent fuzzy demand. *International Journal of Production Research.* doi:10.1080/00207543.2018.1547434

Haslam, C. T., N.;Andersson, T.;Yin, Y. P. (2013). Apple's financial success: The precariousness of power exercised in global value chains. *Accounting Forum, 37*(4), 268-279. doi:10.1016/j.accfor.2013.05.001

Hauf, F. (2017). Paradoxes of Transnational Labour Rights Campaigns: The Case of Play Fair in Indonesia. *Development and Change, 48*(5), 987-1006. doi:10.1111/dech.12321

Heide, J. B., & John, G. (1990). Alliances in industrial purchasing: The determinants of joint action in buyer-supplier relationships. *Journal of marketing Research*, 24-36.

Helin, S., & Babri, M. (2015). Travelling with a code of ethics: A contextual study of a Swedish MNC auditing a Chinese supplier. *Journal of Cleaner Production, 107*, 41-53. doi:10.1016/j.jclepro.2014.08.056

Hingley, M. K. (2005). Power to all our friends? Living with imbalance in supplier–retailer relationships. *Industrial Marketing Management*, *34*(8), 848-858.

Hingley, M. S., V.;Lindgreen, A. (2008). Differentiation strategies in vertical channels: A case study from the market for fresh produce. *British Food Journal, 110*(1), 42-61. doi:10.1108/00070700810844786

Hogarth-Scott, S. (1999). Retailer-supplier partnerships: Hostages to fortune or the way forward for the millennium? *British Food Journal, 101*(9), 668-682. doi:10.1108/00070709910288865

Hunt, S. D., & Nevin, J. R. (1974). Power in a channel of distribution: sources and consequences. *Journal of marketing Research*, *11*(2), 186-193.

Ibrahim, S. E. A., K. F. M. (2018). Opportunism and the dynamics of strategic outsourcing relationships. *Journal of Global Operations and Strategic Sourcing, 11*(2), 224-249. doi:10.1108/JGOSS-09-2017-0035

Inkpen, A. C., & Currall, S. C. (2004). The coevolution of trust, control, and learning in joint ventures. *Organization science*, *15*(5), 586-599.

Ireland, P. (2004). Managing appropriately in construction power regimes: Understanding the impact of regularity in the project environment. *Supply Chain Management, 9*(5), 372-382. doi:10.1108/13598540410560757

Jafari, H. H., S. R.;Rasti-Barzoki, M. (2017). Sustainable development by waste recycling under a three-echelon supply chain: A game-theoretic approach. *Journal of Cleaner Production, 142*, 2252-2261. doi:10.1016/j.jclepro.2016.11.051

Jain, V. K., S.;Kundu, A.;Chandra, C. (2016). Linking procurement operations to power-influence in a supply chain. *Journal of Manufacturing Systems, 41*, 201-210. doi:10.1016/j.jmsy.2016.09.001

Jap, S. D., & Anderson, E. (2003). Safeguarding interorganizational performance and continuity under ex post opportunism. *Management Science*, *49*(12), 1684-1701.

Johnston, D. A., McCutcheon, D. M., Stuart, F. I., & Kerwood, H. (2004). Effects of supplier trust on performance of cooperative supplier relationships. *Journal of operations Management*, *22*(1), 23-38.

Jonsson, P., & Zineldin, M. (2003). Achieving high satisfaction in supplier-dealer working relationships. *Supply Chain Management: An International Journal.*

Kähkönen, A. K. (2014). The influence of power position on the depth of collaboration. *Supply Chain Management, 19*(1), 17-30. doi:10.1108/SCM-03-2013-0079

Kähkönen, A. K. V., V. M. (2011). Sources of structural power in the context of value nets. *Journal of Purchasing and Supply Management, 17*(2), 109-120. doi:10.1016/j.pursup.2011.01.001

Kähkönen, A. K., Lintukangas, K., & Hallikas, J. (2015). Buyer's dependence in value creating supplier relationships. *Supply Chain Management: An International Journal.*

Kekatos, V., & Giannakis, G. B. (2012). Distributed robust power system state estimation. *IEEE Transactions on Power Systems*, *28*(2), 1617-1626.

Kembro, J. N., D.;Olhager, J. (2017). Information sharing across multiple supply chain tiers: A Delphi study on antecedents. *International Journal of Production Economics, 193*, 77-86. doi:10.1016/j.ijpe.2017.06.032

Kim, K. T., Lee, J. S., & Lee, S. Y. (2019). Chain reactions of a collaborative buyer–supplier relationship: the mediating role of relationship quality on innovation performance. *Total Quality Management and Business Excellence, 30*(11-12), 1319-1337. doi:10.1080/14783363.2017.1366267

Koenig-Archibugi, M., & Macdonald, K. (2017). The role of beneficiaries in transnational regulatory processes. *Annals of the American Academy of Political and Social Science, 670*(1), 36-57. doi:10.1177/0002716216688862

Kolman, E. M., Gallagher, K. S., Hossler, D., & Catania, F. (1987). The outcomes of doctoral education: An institutional study. *Research in Higher Education*, *27*(2), 107-118.

Kraljic, P. (1983). Purchasing must become supply management. *Harvard business review*, *61*(5), 109-117.

Kurtuluş, M. Ü., S.;Toktay, B. L. (2012). The value of collaborative forecasting in supply chains. *Manufacturing and Service Operations Management, 14*(1), 82-98. doi:10.1287/msom.1110.0351

Lawler, E. J., & Bacharach, S. B. (1987). Comparison of dependence and punitive forms of power. *Social forces*, *66*(2), 446-462.

Lebaron, G. (2015). Unfree labour beyond binaries: Insecurity, social hierarchy and labour market restructuring. *International Feminist Journal of Politics, 17*(1), 1-19. doi:10.1080/14616742.2013.813160

Li, B. Z., Y.;Wang, X. (2013). Equilibrium analysis of distribution channel structures under power imbalance and asymmetric information. *International Journal of Production Research, 51*(9), 2698-2714. doi:10.1080/00207543.2012.737954

Li, J., Wu, Z., Zhu, B., & Xu, K. (2018). Making sense of organization dynamics using text analysis. *Expert Systems with Applications, 111*, 107-119. doi:10.1016/j.eswa.2017.11.009

Lintukangas, K. (2011). Supplier relationship management capability in global supply management. *International Journal of Procurement Management*, *4*(1), 1-19.

Liu, G., Yang, T., Wei, Y., & Zhang, X. (2018). Decisions of green supply chain under fairness concerns and different power structures. *International Journal of Enterprise Information Systems, 14*(4), 28-53. doi:10.4018/IJEIS.2018100103

Liu, H. W., Y. P. (1999). Co-ordination of international channel relationships: Four case studies in the food industry in China. *Journal of Business and Industrial Marketing, 14*(2), 130-150. doi:10.1108/08858629910259008

Liu, L., Zhang, M., & Ye, W. (2019). The adoption of sustainable practices: A supplier's perspective. *Journal of Environmental Management, 232*, 692-701. doi:10.1016/j.jenvman.2018.11.067

Love, P. E. D. E., D. J.;Smith, J. (2005). A forensic examination of the causal mechanisms of rework in a structural steel supply chain. *Managerial Auditing Journal, 20*(2), 187-197. doi:10.1108/02686900510574593

Luo, Z., Chen, X., Chen, J., & Wang, X. (2017). Optimal pricing policies for differentiated brands under different supply chain power structures. European Journal of Operational Research, 259(2), 437-451.

Ma, W., Cheng, R., & Ke, H. (2018). Impacts of power structure on supply chain with a store brand. Asia-Pacific Journal of Operational Research, 35(04), 1850020.

Maloni, M., & Benton, W. C. (2000). Power influences in the supply chain. *Journal of business logistics*, *21*(1), 49-74.

Matsushita, M. (2014). A view on future roles of the WTO: Should there be more soft law in the WTO. *Journal of International Economic Law, 17*(3), 701-715. doi:10.1093/jiel/jgu035

McEvily, B., Zaheer, A., & Kamal, D. K. F. (2017). Mutual and exclusive: Dyadic sources of trust in interorganizational exchange. *Organization Science, 28*(1), 74-92. doi:10.1287/orsc.2016.1102

Mena, C., Humphries, A., & Choi, T. Y. (2013). Toward a theory of multi-tier supply chain management. *Journal of Supply Chain Management, 49*(2), 58-77. doi:10.1111/jscm.12003

Mi, J. J. H., Z.;Wang, K.;Tsai, S. B.;Li, G.;Wang, J. (2018). The presence of a powerful retailer on dynamic collecting closed-loop supply chain from a sustainable innovation perspective. *Sustainability (Switzerland), 10*(7). doi:10.3390/su10072115

Mintzberg, H., Raisinghani, D., & Theoret, A. (1976). The structure of" unstructured" decision processes. *Administrative science quarterly*, 246-275.

Mithöfer, D., van Noordwijk, M., Leimona, B., & Cerutti, P. O. (2017). Certify and shift blame, or resolve issues? Environmentally and socially responsible global trade and production of timber and tree crops. *International Journal of Biodiversity Science, Ecosystem Services and Management, 13*(1), 72-85. doi:10.1080/21513732.2016.1238848

Mohr, J. J., Fisher, R. J., & Nevin, J. R. (1996). Collaborative communication in interfirm relationships: moderating effects of integration and control. *Journal of marketing*, *60*(3), 103-115.

Mysen, T. S., G.;Högevold, N. (2012). Relationship Quality-Relationship Value and Power Balance in Business Relationships: Descriptives and Propositions. *Journal of Business-to-Business Marketing, 19*(3), 248-285. doi:10.1080/1051712X.2012.638469

Nair, A. N., R.;Bendoly, E. (2011). Coopetitive Buyer-Supplier Relationship: An Investigation of Bargaining Power, Relational Context, and Investment Strategies. *Decision Sciences, 42*(1), 93-127. doi:10.1111/j.1540-5915.2010.00303.x

Nyaga, G. N., Lynch, D. F., Marshall, D., & Ambrose, E. (2013). Power asymmetry, adaptation and collaboration in dyadic relationships involving a powerful partner. *Journal of supply chain management*, *49*(3), 42-65.

Ostrom, E. (1998). A behavioral approach to the rational choice theory of collective action: Presidential address, American Political Science Association, 1997. *American political science review*, *92*(1), 1-22.

Pai, F. Y., & Yeh, T. M. (2016). The effects of interdependence and cooperative behaviors on buyer's satisfaction in the semiconductor component supply chain. *Sustainability (Switzerland), 8*(1), 1-14. doi:10.3390/su8010002

Patra, P. (2018). Distribution of profit in a smart phone supply chain under Green sensitive consumer demand. *Journal of Cleaner Production, 192*, 608-620. doi:10.1016/j.jclepro.2018.04.144

Perry, P. K., M. (2014). The decision-making process of luxury fashion retail buyers in Greece. *Journal of Fashion Marketing and Management, 18*(1), 85-106. doi:10.1108/JFMM-06-2012-0030

Pinnington, B. D. S., T. J. (2009). Antecedents of collective-value within business-to-business relationships. *European Journal of Marketing, 43*(1), 31-45. doi:10.1108/03090560910923229

Ramabulana, T. R. (2011). The rise of South African agribusiness: The good, the bad, and the ugly. *Agrekon, 50*(2), 102-110. doi:10.1080/03031853.2011.589984

Ramsay, J. (1994). Purchasing power. European Journal of Purchasing & Supply Management, 1(3), 125-138.

Rasti-Barzoki, M., Jafari, H., & Hejazi, S. R. (2017). Game-theoretic approach for pricing decisions in dual-channel supply chain. *International Journal of Industrial Engineering & Production Research*, *28*(1), 1-8.

Rehme, J., Nordigården, D., Ellström, D., & Chicksand, D. (2016). Power in distribution channels - Supplier assortment strategy for balancing power. *Industrial Marketing Management, 54*, 176-187. doi:10.1016/j.indmarman.2015.07.007

Ryu, S. A., N.;Noh, J. (2008). A cross-national study of manufacturer's power structures and control mechanisms: The moderating effect of group orientation culture. *Industrial Marketing Management, 37*(7), 758-766. doi:10.1016/j.indmarman.2007.09.010

Salancik, G. R., & Pfeffer, J. (1977). Who gets power—and how they hold on to it: A strategic-contingency model of power. *Organizational dynamics*, *5*(3), 3-21.

Salancik, G. R., Pfeffer, J., & Kelly, J. P. (1978). A contingency model of influence in organizational decision-making. *Pacific Sociological Review*, *21*(2), 239-256.

Sanderson, J. (2009). Buyer-supplier partnering in UK defence procurement: Looking beyond the policy rhetoric. *Public Administration, 87*(2), 327-350. doi:10.1111/j.1467-9299.2008.01734.x

Sauer, J., Gorton, M., & White, J. (2012). Marketing, cooperatives and price heterogeneity: evidence from the CIS dairy sector. Agricultural Economics, 43(2), 165-177.

Schwenk, C. R. (1984). Cognitive simplification processes in strategic decision-making. *Strategic management journal*, *5*(2), 111-128.

Seyedesfahani, M. M. B., M.;Gharakhani, M. (2011). A game theoretic approach to coordinate pricing and vertical co-op advertising in manufacturer-retailer supply chains. *European Journal of Operational Research, 211*(2), 263-273. doi:10.1016/j.ejor.2010.11.014

Sharifi, H. K., D. F.;Hopkins, J. (2006). A classification and selection model of e-marketplaces for better alignment of supply chains. *Journal of Enterprise Information Management, 19*(5), 483-503. doi:10.1108/17410390610703639

Sheu, J. B. (2014). Green supply chain collaboration for fashionable consumer electronics products under third-party power intervention - A resource dependence perspective. *Sustainability (Switzerland), 6*(5), 2832-2875. doi:10.3390/su6052832

Shi, R. Z., J.;Ru, J. (2013). Impacts of power structure on supply chains with uncertain demand. *Production and Operations Management, 22*(5), 1232-1249. doi:10.1111/poms.12002

Shou, Y. F., Y.;Zheng, J.;Wang, G.;Yeboah, N. E. (2013). Power source and its effect on customer-supplier relationships: An empirical study in Yangtze River Delta. *International Journal of Production Economics, 146*(1), 118-128. doi:10.1016/j.ijpe.2013.03.003

Sinclair, K., Curtis, A., Mendham, E., & Mitchell, M. (2014). Can resilience thinking provide useful insights for those examining efforts to transform contemporary agriculture? *Agriculture and Human Values, 31*(3), 371-384. doi:10.1007/s10460-014-9488-4

Sinclair, K., Curtis, A., Mendham, E., & Mitchell, M. (2015). Assessing the Efficacy of Transition Theory to Identify Industry Transformation: a case study examining the deregulation of Australia's dairy industry. *Australian Geographer, 46*(1), 113-129. doi:10.1080/00049182.2014.986790

Souza, R. P., Guerreiro, R., & Oliveira, M. P. V. (2015). Relationship between the maturity of supply chain process management and the organisational life cycle. *Business Process Management Journal, 21*(3), 466-481. doi:10.1108/BPMJ-03-2014-0023

Stanczyk, A. F., K.;Busse, C.;Blome, C. (2015). Global sourcing decision-making processes: Politics, intuition, and procedural rationality. *Journal of Business Logistics, 36*(2), 160-181. doi:10.1111/jbl.12090

Sutton-Brady, C. K., P.;Taylor, T. (2015). A model of supplier–retailer power asymmetry in the Australian retail industry. *Industrial Marketing Management, 51*, 122-130. doi:10.1016/j.indmarman.2015.05.008

Swinnen, J. F., & Maertens, M. (2007). Globalization, privatization, and vertical coordination in food value chains in developing and transition countries. *Agricultural economics*, *37*, 89-102.

Takashima, K. K., C. (2016). The effectiveness of power-dependence management in retailing. *International Journal of Retail and Distribution Management, 44*(1), 71-88. doi:10.1108/IJRDM-03-2015-0039

Tao, F. F., T.;Lai, K. K. (2018). Inventory Management Under Power Structures With Consignment Contract Subject to Inventory Inaccuracy. *IEEE Transactions on Engineering Management*. doi:10.1109/TEM.2018.2850003

Taylor, M. (2011). Race you to the Bottom... and Back Again? The Uneven Development of Labour Codes of Conduct. *New Political Economy, 16*(4), 445-462. doi:10.1080/13563467.2011.519023

Terpend, R., & Ashenbaum, B. (2012). The Intersection of Power, Trust and Supplier Network Size: Implications for Supplier Performance. *Journal of Supply Chain Management, 48*(3), 52-77. doi:10.1111/j.1745-493X.2011.03261.x

Terpend, R. A., B. (2012). The Intersection of Power, Trust and Supplier Network Size: Implications for Supplier Performance. *Journal of Supply Chain Management, 48*(3), 52-77. doi:10.1111/j.1745-493X.2011.03261.x

Thomson, A. M., & Perry, J. L. (2006). Collaboration processes: Inside the black box. *Public administration review*, *66*(s1), 20-32.

Thompson, L. J., & Lockie, S. (2013). Private standards, grower networks, and power in a food supply system. *Agriculture and Human Values, 30*(3), 379-388. doi:10.1007/s10460-012-9404-8

Tokatli, N. W., N.;Kizilgün, Ö. (2008). Shifting global supply networks and fast fashion: Made in Turkey for Marks and Spencer. *Global Networks, 8*(3), 261-280. doi:10.1111/j.1471-0374.2008.00195.x

Touboulic, A., Chicksand, D., & Walker, H. (2014). Managing Imbalanced Supply Chain Relationships for Sustainability: A Power Perspective. *Decision Sciences, 45*(4), 577-619. doi:10.1111/deci.12087

Touboulic, A. C., D.;Walker, H. (2014). Managing Imbalanced Supply Chain Relationships for Sustainability: A Power Perspective. *Decision Sciences, 45*(4), 577-619. doi:10.1111/deci.12087

Tyan, J. W., H. M. (2003). Vendor managed inventory: A survey of the Taiwanese grocery industry. *Journal of Purchasing and Supply Management, 9*(1), 11-18. doi:10.1016/S0969-7012(02)00032-1

Van de Ven, A. H., & Poole, M. S. (1995). Explaining Development and Change in Organizations. The Academy of Management Review, 20(3), 510–540. https://doi.org/10.2307/258786

Van Weele, A. J., & Rozemeijer, F. A. (1996). Revolution in purchasing: Building competitive power through proactive. *European Journal of Purchasing & Supply Management, 2*(4), 153-160.

Wallenburg, C. M. S., T. (2016). Performance measurement in horizontal LSP cooperation as a field of conflict: the preventive role of collaborative processes. *Logistics Research, 9*(1). doi:10.1007/s12159-016-0134-y

Wang, E. T. G. L., N. C. A. (2013). Using power regimes to explore perceived environmental uncertainty. *Industrial Management and Data Systems, 113*(7), 950-966. doi:10.1108/IMDS-02-2013-0072

Watson, G. (2004). Uncertainty and contractual hazard in the film industry: Managing adversarial collaboration with dominant suppliers. *Supply Chain Management, 9*(5), 402-409. doi:10.1108/13598540410560784

Weston, R., & Robinson, R. (2008). Value migration and profit pools in port-oriented freight systems: The implications for new patterns of efficiency. *Maritime Policy and Management, 35*(3), 253-270. doi:10.1080/03088830802080233

Wilkinson, I. F. (1973). Power and influence structures in distribution channels. European Journal of Marketing.

Wilkinson, I. (1981). Power, conflict, and satisfaction in distribution channels—an empirical study. *International Journal of physical distribution & materials management.*

Witte, E., Joost, N., & Thimm, A. L. (1972). Field research on complex decision-making processes-the phase theorem. *International Studies of Management & Organization, 2*(2), 156-182.

Wu, C. H., Chen, C. W., & Hsieh, C. C. (2012). Competitive pricing decisions in a two-echelon supply chain with horizontal and vertical competition. *International Journal of Production Economics, 135*(1), 265-274. doi:10.1016/j.ijpe.2011.07.020

Xue, M., & Zhang, J. (2018). Impacts of heterogeneous environment awareness and power structure on green supply chain. *RAIRO - Operations Research, 52*(1), 143-157. doi:10.1051/ro/2018005

Yeung, J. H. Y., Selen, W., Zhang, M., & Huo, B. (2009). The effects of trust and coercive power on supplier integration. International journal of production Economics, 120(1), 66-78.

Yu, W., & Han, R. (2019). The impact of pollution taxation on competitive green product choice strategies. *Computers and Industrial Engineering, 137*. doi:10.1016/j.cie.2019.106012

Zhai, Y. Z., R. Y.;Li, Z.;Huang, G. (2017). Production lead-time hedging and coordination in prefabricated construction supply chain management. *International Journal of Production Research, 55*(14), 3984-4002. doi:10.1080/00207543.2016.1231432

Zhao, X., Huo, B., Flynn, B. B., & Yeung, J. H. Y. (2008). The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain. *Journal of operations management*, *26*(3), 368-388.

Zhang, M., Fu, Y., Zhao, Z., Pratap, S., & Huang, G. Q. (2019). Game theoretic analysis of horizontal carrier coordination with revenue sharing in E-commerce logistics. *International Journal of Production Research, 57*(5), 1524-1551. doi:10.1080/00207543.2018.1492754

Zhang, T., Guo, X., Hu, J., & Wang, N. (2019). Cooperative advertising models under different channel power structure. *Annals of Operations Research*. doi:10.1007/s10479-019-03257-4

Zheng, B. Y., C.;Yang, J.;Zhang, M. (2017). Dual-channel closed loop supply chains: forward channel competition, power structures and coordination. *International Journal of Production Research, 55*(12), 3510-3527. doi:10.1080/00207543.2017.1304662

3 Joint B2B supply chain decision-making: drivers, facilitators and barriers[8]

Abstract – Joint decision-making is one of the coordination mechanisms to address the inherent complexity of business-to-business (B2B) processes within a supply chain. Joint decision-making can be helpful to define shared goals and objectives, identify supply chain failures and opportunities, and consolidate supply chain success. Parties may benefit directly from a partnership's potentials and synergies by collaboratively making decisions. However, specific business conditions need to be in place to enable joint decision-making. This paper investigates how companies in a dyadic relationship arrive at joint and individual supply chain decision-making structure. We examine the drivers, facilitators, and barriers of making joint as well as individual decisions within the supplier-buyer dyad and frame our arguments by borrowing perspectives from resource dependency theory, transaction cost economics, collaboration theory, social exchange theory. The paper presents a case study of Dutch high-tech companies, analysing experiences of supply chain managers via semi-structured interviews. High-tech firms often collaborate and share supply chain decisions due to the high-value capital equipment as well as a shared dependency on highly specific scarce resources. Our study provides new empirical insight into how high-tech firms cope with conflicting drivers, facilitators and barriers in collaborations, controlling their decision-making structure. From the case study, we identify the combinations of facilitators and drivers that tend to promote the existence of joint decisions. We conclude with providing a list of suggestions for decision-makers and future research.

Keywords: Joint decision-making; Individual decision-making; B2B relationship; Supply chain collaboration; High-tech industry; Decision-making structure, Case study

3.1 Introduction

Companies have to make many decisions every day. As members of supply chain network, it is inevitable that companies often depend on—and have to collaborate with—their partners when making supply chain decisions. Prior to collaborating, however, companies may need to decide whether certain suppliers and customers are worthy to involve as partners in their decision-making.

[8] This chapter is originally published as Nurhayati, K., Tavasszy, L., & Rezaei, J. (2023). Joint B2B supply chain decision-making: Drivers, facilitators and barriers. International Journal of Production Economics, 256, 108721. https://doi.org/10.1016/j.ijpe.2022.108721

Further, companies also need to verify their decision-making motivations—what are the circumstances that influence companies to favor making joint decisions with partners over making decisions individually?

Joint decision-making is a vital collaborative mechanism to address the inherent complexity of interdependencies within supply chains (Arshinder, Kanda, & Deshmukh, 2008). Joint decision-making refers to the use of cooperatively gained information to solve issues and set long-term objectives (Revilla & Knoppen, 2015). It consists of two primary stages: front-end agreement and joint business planning (Panahifar et al., 2015). Supply chain partners may build supply chain strategies and processes together within the agreed scope of the decision. Making decisions jointly can especially enhance interdependent processes such as demand forecasting, marketing planning, joint production scheduling, or operational concerns (Heide & John, 1990). However, there is insufficient discussion in the literature that contrasts the benefits of joint decision-making with its individual counterpart, and thus it requires further investigation. Hence the paper's objective is to provide a further understanding of why and in which environment companies choose to make supply chain decisions jointly rather than individually. Below we explore the antecedents of our work in the literature in more detail and discuss research questions, scoping and theoretical framing of the study thereafter.

3.1.1 Benefits of joint decision-making

Across the literature, joint decision-making has been proven to bring favourable outcomes at operational level up to strategic level (see Table 3.1). Firstly, making decisions jointly allows buyers and suppliers to address performance-related improvements. Joint decision-making allows improvements by means of providing the platform for decision-makers to see first-hand how inter-firm operations work and what to do to keep them working optimally (Revilla & Villena, 2012). Inter-firm operations are effective when buyers and suppliers make joint decisions to fix issues (Frohlich & Westbrook, 2001; Sahin & Robinson, 2002; Malhotra et al., 2005; Modi & Mabert, 2007). Past literature provides examples of making decisions jointly with a collaborator, such as joint quality improvement decisions involving customers and suppliers have been shown to boost performance (Prajogo & Olhager, 2012). According to Attaran and Attaran (2007), suppliers can better respond to demand if they plan with their customers. Sanders (2008) also claims that joint decision-making directly affects operational advantages such as cost savings. Tasks of reducing costs or increasing production, or resolving conflicts are completed fast through joint decision-making (Flynn & Flynn, 1999; Frohlich & Westbrook, 2001; Sahin & Robinson, 2002). Thus, decision-makers need to recognize the direct and indirect advantages of collaborative supply chain decision-making; that it boosts business performance, reduces logistic costs, increases order fulfillment, improves quality, pricing, delivery, as well as enhances sales and profit margins (Singh, et al., 2018).

Table 3.1. Benefits of joint decision-making

Benefit	Example	References
Improved performance	Improved visibility across operations	Revilla and Villena (2012)
	Effective operations	Frohlich and Westbrook (2001), Sahin and Robinson (2002), Malhotra et al. (2005), Modi and Mabert (2007)
	Boosted performance	Prajogo and Olhager (2012)
	Improved responsiveness to demand changes	Attaran and Attaran (2007)
	Improved cost savings	Sanders (2008)
	Fast conflict resolution, fast completion of tasks such as reducing costs or increasing production	Flynn and Flynn (1999), Frohlich and Westbrook (2001), Sahin & Robinson (2002)
	Reduced logistic costs, increased order fulfillment, improved quality, pricing, delivery, as well as enhanced sales and profit margins	Singh et al. (2018)
Value co-creation	Better anticipated future issues, better identification and prediction of failures and successes, ideas generation for meeting customer needs, and better articulated strategies and goals	Revilla and Knoppen (2015)
	Better capitalisation of possibilities and synergies inherent in partnership	Anderson and Narus (1990), Dwyer et al. (1987), Jap (1999)
	Improved perception, integration, and utilisation of resources, capacity, or assets from partners	Lane and Lubatkin (1998), Park and Ungson (1997)
	Fostered synergistic resource development and cooperative investments	Edlin and Reichelstein (1996), Aoki and Lennerfors (2013)
	Improved financial success for both parties and higher engangement in value co-creation activities	Lambert and Enz (2012)

Secondly, joint decision-making is also strategically beneficial for firms to co-create more excellent value. By favourably influencing inter-firm relationship performance, joint decision-making can help buyers and suppliers anticipate future issues, identify and analyse supply chain failures and successes, generate ideas for meeting customer needs, and articulate strategies and goals for each partner (Revilla & Knoppen, 2015). Joint decision-making also enables both organisations in a dyad to capitalise on possibilities and synergies inherent in their partnership (Anderson and Narus 1990; Dwyer, Schurr, and Oh 1987; Jap 1999). Companies can perceive, integrate, and utilise resources, capacity, or assets from each other via frequent joint decision-making (Lane and Lubatkin 1998; Park and Ungson 1997). Joint decision-making indicates a need for synergy in shared assets and resources. This need relates to Edlin and Reichelstein's concepts of "selfish investments" versus "cooperative investments" (1996). Through joint decision-making, synergistic resource development is fostered. For instance, when a buyer incorporates a supplier early in product development decisions, innovativeness is increased (Aoki and Lennerfors, 2013). Cross-functional engagement such as joint decision-making is also found to be a critical driver of financial success for both parties in a dyad, and it allows customers and suppliers to engage in three cyclical stages to co-create value: (1) value propositions, (2) value actualisation, and (3) value determination (Lambert & Enz, 2012).

3.1.2 Assessing drivers prior to making joint decisions

In the context of dyadic collaboration, ideally, both firms strive for a decision outcome that satisfies each party. However, sometimes firms have different and conflicting interests, goals and business priorities that later drive their decision-making process. Therefore, to maximise the value creation potential of corporate relationships, managers require a practical worldview that can help them assess drivers, find collaboration possibilities, and collaborate across enterprises (Lambert & Enz, 2012). We discuss the components necessary to conduct drivers assessment of joint decision-making (see Table 3.2).

Goal congruence is key to successful joint decision-making, and it can be achieved through aligning drivers. Despite unique characteristics of companies (e.g. cultural and behavioural differences), collaborative efforts could be successful when both objectives are studied and converged (Huang et al., 2020). For example, prior to making joint decisions, suppliers need to be aware of their intention, and at the same time their partner's intention. Manufacturers are more inclined to coordinate decisions with their suppliers if they believe it would benefit product development (Huang et al., 2020). In Lambert's (1996) earliest studies about the development and implementation of supply chain partnerships, aligning drivers was prescribed to mitigate conflicts early on. Further investigations and empirical studies were called for to map out partnership strategies better. This included understanding how a diversity of drivers could affect joint decision-making.

However, aligning drivers is not the easiest task. It is understood that the process of aligning drivers is "dynamic" and "complex" (Lambert, 1996). Lambert & Enz (2012) targeted four critical categories of drivers to align in joint decision-making. First, *the asset/cost efficiencies* category comprised drives to improve asset utilisation and reduce costs in areas such as product, transportation, handling, packaging, information, and management efficiency. Second, *customer service* drivers included greater product availability and more timely and accurate information, which would lead to higher sales. Third, *the marketing advantage* category includes perks including improved access to technology, better product quality, and the creation of inventive new items. Fourth, *the profit stability/growth* group comprised factors such as long-term volume agreements, decreased sales unpredictability, reduced pricing variability, collaborative use of assets, and secured supply (Lambert & Enz, 2012).

Without the conscious effort to assess these drivers and interests, companies may be prone to making unsustainable joint decisions without clarity in intention or long term benefits. For instance, coercive pressure from supply chain members, including rivals and cooperative partners is an inter-organizational issue that may also lead companies to make joint decision-making. Two organizations in a supply chain may integrate their business systems, resulting in standardized data formats and improved information transmission under the shadow of peer pressure (Chang et al., 2019).

Table 3.2. Components of drivers assessment

Component	References
Ensuring shared worldview and attitude on value co-creation and exploring collaboration possibilities	Lambert and Enz (2012)
Studying the internal and partner's objectives	Huang et al. (2020)
Analysing the benefits of joint decision-making for both parties	Huang et al. (2020)
Assessing asset and cost efficiencies, service improvements, marketing advantage and improved growth stability	Lambert (1996), Lambert & Enz (2012)
Standardizing and improving data format and data transmission necessary for information exchanges	Chang et al. (2019)
Assessing room for improvement and defining goals	White (1999)
Using shared drivers to co-develop strategy	Lambert & Enz (2012)

Further, White (1999) argued that companies must identify areas for improvement and explicitly define what they want to accomplish via collaborative decision-making. If the other firm says they could not or would not assist, the driver should be re-evaluated or dropped. The idea is to find shared drivers from both sides to use as groundwork for developing a strategy to pursue mutually selected projects (Lambert & Enz, 2012). In this study, we attempt to shed light on this complexity by collecting evidences of what companies would do in the face of conflicting drivers, whether they would opt for joint decision-making or vice versa.

3.1.3 Research questions

Given the examples of benefits or favourable outcomes of joint decision-making, we investigate the **drivers and facilitators** that lead firms to opt and manifest a certain decision-making mechanism or structure in a collaborative context. We assume that companies have a certain degree of freedom to choose whether they want to involve their partners or not in a decision-making process. This freedom to choose between making decisions individually versus jointly has been discussed by Lambert (1996) in the paper "So you think you want a partner". Lambert suggests that sometimes initiating a joint effort with another firm could be quite costly, and the risk could sometimes outweigh the benefits. In this study, we build upon this idea to describe the extent to which partnership drivers manifest into the decision-making structure. Furthermore, even when sufficient drivers exist to entice a firm to make joint decisions, in some cases, there are not enough facilitators or enablers to support this initiative. Following that logic, we postulate that when decision drivers meet facilitators, the likelihood of companies to choose joint decision-making, as opposed to individual, is higher.

We use the word "drivers" to address decision-makers motivation, aspiration, interest, and goals when making a decision. On the other hand, "facilitators" include the circumstances, tools, platforms, or environments that enable the implementation of the decision-making process (see Figure 3.1). These constructs are developed based on Lambert's (1996) model of "The Partnering Process" which highlights that two variables influence a choice to form or modify a partnership: 1) drivers, which are reasonable grounds to collaborate, and 2) facilitators, which are supporting contextual conditions that promote relationship advancement.

To clarify the problem, in this research, we develop a construct of "decision-making structure", which refers to the steps or mechanisms taken by an actor in a decision-making process within a collaborative framework. This paper addresses the following research questions (RQ):

RQ1: What are the main sets of drivers and facilitators that allow joint supply chain decision-making to happen across the Dutch high-tech suppliers and manufacturers?

RQ2: What are the circumstances that prevent these companies to make joint decisions?

Figure 3.1. The scope of this study

In this study, we begin by questioning the observable tendencies of firms to make either a joint decision with another firm versus an individual decision on their own. This dichotomy of structures helps us to operationalise the problem being discussed. With this approach, we also postulate that different sets or co-occurences of certain drivers and accompanying facilitators support different decision-making structure (either individual or joint decision-making).

The remainder of the paper is structured as follows. Section 2 revisits the literature and theoretical lens, as well as providing multiple industrial contexts. Section 3 discusses methodology and research design employed in this study. In section 4, we discuss results and discussion as well as the co-occurrence matrix of joint decision-making drivers and facilitators. Finally, in section 5, we conclude the findings and provide theoretical and managerial insights.

3.2 Literature Review

3.2.1 Theoretical background

We combine resource dependency theory, transaction cost economics, collaboration theory, social exchange theory, and previous research on dyadic interactions and buyer-supplier value to frame our arguments.

Resource dependency theory

According to the concept of resource dependency, interfirm relationships are formed to manage transactional and financial interdependence (Pfeffer, 1982, p. 206). A collaboration is a mechanism to manage technical, social, logistical, administrative, and knowledge dependencies (Niemelä, 2004). Companies access resources to gain further competitive advantage. The resource-dependence perspective also suggests that stakeholders require resources to have a leverage over their partners (Saito & Ruhanen, 2017). When partners have confidence in one another's skills and resources and expect them to be utilized frequently, the relationship's expected returns are favorable.

One may also argue that both parties will invest more in making decisions jointly to maintain access to collective resources. This increases the cost of switching partners and strongly drives partners to continue the collaborative efforts (Voss et al., 2019).

Transaction cost economics

Transaction-cost economics (TCE) examines how expenses impact coordinating mechanisms (Williamson, 1975). Closely related firms are expected to exchange more information. However, sharing additional information may raise transaction costs. TCE argues a high degree of integration has some positive impacts, such as more coordination between trade partners, which may make it simpler for them to react to outside developments, such as volatility in customer demand. From this perspective, TCE may help to explain the importance of having certain facilitators available to enable the efficiency of joint decision-making process. Using TCE, one may argue that the existence of platform integration facilitates collaboration and indirectly contribute to fewer out-of-stock products, more precise delivery, and greater sales (Madlberger, 2009).

Collaboration theory

Collaborative fit is considered to be the key prerequisite of successful joint decision-making. Collaboration is defined as joint rather than unilateral actions of planning and problem-solving (Heide, 1994; Zaheer & Venkatraman, 1995) and the ability to make alterations upon requests and agreements of all parties involved (Bello & Gilliland, 1997; Noordewier, John, & Nevin, 1990). Collaborative fit is reflected, among others, from the commitment to accommodate others and the ambition to accomplish shared objectives (Anderson & Narus, 1990; Morgan & Hunt, 1994). From a collaboration perspective, we may explain that the need of a company may extend beyond the transactional and operational levels. Reaching a strategic level of expansion and growth, for example, will likely need the synergistic effort from a collaborator, who must have an aligned driver and abilities to facilitate the goal attainment.

The scope of collaboration covers two main dimensions (Pimentel Claro & Oliveira Claro, 2010). First, joint planning addresses future challenges within a relationship. To develop contingency, upstream information about trends and demands are quickly and proactively communicated with end-users. Consequently, firms will be ready to exchange knowledge regarding future activities and commit to executing joint decision-making. Second, joint problem-solving addresses issues stemming from downstream events such as sales and consumers needs, and reacting to conflicts in this area requires sharing knowledge among collaborators (Stern, El-Ansary, & Coughlan, 1996). Downstream information includes highly relevant end-user data on the product, pricing, quality, and quantity details important for negotiating a mutually satisfying solution for all collaborators involved (Pimentel Claro & Oliveira Claro, 2010).

Considering the complexity of these dimensions, actors in a dyad should evaluate their partner not solely based on technical and economic factors for future transactions but also on collaborative

fit with their own company. This can be done, for instance, prior to the commencement of a project, companies should evaluate the quality of collaboration in previous projects involving a given collaborator (Hoegl, 2005). From this perspective, one may argue on the importance of driver assessment as well as risk analysis before proceeding to make decisions jointly. The absence of a collaborative fit should be considered a detrimental factor when two companies are faced with the option to make supply chain decisions jointly.

Social exchange theory

The benefits of collaborative decision-making may not mean the same for all companies whose business priorities may vary from each other. The mere ability to make joint decisions and having the supporting circumstances to do so does not directly reflect the true willingness and intention of companies to collaborate. To distinguish between competence and the willingness to collaborate, we may dive deeper to examine the fundamental underlying motivation of each actor to work together.

Social exchange is described as voluntary behaviours of persons motivated by the anticipated benefits they are expected to bring from others (Blau, 1964, p. 91). A viewpoint based on social exchange theory posits that actors provide benefits willingly, eliciting a duty on the other party to reciprocate by delivering some benefit in return, to a certain extent. It is interesting to understand further to which extent this accommodation is given, not knowing to what extent the other party would return the favour. Due to the fact that social interactions are voluntary and sometimes un-contractual, they function in an unpredictable environment, in which there is no assurance that advantages will be reciprocated or that reciprocation would result in future benefits (Das & Teng, 2002). This perspective highlights not only the potential return but also hazards of interacting within collaborative mechanisms, including joint decision-making.

Social exchange theory explains how companies collaborate. This theory may also explain why companies help others given limited return (Madlberger, 2009). While TCE addresses dyads as transactional relationships, social exchange theory provides the nuances by treating companies as interacting social entities. This perspective complements TCE theory to address the intangible or behavioural aspects that may facilitate collaborations. From this perspective, we may further explain the importance of identifying what types of social and behavioral interventions or facilitations are needed to enable collaborative decision-making to achieve its intended goal.

3.2.2 Drivers and facilitators of joint decision-making

Drivers of joint decision-making

Based on strategic management theory, companies may utilize a number of governance systems to boost their competitiveness, but their objectives are the same. Any form of partnerships are created for a number of reasons, including short-term efficiency, resource access, market position,

worldwide expansion, risk reduction, competitive blockades, economies of scale, speed to market, lower transaction costs, pooled investments, and so on (Tjemkes et al., 2017). As observed further in the literature, drivers of joint decision-making are discussed below (see Table 3.3).

To access and grow new market

In a competitive environment, collaborative efforts may help companies mitigate barriers to entry to a new market, especially if it is a saturated one with existing competition such as cartels or monopolies. According to Zhang (2014), collaboration generally boosts market share. Collaborative form of decision-making may give companies access to market expertise and the sharing of the financial burden, which results in quick, multi-market development and penetration (Zahoor & Al-Tabbaa, 2021). In the market expansion efforts, for instance, making decisions with local partners who have foreign expertise is critical for companies to grasp the internationalization process (Zahoor & Al-Tabbaa, 2021). Joint decision-making is also a way to improve communication and to empower customers, which consequentially results in improved export performance (Efrat & Øyna, 2021). By making decisions jointly, information as an important intangible asset is exchanged between partnering companies, allowing for commercial prospects and competitiveness to increase (Zhang, 2014).

To adapt to market developments, flexibility, and changes in client base

To face market volatility in several industries, joint decision-making is considered to be an effective mechanism in mitigating uncertainties and increase responsiveness. For example, in high tech industry, rapid pace of innovation is key to maintain competitiveness. Prior research shows that innovation within a company typically requires external participation and collaboration, which will speed up learning and responding to industry-specific business needs (Chen, et al., 2021). To mitigate volatility within N-tier levels of supply chain partners, Indian companies have made considerable efforts to establish high levels of collaborative efforts and long-lasting, solid ties with their partners (Agarwal & Narayana, 2020). By making decisions together with partners such as via vendor mentoring activities, any change is detected early, which may result in maintained supply chain performance and improved processes.

To access resources, capacity, or assets of the collaborator

Joint decision-making is one of the mechanisms to access strategic resources from supply chain partners. Through making collaborative efforts with a selected supply chain network, a firm may rapidly access important information, experience, and technology to help develop a new product (Chen et al., 2021). For example, in automotive industry, joint decision-making allow supply chain partners to share tangible and intangible assets and demand-fulfillment capabilities. This is done through shared investment decisions in product design, infrastructure, production process, costs, and value chain which are keys to competitive advantage (Huang et al., 2020). Huang et al (2020) also

suggests that this collective decision-making often results in hard-to-replicate trade knowledge, leading to a supply chain that outperforms competitors, forcing rivals to earn experience and competence through time.

Table 3.3. Drivers of joint decision-making

Driver	References
To access and grow new market	Zhang (2014), Zahoor and Al-Tabbaa (2021), Efrat and Øyna (2021)
To adapt to market development, flexibility and changes in client base	Chen, et al. (2021), Agarwal and Narayana (2020)
To access resources, capacity, or assets of the collaborator	Chen et al. (2021), Huang et al. (2020)
To share risks with collaborator	Chen et al. (2021), Efrat and Øyna (2021), Singh et al. (2018), Zhang (2014)
To incite more commitment from collaborator	Chang et al. (2019), Agarwal and Narayana (2020)
To align financial incenctives with collaborator	Agarwal and Narayana (2020), Lambert (1996), Zhang (2014), Singh et al. (2018)
To reach target cost	Zhang (2014)

To share risks with collaborator

Sharing risk with outside partners may allow room to be daring during experimentations, and may inspire creativity and innovativeness during new product development and research (Chen et al., 2021). Small and resource-constrained multinational businesses often seek to lessen the risk of market expansion by using collaborative entrance approaches (Efrat & Øyna, 2021). Risk and responsibility sharing is a concern that may be resolved by collaborative efforts across the supply chain (Singh et al., 2018). In high tech industry, for instance, joint decision-making in areas of innovation and investment with suppliers could help manufacturers to better address the make-or-buy dilemma. This leads to lowered development expenses, reduced technological uncertainties, as well as a more distributed risks (Zhang, 2014).

To incite more commitment from collaborator

Beside providing opportunities of improved finances, the incentives of joint decision-making could go beyond, for instance stronger commitment and favorable behaviours from collaborators. Chang et al. (2019) suggests that the benefits of collaborative efforts is not only mutually reduced expenses but also social objectives. According to Agarwal and Narayana (2020), the form of these rewards is not limited to financial (e.g. pricing, cost-sharing, investment), but could also be behavioral (e.g. psychological contracts, fair policies, commitment, information sharing), structural (e.g. logistics information integration, process flexibility), and relational (e.g. trust, stronger collaboration, dependence, commitment, power, and satisfaction).

To align financial incentives with collaborator

Joint decision-making may also be drived by predetermined reward expectations that are valued by both parties (Agarwal & Narayana, 2020). According to Lambert's (1996) partnership model, collaboration is driven by financial as well as technical competence. Further, any type of

collaboration allows businesses to get access to limited resources, enhance productivity, and extend product offerings, all of which save them money (Zhang, 2014). Through collaborative process optimization approach for evaluating production cycle, for example, supplier and manufacturer could have transparency on all scenarios, the needed step-ups and associated costs, as well as potential rewards that entail. In this situation, it is easier for companies to align on financial incentives later on (Singh et al., 2018).

To reach target cost

Using economies of scale, joint decision-making in areas of production, inventory, and logistics may help companies to cut costs. Generally, collaborations reduce overall expenses by cutting manufacturing and administrative expenditures, by sharing information, services, or activities. By doing so, collaborations eliminate duplicative expenses and surplus capacity (Zhang, 2014). It is also understood that human capital or labor is a significant production variable, which contributes for significant costs across companies. Therefore, Zhang (2014) also suggests that collaborative decision-making in the areas of production with suppliers who have considerably well-skilled labour with lower costs (typically in developing countries) could help companies to cut production costs while maintaining competitiveness.

Facilitators of joint decision-making

Being aware of the drivers and aligning them with partners is the first step towards successful joint decision-making. To be able to execute it, however, there are checklist of capabilities, enablers, or facilitators necessary for companies to possess. Good joint decision-making capability implies the organization's system works well with other systems, enabling it to operate with supply chain partners and span organizational boundaries (Chang et al., 2019). By having these capabilities or facilitators, firms will be able to make better judgments and engage seamlessly with business partners. The past literature provides examples of facilitators that can be cultivated to intervene and support a joint decision-making culture. These facilitators are discussed below (see Table 3.4).

Ease of access

Similarity of company norms and values creates a certain degree of social compatibility that allows partners to accomplish shared goals in supply chains (Cheung et al., 2010). Compatibility facilitates communication between partners by reducing communication barriers (Kale et al. 2001). It also underpins the desire to explore new possibilities (Sáenz, Revilla, & Knoppen, 2014). Due to the time and energy spent resolving disagreements (Inkpen and Tsang, 2005; Lei and Pitts, 1997), a lack of social and cultural commonalities and compatible values might hinder the development and implementation of new operational and strategic improvements (Holcomb and Hitt, 2007). It is essential to harmonise corporate ideologies and negotiate better conditions for mutual benefit. Therefore, parties in a dyad seeking to improve their short- and long-term competitiveness should strive for cultural alignment and mutually beneficial aims with each other (Villena, Revilla, & Choi,

2011). The more regular and extensive contact between channel participants, such as customers and providers, the less ambiguous the message (Hoegl, 2005). This contact creates an ease of access among decision-makers.

Platform integration for information sharing

Sharing information about the content and progress of the collaborative work product keeps all project participants informed and able to use it in their work, leading to better joint performance (Ragatz et al., 1997). Having shared or commonly used systems like ERP (Enterprise Resource Planning) or EDI (Electronic Device Interchange) could also facilitate actors to establish joint decision-making so that they may oversee all operations undertaken within their collaborative framework. When a firm has a strong IT infrastructure and can interact successfully with other organizations, it can make swift changes to its system and business strategy in response to a changing business environment (Chang et al., 2019).

Established contract or agreement

Contractual clauses with mutual consent can curb opportunistic behaviour and protect specific investments (Williamson, 1985). It defines and governs both parties' rights and duties by written rules, terminology, and processes while specifying future circumstances (e.g. product liability, trade procedures, noncompliance fines) (Pimentel Claro & Oliveira Claro, 2010). Integrating expert suppliers might provide the organisation with skills it lacks internally. Expert suppliers may help reduce costs (Mason, 2007) and construction complexity (Leiringer et al., 2009). Mason (2007) also observed that deep and long-term connections among expert providers are valued for providing stable income and a better working environment based on terms in a contract. Mayer and Teece (2008) argued that a well-structured contract should contain delivery requirements and advice on activities linked to learning, knowledge transfer, joint decision-making, and conflict prevention. Therefore, a contract may foster intimate relationships between buyers and providers (Bildsten, 2014).

Transaction history

Past transactions help provide data to analyse the financial performance in the past from a joint initiative. Financial information concerning the results of joint collaborative ventures, such as revenue growth and improvement of income, might influence managers' estimates of relationship value (Lambert & Enz, 2012). On a similar note, past experience between supplier and buyer is considered adequate to assist the buying company handle inter-firm activities better, resulting in more successful partnerships (Johnston, McCutcheon, Stuart, & Kerwood, 2004).

Table 3.4. Facilitators of joint decision-making

Facilitator	References
Ease of access	Cheung et al. (2010), Kale et al. (2001), (Sáenz et al., 2014)Inkpen and Tsang (2005), Lei and Pitts (1997), Holcomb and Hitt (2007), (Villena et al., 2011), (Hoegl, 2005)
Platform integration for information sharing	Ragatz et al. (1997), Chang et al. (2019)
Established contract or agreement	Williamson (1985), (Pimentel Claro & Oliveira Claro, 2010), Mason (2007), Leiringer et al. (2009), Mayer and Teece (2008), (Bildsten, 2014)
Transaction history	(Lambert & Enz, 2012), (Johnston et al., 2004)
Trust and openness	(McEvily, 2017), (Revilla & Knoppen, 2015), Eisenhardt (1989), Lee and Choi (2003), Blau (1964)

Trust and openness

As a relational notion, trust is understood as shared and defined by both parties in a transaction. The relational focus stems from the sociological idea that trust is a social attribute, not an individual trait (McEvily, 2017). Interorganizational trust arises when both parties know themselves and develop mutual commitments. Trust is one of the facilitators of joint decision-making (Revilla & Knoppen, 2015). Since companies need to share delicate information to make joint decisions, which could be their significant assets, there is a risk that it can be exploited asymmetrically to benefit an opportunistic chain member (Eisenhardt, 1989). This argues that parties will only disclose information and engage in knowledge exchange and development if they feel their weaknesses will not be exploited by the other side (Lee and Choi, 2003). Consequently, trust motivates buyers and suppliers to align their best interests and activities. Additionally, social exchange theory presupposes trust's inherent aspect of any social transaction. However, trust is also thought to be generated by the continuous social exchange process: processes of social trade, which may start in pure self-interest, produce trust in social interactions by virtue of their recurring and steadily growing nature (Blau, 1964, p. 94). Therefore, trust may be linked to repeat past transactions since trust is nurtured by a continuous reciprocal process in which acts are dependent on receiving favourable responses from others (Blau, 1964).

3.2.3 Associated risks

Risks of joint decision-making

Despite the vast benefits it offers, joint decision-making structure remain challenging to manage, especially when there is no pre-existing contract that explicitly and strictly governs the process among decision-makers in a dyadic relationship. There remains guesswork and uncertainty when identifying the urgency, value, and risks of joint decision-making with a particular collaborator. Further, despite the extant literature that examines the benefits of joint supply chain decision-making, it does not sufficiently address how interests and motivations may vary across different companies and industrial sectors.

We identified the reasons that hinders companies to make joint decisions and that may bring them to decide a matter individually instead. Among these reasons are: fear of relational elements

such as non reciprocity, protection of profit margin, self sufficiency of information, process simplification, intellectual property (IP) protection, quality preservation, time-saving, and lack of willingness and/or capabilities among collaborators. Below we discuss some of these reasons (see Table 3.5).

According to literature, to reach collective objectives, buyers and suppliers across dyads should mutually agree on a relational norm or standard behaviour when they have to make joint decision-making (Macneil, 1980; Moch and Seashore, 1981). However, the extent to which buyer-supplier dyads comply with this relational norm through communicating relevant information, extensively sharing ideas, resolving disagreements and difficulties via joint decision-making may vary from one relationship to another (Macneil 1980; Heide and John 1992; Jap and Ganesan 2000). Furthermore, a relational norm does not impose strict rules to govern joint decision-making structure, lacking explicit assertions and binding limits, which may risk and expose partners to opportunism and other relational conflicts (Poppo and Zenger, 2002). These relational conflicts can manifest into overly divergent goals, disputes over the domain of decision-making and priorities, and conflicting perceptions of reality employed in joint decision-making (Arshinder et al., 2008).

Despite the inefficiency of relational norms and social sanctions alone to curb opportunism and conflicts, not all dyadic relationships between buyer and supplier are based on a transactional norm of a written contract. Contracts may add rigidity when unanticipated events occur. Contracts likewise constrain uncontracted obligations of a customer or supplier, and they have limited room to make both individual and joint decisions outside the contract scope. This lack of flexibility may be a significant issue for buyer-supplier relationships in developing markets because unexpected events often occur after the contract is signed (Liu, Luo, & Liu, 2009). Exacting contracts may lead to strategic rigidity in a rapidly changing yet attractive growing industry, demotivating or constraining partners' efforts to seek out and benefit from new business prospects (Bernheim and Whinston, 1998). Contrarily, relational norms encourage companies to innovate outside the scope of a contract, providing flexibility, organisational agility and adaptability based on situational needs in unpredictable markets. Firms will be more inclined to embrace developing market possibilities if relational norms are governed (Liu et al., 2009).

Limited contact and negative experiences with supply chain partner, including disloyalty, lack of trust, workforce-related malpractices (whether purposeful or inadvertent), and the absence of joint objectives would undermine a joint decision-making effort (Irani et al., 2017). When a number of implementation difficulties and obstacles are presented, including a lack of shared objectives, demand variability, software budget, partner trust, difficulty calculating benefits, executive support obstacles, a lack of real-time information exchange coordination, and a lack of adequate information technology and expertise, all of which resulting in a lack of partner confidence, joint decision-making is consequently hindered (Panahifar et al., 2015).

Cultural differences may also hinder transnational collaborations, for example due to Western individualism and Eastern collectivism cultures leading to different collaborative behaviors and activities, which may exacerbate the joint decision-making process when not carefully addressed (Huang et al., 2020).

Fear of losing competitive information (e.g. financial reports, manufacturing schedules, inventory values, intellectual property issues, and information sharing by competitors), a lack of technical expertise, and the availability and cost of technology, have been identified as major barriers to collaborative planning implementation (Panahifar et al., 2015).

Table 3.5. Risks of joint decision-making

Risk	References
Diminished or misalignment of profit margin	Panahifar et al. (2015)
No significant added value due to self sufficiency on information	Tjemkes et al. (2017)
Lengthy process, lost time resources	Huang et al. (2020)
Lack of commitment, willingness, and/or capabilities among collaborators to execute decision-making or outcome	Huang et al. (2020), Scuotto et al. (2017), Alsaad et al. (2019), Irani et al. (2017)
Opportunism and other relational conflicts	Poppo and Zenger (2002)
Overly divergent goals, disputes over the domain of decision-making and priorities, and conflicting perceptions	Arshinder et al. (2008)
Constrained decision-making due to binding contract, unexpected events leading to contract violation	Bernheim & Whinston (1998), Liu, Luo, and Liu (2009)

Lack of company's capability to adapt to new changes could also hamper joint decision-making. For example, when creating decisions on new processes and technologies, partnerships are tied to the capacity to adapt and utilize these new platforms, rather than to the gap of understanding of partners in IT processes and structures when the change was requested (Scuotto et al., 2017). The ability to close this gap emerging from a change request will motivate partners to make joint decisions. Another example is that when corporations in developing nations fail to utilize B2B technology to communicate with local and global business partners, it would be a key barrier to the full potential of collaborations leading to lost opportunity to expand new markets (Alsaad et al., 2019).

Asymmetric dependency levels could also prevent companies to make joint decisions. According to Huang et al. (2020), small domestic suppliers who depend on their manufacturers' expertise and technological advancements rather than exploring innovation themselves may be less preferred to be the partner for joint decision-making. A relationship that is too dependent limits the scope of collaborative actions, resulting in misaligned expectations between the parties. When one party (such as suppliers) is placed in a position of vulnerability, the collaboration becomes transactional, and manufacturers will not benefit enough from making joint decisions in these relationships (Huang et al., 2020).

Self sufficiency is another driver of individual decision-making. According to Tjemkes et al. (2017), if a company is offered supplemental resources by its partner that do not meet the company's actual needs or priorities, there is no urgent need to make joint decisions. These supplemental

resources could be in the form of economies of scale, market share, manufacturing capability, or offer of financial resources. These additional resources may not be needed by certain collaborators, but they may be helpful for other companies. To generate synergy and exploit diverse strengths, companies need to give complimentary resources that are close to equally valued by each other.

Since supply chain activities involve end-to-end participation of actors in delivering goods and services, it is inevitable to continue making joint decisions with collaborators, relying heavily on another firm to contribute with their best intention within the decision-making process to improve supply chain performance. It is, thus, becoming increasingly important for companies to judge what decisions to make jointly with their collaborators and which ones are better made individually by themselves, depending on the circumstances.

Risks of avoiding joint decision-making

Despite the risks exposing companies when making decisions jointly, entirely avoiding it may also bears costs (Table 3.6). The lack of joint or collaborative effort may have a major detrimental influence on supply chain performance (Panahifar et al., 2015). Companies, for instance those in the technology sector, cannot survive without bearing or suffering from constant costly investment in the areas of new products, processes, and technologies. It would be helpful if they could access the needed resources from partners by way of collaborative efforts in these areas. By having B2B joint decision-making that are knowledge-based, however, tech companies may surpass the limitations of conventional collaboration to increase R&D, innovation, and technical complementary assets that could benefit both parties (Zhang, 2014).

Based on systematic review of 281 articles published between the year 1994-2020, Nurhayati et al. (2021) discusses the areas of joint decisions identified within supply chain literature. Those are, among others: pricing, sourcing & procurement, replenishment, outsourcing, product, investment, alliance, sustainability, quality, inventory, marketing channel, and supplier selection. Each of these decision requires certain information or knowledge as well as parameters. For example, in pricing decision, companies would need information of "production costs, raw material costs, and profit margins", whereas in product decision, information needed is on "design, size, quality, specifications, lifecycle, range of products, packaging, as well as additional services related to the product" (Nurhayati et al., 2021, p.100). In some circumstances, this information could be limitedly available within a company, and when not enriched, could lead to incorrect judgment and misleading insights for decisions. This limitation exposes the need of collaborating with partners who may have input and leverage in knowledge to make these decisions.

Table 3.6. Risks of avoiding joint decision-making

Risk	References
Reduced supply chain performance, higher cost absorption	Panahifar et al. (2015)
Inability to access resources of partners, higher investment costs, reduced competitiveness due to lack of innovation power and lack of technical assets	Zhang (2014)

3.2.4 Empirical evidence of joint supply chain decision-making across multiple industries

To provide enriched view on current practices of joint decision-making, we studied literature and collected several empirical evidences from the following industries: automotive, agribusiness, FMCG retail, as well as high-tech. We discuss the observation below.

Automotive industry

Joint decision-making in automotive industry is a well-researched topic, providing rich insights on the decision drivers and facilitators. Automotive industry remain a popular topic in B2B relationship studies due to attributes of "technology lock-in" that emerges from prior investments in product designs, infrastructure, economies of scale, process, and value chain. Lockström et al. (2010) studied Chinese automotive industry and captured collaborative efforts and decision-making carried out jointly with suppliers to enhance collective supply chain performance (e.g., cost reduction, quality assurance, delivery reliability). These collaborative forms include: collaborative manufacturing, co-development, integrated communication and technology, future planning, and integrated organizational infrastructure (Lockström et al. 2010), all of which requires joint decision-making activities. Lockström et al. (2010) also suggest that these joint efforts are mainly facilitated by process management capability, problem solving skills, capacity for learning, engineering and innovation capabilities, planning skills, as well as systematic performance management.

According to Huang et al. (2020) who also studied Chinese automotive industry, car manufacturers must often make joint decisions with their suppliers to cut costs without losing quality. To do this, prior to making joint decisions, they choose recognized suppliers who are trusted and who demonstrate goal congruence. However, doing so could be a challenge. Disputes in joint decision-making process are inevitable, due to occasional misalignment of profit returns, cultural viewpoints, differences in working styles, and power levels. It is argued that Chinese suppliers care more about how soon a new product hits the market, whereas their foreign customers care more about product quality and procedure (Huang et al., 2020).

Another cause for disputes in B2B decision-making is misaligned incentives. Incentive alignment involves sharing costs, risks, and gains (Simatupang and Sridharan, 2005). Yet, not all partners share equally. Huang et al. (2020) reveals asymmetric incentive alignment in the case study, which may create resistance in making joint decisions. Finally, companies are concerned about intellectual property challenges when making joint decisions with their network. Despite intense rivalry, manufacturers tend to choose low priced suppliers, making it more difficult to safeguard intellectual property and thus create lack of confidence when making joint decisions and sharing information. Despite this concern, provided there is trust, Huang et al. (2020) stresses the importance of joint learning and collaborative knowledge management in minimizing costs and encouraging innovative ideas, which contribute to the development of a competitive advantage.

Agribusiness industry

Peng (2011) provides empirical study in agribusiness discussing how joint decision-making is governed between companies. According to the findings, contract is used to regulate how a company conducts business with its important suppliers, but it does not necessarily mean the company will engage with these suppliers in making joint decisions more often. However, suppliers tend to prioritize contractual customers above non-contractual ones, and will use advanced platforms, senior management, and personnel from several departments to engage contractual clients in decision-making (Peng, 2011).

The supply chain in agri-food industry is distinguished from conventional supply chains by the unique features of food. The actors in this industry generally place a high value on co-creation, adaptability, resilience, control and ownership of their brands (McIntyre et al., 2018). This industry deals with items with a short life cycle, huge volumes and product variety, lengthy production throughput times and seasonality in agricultural output, variable quality, quantity, and processing yields, particular transportation and storage conditions, and variably priced products (Badraoui, 2019). According to Badraoui's (2019) study, due to these characteristics, trust, interdependency, committed investments, resource sharing, knowledge sharing, goal congruence, incentives alignment, mutual planning, and joint performance measurement are crucial elements necessary in joint decision-making efforts.

Despite the rich discussion on important elements of joint decision-making in agribusiness literature, there is a lack of focus to make distinction between drivers, facilitators, and barriers (the lack of facilitators), and what elements belong to which category.

FMCG retail industry

Madlberger's (2009) empirical study in FMCG retail reveals that an active information-sharing policy, top-management commitment in strategic information sharing, internal technological preparedness in operational information sharing, and perceived advantages promote information sharing and joint decision-making within B2B collaborative settings. In order to provide a safe space for joint decision-making to flourish, trust needs to be established. Trust is the conviction that a partner will behave ethically and that nothing unexpected would occur that may result in negative outcomes (Anderson & Narus, 1990). When a company provides information, it faces the risk of that data being misused. When the company receives data, it faces the risk that the data is inaccurate and misleading. With trust, partners are compelled to accept some degree of danger freely (Madlberger, 2009). Therefore, trust is understood as an important variable that facilitates joint decision-making.

High-tech industry

Few empirical articles discuss the types of decision-making facilitators needed specifically in this industry, namely ease of access (Middendorp, 2022) and Electronic Data Interchange (EDI) or IT platform integration (de Mattos & Barbin Laurindo, 2015).

Middendorp (2022) provides empirical evidences of both aligned and misaligned resource integration in high-tech B2B value co-creation. It is sugggested that misalignment can be caused by either lack of direct human-to-human encounters that could have captured behavioural aspects indicating customer validation, or the use of a complex system as an intermediary during communication (Middendorp, 2022).

According to de Mattos and Barbin Laurindo (2015), sharing strategic information between high-tech companies may enhance competitive value. This can be done via platforms for B2B that allow parties to exchange contracts, CAD files, and video conferencing. Through platforms like EDI, suppliers can get delivery instructions, partners can design, create, manufacture, organize, and deliver client-specific goods and services in a rapid pace (de Mattos & Barbin Laurindo, 2015). Supply chain visibility allows partners to have access to or transmit meaningful information e.g. accurate descriptive reports and predictive projections necessary as input for joint decision-making.

Despite the mentioned findings, there remains a lack of in-depth discussions with laser focus on drivers and facilitators of joint decision-making in high-tech industry. This does not have to remain the case. High-tech businesses are growing at a rapid pace on a global scale, and their products and services support other industries. With this article, we invite researchers to investigate the topic even further.

3.2.5 Conceptual framework

Based on these prior insights from literature, a conceptual framework is developed (see Figure 3.2). Following this framework, this study aims to further explore the dimensions of both drivers and facilitators of joint decision-making within the specific context of dyadic inter-firm relationships between suppliers and manufacturers, particularly in the Dutch high-tech sector.

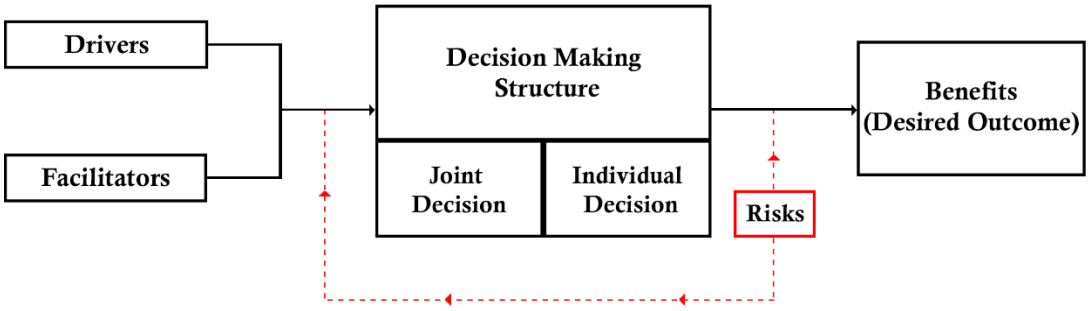


Figure 3.2. Conceptual framework, extended version

Further, through case study, we aim to investigate the combinations of driver and facilitator that is the most and the least common to mobilise joint supply chain decision-making across the Dutch high-tech actors. While being aware of potential risks of joint decision-making, we will maintain consistency with defined scope (Figure 3.1), and keep the notion of risks to discuss in-depth in the future studies.

3.3 Methodology: multiple case study

This study is empirical and descriptive in nature, with interest in distinguishing how certain drivers and facilitators complement each other and influence decision-making structures. As outlined above, existing concepts and approaches in literature were used to help with the study design and analysis. A multiple case study approach is the strategy chosen to conduct this study.

Selection of cases

To optimize and deepen our learning, we collected a number of examples on which to base future claims and analysis. According to Halinen and Tornroos (2005, p.1286), a case method is ideal for the study of corporate networks and their current phenomena. The unit of analysis in the case study technique does not correspond to the sampling unit, and so is not picked at random as in statistical methods (Yin, 1989). Multiple case studies, according to Yin (2003), may be used to "(a) forecast comparable outcomes (a literal replication) or (b) predict opposing results but for predictable reasons (a theoretical replication)" (p. 47). Theoretical sampling is used to pick examples in a controlled manner (Ragin, 1987; Yin, 1989). Boundaries are necessary in structuring the case study in order to address a particular topic without becoming too wide (Stake, 1995; Yin, 2003). A case may be built to guarantee that it works within a reasonable scope by binding it by definition and context (Miles & Huberman, 1994).

In this study, the cases are chosen based on the following criteria: (1) company size, which is determined by the turnover and number of workers; (2) combination of positions in supply chain: upstream or downstream; and (3) collaboration type. The fundamental rationale for the three criteria is to gain a general overview of all cases, and is based on the following considerations:

1) Company attributes: We noted the attribute of each case's turnover, status of public vs. privately held, number of employees, and years of establishment to avoid uniformity of responses, and to account for the likelihood that certain company attribute might impact joint decision-making behavior and tendencies of commitment in the relationship. For instance, one may argue that smaller firms may be more driven by the need to expand market compared to their long established, capital intensive, larger counterparts. One may also argue that in order to protect profit margin, firms with lower turnover may avoid sharing trade information and thus avoiding them to make joint decisions with larger counterparts, although the likelihood may also be similar among firms with larger turnover. We aimed to have a mix of

companies with diverse attributes to generate a conclusion applicable to all. When we begin to see saturation of cases with similar categories of attributes, we refrained to collect similar ones. We sent specific requests to respondents to cover for cases with other attributes in order to diversify the cases. To conserve space, however, this study does not discuss the distinctions between joint decision-making drivers nor facilitators relative to each company attribute in this article.

2) Combination of position: In this study, the position indicates whether an actor is upstream (supplier) or downstream (manufacturer) in their supply chain. To account for and avoid possibilities of uniformity of responses, we aimed to be close to a balanced mix of several combinations: positioning focal company as a supplier, and focal company as a buyer (manufacturer) within its supply chain. This attempt is done to avoid only gaining a narrow subset of "mostly suppliers" or "mostly buyer (manufacturers)" that might not represent the whole population.
3) Collaboration type: We included cases that satisfy the requirements of Lambert's (1996) notion of 'partnership', which is the type of collaboration that falls in between the two extremes of arm's length and fully integrated supply chain. According to Lambert, there are three distinct forms of partnership. This involves any relationship with the following characteristics:
    a. Type I: cooperative understanding, short-term contract, repeated transactions, product life partnership, purchase option;
    b. Type II: long-term projection of contract, shared goal, orientation to cross-functional effectiveness; and
    c. Type III: strategic alliances and the Just-in-Time perspective.

To conserve space, this study does not discuss the specificity of each case based on these three partnership types. Rather, we used this as frame reference and guide when including and excluding the cases.

***Case** exclusion criteria*

Given the scope of this paper, this study focuses on the collaborative process of decision-making and the interconnectedness of interdependent manufacturers and suppliers. This research does not include relationship contexts that fall under arrangements of joint ventures, horizontal connections or competitions, arm's length relationships, or vertically integrated supply chains. The latter refers to an arrangement where some or all parts of a company's supply chain is owned by another company for control and streamlining purposes, thereby allowing not much room to make individual decisions. We only investigate decisions involved in a dyadic relationship or bilateral form of inter-firm collaborations in a partnership level where both joint decisions and individual decisions are allowed to appear more symmetrically. We assume that these relationships consist of companies that have greater freedom and less restrictive arrangements in directing their supply chain strategies.

A case is considered qualified when the interviewee is willing to discuss both one B2B supplier and one B2B customer or one of the two. Initially, we reached out to respondents from 12 companies, aiming to have 24 cases. However, during some of the interviews, we found out at a later stage that some companies are not directly connected with their B2B product users, meaning that they work with a middleman company, such as a distributor, a trader, or a retailer. To ease the data analysis, we decided to exclude their relationships with those type of companies and include only relationships where there is direct interaction with users of materials or products, which could be between supplier and manufacturer alone, where the downstream actor (manufacturer) is the user of its upstream counterpart (supplier). With this exclusion, we ended up with a total of 13 supplier roles and 9 buyer (manufacturer) roles across dyadic relationships (see Table 3.7).

Data collection

We limited our target population into Dutch high tech manufacturers with operating offices in the Netherlands. The focal companies selected in this study are located in the Dutch tech hubs such as Delft, Eindhoven and Amsterdam. This narrowed selection is aimed to provide location proximity and thus ease of interview process, so that interviews could be done face-to-face by the researcher and respondents. By doing so, it is expected that respondents would be more comfortable to share their insights. We specifically limited our criteria of respondents. Their work titles are at least either supply chain manager, sourcing or procurement manager, or lead buyer who are at middle or senior role in the company, and are in direct interaction with their supplier and buyer (manufacturer) in their current role. To ensure minimum level of topic expertise, we invited the respondents who have graduated from universities with a minimum of Bachelor degree, and have a minimum of eight years of professional experience.

Contacting respondents

We used LinkedIn Premium advanced search database to contact the company representatives via the researcher's LinkedIn account. We communicated our invitation to interview, providing general idea on the research topic. Due to limited number of contacts available in the platform that fulfil our criteria, compounded with slow rate of connection request acceptance and positive replies, we decided that one representative from each focal company would be sufficient for this study in order to conserve time. The names of the companies, as well as representatives, remain confidential throughout this study report.

Interview questions

To collect data, semi-structured interviews were conducted. Based the insights derived from the literature, we prepared the questions (see Appendix A). We asked each interviewee to think of one B2B supplier and one B2B customer, if any, and describe their company's relationships with these companies. We focus on the decision-making process and repeat transactions between focal

companies and direct collaborators upstream and downstream. Each interview lasted between 60 to 90 minutes and was conducted once per interviewee, with occasional follow-up questions for some of the cases when further clarification was necessary.

To mitigate potential response bias, we ensured that each question posed to respondents is accompanied by correct probing and definitions necessary to achieve comprehension and consistency in the data depth of each case. We also asked the respondents to provide examples in their own words to infer the validity of their responses later and avoid incorrect assumptions. All respondents could provide answers consistent to predefined terminologies. Further, early and late interviews of cases with similar categories (company size and company position) were compared to mitigate response bias. There were no significant differences between early and late interviewees in terms of respondent's knowledge or familiarity of the chosen suppliers or manufacturers. The concept of familiarity was borrowed from EM Steenkamp et al. (2003), whereby respondents were asked to claim their familiarity in making joint decisions with their chosen suppliers or manufacturers, and to select only the ones with which they have professional interaction of at least one year.

Data analysis

We work with recorded and transcribed interviews data gathered from 22 cases (dyads), which were then labelled and analysed with content and thematic analysis.

To manage and analyse the data, we used NVivo™, which is a widely-used qualitative data analysis software to aid in finding and retrieving relevant comments including key phrases from respondents. We developed the analysis plan based on the labeling (or coding) procedures of Woods et al. (2016) using the same software with some adjustments as below:

i. Step 1: We used NVivo™ speech-to-text feature to automatically transcribe the interview sound recordings, and proceeded with additional check and manual corrections for several machine-translated mistakes. The translated documents are stored in rich-text format.
ii. Step 2: The researcher executed the coding via a mix of search queries and manual sorting. Using the existing literature as a foundation (Bandara, 2006; Yin, 2009), we created an indexing system of data categories called nodes in NVivo™ based on the list of drivers and facilitators of joint decision-making that the researcher could code into (Table 3.8).
iii. Step 3: The finished nodes system exhibited the full categories or themes of identified examples, a quantitative count of the number of examples in each node, the corresponding case number where the examples belong to, and the content for each item coded to the node when it was accessed. Based on the finished nodes, we made an observation to ensure consistency or match between examples and each theme and to determine the rigour and the occurrence of similar examples found across cases.
iv. Step 4: Finally, we used NVivo™ to execute matrix coding query to find the co-occurences of drivers and facilitators in each case.

Table 3.7. List of high tech companies interviewed*

Company	Case number	Which partner is discussed	Total years of establishment	Status	Total employees	Description
A1	C1	Supplier	31-35	Public	10,001+	The company provides industrial clients with solutions in Electrification, Process Automation, Motion, Robotics and Discrete Automation.
	C2	Buyer				
A2	C3	Supplier	6-10	Privately Held	11-50	The company is a university spin-off and provides expertise in nanoparticle manufacturing and integration. Their technology helps companies develop faster by generating nanoparticles on-site and integrating them directly into the final product. Applications includes sensor, battery, catalysis, solar cell, healthcare, additive manufacturing, and nanosafety.
	C4	Buyer				
A3	C5	Supplier	66-70	Privately Held	501-1,000	The company creates and enhances components, modules, and systems. It also provides supply chain management, milling, and sheet metal manufacturing. Industry and health-tech industries are served by the company.
	C6	Buyer				
A4	C7	Supplier	51-55	Public	1,001-5,000	The company specializes in the design, development, assembly, and maintenance of high-level functional modules and subsystems. It produces high-mix, low-volume electrical components for worldwide Original Equipment Manufacturers.
	C8	Buyer				
A5	C9	Supplier	51-55	Public	1,001-5,000	The company offers solutions for product lifecycle management of sophisticated electronic applications as an international one-stop-shop provider in the Electronic Manufacturing Services (EMS) sector, for electrical components, assemblies, and operating systems (box builds). Also, they offer customised solutions for PCBA's, cables, microelectronics and box construction applications, always striving for the lowest total cost of ownership.
	C10	Buyer				
A6	C11	Supplier	36-40	Public	10,001+	The company is a significant global supplier of lithography equipment for the semiconductor industry, producing complicated machinery required to manufacture integrated circuits or microchips.
	C12	Buyer				
A7	C13	Supplier	71-75	Privately Held	1,001-5,000	The company provides farmers with innovative solutions and personalised services for every cowshed task, from milking to cleaning. The company advises on how to operate a dairy farm efficiently using management systems.
	C14	Supplier				
A8	C15	Supplier	21-25	Privately Held	501-1,000	The company is a technology partner that specializes in the development and
	C16	Buyer				

						manufacture of technical goods and solutions. Clients hire their specialists in the areas of Technical Software, Mechatronics, Electronics, Mathware, and Assembly to augment the expertise or outsource projects. The company can assist with research and development or perhaps take on the role of the R&D and production departments.
A9	C17	Supplier	>100	Public	10,001+	The company delivers integrated solutions using innovative technologies and clinical and consumer data. In addition to diagnostic imaging, the firm is a pioneer in consumer health and home care.
A10	C18 C19	Supplier Buyer	51-55	Public	1,001-5,000	The company is a global one-stop provider of Electronic Manufacturing Services (EMS), and proclaims as a market leader in: Automotive, Medical, Industrial, and Semiconductor. They provide tailored solutions for the entire product life cycle (from concept to after-sales support) of electrical components and complete (box-built) electronic control systems.
A11	C20	Supplier	36-40	Public	201-500	The company is leader in making highly automated beverage machine in-house for consumer and professional buyers. They focus on providing superior solutions for Office, Hotel, Restaurant, and Automatic Vending locations. They conduct their own R&D and in-house manufacturing. Initially a private company, they were acquired by a larger stakeholder to cater bigger market and became one subsidiary.
A12	C21 C22	Supplier Buyer	11-15	Public	10,001+	The company is one of global pioneers in secure embedded connection solutions for the automotive, industrial, IoT, mobile, and communication equipment industries.

**Note: information retrieved as of October 2021, sources: LinkedIn and corresponding company websites.*

To visualize the data, we used a separate matrix to display the co-occurences of drivers and facilitators coded in a case. We discuss the results thematically through critical reflections to infer associations between drivers and facilitators of joint decision-making. Finally, we explored the study implications for theory and practice.

Table 3.8. List of codes

Drivers	Facilitators
D1: To access resources & capacity D2: To adapt to market developments/ maintain client base D3: To align financial incentives D4: To share risks D5: To access new market D6: To incite more commitment from collaborator D7: To reach target cost	F1: Transaction history F2: Ease of access F3: ERP/EDI systems F4: Established contract F5: Location proximity F6: Trust and openness

3.4 Results and discussion

3.4.1 Drivers of joint decision-making

To explore the motivation behind collaborative or joint decision-making, we asked the respondents the following questions:

i. *What motivates you to make joint decisions with your collaborator?*
ii. *What kind of supply chain decisions are usually made jointly with your collaborator?*

Based on the interview responses, we found seven main drivers. Below we briefly discuss the drivers (Table 3.9).

Table 3.9. Identified drivers of joint decision-making

Drivers of joint decision-making	Cases (C) occurrences
To access/grow new market	C10, C21
To adapt to market developments/flexibility/maintain client base	C1, C2, C7, C8, C10, C13, C18, C22, C19, C21
To access resources/capacity/assets of the collaborator	C3, C4, C5 C7, C8, C11, C13, C14, C17, C18, C21
To share risks with collaborator	C7, C8, C12, C21
To incite more commitment from collaborator	C9, C10, C11, C17
To align financial incentives with collaborator	C1, C3, C6, C14, C20, C22
To reach target cost	C15, C16

To access and grow new market

There are tendencies from the respondents to conclude joint decisions to either open access to a new market or create a better position in the market competition. In C10, the respondent indicated its willingness to grow together with its client, even though it is still a new startup company, in the aim of tapping a new market. The company claimed to look forward to reaping higher revenue (C21).

To adapt to market developments, flexibility, and changes in client base

In another case (C21), the respondent also highlighted the importance of establishing joint decisions with the supplier to gain a better position in the market competition. Respondent in C1 claimed that joint decision-making is needed when there is a market corresponding to it: "(with supplier), it is a discussion we are having: is it based on an order, yes or no? If not, is there a market?" Respondent in C13 also signified the importance of co-development with its supplier to expand the market. Respondent also intended to make joint decisions as a mechanism to maintain their relationship with the client (C22): "(we make joint decisions) because of the sheer volume they have

at our site." Similarly, another respondent also claimed to use joint decision-making as a way to adapt to their partner (C19): "For quality reasons then you will have more lines managed through joint decisions or proposal. If the customers want better quality product, then they will sometimes invest in it."

To access resources, capacity, or assets of the collaborator

From the interviews, we also identified another driver of joint decision-making, which is the ambition to control risk and resources. Respondents claimed to be willing to establish joint decisions with their suppliers considering the capacity of their suppliers in producing complex parts (C13). Reliability of their supplier to produce the correct quantity at the right time is another consideration for developing joint decisions (C14). The importance of collaborators' capacity to perform is paramount to respondents because if the suppliers failed to deliver, the respondents would also face the consequences (C17). The suppliers' ability to deliver certain quality is also determinant in establishing joint decisions (C18). Sometimes, in facing customised orders, it is vital to involve the suppliers in the decision-making process to ensure that they can produce the customised orders (C4).

To share risks with collaborator

Sharing the risk is another driver for establishing joint decisions with the suppliers. In facing the dynamic market, it is sometimes better to create a joint decision with suppliers to share the risk of market changes (C12).

To incite more commitment from collaborator

Establishing joint decisions could also be driven by encouraging suppliers to commit. In pricing, for instance, it is essential to gain commitment from the suppliers (C9). If the supplier is still in the startup stage, it is also important to incite their commitment to growing into a specific market direction (C10). By having a joint decision and involving the suppliers in the decision-making process, respondents aim to gain more substantial commitment from their suppliers (C11).

To align financial incentives with collaborator

Involving suppliers into a joint decision-making process could also be driven by financial motives. In C22, a respondent said, "they are so important to us. We will do anything for them. They will give us a regular update of their forecast and the value of those numbers are unreliable. So we have a separate organisation that finalises the demand and makes the decision of what real demand is." Similarly, the respondent from C1 argued that "mostly it is financial motivation. We are buying and selling products and services. This is the basics. You need to earn money."

To reach target cost

By having the suppliers involved in the decision-making process, the agreed production cost could be optimised due to their better knowledge of their field. Even if the cost would go higher than what was agreed upon in the contract, the respondents tend to be safer. The respondents could place

the cost burden solely upon the suppliers' risk because the suppliers have been involved in the decision-making process in the first place (C15). Having the suppliers involved in the decision-making process would also lead to cost efficiency (C16).

Based on the abovementioned responses, we find that two drivers are dominantly based on the frequency of appearance among the seven drivers identified. First, companies make joint decisions to access their collaborator's resources, capacity, and assets (11 cases). Second, companies make joint decisions with their collaborator to adapt to market developments, adjust flexibility, and eventually maintain a client base (10 cases).

3.4.2 Drivers of making individual decisions

Other than making joint decisions, respondents may equally have specific drivers not to involve another partner in their decision-making. To explore the motivation behind an individual or autonomous decision-making, we asked the respondents the following questions:

i. *In which circumstances do you find the lack of need to make joint decisions with your partners?*
ii. *What kind of decisions are better made individually by your company without involving your partner?*

We could group the drivers into seven categories (See Table 3.10 and the explanations below).

Table 3.10. Identified drivers of individual decision-making

Drivers of individual decision-making	Cases (C) occurrences
To protect profitability/margin	C21, C7, C2, C13, C3
Having enough information already	C21, C22, C4, C17, C19
To simplify the process (e.g. to shorten feedback loop in design process)	C7, C13, C17
Protecting intellectual property (e.g. design already decided, technical information from manufacturer)	C8, C9, C14
To maintain quality	C10, C11
To save time	C6, C3
Incapability of collaborator to commit in joint decision-making	C2

Protection of profit margin

Respondents preferred to establish individual decision-making mainly to protect their profit. In this type of scenario, for instance, in the case of pricing, respondents have their internal policy and calculation of pricing and profit estimation. Therefore, the suppliers only serve to help the respondents as manufacturers calculate pricing and answer RFQ from their customers (C21). The manufacturers tend to hold the lead regarding profit/margin protection (C13). In this driver category, the suppliers play a role in determining the best price for parts production separately.

Nevertheless, the final pricing decision and profit/margin calculation would be determined solely by the manufacturers (C3). It is done based on the protection of commercial interest, which will prevent parties to be open for joint decision-making. In C7, the respondent signified, "*but on the other hand, it is also in their commercial interests to disclose everything.*" Furthermore, the respondent

in C7 emphasises that, "*but, you need to convince them that our goal is not to eat their margins. Instead, I want to have an open culture where we can reduce costs or at least remain relevant.*".

Self-sufficient in information

Respondents claimed to be reluctant to establish joint decision-making with suppliers if they deemed themselves sufficient in terms of information. If the manufacturers are already sufficient with important factors such as pricing strategy, quality, cycle time, reliability and capacity support, individual decision-making tends to be a preferable route (C21). Quoted among some examples from the respondents, such as in C22, "s*o that is our own decision to say this. OK, we understand is your input, but we do not think that is correct.*" In C4, respondent claimed, "e*ither small decisions or decisions that do not affect the functionality or the price, are individually done. Moreover, it does not matter for our clients if we use different internal electrical components. As long as they do not have to pay for it. Alternatively, it changes the product.*" Similarly, individual decision-making is observed within C19, as a respondent added, "*sometimes we think we have a better understanding in one area than the customer, so we take care of it ourselves.*"

Process simplification

If individual decision-making leads to a simpler process, respondents prefer to have it. In product development, for instance, the respondents perceived that it was simpler to let the suppliers decide the production process without any joint decision-making process with the manufacturers. Even though the communication is limited at a broader level, when it comes to product development plans, the execution is placed solely upon the suppliers (C13). As the respondent's supplier held superior knowledge in making certain parts, the respondent avoided being involved in joint decision-making to simplify the process. Instead of being entangled in inconclusive discussions, the respondent in C7 preferred to let an individual decision to be made by their supplier. In C7, the respondent emphasised that "*If he is so heavily involved in the whole process and he also knows I have no option, then it is tough to talk about the price.*" For another decision problem, the respondent in C17 argued: "*Transport is not always a joint decision. We can discuss about transport and packaging, but they are free to choose as long as it is within the budget, it is a long-term solution, and it will not interfere our product development.*"

Intellectual property (IP) protection

Legal liability would also be another driver's category that would lead to individual decision-making. If any elements in decision-making leads to a violation of IP rights of either respondent as manufacturers or the suppliers, this would be a determinant factor in making an individual decision, especially when the respondent is a technological company that involves a lot of protected knowledge within. Individual decision-making turns out to be the most favourable option for this scenario (C14).

In the product development section, the respondents tended to avoid being involved in joint decision-making simply to avoid legal consequences in changing a particular protected design. In C8, the respondent explained that "*For them (the suppliers), it is a finished product. They work with building blocks. If the engineering phase is finished, they move on.*" Moreover, protection of IP rights becomes the utmost importance for some respondents. Prudent secrecy is employed when it comes to protecting technical know-how and other IP related issues. The respondent in C9 expressed that *"looking from the pro-choice side, we always want to make secured decisions on where to buy what materials. It is not good to involve them (the partner) in this decision.*" Such secrecy placed on IP rights-related matters would prevent the respondent from sharing any possibility of making joint decisions with their counterparts. This concept also works on the supplier side where the suppliers own the IP rights. In that regard, despite the communication still being maintained with the manufacturers, the suppliers would prefer to have individual decision-making regarding their IP rights protection.

Preserving quality

Joint decision-making would also be avoided by respondents when it comes to quality preservation. If such effort is compromised or in any way alter production standards, the parties involved in the decision-making process would prefer to make it an individual one. In C10, the respondent highlighted that "*… it is hard to say, but it (negotiation) happens in the middle because in the end, they have to follow our production standards and the rules within a company if they board with us. Similarly, however, we also have to respect their product and materials.*" In another case, C11, the respondent suggested that *"the deliveries have to meet (our standard of) ninety-eight per cent, always on time, in full. There is no (room for) consensus."* Such respect for product and materials standards would lead to an autonomous decision.

Time-saving

The respondents would also avoid joint decision making if such options cost them too much time to discuss and negotiate. If the option to share information to make joint decision-making would only lead to a longer time of coordination and discussion amongst the actors, individual decision-making would be preferable (C3). Respondent in C6 also emphasised that "*And if they do not agree, they can escalate the fight themselves. Furthermore, I know what the end is. It is time-consuming.*" In this type of situation, the respondent would avoid prolonged discussion in the light of time preservation.

Capabilities of collaborators

In C2, the respondent indicated that there are moments when their buyer is "*not sure with our package, possibly due to their limited capability in managing a high risk and high-cost offer, therefore they are not ready to commit in a joint decision-making with us*". In such cases, the company sees better value in making individual decisions such as pricing and other transactional-level decisions that exclude strategic ones.

3.4.3 Facilitators in joint decision-making

To explore the facilitators that enable joint decision-making, we asked the respondents the following question:

i. What facilitates your joint decision-making process with your partners?

In making joint decisions, there are also several categories of facilitators that would lead the actors in the decision-making process to submit themselves into it (please see Table 3.11 and the following discussion).

Table 3.11. Identified facilitators in joint decision-making

Facilitators in joint decision-making	Cases (C) occurences
Ease of access (e.g. personal contact, good personal communication, social commonalities)	C21, C9, C10, C1, C3, C19, C4, C14
ERP/EDI systems	C21, C3, C19, C14, C18
Established contract, agreements	C10, C6, C15, C13, C22, C3
Location proximity	C7, C4, C3
Transaction history	C21, C7, C8, C11, C12, C19, C16, C17, C20
Trust and openness	C21, C5, C1

Ease of access

Across our interviews, we find that the most common factor that can facilitate the actors to establish joint decision-making is to create an ease of access amongst them. By having an ease of access and sharing the knowledge, for instance, business forecasts, the actors could enjoy better joint decision-making (C14). Sharing specific access to knowledge would also be another facilitator to pave ways to a better market in the future (C9). Accessing a bigger market in the future would be a promising driver, especially for smaller startup tech firms. Therefore ease of access between collaborators is highly needed to support this purpose (C10). Sharing access to gain better potential growth would be very beneficial to drive parties in the decision-making process to make a common ground together (C21).

Seamless joint decision-making could also be the actors' goal, thus having ease of communication would be preferable for them (C19). In some cases, smaller technological firms would benefit from having easy access to establish joint decision-making because otherwise, they can be easy to be denied by the more prominent company due to a particular gap of company size/scale (C3).

Some companies find it challenging to reach out to specific customers when there is no ease of access. Thus, it is worth investing in building ease of access, mainly in the beginning of collaborations. In C4, for example, the respondent explained, "*..but I cannot directly talk to them (the Chinese customers). It is not easy in terms of language and culture and everything. So I interface with our distributor, and they communicate the message to the customer.*" In another case, C1, the respondent highlighted that "*you have to establish some personal contact at least. Communication is usually more open after the first time. After a couple of years, you start treating them almost like you work with somebody sitting next to you.*"

ERP/EDI Systems

We find that by sharing a forecasting platform (C14) or a shared supervision system amongst them (C3), actors could share crucial information that would shape their joint decision upon some issues. A commonly used system would make a seamless production flow between the suppliers and manufacturers in producing the end product (C19). In C19, the respondent said "*you add (the demand forecast) in the enterprise planning system to send a request to the supplier. That creates rotation requisitions, so suppliers can start procuring these items.*" Respondents sometimes even have several commonly used apps to run certain products (C21). By sharing such information via shared apps, the respondent explained that they can make more joint decisions based on real-time data, leading to optimisation of resources, as respondent said "*(…) we have multiple apps that can run the status of a certain product, that will make the decision how much we are on at this factory and then the other factory.*"

In C18, it was also highlighted that a good configuration of information management interfaces is key to an optimised operation, "*They have good tooling to handle our demand. They have proper system software, and they have good procedures. They have the same structure as we have with our customer and is aligned with our customer requirements.*"

Established contract or agreement

Our results found that an established contract could also be another facilitator to establish joint decision-making. If the contract has been established for specific agreed terms/years (C15), the actors would feel much more comfortable establishing specific joint decision-making processes upon the contract's agreed section. By having a contractual relationship, the respondent would tend to have joint decisions to honour the contractual obligations they have made together. In C6 the respondent said "*If you start in the beginning (the contract), you will keep it up to until the end. Changing can happen in between, yet it doesn't happen often.*"

Contractual relationships could also benefit smaller firms and motivate them to join joint decision-making. When a contract could serve legal certainty for certain situations such as inability to deliver upon agreed matters with the manufacturers, smaller firms would find it better to have a contract to solve this situation, thus making them more comfortable in a joint decision scheme. The respondent in C10 said that "*if it is a crucial decision, for example, that they are going to shift their production to another company when we still have left overs or running production, in that case, we already have good agreements how they should deal with us*". A contract can also potentially increase the attractiveness of suppliers, as indicated by C13: "*yes, we could switch, swap, switch to other suppliers. Nevertheless, this particular supplier is crucial for us. It is our long term contract supplier also. So you find that those things (joint decision-making) go more smoothly than you expect.*"

Location proximity

If the actors are located within a certain proximity, it would be more convenient for them to have a joint decision-making process due to more accessible communications and to make physical follow-ups. The communication options are comprehensive primarily when the manufacturers and suppliers are located in the same tech-complex or industrial area (C3 and C4). It could be done by either having a simple phone call or more formal physical meetings to decide specific issues together. Closer proximity would also make the parties involved feel more comfortable in maintaining joint decision-making. In C7, the respondent explained that "*for auto suppliers, it is sometimes also regionally based. This is the legacy that has been around for many years. I have got a close connection also sometimes directly with our customer.*"

Transaction history

Having prior communication or transaction would also enhance the tendency in making joint decision-making together. Knowing the history and track records of the business partners (both manufacturers and suppliers) better would facilitate the actors to establish joint decision making (C16). Transaction history would also guarantee, in a way, the capability of the business partner. In C7, the respondent highlighted that "s*o they developed it with us and that over the years I think the relationship, which now dates back around 10 to 12 years or something like that, has evolved and proved them to be a reliable partner.*"

Having a solid, long-standing relationship would also lead parties to have a joint decision with their business partners. In C11, the respondents emphasised the importance of long-standing relationships by saying, "*what I understand is that you have to build a relationship, not a transactional short term, but something for the mid-long-term horizon like 18 years.*" A long transaction history would also, in a certain way, guarantee the capability of the counterparty, thus making the respondent feel more comfortable with making a joint decision even if it means paying a higher price for the already known business partners (C19). By knowing the business partners well, the respondent claimed to share information to decide specific issues through a commonly used system (C21). In C17, it is highlighted that a long-standing relationship allows both parties to reap mutual benefits of business continuity and growth, as respondent said *"depending on past performance, you keep them long term on board. So you will have close contact with them. That means that you have a business meeting every few months with them. You typically discuss the progress on the yields, on the portfolios, on the demands. You will look at their technology, their next steps, what they think they will develop. That will help you somewhere and you will typically have a discussion with them or next projects.*" Additionally, in C20, it was highlighted that long-standing relationship creates a lock-in situation that suppliers can leverage towards customers, as respondent said "w*e need them (the supplier) and we are now more than 35 per cent of the turnover of that particular company. It is difficult to get a supplier that can deliver the same quality for the same cost as they do.*"

Trust and openness

We found that having a certain level of trust and openness would also facilitate parties to make joint decision-making. If a company already has a shared information platform and a long-standing history with its client, joint decision-making would be preferable. In C21, the respondent emphasised that "*I also trust them. If I say we need this and they say they cannot do it, then they really cannot do it.*" This response shows the level of trust that accompanies the joint decision-making of the respondent together with its client. With trust and openness, it seems that the threshold for error can be modified to be higher. However, both parties remain accountable to their decisions. As indicated in C5, "*if there is open communication, we understand and do cooperate. However, they (the supplier) also need to acknowledge when they make a mistake.*" Similarly, in C1, it was indicated that joint decision-making is preferable in the presence of openness: "*You can be very open with them.*"

3.4.4 Barriers in joint decision-making

To explore the barriers that hinder joint decision-making, we asked the respondents the following questions:

i. *Have you ever wanted to make a joint decision, but find out this is impossible?*
ii. *What are the challenges in making joint decision-making?*
iii. *What kind of decisions are better made jointly involving your partner, yet you have little access to do so?*

The barriers in joint decision-making refer to the lack of facilitators for companies to make joint decisions (even when their partners are willing to make joint decisions too) thus making the decision done individually. We find several categories of barriers (see Table 3.12 and the following discussion).

Intellectual property rights

The exclusive nature of intellectual property law would prevent one party from sharing or making joint decisions together, despite their willingness to do so. The respondents sometimes are reluctant to dictate the business partner when it comes to product design protected by IP rights. In C8, the respondent highlighted that "*We never decide on such design. The only thing is what we do with it. We make recommendations on how we can make it a better design. So, replacing a component or changing a bit layer where they do not question much on that, that can be indeed sometimes a good alternative.*" Any related development on related IP rights issues would prevent the actor from establishing joint decision-making, leading to an inevitable sole R&D and product development.

Different goals/interest

If the parties have differences in their goals/core interests, it will impede their ability to establish joint decision-making. In C9, the respondent signified that "*Sometimes we have different*

goals, different benefits. What do we want? Well, we differ in what we want to benefit from. Then it is not always easy to communicate with each other."

Table 3.12. Identified barriers in joint decision-making

Barriers in joint decision-making	Cases (C) occurences
Intellectual Property rights	C8
Different goals/interest	C9, C1
Lack of internal coordination and alignment in own company (between departments, e.g. when commenting on RFQ)	C10
Limited budget & time (having to stick with less developed design)	C6, C3, C4, C19
Collaborator not ready to commit and fulfill the request yet	C2, C3, C22

Lack of internal coordination and alignment in own company

Internal factors within a company could also hinder establishing joint decision-making. In C10, the respondent highlighted dissatisfaction towards the internal communication system, thus hindering the chances to make joint decision-making with business partners. The respondent explained "*I wish there could be more alignment within the customer towards all the stakeholders within the company so that when an RFP was being sent out, we know what we offer.*"

Limited budget and time

Limited budget and time to develop joint decision-making would also hinder the actors' ability to cooperate in such a scheme, regardless of their willingness, especially for a small tech firm that has already been overwhelmed by many tasks, thus hindering their abilities to develop joint decision-making with their business partners (C3). The respondent will also avoid further discussion if specific requests or suggestions on design changes, if the budget is not there to accommodate such changes. In C6, the respondent highlighted that "s*ometimes you can judge that the design offered is not always optimal, and there is no budget or resource available to afford a change.*" In another case, C4, respondent indicated that a different priority setting could hamper joint decision-making as well "s*ometimes we want to define the technical specifications, but they do not see the priority. So they deny it because they do not have time.*" Similarly, C19 indicated that proposing a cost increase could make another party to withdraw entirely from joint decision-making "s*o the customer says, no, I am not willing to support that decision because then we have some extra design cost.*"

Collaborators are not ready to commit and fulfil the request

A similar scenario would also apply for small firms with other priorities on their task and lack of resource deployment, thus preventing them from focusing on joint decision-making due to their scale of business (C3). In another case, dealing with a reluctant, more prominent firm can also be a barrier, and one can feel helpless because it is challenging to engage them and incite their commitment, as indicated by C22 "*they should be honest, they need to give us the full story, in the same way that we are doing to our foundries. That (to share more information) is what we expect from them. Otherwise, we are trying to shoot in the dark.*"

Other than the cases mentioned above, the rest of the cases claimed that they never had any considerable difficulties making joint decision-making with collaborators.

3.4.5 Asymmetries between suppliers and buyers

Based on the comparison, there seem to be imbalances of examples given by respondents between the discussion about their supplier vs. their buyer. This imbalance might indicate asymmetrical knowledge about one of the spoken partners despite respondents indicating they have sufficient knowledge about both partners. Linking Figure 3.3 to Table 3.7, it is found that the highest asymmetry is found in C21-C22 (respondent of company A12), in C9-C10 (A5), in C3-C4 (A2), in C7-C8 (A4), and in C1-C2 (A1).

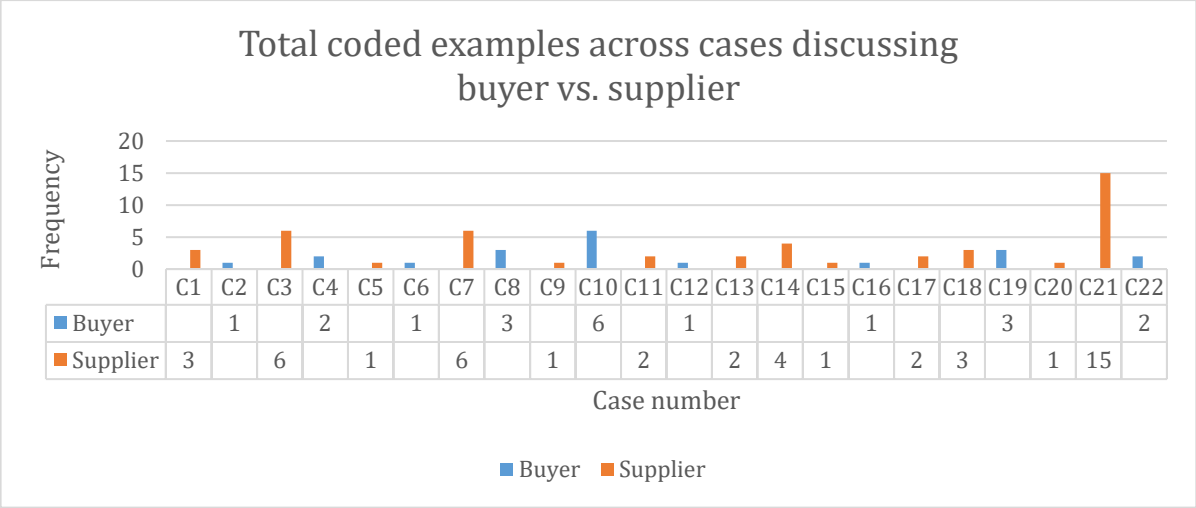


Figure 3.3. Total coded examples across cases discussing buyer vs. supplier

Among these imbalances, it is also found that majority of respondents provide more examples when discussing about their suppliers. This could be due to respondents' role in the companies who work in supply chain department and interact more closely with their suppliers compared to with buyers. Some respondents also have mentioned that marketing, sales, and customer support departments have more interaction with buyers compared to supply chain department. This may also explain why there could be a lack of knowledge or conviction when discussing buyers.

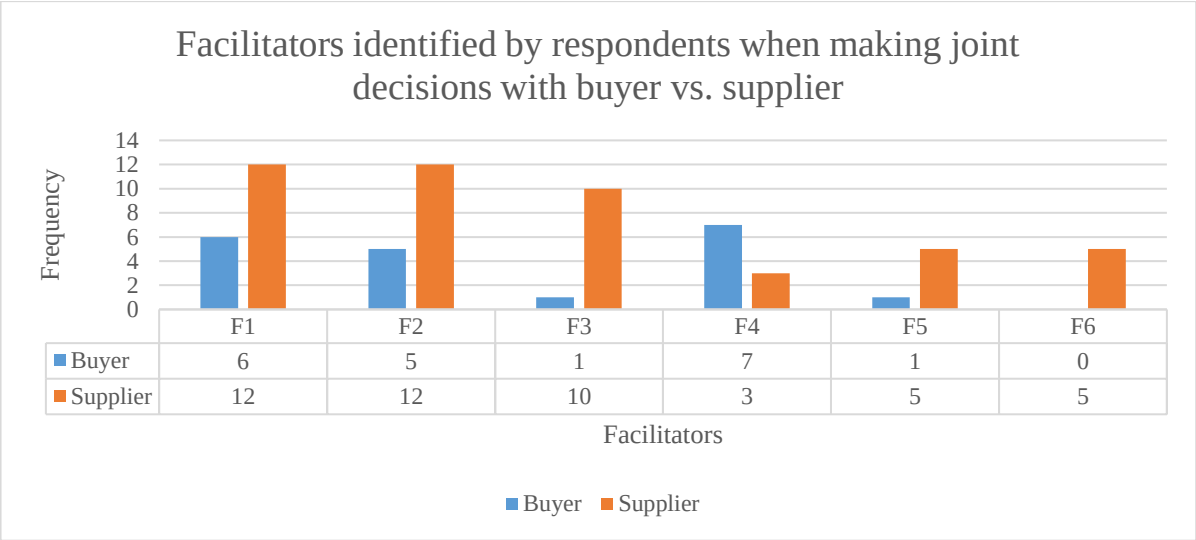


Figure 3.4. Facilitators identified by respondents when making joint decisions with buyer vs. supplier

Further, when making joint decisions with buyer, respondents from focal company seem to be facilitated more by F4 (established contract), F2 (ease of access), and F3 (ERP/EDI systems) compared to other types of facilitators (Figure 3.4).

When making joint decisions with suppliers, respondents from focal company seem to be facilitated more by F1 (transaction history), F2 (ease of access), and F3 (ERP/EDI systems) compared to other types of facilitators.

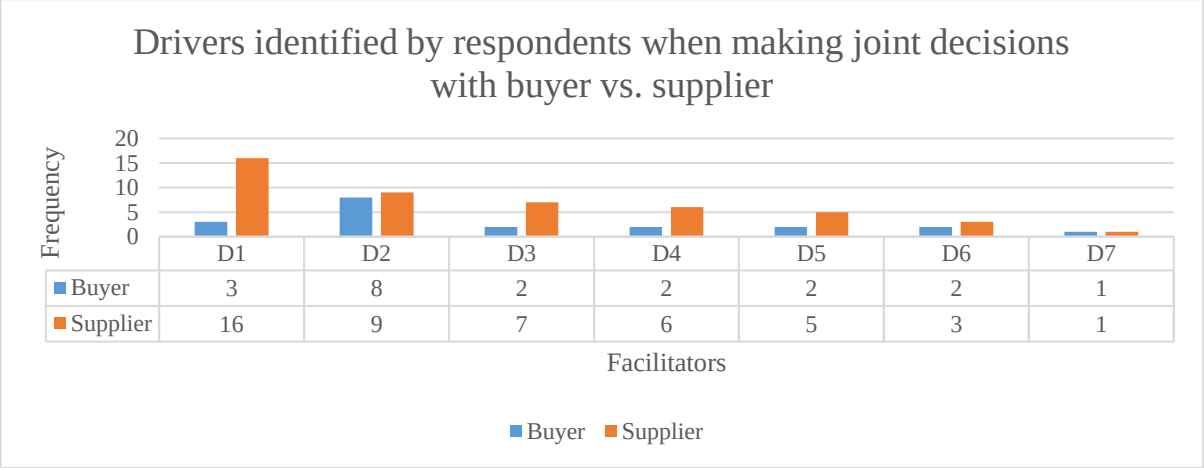


Figure 3.5. Drivers identified by respondents when making joint decisions with buyer vs. supplier

When making joint decisions with buyers, respondents from focal company seem to be driven the most by D2 (To adapt to market developments/ maintain client base) compared to other types of facilitators.

When making joint decisions with suppliers, respondents from focal company seem to be driven more by D1, D2, and D3 compared to other types of facilitators (D1: To access resources & capacity, D2: To adapt to market developments/ maintain client base, D3: To align financial incentives).

In addition, there are a few other interesting observations across the case study. First, the need to reach target cost (D7) does not significantly motivate firms to make joint decisions as much as other drivers. Second, while trust and openness (F6) theoretically enable joint decision-making, these qualities still lack presence or were not mentioned frequently compared to other facilitators. Third, as firms operate more globally, they are learning to get used to collaborating through digital platforms, thus relying less on location proximity (F5) to facilitate joint decision-making.

3.4.6 Co-occurrence of drivers and facilitators for joint decision-making

In this section, we put the drivers and facilitators of joint decision-making in a matrix to gain insights on their co-occurrence (see Table 3.13). The top left corner, highlighted in red, indicates the co-occurrence with the highest number of examples found across cases.

According to the insights we gain from Table 3.13, we find that the two most frequent drivers of making a joint decision are the need to access resources & capacity of another firm (19 cases) and the need to adapt to market developments/maintain a client base (17 cases). In contrast, the two most frequent facilitators or enablers in making a joint decision are transaction history (18 cases) and ease of access (17 cases).

We also find that most joint decisions happen when there are co-occurrences of drivers and facilitators: i) between the need to access resources/capacity and the availability of transaction history (5 cases), ERP/EDI systems (4 cases), and ease of access (4 cases); ii) between the need to adapt to market developments/maintain a client base and the availability of transaction history (4 cases), established contract (4 cases), and ease of access (4 cases); and iii) between the need to share risk and the availability of transaction history (4 cases). The respondents indicate a positive correlation between the presence of driver-facilitator co-occurrences and an increase in joint decision-making activities, relationship satisfaction, and long term collaboration. When there are more co-occurrences between drivers and facilitators in a dyadic relationship, we infer that the value of joint decisions is expected to be higher than individual decisions. The level of satisfaction in the joint decision-making process is expected to be higher too.

Table 3.13. Co-occurence of driver and facilitator of joint decision-making

DRIVERS / FACILITATORS	To access resources & capacity	To adapt to market developments/ maintain client base	To align financial incentives	To share risks	To access new market	To incite more commitment from collaborator	To reach target cost	Sum
Transaction history	C7 C8 C11 C17 C21	C7 C8 C19 C21	C20	C7 C8 C12 C21	C21	C11 C17	C16	18
Ease of access	C3 C4 C14 C21	C1 C10 C19 C21	C1 C3 C14	C21	C1 C10 C21	C9 C10		17
ERP/EDI systems	C3 C14 C18 C21	C18 C19 C21	C3 C14	C21	C21			11
Established contract	C13	C2 C10 C13 C22	C6 C22		C10	C10	C15	10
Location proximity	C3 C4 C7	C7	C3	C7				6
Trust and openness	C5 C21	C21		C21	C21			5
Sum	19	17	9	8	7	5	2	

Note that the color in Table 3.13 represents the co-occurences or combinations of drivers and facilitators across joint decision-making with the highest number of representing samples. These colors are green (5 cases), dark blue (4 cases), yellow (3 cases), grey (2 cases), red (1 case), and light blue (0 case).

The co-occurences of drivers and facilitators mobilising joint decision-making are ordered with Pareto (Figure 3.6). We select combinations of drivers and facilitators that emerged in at least three cases, and provide our additional insights for a total of 11 co-occurences below, ordered from the most apparent.

Identified in 5 cases

D1F1: driven by access to resources & capacity, facilitated by transaction history

JD facilitator's overemphasis on transaction history shows that high-tech companies do not always have to rely on a binding contract to guarantee access to external resources. In some cases, repeat transactions with consistently performing actors are enough to believe that it will enable the process of joint decision-making.

Identified in 4 cases

D1F2: driven by access to resources & capacity, facilitated by ease of access

Ease of access includes seamless knowledge sharing and communication, such as access to supplier databases, sharing strategic information with suppliers on client orders, and allowing more confidence between actors to make joint decisions. In high-tech companies, ease of access is considered necessary to support collaborative efforts on resource sharing and capacity building.

D1F3: driven by access to resources & capacity, facilitated by ERP/EDI systems

Across the high tech industry, subcontracting non-core manufacturing technologies is typical. EDI/ERP may help supply chain partners communicate better, track supplies, and manage operations, thus enabling joint decision-making to acquire efficiencies from external resources.

D2F1: driven by adaptation to market developments/ maintenance of client base, facilitated by transaction history

Transaction history offers data that may be used to improve client experiences, satisfaction, and loyalty. In high-tech company, demand volatility could pose some business risks. The availability of historical data can provide further analysis to foster data-driven joint decision-making among collaborators, giving them improved visibility, predictive power, and improved responsiveness to changes.

D2F2: driven by adaptation to market developments/ maintenance of client base, facilitated by ease of access

The need for supplier adaptability is heightened when information exchange is constrained, limiting supplier visibility to the real demand. When information sharing is made seamless, this ease of access will help high-tech firms to collaborate and make more sound decisions to address market changes.

D2F4: driven by adaptation to market developments/ maintenance of client base, facilitated by established contract

Frequently, inter-firm collaboration procedures used for supply chain management are typically unique to the firms that deploy them. Therefore, to avoid risks associated with collaboration, partners need to agree on procedures that clearly define the mechanism that govern collaborative efforts. Contracts seem to be common among high-tech companies to help govern joint decision-making.

D4F1: driven by risk sharing, facilitated by transaction history

High-tech industry is exposed to the risk of demand volatility, stockout due to the lack of production capacity, slow return of high investment costs, among others. Regardless of how diverse

the risk appetite of a firm, the need to share risk may also motivate firms to make joint decisions. Transaction history provides a clear ground to do so through traceable, reliable data on the capacity of partners to address these risks.

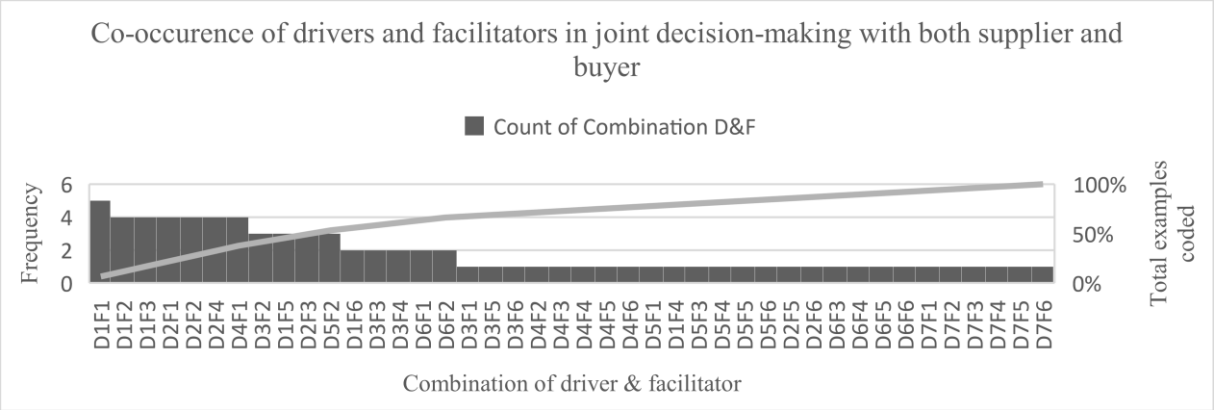


Figure 3.6. Pareto of co-occurence of drivers and facilitators

Identified in 3 cases

D3F2: driven by financial incentives alignment, facilitated by ease of access

An important objective of making any decisions whether jointly or individually is to safeguard financial goals. Incentives like profit sharing and business volume coupled with fair business practice may help ensure a suitable distribution of financial advantages. Ease of information exchange in joint decision-making may lead to a more aligned incentive throughout supply chain partners through improved visibility over cost structure, market and sales information, and other expenses.

D1F5: driven by access to resources & capacity, facilitated location proximity

Due to the nature of high-tech products, export control is often applied, preventing companies to seamlessly send orders and collaborate production with overseas entities at times. Although location is merely one particular facet of supply chain design, it may offer firms in proximity, such as those located in the same cluster, a competitive advantage. The sheer distance allows them to afford resource sharing through joint decision making.

D2F3: driven by adaptation to market developments/ maintenance of client base, facilitated by ERP/EDI systems

Information platform and technologies like EDI/ERP and RFID to facilitate communication among partners throughout the supply chain will help reduce service costs and response times to market. This will allow high-tech firms to have greater visibility to make sound joint decisions to adapt to shifting market demands.

D5F2: driven by access to a new market, facilitated by ease of access

To allow collaborative firms to easily exchange knowledge and brainstorm new market opportunities, good inter-firm communication both officially and informally is critical. Likewise,

information sharing is required to make joint decisions to align the capabilities of stakeholders to prepare for a new market.

Additionally, we observed different order of co-occurences based on frequency indicated across cases focusing on relationship with buyer vs. with supplier.

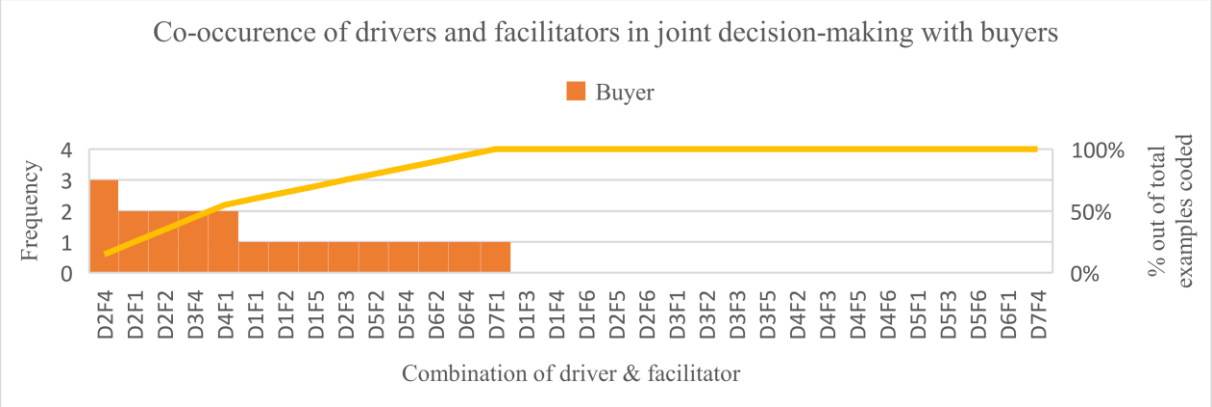


Figure 3.7. Co-occurence of drivers and facilitators in joint decision-making with buyers

Across three cases discussing buyers (Figure 3.7), D2F4 (driven by adaptation to market developments/ maintenance of client base, facilitated by established contract) is identified. This may indicate that suppliers manage their buyers via established contract. However, this co-occurrence is not indicative of their preferences, only what seem to be common to co-occur when they make decisions with buyer. Contract may seem to be rigid and exposing suppliers with risks of non-compliance. On the other hand, contracts help suppliers to secure volume and help them significantly to adjust internal production planning, provided that the clauses in contract also put constraint on buyers to comply with the planned orders and payments.

On the other hand, across cases discussing suppliers (Figure 3.8), D1F1 (driven by access to resources & capacity, facilitated by transaction history) and D1F3 (driven by access to resources & capacity, facilitated by ERP/EDI systems) are each identified four times. This may indicate that the ultimate goal of buyers (manufacturers) in collaborative decision-making is to tap extra resources from their suppliers. Transaction history as well as ERP/EDI systems seem to be helpful tools to provide governance, control, as well as visibility necessary to inform joint decision-making.

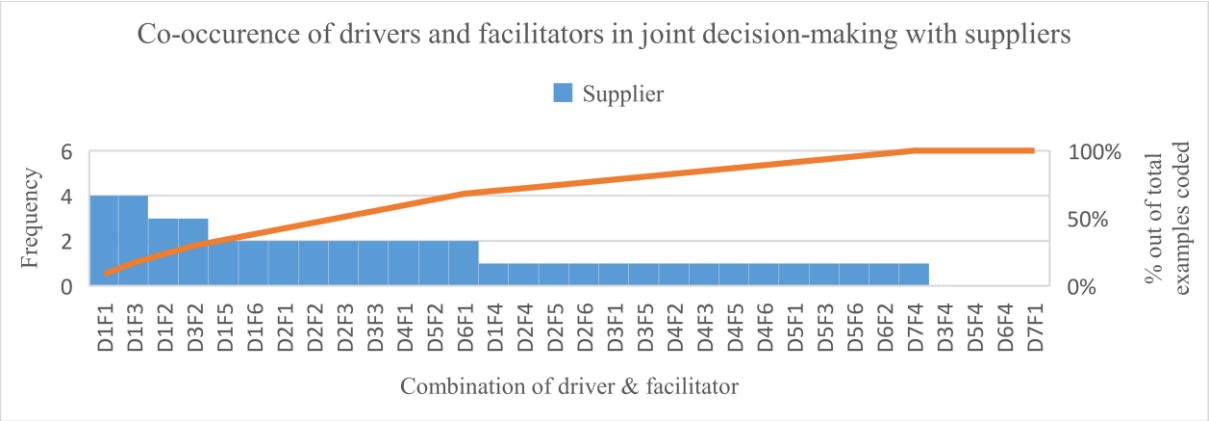


Figure 3.8. Co-occurence of drivers and facilitators in joint decision-making with suppliers

Further contextual insights

Our sector of choice for empirical investigation is high tech sector. This includes all companies that supply material or use it to manufacture an R&D intensive product, such as computing and automation, machinery, medical equipment, semiconductor equipment and robotics. High tech industry is characterised by its strong innovativeness over its low tech counterparts (Chandra, 1994). With outputs including highly customised products, high tech companies thrive on particular knowledge, precision, and efficiency in their production process. To ensure innovation, high tech companies work closely with their suppliers and customers, each lending a resource for one another. Thus, there are numerous opportunities to make joint decisions with suppliers or customers. We chose to consider high tech industry in the Netherlands, particularly the semiconductor cluster. This way, we expected to gain more examples of potential joint decisions and individual ones to illustrate the issue better.

One of the overarching or recurrent themes of joint decisions in high tech supply chains is capacity management, where decisions such as supplier selection, inventory, production process, and logistics become supporting pillars. Managing capacity is likely the most critical component in high-tech businesses with high capital equipment costs, such as semiconductors. Because of the quick pace of technological innovation, firms have volatile demand, short product lifecycles, low yield, and typically extensive manufacturing lead times. According to the Semiconductor Industry Association, equipment procurement wait times might be as lengthy as one year (Varas et al., 2020). This condition allows demand changes to precede capacity lead periods. Economic uncertainty exacerbates these issues by adding greater uncertainty towards inventory decisions and causing a dilemma of whether or not to add a surplus, costly capacity to protect against volatile demand. Building a brand new semiconductor fab, for example, can cost billion of dollars, and a single workshop unit can cost millions (Wu, Erkoc, & Karabuk, 2005).

This foregoing environment forces semiconductor makers to be very cautious about the flexibility of eventual capacity increase (Erkoc & Wu, 2004). However, for these firms to maintain

client base and capture revenue opportunities in a rapidly expanding tech market, being too cautious and rigid with capacity increase could lead to serious service gaps and potentially lost market. Therefore, businesses must work with their suppliers or customers to build a flexible supply chain capacity to react to demand spikes from new product launches and market upswing and absorb short-term losses from technology migration and competitive downturn (Wu et al., 2005). High tech firms are often exposed to the need to collaborate and involve other firms in supply chain decision-making to achieve flexibility. For this reason, we decided that decision-making structure across high tech industry would be interesting to investigate, and invite researchers to pursue further investigation in this topic.

3.5 Conclusion

Our main finding is that the two most represented drivers of joint decision-making are the need to access the resources and capacity of another firm and the need to adapt to market developments/maintain client base, while the two most frequently represented facilitators or enablers of joint decision-making are transaction history and ease of access. Second, as reflected across the cases, we discovered that the majority of joint decisions occur when the following drivers and facilitators co-occur: i) between the need to access resources/capacity and the availability of transaction history, ERP/EDI systems, and ease of access; ii) between the need to adapt to market developments/maintain client base and the availability of transaction history, established contract, and ease of access. Third, we found that the first set of co-occurences is more apparent in buyers, whereas the second set is more apparent in suppliers. Fourth, we find that a favourable association exists between the existence of driver-facilitator interactions and an increase in collaborative decision-making activities, relationship satisfaction, and long-term cooperation. When drivers and facilitators co-occur more often in a dyadic relationship, we conclude that the value of joint decision-making is predicted to be greater than the value of individual decisions, as well as the degree of satisfaction with the joint decision-making process.

From this study, we observe that resource dependency theory may help in explaining the drivers of joint decision-making among manufacturers when they have to involve suppliers to access resources. Transaction cost economics help to examine why long transaction history, binding contract, and integrated EDI/ERP platforms could create higher switching costs between companies, especially for buyers. The apparent joint decision-making between companies who have these facilitators may be the result of this lock-in circumstances. Using social exchange perspective, we may explain how binding contract could be a helpful tool for decision-makers to provide a sense of security, especially when uncertainty is high, and behaviour of partners is less predictable.

Recommendations for practitioners

As an important result towards practitioners, we identified a number of suggestions to support decision-makers in making joint decisions. We summarize these suggestions below.

Creating a conducive culture: To maximise the advantages of joint decision-making, both buyers and suppliers must foster an environment of open communication, mutual support and accommodation, and strong project commitment (Hoegl, 2005). It is essential to question and challenge any perception of one party's technological, financial, or resource superiority over the other. In collaborative efforts, even long-term partners may fail without a well-structured joint project team with aligned objectives and complementary capabilities (Bidault and Castello 2010). Thus, companies and all employees at all levels are advised to prioritise aligning drivers with collaborators before making any joint decisions.

Diversifying collaborators: Ease of access and commonalities in company values are expected to facilitate joint decision-making, leading to performance improvements. However, performance starts to decrease when there is a "groupthink" caused by homogeneity (Janis, 1982) and "isomorphism" (Uzzi, 1997). By becoming overly homogenous and similar in their decision-making drivers, the customer and supplier risk making poor judgments (Bendoly et al., 2010). Buyers and suppliers are less inclined to accept opposing viewpoints and review the current relationship. Also, as the partnership matures, the customer and supplier lose focus on everyday activities and operations and become disinterested in using their creativity to foster innovation (Villena et al., 2011). Therefore, making a joint decision with a partner when a facilitator lacks is not necessarily irrelevant to progress.

Distributing incentives: Although joint decision-making could add value to the supply chain's overall success and may lead to a cumulative increase in profitability of all of its members, another challenge arises in how to split this gain. Ideally, joint gain should be distributed among the companies under some reasonable normative standard of fairness (Fink, 2004). However, Williamson (1985, p. 63) notes that both buyer and seller are strategically poised to haggle over the disposal of any additional gain anytime the other side proposes to adapt. Emerson (1987) adds that each party, despite having a profit-maximising orientation, is interested in capturing as much of the benefit as possible on each occasion. Given this dynamic, failure to achieve an agreement on how to distribute the benefits generated via joint decision-making might be a possible obstacle (Lambert, 2010).

Moreover, shared gain in complicated collaborative environments like R&D across high-tech industries might be challenging to apportion (Jap, 1999). Dividing profits may be easier than dividing intellectual property rights and other intangible gains, for example. The methods buyers and suppliers use to assess their joint gain need to be further assessed.

Maintaining transparency: To evaluate joint decision-making, a willingness to disclose essential financial information is vital to assess the value and performance of past joint efforts

objectively. Unless this data-driven evaluation is done, it would be challenging to monitor and judge the importance of repeating a joint decision-making in the future, and companies might miss out on the opportunities of co-creating value (Teece, 2007).

Evaluating past performances: Both members of a dyad must be capable of observing and deriving meaning from the data using the same method, of exchanging objective and transparent information so that they can understand the value of their contributions (Bunderson and Sutcliffe, 2002), achieve a shared awareness of strategic concerns in their relationship (Fugate et al., 2009), which leads to shared knowledge on when and how to respond to any future changes (Revilla & Knoppen, 2015) instead of widely divergent opinions and interpretations.

Integrating transaction platform: The possible solution to help maintain transparency and evaluate past performances is by having one platform to store all the transaction data and activities of a dyad to provide the best. This transparency, however, requires equal commitment for both parties to integrate an IT platform and might need a joint learning capacity from both parties when a new platform is required to roll out (Wang, 2013).

Finally we note that this study solely gathered focal companies' responses on their inter-firm relations with a supplier and a customer, potentially leading to bias across findings. Since the information gathered during the interview is often delicate and may be subject to confidentiality, we aimed to provide a safe environment for managers to speak their voices without fear of relational repercussions. Nevertheless, those suppliers and clients may have differing opinions on how successfully they collaborated with the focal company. Collecting data from both the supplier and customer firms could further increase the validity and reliability of the findings. In addition to that, this study has only investigated as-is situations as perceived by focal companies' representatives. Meanwhile, it is important to examine further how these opinions may differ after an extended relationship with a particular supplier or client firm. Therefore, future research could consider incorporating longitudinal data to enrich this research.

Research limitations

This research has several limitations that allow room for improvements and suggestions for future research. First, due to limited space, despite borrowing the lens from resource dependency theory, this research is isolated from the inter-firm political or power elements that may influence the decision-making structure. It would be interesting for future research to investigate this topic in-depth and clarify how power balance in a dyad may affect companies either to go for or avoid making collaborative decisions. Second, this study does not consider the various magnitude of involvement, investment, nor commitment from each actor during each joint decision-making. It is worth slicing the analysis to see how these variables will change in the presence or absence of drivers and facilitators.

Third, this study does not include financial or other metrics to consider the actual joint decision-making outcome for businesses, relying on subjective experiences of decision-makers alone. Despite our attempts in minimising case selection and response biases, there might be room to eliminate further. Future research may develop methods to combine both financial and interview data for cross references. Fourth, due to difficulty in contacting respondents, cases presented are limited in number. Future studies may complement the study with further evidences, with greater number of samples sufficient for statistical conclusion. Finally, using Lambert's (1996) categorisation of partnership types (Type I, Type II, Type III), future research may complement this study by examining how the drivers and facilitators might differ among these partnership types.

References

Agarwal, U. A., & Narayana, S. A. (2020). Impact of relational communication on buyer–supplier relationship satisfaction: role of trust and commitment. Benchmarking: An International Journal.

Alsaad, A., Mohamad, R., & Ismail, N. A. (2019). The contingent role of dependency in predicting the intention to adopt B2B e-commerce. Information Technology for Development, 25(4), 686-714.

Anderson, J. C., & Narus, J. A. (1990). A model of distributor firm and manufacturer firm working partnerships. Journal of marketing, 54(1), 42-58.

Aoki, K., & Lennerfors, T. T. (2013). Global business the new, improved keiretsu. Harvard business review, 91(9), 109-+.

Arshinder, K., Kanda, A., & Deshmukh, S. G. (2011). A review on supply chain coordination: coordination mechanisms, managing uncertainty and research directions. Supply chain coordination under uncertainty, 39-82.

Attaran, M., & Attaran, S. (2007). Collaborative supply chain management: the most promising practice for building efficient and sustainable supply chains. Business process management journal.

Badraoui, I., Van der Vorst, J. G., & Boulaksil, Y. (2020). Horizontal logistics collaboration: an exploratory study in Morocco's agri-food supply chains. International Journal of Logistics research and applications, 23(1), 85-102.

Bandara, W. (2006). Using Nvivo as a research management tool: A case narrative. In Proceedings of the 3rd International Conference on Qualitative Research in IT and IT in Qualitative Research (pp. 6-19). Institute for Integrated and Intelligent Systems.

Bello, D. C., & Gilliland, D. I. (1997). The effect of output controls, process controls, and flexibility on export channel performance. Journal of marketing, 61(1), 22-38.

Bendoly, E., Croson, R., Goncalves, P., & Schultz, K. (2010). Bodies of knowledge for research in behavioral operations. Production and Operations Management, 19(4), 434-452.

Bernheim, B. D., & Whinston, M. D. (1998). Exclusive dealing. Journal of political Economy, 106(1), 64-103.

Bidault, F., & Castello, A. (2010). Why too much trust is death to innovation. MIT Sloan Management Review, 51(4), 33.

Bildsten, L. (2014). Buyer-supplier relationships in industrialized building. Construction management and economics, 32(1-2), 146-159.

Blau, P. M. (1968). Social exchange. International encyclopedia of the social sciences, 7(4), 452-457.

Bunderson, J. S., & Sutcliffe, K. M. (2002). Comparing alternative conceptualizations of functional diversity in management teams: Process and performance effects. Academy of management journal, 45(5), 875-893.

Chandra, B., & Macpherson, A. D. (1994). The characteristics of high-technology manufacturing firms in a declining industrial region: an empirical analysis from western New York. Entrepreneurship & Regional Development, 6(2), 145-160.

Chang, H. H., Wong, K. H., & Chiu, W. S. (2019). The effects of business systems leveraging on supply chain performance: Process innovation and uncertainty as moderators. Information & Management, 56(6), 103140.

Chen, Y., Coviello, N., & Ranaweera, C. (2021). When change is all around: How dynamic network capability and generative NPD learning shape a firm's capacity for major innovation. Journal of Product Innovation Management, 38(5), 574-599.

Cheung, M. F., & To, W. M. (2010). Management commitment to service quality and organizational outcomes. Managing Service Quality: An International Journal.

Das, T. K., & Teng, B. S. (2002). Alliance constellations: A social exchange perspective. Academy of management review, 27(3), 445-456.

de Mattos, C. A., & Barbin Laurindo, F. J. (2015). Collaborative platforms for supply chain integration: Trajectory, assimilation of platforms and results. Journal of technology management & innovation, 10(2), 79-92.

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. Journal of marketing, 51(2), 11-27.

Edlin, A., & Reichelstein, S. (1996). Holdups, Standard Breach RemeM dies, and Optimal Investment. B 86 Amer. Econ. Rev. 478M501.

Efrat, K., & Øyna, S. (2021). An interaction orientation approach to SME-Intermediaries relationships. European Management Journal, 39(4), 508-520.

Eisenhardt, K. M. (1989). Building theories from case study research. Academy of management review, 14(4), 532-550.

Emerson, R. M. (1987). Social exchange theory.

Erkoc, M., & Wu, S. D. (2004). Capacity reservation across multiple buyers. Working paper, Lehigh University, Bethlehem, PA.

Fink, A. (2004, January). Supply chain coordination by means of automated negotiations. In 37th Annual Hawaii International Conference on System Sciences, 2004. Proceedings of the (pp. 10-pp). IEEE.

Senter Jr, R., & Flynn, M. S. (1999). Changing interorganizational patterns in the North American automotive supply chain. Applied Behavioral Science Review, 7(1), 59-80.

Frohlich, M. T., & Westbrook, R. (2001). Arcs of integration: an international study of supply chain strategies. Journal of operations management, 19(2), 185-200.

Fugate, B. S., Stank, T. P., & Mentzer, J. T. (2009). Linking improved knowledge management to operational and organizational performance. Journal of Operations Management, 27(3), 247-264.

Halinen, A., & Törnroos, J. Å. (2005). Using case methods in the study of contemporary business networks. Journal of business research, 58(9), 1285-1297.

Heide, J. B., & John, G. (1990). Alliances in industrial purchasing: The determinants of joint action in buyer-supplier relationships. Journal of marketing Research, 27(1), 24-36.

Heide, J. B. (1994). Interorganizational governance in marketing channels. Journal of marketing, 58(1), 71-85.

Hoegl, M., & Wagner, S. M. (2005). Buyer-supplier collaboration in product development projects. Journal of management, 31(4), 530-548.

Holcomb, T. R., & Hitt, M. A. (2007). Toward a model of strategic outsourcing. Journal of operations management, 25(2), 464-481.

Huang, Y., Han, W., & Macbeth, D. K. (2020). The complexity of collaboration in supply chain networks. Supply Chain Management: An International Journal.

Inkpen, A. C., & Tsang, E. W. (2005). Social capital, networks, and knowledge transfer. Academy of management review, 30(1), 146-165.

Irani, Z., Kamal, M. M., Sharif, A., & Love, P. E. (2017). Enabling sustainable energy futures: factors influencing green supply chain collaboration. Production Planning & Control, 28(6-8), 684-705.

Janis, I. L. (1982). Groupthink: Psychological Studies of Policy Decisions and Fiascos. Boston: Houghton Mifflin.

Jap, S. D. (1999). Pie-expansion efforts: Collaboration processes in buyer–supplier relationships. Journal of marketing Research, 36(4), 461-475.

Jap, S. D., & Ganesan, S. (2000). Control mechanisms and the relationship life cycle: Implications for safeguarding specific investments and developing commitment. Journal of marketing research, 37(2), 227-245.

Johnston, D. A., McCutcheon, D. M., Stuart, F. I., & Kerwood, H. (2004). Effects of supplier trust on performance of cooperative supplier relationships. Journal of operations Management, 22(1), 23-38.

Kale, P., Dyer, J., & Singh, H. (2001). Value creation and success in strategic alliances:: alliancing skills and the role of alliance structure and systems. European Management Journal, 19(5), 463-471.

Lambert, D. M., & Enz, M. G. (2012). Managing and measuring value co-creation in business-to-business relationships. Journal of Marketing Management, 28(13-14), 1588-1625.

Lambert, D. M., Emmelhainz, M. A., & Gardner, J. T. (1996). So you think you want a partner?. Marketing Management, 5(2), 24.

Lambert, D. M. (2010). Customer relationship management as a business process. Journal of Business & Industrial Marketing.

Lane, P. J., & Lubatkin, M. (1998). Relative absorptive capacity and interorganizational learning. Strategic management journal, 19(5), 461-477.

Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. Journal of management information systems, 20(1), 179-228.

Lei, D., Slocum Jr, J. W., & Pitts, R. A. (1997). Building cooperative advantage: Managing strategic alliances to promote organizational learning. Journal of World Business, 32(3), 203-223.

Leiringer, R., Green, S. D., & Raja, J. Z. (2009). Living up to the value agenda: the empirical realities of through-life value creation in construction. Construction Management and Economics, 27(3), 271-285.

Liu, Y., Luo, Y., & Liu, T. (2009). Governing buyer–supplier relationships through transactional and relational mechanisms: Evidence from China. Journal of Operations Management, 27(4), 294-309.

Lockström, M., Schadel, J., Harrison, N., Moser, R., & Malhotra, M. K. (2010). Antecedents to supplier integration in the automotive industry: a multiple-case study of foreign subsidiaries in China. Journal of Operations Management, 28(3), 240-256.

Macneil, I. (1993). R.(1980), The New Social Contract. New Haven, London: Yale University.

Madlberger, M. (2009). What drives firms to engage in interorganizational information sharing in supply chain management?. International Journal of e-Collaboration (IJeC), 5(2), 18-42.

Malhotra, A., Gosain, S., & Sawy, O. A. E. (2005). Absorptive capacity configurations in supply chains: Gearing for partner-enabled market knowledge creation. MIS quarterly, 145-187.

Mason, R. B. (2007). The external environment's effect on management and strategy: a complexity theory approach. Management decision.

Mayer, K. J., & Teece, D. J. (2008). Unpacking strategic alliances: The structure and purpose of alliance versus supplier relationships. Journal of Economic Behavior & Organization, 66(1), 106-127.

McEvily, B., Zaheer, A., & Kamal, D. K. F. (2017). Mutual and exclusive: Dyadic sources of trust in interorganizational exchange. Organization science, 28(1), 74-92.

McIntyre, T., Wilson, M. M., Schulze-Ehlers, B., & Childerhouse, P. H. J. (2018). The governance of value creation and capture in agri-food supply chains: A conceptual framework, propositions and protocols.

Middendorp, T. J. (2022). Understanding value co-creation between service providers and customers in B-to-B context: a micro-level case study (Master's thesis, University of Twente).

Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. sage.

Moch, M. K., & Seashore, S. (1981). Norms Governing Corporate Behavior: An Alternative to Markets and to Administration.

Modi, S. B., & Mabert, V. A. (2007). Supplier development: Improving supplier performance through knowledge transfer. Journal of operations management, 25(1), 42-64.

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. Journal of marketing, 58(3), 20-38.

Niemelä, T. (2004). Interfirm cooperation capability in the context of networking family firms: The role of power. Family Business Review, 17(4), 319-330. Noordewier, T. G., John, G., & Nevin, J. R. (1990). Performance outcomes of purchasing arrangements in industrial buyer-vendor relationships. Journal of marketing, 54(4), 80-93.

Nurhayati, K., Rezaei, J., & Tavasszy, L. (2021). The interplay between power structure and decision-making in supply chains: A systematic review. Journal of Supply Chain Management Science, 2(3-4), 85-114.

Panahifar, F., Heavey, C., Byrne, P. J., & Fazlollahtabar, H. (2015). A framework for collaborative planning, forecasting and replenishment (CPFR): state of the art. Journal of Enterprise Information Management.

Park, S. H., & Ungson, G. R. (1997). The effect of national culture, organizational complementarity, and economic motivation on joint venture dissolution. Academy of Management journal, 40(2), 279-307.

Peng, G. (2011). Inter-organizational information exchange, supply chain compliance and performance. Wageningen University and Research.

Pfeffer, J. (1982). Organizations and organization theory (pp. 237-251). Boston: Pitman.

Claro, D. P., & Claro, P. B. O. (2010). Collaborative buyer–supplier relationships and downstream information in marketing channels. Industrial Marketing Management, 39(2), 221-228.

Poppo, L., & Zenger, T. (2002). Do formal contracts and relational governance function as substitutes or complements?. Strategic management journal, 23(8), 707-725.

Prajogo, D., & Olhager, J. (2012). Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. International Journal of Production Economics, 135(1), 514-522.

Ragatz, G. L., Handfield, R. B., & Scannell, T. V. (1997). Success factors for integrating suppliers into new product development. Journal of Product Innovation Management: An International Publication of the Product Development & Management Association, 14(3), 190-202.

Ragin, C. C. (1987). The comparative method: Moving beyond qualitative and quantitative strategies. Berkeley1987.

Revilla, E., & Knoppen, D. (2015). Building knowledge integration in buyer-supplier relationships: The critical role of strategic supply management and trust. International Journal of Operations & Production Management.

Revilla, E., & Villena, V. H. (2012). Knowledge integration taxonomy in buyer–supplier relationships: Trade-offs between efficiency and innovation. International Journal of Production Economics, 140(2), 854-864.

Saenz, M. J., Revilla, E., & Knoppen, D. (2014). Absorptive capacity in buyer–supplier relationships: empirical evidence of its mediating role. Journal of Supply Chain Management, 50(2), 18-40.

Sahin, F., & Robinson, E. P. (2002). Flow coordination and information sharing in supply chains: review, implications, and directions for future research. Decision sciences, 33(4), 505-536.

Saito, H., & Ruhanen, L. (2017). Power in tourism stakeholder collaborations: Power types and power holders. Journal of Hospitality and Tourism Management, 31, 189-196.

Sanders, N. R. (2008). Pattern of information technology use: The impact on buyer–suppler coordination and performance. Journal of Operations Management, 26(3), 349-367.

Scuotto, V., Caputo, F., Villasalero, M., & Del Giudice, M. (2017). A multiple buyer–supplier relationship in the context of SMEs' digital supply chain management. Production Planning & Control, 28(16), 1378-1388.

Simatupang, T. M., & Sridharan, R. (2005). The collaboration index: a measure for supply chain collaboration. International Journal of Physical Distribution & Logistics Management.

Singh, H., Garg, R., & Sachdeva, A. (2018). Supply chain collaboration: A state-of-the-art literature review. Uncertain Supply Chain Management, 6(2), 149-180.

Stake, R. E. (1995). The art of case study research. sage.

Stern, L. W., Ansary, A. I. E., Coughlan, A. T. (1996). Marketing channels, 5th. ed. New York: Prentice Hall.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. Strategic management journal, 28(13), 1319-1350.

Tjemkes, B., Vos, P., & Burgers, K. (2017). Strategic alliance management. Routledge.

Uzzi, B. (1997). Towards a network perspective on organizational decline. International journal of sociology and social policy.

Varas, A., Varadarajan, R., Goodrich, J., & Yinug, F. (2020). Government incentives and US competitiveness in semiconductor manufacturing. Boston Consulting Group.

Villena, V. H., Revilla, E., & Choi, T. Y. (2011). The dark side of buyer–supplier relationships: A social capital perspective. Journal of Operations management, 29(6), 561-576.

Voss, K. E., Tanner, E. C., Mohan, M., Lee, Y. K., & Kim, H. K. (2019). Integrating reciprocity into a social exchange model of inter-firm B2B relationships. Journal of Business & Industrial Marketing.

Wang, J. J. Y., Bensmail, H., & Gao, X. (2013). Joint learning and weighting of visual vocabulary for bag-of-feature based tissue classification. Pattern Recognition, 46(12), 3249-3255.

White, R. D. (1999). Managing the diverse organization: The imperative for a new multicultural paradigm. Public administration & management: An interactive journal, 4(4), 469-493.

Williamson, O. E. (1987). Transaction cost economics: The comparative contracting perspective. Journal of economic behavior & organization, 8(4), 617-625.

Williamson, O. E. (1975). Markets and hierarchies: analysis and antitrust implications: a study in the economics of internal organization. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.

Woods, M., Paulus, T., Atkins, D. P., & Macklin, R. (2016). Advancing qualitative research using qualitative data analysis software (QDAS)? Reviewing potential versus practice in published studies using ATLAS. ti and NVivo, 1994–2013. Social Science Computer Review, 34(5), 597-617.

Wu, S. D., Erkoc, M., & Karabuk, S. (2005). Managing capacity in the high-tech industry: A review of literature. The engineering economist, 50(2), 125-158.

Yin, R. K. (1989). Interorganizational Partnerships in Local Job Creation and Job Training Efforts: Six Case Studies. Final Report.

Yin, R. K. (2003). Designing case studies. Qualitative research methods, 5(14), 359-386.

Yin, R. K. (2009). Case study research: Design and methods (Vol. 5). sage.

Zaheer, A., & Venkatraman, N. (1995). Relational governance as an interorganizational strategy: An empirical test of the role of trust in economic exchange. Strategic management journal, 16(5), 373-392.

Zahoor, N., & Al-Tabbaa, O. (2021). Post-entry internationalization speed of SMEs: The role of relational mechanisms and foreign market knowledge. International Business Review, 30(1), 101761.

Zhang, A. (2014). Collaboration in the Australian and Chinese mobile telecommunication markets. Berlin and Heidelberg: Springer.

4 The Power Dynamics Unveiled: Who Pulls the Strings in High-Tech B2B Decision-Making?[9]

Abstract – This study examines the power dynamics and their impact on involvement levels and compromise complexities in B2B joint decision-making within Dutch high-tech firms. Using a five-phase framework, it investigates the asymmetrical participation of co-owning decision-makers in dyadic buyer-supplier relationships and presents a conceptual model to explain how different power sources influence business interactions. A qualitative multiple case study involving Dutch high-tech firms was conducted. The research reveals that power bases significantly determine both involvement levels and the complexities of compromises, showing a positive correlation between involvement and compromise complexity. This study provides guidance for B2B stakeholders, offering diagnostic tools for understanding power structures and strategies to enhance collaborative decision-making. Additionally, the paper recommends governance frameworks and role delineations to improve participation levels, especially for companies with less power. This scholarly work enriches the literature by clarifying the relationship between power bases, involvement levels, and compromise complexities, and extends the application of social power theory to high-tech B2B contexts.

Keywords: Power dynamics; B2B; Joint decision-making; Involvement levels; Supply chain collaboration; High-tech; Buyer-supplier relationship; Case study

4.1 Introduction

In today's complex business landscape, collaboration serves as a cornerstone for successful interorganizational relationships (Marty & Ruel, 2024; Swierczek & Szozda, 2024). It enables companies to pool resources, share risks, and co-create value (Schmelzle & Mukandwal, 2023; Morgan & Hunt, 1994). Within the context of collaboration, business-to-business (B2B) relationships stand out as a critical area of study, particularly in high-tech industries where innovation (Patrucco et al., 2022) and rapid decision-making (Kim et al., 2005) are essential. One key aspect of collaboration in B2B relationships is joint decision-making, a structure or a process influenced by various factors such as power dynamics and involvement levels (Meehan & Wright, 2012; Cuevas et al., 2015;

[9] This chapter has been submitted for publication in a peer-reviewed scientific journal as Nurhayati, K., Tavasszy, L., & Rezaei, J. The Power Dynamics Unveiled: Who Pulls the Strings in High-Tech B2B Decision-Making?

Chicksand, 2015; Nurhayati et al., 2021, 2023). While extensive research has been conducted on the subject of power dynamics (Kim et al., 2023; Dada & Onyas, 2021, Dwyer; Qiu, 2018; Mallin & Ragland, 2017; Benton & Maloni, 2005; Schurr & Oh, 1987), our understanding remains incomplete on its relation to *joint* decision-making, especially in high-tech B2B contexts. This study aims to fill this gap by examining how power bases influence involvement levels and the nature of compromises in joint decision-making within high-tech B2B relationships.

Despite the extensive body of literature on power dynamics in B2B relationships, there is a significant gap in understanding how power bases and involvement levels interact to shape compromises specifically within high-tech B2B contexts. While previous studies have established that power asymmetry is crucial for managing business interactions, they often overlook the nuanced ways these power dynamics manifest in the joint decision-making processes of high-tech firms. This study aims to bridge this gap by investigating how different power sources influence the exercise of power bases and subsequently affect the involvement levels and complexity of compromises in joint decision-making. Building on the seminal work of French and Raven (1959), who introduced the "five bases of power," this study focuses specifically on two primary determinants: power sources and perceptions of power. Power sources, such as market positioning and company size, significantly influence the power bases a company utilizes (Gölgeci et al., 2018; Rahim, 1989; Pfeffer & Salancik, 1978). Meanwhile, the perception of power shapes behaviors, strategies, and decision-making processes within buyer-supplier relationships (Lewin et al., 2016). Although French and Raven identified five bases of power, extensive research has already explored the other three dimensions—legitimate, reward, and coercive power—highlighting their roles in various organizational contexts.

Therefore, the **objective** of the study is to examine how power dynamics influence involvement levels and the nature of compromises in joint decision-making within high-tech B2B relationships. Specifically, the study aims to investigate how different power sources and perceptions of power impact the exercise of power bases, and subsequently affect the levels of involvement and the complexity of compromises in the decision-making processes of Dutch high-tech firms. The goal is to provide deeper theoretical insights and practical tools for managers to navigate and optimize these interactions in a collaborative business environment.

This research not only deepens theoretical insights into power dynamics but also provides practical tools for managers to navigate and optimize these interactions. By challenging the predominant view that power-dependent relationships are static, this study highlights the fluid and context-dependent nature of power in high-tech B2B settings, offering a more dynamic and actionable framework for understanding and leveraging power in collaborative business environments. To bridge the gap between the theoretical underpinnings of power bases and the practical implications in high-tech B2B contexts, this study poses two research questions: *1) How does a set of power sources of high-tech companies lead to their exercise of certain power bases? 2) How do*

the dynamics of power bases impact the outcomes of joint decision-making? We address these questions by shedding light on what happens within the process or structure of joint decision-making, examining the involvement levels of decision-makers and the way they make compromises as plausible results of power at play.

The scientific **contribution** lies in enriching existing literature by clarifying the relationship between power bases, involvement levels, and compromise complexities in the decision-making processes, extending the applicability of power dynamics theory to high-tech B2B contexts. Furthermore, the study provides actionable guidance for B2B stakeholders by offering diagnostic tools for understanding power structures and strategies for enhancing collaborative decision-making.

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature on power dynamics, involvement levels, and joint decision-making in B2B relationships. Section 3 presents the research methodology, including the qualitative multiple case study approach and data collection techniques. Section 4 discusses the findings, analyzing how power bases influence involvement levels and compromise complexities. Section 5 offers a detailed discussion on the implications of these findings for both theory and practice. Finally, Section 6 concludes the paper with a summary of key insights, limitations of the study, and suggestions for future research.

4.2 Literature review

Collaboration is a cornerstone of modern business practices, and within the context of collaboration, decision-making stands as a pivotal pillar. In the context of business-to-business (B2B) relationships, joint decision-making emerges as a complex interplay of various factors, with power dynamics plausibly being paramount. French and Raven (1959) laid the foundational framework for understanding power dynamics by introducing the 'five bases of power': legitimate, reward, coercive, referent, and expert power. Before delving into the implications of these power bases, it is crucial to understand and perceive the sources of power. Power bases are influenced by various company capabilities or resources, such as market positioning, company size, and expertise (Siemieniako, 2024; Rahim, 1989; Pfeffer & Salancik, 1978).

Power Sources - Power sources refer to the various company capabilities or resources that influence the types of power bases adopted by a company (Rahim, 1989). For instance, leading market players or larger companies with strong capital might lean on legitimate power (French & Raven, 1959), while those with specialized capabilities might favor expert power (Hinkin & Schriesheim, 1989). Moreover, the resources a company commands can also dictate its power bases (Pfeffer & Salancik, 1978). Diverse resources might enable a company to use a blend of power bases, such as expert and reward power (Emerson, 1962). Conversely, a scarcity of resources can pose operational threats. For example, a lack of technological prowess can potentially jeopardize a firm's competitive

stance (Porter, 1980; Teece, 2007). Such threats coming from vulnerabilities of resources can, in turn, influence the power bases a company exercises.

To investigate power sources, researchers may ask respondents about their company's competitive advantage, strong value proposition, or unique selling point. This inquiry helps gain insights into various aspects that contribute to a company's success in the market. Firstly, understanding the number of competitors allows for a comprehensive analysis of the competitive landscape and helps identify the company's position within it (Smith, 2019). Secondly, probing about market positioning and branding sheds light on how the company differentiates itself from competitors and establishes a distinct market presence (Johnson, 2017). Furthermore, exploring the market size provides an understanding of the company's potential reach and growth opportunities (Brown, 2018). Additionally, inquiring about the number of supply base alternatives and client base alternatives helps gauge the company's ability to secure reliable sources and maintain a diverse customer portfolio (Jones, 2020). Moreover, considering the company's size aids in comprehending its scale of operations and resources available (Davis, 2016). Lastly, understanding the company's value proposition or unique selling point reveals the specific features or benefits that set it apart from others in the industry (Thompson, 2015). By probing respondents about these factors, a comprehensive understanding of a company's competitive advantage and unique selling points can be obtained, contributing to a well-rounded analysis of power sources in the market.

Perception of power

We use the term to refer to the way power is understood and interpreted within buyer-supplier relationships. According to the study "The Perception of Power" by Samuel B. Bacharach and E. Lawler (1976), when two parties are involved in a conflict, they would use situational cues to form subjective power estimates. This is because the perception of power is subject to ambiguity in power capabilities—actors in any interaction involving the use of power seldom have perfect information about their own and others' capabilities or resources to enable exercising a certain power base. The study discusses how managing impressions of power can lead to extracting compromises from an adversary greater than would be predicted from objective power capabilities, for example, the use of coercive power may create an impression of potency.

In the world of buyer-supplier relationships, perception of power is pivotal. This perception, which reflects how companies view power distribution between them (Lewin et al., 2016), shapes behaviors, strategies, and decision-making (Magee & Galinsky, 2008). Depending on their perceived power stance, companies might lean on specific power bases to exert influence. For instance, companies who perceives as having dominant resources might favor coercive or reward power, while those feeling less powerful might prioritize referent or expert power (French & Raven, 1959). Balanced power perceptions might foster collaborative decision-making, emphasizing power bases like informational and legitimate power.

Understanding and perceiving power sources and power bases set the stage for examining their implications on compromises in joint decision-making within B2B contexts. Each power base has distinct characteristics that influence the nature of compromises made during joint decision-making.

- *Legitimate Power*: Originating from recognized authority within a formal hierarchy, this power influences compromises in B2B settings through the enforcement of contractual obligations and formal agreements. For instance, a supplier with legitimate power may insist on specific contractual terms, leading to compromises centered around contractual compliance and adherence to established protocols.
- *Reward Power*: This power is characterized by the ability to grant rewards. Firms with reward power often drive compromises by offering incentives and benefits, leading their counterparts to concede to terms that align with the rewarding firm's interests, such as preferred pricing or exclusive partnerships.
- *Coercive Power*: This power is defined by the ability to impose penalties for non-compliance. Companies wielding coercive power can enforce compromises by imposing stringent conditions and penalties, compelling other parties to conform to avoid repercussions, such as financial penalties or termination of partnership.
- *Referent Power*: Arising from admiration or respect for the power holder, referent power can lead to compromises that favor the respected entity. In B2B contexts, companies may compromise their positions to align with those held by firms with strong reputations or notable achievements, valuing relational harmony and mutual respect.
- *Expert Power*: Rooted in specialized knowledge or skills, firms with expert power can influence compromises by leveraging their expertise. The specialized knowledge possessed by such firms often leads to concessions from other parties, who defer to the expert firm's insights and recommendations, acknowledging their superior understanding of specific domains.

Involvement in five phases of joint decision-making

In a B2B collaboration context, power bases can translate into the ability of companies to participate or withdraw from the joint decision-making process. Participation in the process can be seen as a way to exercise power, as it enables a company to influence the outcome of the decision. Withdrawal, on the other hand, can also be seen as a way to exercise power, as it signals to the other party that the company is not willing to accept the proposed outcome unless its interests are met. According to Håkansson and Snehota (2006), participation and withdrawal are two key tactics that companies can use to exercise power in a B2B collaboration.

The decision-making process can be divided into five main phases, including i) problem recognition, ii) information search, iii) evaluation of alternatives, iv) choice, and v) implementation. Companies can use their power bases to participate or withdraw from each of these phases. For

example, a company with a strong expertise power base may participate heavily in the information search and evaluation phases to ensure that its knowledge is taken into account, while a company with a strong reward power base may use its resources to incentivize the other party to choose a certain alternative. Referring to the concept of power bases of French & Raven (1959), we might infer that each of these power bases might, to some extent, carry distinct implications for joint decision-making involvements:

- *Legitimate Power*: This power often manifests in B2B settings through contractual obligations, influencing decision-making involvement.
- *Reward Power*: Firms wielding this power might base decisions on incentives, potentially moderating the involvement of their counterparts.
- *Coercive Power*: Firms with this power might curtail the involvement of other parties in decision-making.
- *Referent Power*: This power could lead to deference due to reputation or past achievements.
- *Expert Power*: Firms with this power may assert greater involvement in decision-making processes.

Further, companies may leverage different power bases to secure varying degrees of involvement in decision-making. For example, a firm with expert power may aim for early-stage involvement where its specialized knowledge can be most impactful (Salancik & Pfeffer, 1977). On the other hand, companies wielding reward or coercive power might exert their influence later in the decision-making process (Emerson, 1962). The decision outcome can be influenced by the degree of participation or withdrawal of each party in each phase of the process. For example, a company that withdraws from the evaluation phase may signal to the other party that its interests are not being met, and that it may not accept the proposed outcome. This can lead to a renegotiation of the decision, where the withdrawing company may gain more favorable terms. On the other hand, a company that participates heavily in the evaluation phase may be able to influence the other party to choose an alternative that is more favorable to its interests.

Importantly, the dynamics are not static; they evolve, often leading to shifts in power bases as involvement levels change (Kim & Frazier, 1997; Brown, Lusch & Muehling, 1983). Previous literature also suggests that power perceptions may influence the desire for involvement (Thibaut & Walker, 1975).

Involvement in B2B decision-making as a power strategy

Companies can influence their perceived power in B2B relationships by moderating the degree of their participation or involvement. Being passive or less involved can be interpreted as having less power, while threats of withdrawal can indicate a higher power position. The effectiveness of this strategy is also influenced by the relationship's context and the parties' relative importance (Harker & Gillingham, 2014; Sheffi & Rice, 2015; Apospori & Ioannou, 2012; Sting & Bode, 2015).

Different drivers, like passive disengagement and threatening behavior, can influence a company's involvement. A passive stance might reduce perceived influence, while threats can motivate partners to accommodate a company's needs. However, this tactic should be used judiciously, considering potential relationship risks (Kumar, Scheer, & Steenkamp, 1995; Webster, 1992; Keohane & Nye, 1977).

A company's power base may influence where it wants more control within the decision-making process (French & Raven, 1959). Companies with certain power bases may desire more intense involvement in certain phases throughout the full process, more than in the rest of the phases, which may affect the outcomes of joint decisions. For example, it can be assumed that those with expert power may not only seek earlier involvement but also care to contribute more in the early phases of the joint decision-making, more than how much they want to control the final phases. Similarly, it can be assumed that those with coercive power may seek even higher involvement or control in the final phase than in the other phases.

4.3 Propositions

Based on the literature study, we propose the following propositions regarding the relationship between power sources, power bases, and involvement in joint decision-making:

Proposition 1: *Companies' power sources are associated with their choice of exercised power bases.* This suggests that factors such as market positioning and company size influence the type of power—such as expert, legitimate, or coercive—that a company tends to utilize.

Proposition 2: *Exercised power bases are associated with the type of compromises made during joint decision-making.* Different power bases lead to different negotiation behaviors and outcomes, affecting how companies make trade-offs and reach agreements.

Proposition 3: *Exercised power bases are associated with the level of involvement in different phases of a joint decision-making structure.* For instance, companies that exercise expert, legitimate, and/or referent power are more likely to seek early involvement in decision-making processes than those exercising reward and coercive power.

4.4 Methodology

This paper serves as a component of an overarching research initiative, specifically focusing on power structure and decision-making within high-tech B2B relationships, adopting an empirical, interpretative, and descriptive framework. The research design and analytical approach are informed by existing scholarly work (Nurhayati, et al. 2023). It is essential to note that the data collection method remains consistent with a previous journal article, given that the current paper is an extension of the same overarching project. While the data collection approach remains unchanged, the

questions posed in the current study differ, ensuring that the content is mutually exclusive and collectively exhaustive.

A multi-case study methodology forms the backbone of this investigation. The multi-case study was carried out across 12 high-tech firms located in the Netherlands. Case studies are an effective method of exploration in areas where there is a need to understand complex social phenomena (Yin, 2009; Bonoma, 1985; Eisenhardt, 1989).

4.4.1 Selection of cases and respondents

Following Halinen and Tornroos (2005), the case study method proves particularly suitable for examining corporate networks and current phenomena. The unit of analysis in this method is not randomly chosen, as in statistical methods, but is strategically selected using theoretical sampling principles (Ragin, 1987; Yin, 1989). In this study, case selection criteria encompass three key dimensions: i) company size determined by turnover and total number of employees, ii) position in the manufacturing supply chain (whether a company is a supplier or a buyer in an investigated dyad), and iii) collaboration type that meet the criteria of Lambert's (1996) concept of 'partnership,' referring to a form of collaboration positioned between the two extremes of arm's length and fully integrated supply chain. These criteria were chosen deliberately to provide a comprehensive overview of cases, considering factors such as turnover, public or private status, number of employees, years of establishment, and collaboration characteristics. The aim is to capture diversity across these attributes, ensuring the generated conclusions are applicable across a broad spectrum (Nurhayati, et al. 2023).

The study focuses specifically on the collaborative decision-making processes of interdependent manufacturers and suppliers. The scope excludes joint ventures, horizontal connections or competitions, arm's length relationships, and vertically integrated supply chains. The study assumes that the chosen relationships involve companies with greater freedom and less restrictive arrangements in directing their supply chain strategies (Nurhayati, et al. 2023).

Based on the above criteria, the data collection phase targeted 12 Dutch high-tech manufacturers with operating offices in the Netherlands, specifically in tech hubs like Delft, Eindhoven, and Amsterdam. The geographical proximity is designed to facilitate face-to-face 60-90 minutes interviews, enhancing the comfort level of respondents. The criteria for selecting respondents include job titles related to supply chain management, sourcing or procurement, and a minimum of eight years of professional experience. The recruitment process utilized LinkedIn Premium's advanced search database to identify and contact relevant company representatives.

The respondents interviewed represented a variety of departments or business functions within the supply chain domain, such as sourcing, planning, procurement, and logistics. This ensured a comprehensive view of the supply chain ecosystem and is in line with the suggestions made by

Touboulic and Walker (2015) about the importance of considering different perspectives in supply chain research. To mitigate response bias, we included probing and definitions with each question, and respondents provided examples in their own words. All participants used consistent terminologies. Early and late interviews for cases with similar attributes showed no significant differences in respondent knowledge. The concept of familiarity, adapted from EM Steenkamp et al. (2003), ensured respondents claimed familiarity with suppliers they had interacted with professionally for at least one year, ensuring reliable data.

In the beginning, before each interview, each respondent was prompted to consider a dyadic relationship with one B2B supplier and another dyad with one B2B customer, from their perspective as a focal company, and elaborate on their company's associations with these entities. The primary focus was on unraveling the decision-making process and recurrent transactions occurring between the focal companies and their immediate collaborators both upstream and downstream in the supply chain.

Following the interviews, the responses were categorized into 22 approved cases out of 24, with two excluded cases from two different focal companies. Excluded cases indicate that the partners in the focal companies' dyads have no manufacturing activities in their value chain, e.g., in trading companies or retailers. Dyadic studies are particularly suited for supply chain research as they enable a focus on mutual dependencies and relational aspects (Choi and Kim, 2008).

4.4.2 Interview questions

A series of semi-structured interviews were conducted, targeting individuals fulfilling supply chain roles in each firm. Semi-structured interviews are a flexible and adaptive approach to data collection that allows for the discovery of new information while keeping the discussion within a predetermined framework (Gray, 2014). For these interviews, a set of questions, coupled with various probes, were designed and utilized. These questions were carefully formulated based on relevant literature to help scrutinize the propositions. This approach has been endorsed by Marshall and Rossman (2014) who suggest that employing a literature-based approach to question formulation ensures that the data collected will be relevant and pertinent to the study. It is essential to emphasize that the current study builds upon the previous research but introduces new questions. The methodological continuity ensures the coherence of the broader project while allowing for nuanced exploration in the context of the specific research questions addressed in the current paper.

To address power sources, we asked the respondents: What is your company's competitive advantage, or strong value proposition, or unique selling point? Based on the responses from the case study, we derive a list of resources are categorized into five main categories. These categorizations are based on the specific characteristics and attributes discussed by respondents. By categorizing the resources into different categories, such as market position and power, technological capability and

expertise, operational flexibility and efficiency, geographical advantage and proximity, and financial capacity and resources, we can better understand the various factors that contribute to a company's competitive advantage. Further, to identify the lack of resources, we also ask respondents: In which areas is your company lagging behind the competitors? This categorization allows for a more structured analysis of the company's resources and their impact on its success. Later on, to identify the perception of power, we asked respondents to share their perceptions of power relative to their select partner. Further in this study, we asked the respondent to stick with this select partner as a means to compare themselves with. The cases can be categorized into three main groups: more powerful than partner, less powerful, and balanced power dynamics.

To identify the compromises made within joint decision-making, we asked the respondents: To what extent would you like to compromise with your partner's terms? Can you give examples of compromises in the form of business decisions? Why would you make these compromises with them? We argue that the five types of power bases (expert, legitimate, referent, reward, and coercive power), may respectively be investigated and revealed from the way compromises are made in a joint decision-making.

Then, to identify the levels of involvement within joint decision-making, we asked the respondents: Which joint decision(s) are you involved in and have knowledge the most? Walk me through the process where these decisions are made together jointly with your partner. In which phase of the decision-making were you more/less involved than your partner? The respondents are probed with the five phases of joint decision-making, from problem recognition, information search, evaluation of alternatives, choice, and implementation/monitoring.

Finally, we asked the respondents: Do you wish for more control and involvement? If so, in which area? Respondents were probed about their inclination towards increased control or involvement in supplier-client interactions, yielding varied insights across different thematic dimensions.

4.4.3 Operationalization of power bases

Building on the theoretical framework, it's crucial to understand how one can identify the power base being exercised by a company in real-world settings (See Table 4.1). This identification can be approached by way of observing the way companies make compromises with their partner. The nature of compromises made during joint decision-making (Chen et al., 2017; Rezaei et al., 2020) can serve as a lens to understand underlying power bases. For instance, the party making more concessions may perceive itself as less powerful, while the one receiving more may feel more powerful (Gimenez et al., 2012). However, this method may only provide a snapshot of the power dynamics, rather than a comprehensive understanding.

Table 4.1. Power base instances

Power base	Characteristics	Instances
Legitimate Power	Authority	One party may have the final say due to their position or role, even if they consider input from others.
	Delegation	If one party delegates tasks or decisions to another, they are likely exercising legitimate power.
Reward Power	Incentives	One party may offer rewards or benefits to the other in exchange for agreement or compliance.
	Negotiation	The party with reward power might use perks as negotiation chips.
Coercive Power	Threats	One party may subtly or overtly threaten negative consequences if their terms are not met.
	Pressure	The use of urgency or stress to force a decision can be a sign of coercive power.
Referent Power	Persuasion	One party may rely on their charisma or emotional connection to influence the other.
	Loyalty	If one party concedes points out of respect or admiration for the other, referent power is likely at play.
Expert Power	Advice	One party may defer to the other's expertise or specialized knowledge.
	Rationale	The party with expert power will often provide logical, well-reasoned arguments that the other party respects.

4.4.4 Data analysis

The data analysis was conducted using a coding technique. This method aligns with Saldana (2015), who posits that coding techniques are an effective approach to qualitative data analysis as they provide a systematic way to identify, categorize and explore patterns in the data. The coding was guided by the initial research questions and propositions to ensure the relevancy of the results obtained.

We analyzed recorded and transcribed interviews from 22 cases using NVivo™ for content and thematic analysis. The process involved automatic transcription with manual corrections, coding based on an indexing system, and a matrix coding query to identify co-occurrences of drivers and facilitators in each case. The results were thematically discussed to infer associations between joint decision-making drivers and facilitators. The study's implications for theory and practice were explored in the final analysis.

4.5 Results

4.5.1 Power sources

Throughout the interviews, we identified several aspects of power sources recognized by respondents. These power sources are grouped into five main categories (see Table 4.2).

By examining the resources related to market position and power, we can assess factors such as low competition, a large market size, high supply base alternatives, and a strong client base. These resources provide the company with a strong market position and the power to influence the industry. Similarly, the categorization of technological capability and expertise highlights the importance of resources such as specialization in technology, the ability to develop products with customers or teach suppliers, and a proven track record. These resources demonstrate the company's ability to innovate,

deliver high-quality products, and stay ahead of the competition. Operational flexibility and efficiency are crucial for a company's success, and the categorization of resources in this category allows us to analyze factors such as flexibility of volume, reliability of time, diversity of product and service portfolio, and the ability to provide end-to-end solutions. These resources enable the company to adapt to market changes, meet customer demands, and provide a seamless experience. Geographical advantage and proximity play a significant role in a company's operations, and the categorization of resources in this category helps us understand the benefits of being a local supplier or having an international client. These resources provide the company with strategic advantages in terms of proximity to customers, reduced transportation costs, and access to global markets. Lastly, the categorization of financial capacity and resources allows us to assess the company's financial strength, represented by factors such as revenue, spending, company size, and organizational maturity. These resources determine the company's ability to invest in growth, withstand economic fluctuations, and make strategic decisions. Awareness in these resources helps in identifying areas of strength and areas that require further improvement.

The respondent identified several areas where their company is lagging behind its competitors. These areas include: lack of ability to assist clients in making drawings and developing products; high specialization in technology, which may limit the company's ability to diversify its product offerings; lack of brand image, which may affect the company's market perception; financial constraints due to being a small client with limited income for suppliers; lack of rare technology, which may hinder the company's ability to stay ahead of competitors; lack of agility to adapt to demand fluctuations; processes that are not fully matured yet and a lack of IT support (see Table 4.3).

Table 4.4 represents the list of resources and threats coming from a lack of resources from each of company based on the respondents.

Further analysis of this result is addressed in the discussion section.

4.5.2 Perceived Power

Among those who perceive themselves as more powerful than their partner, Case 5 (C5) offers an example. The focal company in C5 is larger than its supplier and represents a significant portion of the supplier's income. Despite some neglect due to the focal company's focus on its production process, they are willing to absorb changes in investment and pricing as long as quality is maintained. Similarly, in C11, the focal company perceives itself as having legitimate power over its smaller supplier but emphasizes the importance of open discussions to build trust and rapport. In C13, the focal company's perception of power stems from owning most of the patents. Additionally, in C14, the company feels more powerful due to its market access and market capitalization. Lastly, in C16, the focal company believes it has power over its client and emphasizes the importance of trust.

Table 4.2. Results: Five resource type

	Resource type
	1. Market position and power
R1	Low competitor in product/service domain
R2	Big market size/global footprint
R3	High supply base alternatives, incl access to tier suppliers
R4	High client base alternatives
R5	Exclusivity
R6	Stable demand, demand transparency, repeat purchases
R7	Brand image & product maturity, learning opportunities related
R8	Multiple/heterogeneous market portfolio (so when one market is down, we still have other markets to rely on)
	2. Technological capability and expertise
R9	High specialisation in technology, Capability to develop product with customer (or to teach supplier) & speedy prototyping
R10	Exceptional reliability & quality
R11	Proven track record
R12	Large capacity to make big components
R13	Niche: Just One small player with NO direct competitors with small/niche market cap
	3. Operational flexibility and efficiency
R14	Capability to provide Flexibility of volume (incl. fast response to market, absorb inventory shock)
R15	Reliability of time, steady delivery, speed, short lead time
R16	Diversity of product & service portfolio/menu
R17	End to end solution
R18	Locked in with our partner, Long transaction history, ability to co-create product, to test product during product development (difficult to find in another supplier)
R19	Good price point, incl. reduced TCO and cost transparency
	4. Geographical advantage and proximity
R20	Geographical advantage (local supplier)
R21	Geographical advantage (is an international client)
	5. Financial capacity and resources
R22	High representation of finance (revenue)
R23	High representation of finance (spending)
R24	Company size (big or small)
R25	Maturity and health of organization

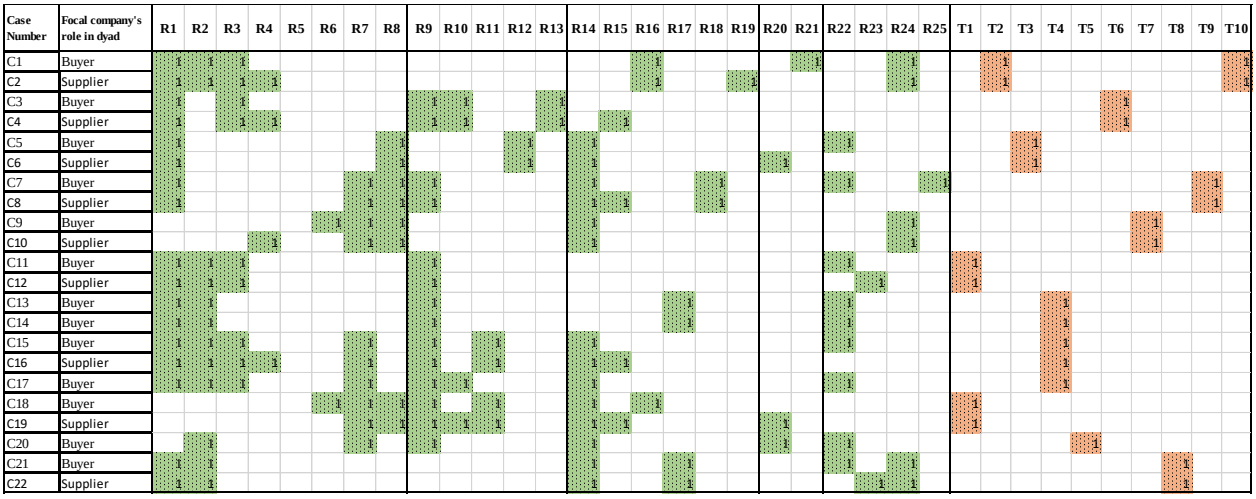
On the other hand, there are cases where the focal company perceives itself as less powerful than their partner. For instance, in C1, the supplier is seen as owning more value in the chain, resulting in a lower profit margin for the focal company. In C2, the focal company acts as a middleman between the supplier and client, indicating less power than either party. Similarly, in C4, the focal company feels it lacks options and needs to grow quickly, implying less power. Additionally, the client's operation isn't critically dependent on their product. In C6, the focal company is in a less

powerful position as the client is a significant contributor to their income, and they have to mirror the client's behavior. In C8, the client is far more powerful, dictating specifications and representing a large portion of the focal company's income. Furthermore, in C9, the focal company is more dependent on their supplier than vice versa. In C15, the company acknowledges the authority and technical knowledge of their supplier, which makes them feel less powerful. Lastly, in C18, the company believes it needs more transparency from the supplier, indicating a potential imbalance in power.

Table 4.3. Results: A list of threats

T1	Similar competitor production rate
T2	Company size
T3	Not fully able to assist our client to make drawings / develop product
T4	High specialisation in technology, Capability to develop product with customer & speedy prototyping
T5	Lack of brand image
T6	Lack of financial resource, since we are a small client (single digit income for our supplier)
T7	Not rare tech
T8	Lack of agility to adapt demand fluctuation
T9	Processes are not fully mature yet, and lack of IT support.
T10	Too broad of scope and product diversification

Table 4.4. Results: resources and threats per case



Lastly, there are cases where the power dynamics are perceived as balanced. In C3, the focal company believes that the power balance could improve with more substantial orders, making them more attractive to the supplier. In C7, the focal company manages its spending with the supplier to ensure mutual dependency. Similarly, in C10, although the client is smaller, they have selected a larger company as their supplier, indicating an understanding of the power balance and mutual dependency. In C12, the company believes in using power in a limited manner and maintaining good relationships for the long term, reflecting a desire for balanced power dynamics. In C17, the focal company suggests creating a "lock-in" situation through co-development, leading to a balanced power scenario. Moreover, in C19, the company acknowledges the difficulty in concealing information and

emphasizes the importance of transparency, indicating a balanced power dynamic. In C20, the company recognizes the necessity of exercising power but also acknowledges the potential repercussions of overuse, reflecting an awareness of the need for a balanced power dynamic. In C21, the focal company believes in influencing suppliers through compelling stories and mutual dependence, which indicates a balanced power scenario. Lastly, in C22, the focal company highlights the importance of working with a few strategic suppliers, suggesting a balanced power structure.

Please note that the above interpretations are based on the given information and may not be definitive. For instance, C20 is ambiguous and could be interpreted in multiple ways. The focal company recognizes the dangers of abusing power, but also sees its necessity in business, making it hard to categorize. Further, perceived power can be subjective and can change based on the specific circumstances or interactions between the parties.

4.5.3 Compromises (trade-offs)

In contemporary business environments, the art of compromise is a crucial component of supplier-client interactions. Upon analysis of the various cases presented, the compromises or trade-offs can be classified into the following primary categories: 1) *Pricing and Financial Considerations:* Emphasized in C1, C2, C5, and C22, this encompasses cost structures, profit margins, and incentives for repetitive transactions. It highlights the balance between product suitability, cost, and the benefits of frequent orders; 2) *Product Quality and Specifications:* Covered in C3, C6, C7, C8, C9, C10, C13, C14, C17, C18, and C20, this pertains to the product's characteristics, functionality, and reliability. It addresses adjustments in specifications, unique technological attributes, and quality resolution mechanisms; 3) *Logistics and Delivery:* Central to C3, C6, C9, C11, C12, and C20, this category focuses on delivery timeframes, lead times, and meeting order demands, especially in fluctuating demand scenarios; 4) *Supplier Autonomy and Flexibility:* Highlighted in C4, C8, C10, C15, and C16, this examines the supplier's decision-making latitude, product development, and adaptability, aligned with client needs and production constraints; 5) *Client Involvement and Relationship:* Portrayed in C4, C19, and C21, this reflects client participation levels and the supplier-client relationship dynamics, including discussions on technological trajectories; 6) *Volume and Capacity:* Emphasized in C3, C11, and C22, this category delves into order magnitudes, capacity expansion, and challenges of demand variability; 7) *Future Prospects and Strategic Decisions:* Brought forth in C11, C14, and C21, this centers on long-term projections, demand forecasting, and mutual commitments for sustained growth.

Each case provides a unique insight into the multifaceted nature of compromise, which illustrate the concerted efforts of both suppliers and clients to achieve mutually beneficial outcomes.

4.5.4 Involvement levels

Based on the examples that the respondent provided, the involvements are illustrated In Table 4.5.

4.5.5 The desire for more involvement

In the context of collaboration levels, certain cases stood out. C1 highlighted the occasional need for enhanced supplier involvement, particularly when buyer demands veer away from the normative scope, necessitating unique specifications. Meanwhile, C2 underscored an aspiration for early strategic involvement in tender processes, even if it might compromise on optimal pricing. This theme was further resonated in C4 and C8, both emphasizing the necessity for clarity from clients and a collaborative approach during product development.

Transparency and communication formed another critical axis. C3 and C11, for instance, accentuated the importance of understanding suppliers' operations and capabilities, especially when proprietary systems obscure such insights. The call for transparency extended to pricing structures and forecasts, as observed in C7 and C17. Furthermore, C13 and C14 elucidated the need for digitized quality oversight and clearer insights into logistic processes, respectively. C20 and C22 brought forth the value of openness in resource allocation and early involvement in forecasting to ensure precise inventory management.

The intricate balance of pricing and financial considerations emerged as another pivotal theme. C5's respondents voiced their preference for stable and transparent pricing models, especially during project execution. This sentiment dovetailed with discussions in C10 and C21, which revolved around the post-development pricing phase and the integral role of procurement teams in such deliberations.

Timely delivery and optimal lead times were focal points in a few cases. C9 underscored the criticality of prompt deliveries, especially from distant suppliers. In contrast, C12 and C19 revolved around lead times, with a push for greater influence and flexibility in setting these timelines.

Quality assurance and adherence to standards also took center stage in some instances. C6 delved into the challenges of assuring clients about proposed quality roadmaps, especially when key decisions were influenced by client-side budgeting. This was complemented by insights from C18, which emphasized strict adherence to quality standards set by the company.

In essence, these insights construct a narrative of the multifaceted dynamics in supplier-client interactions, ranging from calls for increased engagement and transparency to the nuances of pricing and quality considerations. Interestingly, amidst these calls for heightened engagement, C16 revealed contentment with existing collaboration levels.

Based on the variety of desired involvement in the different phases of joint decision-making process, we could categorize responses into these main categories:

- Early Stage Involvement: This includes the wish to be included in the initial stages of a decision-making process. This could be during the formation of quotations, setting the price, designing products, etc. (C2, C4, C8, C10, C21, C22).
- Middle Stage Involvement: This refers to the desire to be more involved during the execution of the agreed tasks, including aspects like quality control, cost structuring, and monitoring (C3, C5, C13, C15, C17).
- Final Stage Involvement: This involves wanting a say in the final stages of the decision-making process, such as setting delivery times, final quality checks, and approval processes (C6, C9, C12, C19).
- Full Process Involvement: This category represents a desire to be involved throughout the entire decision-making process, from the initial discussions to the final implementations (C1, C7, C11, C14, C18, C20).
- No Additional Involvement Desired: Some responses express satisfaction with the current level of involvement in the decision-making process (C16).

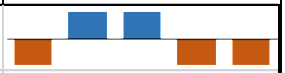
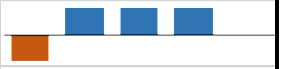
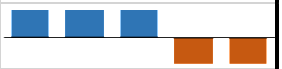
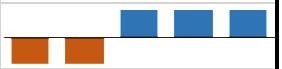
4.6 Discussion

4.6.1 Power bases

Based on the way compromises are made, we conclude that the type of power base indicated by the focal company being interviewed is explained as below:

Legitimate Power – The focal company demonstrates legitimate power in several cases. In C1, they maintain their relationship with a supplier based on their transaction history and existing terms, asserting their authority. C4 showcases their legitimate power as they set their terms and conditions while respecting the client's specifications and their own production planning. C8 highlights their legitimate power as they adjust product specs according to the client's requirements, maintaining flexibility despite the lack of market information. C10 demonstrates their legitimate power as they agree to a legally binding contract on product specifications, with some freedoms in terms of production processes. C12 showcases their legitimate power as they adapt to volatile demands due to the nature of the high-tech market. C18 demonstrates the company's legitimate power as they expect the supplier to provide quality and standardization while giving them the freedom to set the price.

Table 4.5. Results: involvement levels (Dominance in focal company: +1, dominance in partner company: -1, non dominance indicated: 0.)

Case number	Focal company	Partner's company	Decision type	Phases in joint decision-making					Phase influencer (Top: focal company; bottom: partner company)
				i	ii	iii	iv	v	
C1	Buyer	Supplier	Pricing	-1	1	1	-1	-1	
C2	Supplier	Buyer	Pricing	-1	-1	1	1	1	
C3	Buyer	Supplier	Quality & standards; Product development	1	1	1	0	0	
C4	Supplier	Buyer	Product development	-1	1	1	1	0	
C5	Buyer	Supplier	Pricing	1	1	1	-1	-1	
C6	Supplier	Buyer	Quality & standards	1	1	1	-1	-1	
C7	Buyer	Supplier	Pricing	1	1	1	-1	-1	
C8	Supplier	Buyer	Product development	1	1	1	-1	-1	
C9	Buyer	Supplier	Logistics (Transport mode, lead time)	1	1	1	-1	-1	
C10	Supplier	Buyer	Pricing	-1	-1	1	1	1	
C11	Buyer	Supplier	Logistics (Transport mode, lead time)	1	1	1	-1	-1	
C12	Supplier	Buyer	Logistics (Transport mode, lead time)	-1	-1	1	1	1	
C13	Buyer	Supplier	Quality & standards	1	1	1	1	-1	
C14	Buyer	Supplier	Logistics (Transport mode, lead time)	1	1	1	-1	-1	
C15	Buyer	Supplier	Pricing	-1	-1	1	1	-1	
C16	Supplier	Buyer	Product development	0	-1	0	0	0	
C17	Buyer	Supplier	Product development	1	1	1	-1	-1	
C18	Buyer	Supplier	Quality & standards; Pricing	-1	-1	1	1	1	
C19	Supplier	Buyer	Logistics (Transport mode, lead time)	-1	-1	-1	1	1	
C20	Buyer	Supplier	Logistics (Transport mode, lead time)	1	1	1	-1	-1	
C21	Buyer	Supplier	Pricing; Product development	1	1	-1	1	1	
C22	Supplier	Buyer	Product development	1	1	1	1	-1	

Reward Power – The focal company exerts reward power in several cases. In C2, they justify their high prices with the uniqueness and scarcity of their products, offering financial or efficiency gains to the client. C5 highlights their reward power as they allow the supplier to have a larger share of the profit as long as the product quality is good. C11 showcases their reward power as they offer

strategic development and capacity expansion as a reward for the supplier's high flexibility. C15 demonstrates their reward power as they give the supplier freedom to develop new products in exchange for good pricing, responsiveness, and product functionality. C20 showcases their reward power as they communicate quality standards and compensate for faster lead times, demonstrating knowledge and control in supplier management. C22 demonstrates their reward power as they give large volumes of orders to get cheaper prices, thus using reward power to influence the supplier.

Coercive Power – The focal company exerts coercive power in several cases. In C3, they use their understanding of delivery time, volume, and quality to set the terms of compromise with the supplier. C6 highlights their coercive power as they use their comprehensive understanding of the product and process to set quality and delivery time, proposing it to the client even when disagreements arise. C7 showcases their coercive power as they are willing to pay higher prices for unique technology and demand uncompromised quality from the supplier. C9 demonstrates their coercive power as they reject the supplier's idea of new technology development, emphasizing the priority on speed. C19 shows their coercive power as they allow high client involvement in exchange for repeat orders.

Expert Power – The focal company demonstrates expert power in several cases. In C13, they adjust prototype measurements and pricing according to their expertise in product development. C14 showcases their expert power as they respect the material suggestions of the supplier while ensuring their own quality boundaries are met. C17 demonstrates their expert power as they make a trade-off between production loss and specific machining skills provided by the supplier, demonstrating expert knowledge in choosing the right supplier. C21 highlights their expert power as they have deep discussions with the supplier about future predictions and capacity commitments, making pricing and inventory decisions based on their expert knowledge.

Referent Power – The focal company demonstrates referent power in C14, where they respect the material suggestions of the supplier, indicating a level of trust and admiration for their expertise.

These cases provide evidence of the different power bases exerted by the focal company, leading to compromises and negotiations in their business relationships.

Based on the way compromises are made, we interpret that the type of power base exerted by the partner's company is as below:

Expert Power – The partner's company demonstrates expert power in several cases. In C1, they have unique product offerings and economies of scale, indicating superior technical expertise. C4 shows their expertise as the client provides detailed specifications and requirements, showcasing their technical knowledge. In C7, the supplier insists on delivering complex designs, justifying the high pricing with their unique technology. C9 highlights their expertise as they propose new technology development, showcasing their innovative capabilities. C13 demonstrates their technical

expertise and adaptability as they accommodate changes in prototype measurements. The supplier's expert power is also evident in C14, where they provide suggestions on material selection, demonstrating their product knowledge. C15 showcases their expert power as they use their technical expertise to develop new products, creating unique offerings. Lastly, in C17, the supplier's unique machining and precision skills demonstrate their specialized knowledge.

Reward Power – The partner's company exerts reward power in several cases. In C2, the client shows a willingness to accept higher pricing for the certainty of quality and financial benefits, providing the supplier with consistent business. C11 highlights the supplier's reward power as they offer high flexibility in logistics and lead time in return for growth opportunities and capacity expansion. C20 showcases the supplier's reward power as they receive fair payment for quicker lead times and take responsibility for excess inventory, receiving financial benefits. C22 demonstrates their reward power as they are rewarded with large volumes of orders, influencing their capacity management decisions.

Coercive Power – The partner's company exerts coercive power in several cases. In C3, the supplier has the ability to refuse orders when operating at full capacity, demonstrating their power to influence terms of business. C5 showcases their coercive power as they can refuse to deliver if they are not able to meet promises, implying power to dictate terms. In C8, the client exerts power by dictating product requirements and providing limited market information. C12 highlights the client's coercive power as they influence business decisions due to the volatile nature of the high-tech market. C16 demonstrates the client's coercive power as they insist on limiting product specs to stay under budget, dictating the terms of the business relationship. C19 shows the client's coercive power as they demand high involvement in product development and manufacturing, asserting control over the product specification process.

Legitimate Power – The partner's company exercises legitimate power in several cases. In C6, the client often disagrees with the decisions made by the company and escalates issues, indicating their authority in the business relationship. C10 showcases the client's legitimate power as they impose a legally binding contract, asserting their legal and formal authority. C18 demonstrates the supplier's legitimate power as they exercise their right to set prices while meeting the expected quality and standardization.

These cases may serve as indicators of the various power bases utilized by the partner's company, resulting in compromises and negotiations within the B2B dyad with the focal company. The list of analyzed power bases of the focal company and partner's company is concluded in Table 4.6.

4.6.2 Power sources association with power bases

These findings highlight the connection between the power bases a company uses and the kind of resources they have access to or prioritize, or the lack thereof manifesting as threats.

Companies characterized by an "*Expert*" power base, such as C2, C13, C14, C17, C20, and C21, predominantly align with resources from categories "*Market position and power*" (R1-R8) and "*Technological capability and expertise*" (R9-R13). This association underscores that expertise in a domain not only grants companies a competitive edge but also empowers them with preferential access to market and technological resources. They also seem to have "Operational flexibility and efficiency" (R14-R19). This might suggest that such companies can leverage their specialized knowledge to improve both technological and operational aspects.

However, companies that rely heavily on "*Expert*" power, often face threat T3 (*Not fully able to assist our client to make drawings / develop product*). It indicates that while expertise brings significant advantages, it also comes with specific risks such as potential limitations in delivering complete solutions to clients.

Table 4.6. Results: analyzed power bases of the focal company and partner's company

Case number	Power base of focal company	Power base of partner's company
C1	Legitimate	Expert
C2	Expert	Reward
C3	Expert and Coercive	Coercive
C4	Legitimate	Expert
C5	Reward	Coercive
C6	Coercive	Legitimate
C7	Expert and Coercive	Expert
C8	Legitimate	Coercive
C9	Coercive	Expert
C10	Legitimate	Legitimate
C11	Reward	Reward
C12	Legitimate	Coercive
C13	Expert	Expert
C14	Referent	Expert
C15	Expert and Reward	Expert
C16	Legitimate	Coercive
C17	Expert	Expert
C18	Legitimate and Reward	Legitimate
C19	Coercive	Coercive
C20	Expert	Reward
C21	Expert and Reward	Expert
C22	Reward	Reward

Companies identified with a "*Coercive*" power base, such as C3, C5, C6, C8, and C19, exhibit a marked association with *"operational flexibility and efficiency"* (R14-R19). This relationship might be rooted in the inherent control that coercive power affords over resources, facilitating operational prowess. Yet, wielding "*Coercive*" power comes with its set of challenges. Entities like C3, C5, C6, C8, C9, and C19, despite their power, grapple with the looming threat of overextending their product portfolio, as indicated by threat T10. This association suggests that excessive power might inadvertently steer companies towards risky diversification, they could struggle with focus and risk stretching their capabilities too thin. Focal companies using "*Coercive*" power also tend to be more exposed to threats T8 (*Lack of agility to adapt demand fluctuation*) and T9 (*Processes are not fully mature yet, and lack of IT support*). This might indicate that coercive power, while enabling control, might also be linked to more rigid operations and slower adaptation to changes.

Companies anchored in the "*Legitimate*" power base, such as C1, C4, C8, C10, C12, and C16, manifest a balanced resource portfolio. Their established market positions or recognized authority might grant them a holistic access to diverse resources, further evidenced by their pronounced association with "*Market position and power*" resources (R1-R8) to "*Financial capacity and resources*". This could be because the legitimate power base, often derived from an acknowledged authority or position, may provide more opportunities to access and exploit diverse resources.

Companies with "*Legitimate*" and "*Reward*" power bases (C1, C4, C8, C10, C12, C16, C2, C15, C20, C21, C22) generally seem to have more diverse resources across all categories, suggesting a potentially balanced operational approach across different aspects of their business. Companies that have a more diversified resource profile, showing a significant presence across multiple resource categories, can also combine several forms of power, such as portrayed in C3, C7, C15, C21 where they combine "Expert" with other forms of power.

The "*Reward*" power base, as seen in cases C2, C5, C11, C15, C20, C21, and C22, often corresponds with a larger number of threats, particularly T1 (*Similar competitor production rate*) and T2 (*Company size*). This could indicate that while reward power can provide positive incentives, it may also expose companies to increased competition and scale-related challenges. Threat T5 (*Lack of brand image*) is largely associated with companies possessing "*Reward*" (C5, C11, C15, C20, C21, C22) and "*Coercive*" (C3, C5, C6, C8, C9) power bases. This might suggest that companies relying on these power bases might struggle with brand recognition and image, possibly due to the transactional nature of their relationships.

A compelling observation emerges when both the focal company and its partner share an identical power base. In scenarios like C10 and C19, these entities seem to encounter a wider spectrum of threats (T1-T10). This association raises the possibility that having homogenous power bases might inadvertently amplify competitive tensions, making the business landscape more treacherous. However, companies like C10, C16, C18, and C19, which manifest shared power bases with their

partners, display a distinctive trend of equitably distributed resources. This association suggests that when power dynamics are symmetric, it might foster an environment conducive to balanced resource allocation, or vice versa.

Threat T4 (*High specialization in technology, Capability to develop product with customer & speedy prototyping*) seems to be a common concern for companies with "*Expert*" power base (like C2, C3, C7, C13, C14, C17, C20, and C21). This suggests that keeping up with technological advancements is critical for companies relying on expertise as their power base. While companies demonstrating "*Coercive*" power (C3, C5, C6, C8, C9, C19) often face challenges related to *product diversification* (T10), *adaptability* (T8), and *process maturity* (T9). This might suggest that while coercive power may offer certain advantages, it could also be linked with operational rigidities and vulnerabilities.

Observations are made regarding the role-based dynamics between supplier and buyer. For example, the role of "*Supplier*" is primarily linked with "*Legitimate*" (C4, C8, C10, C12, C16), "*Reward*" (C2, C22), and "*Coercive*" (C6, C8, C12, C16, C19) power bases. This may imply that suppliers tend to exercise power through established roles, rewards, and coercive means more frequently than buyers. However, there are also other interesting findings less related to power bases. Some findings explore further how a company's role (whether it's a buyer or supplier) is associated to its resources and threats.

First, companies that predominantly function as *buyers*, typified by entities like C1, C3, C5, C7, C9, C11, C13, C14, C15, C17, C18, C20, and C21, exhibit a distinct pattern. They tend to be less reliant on "*Operational flexibility and efficiency*" resources (R14-R19). This association suggests that suppliers, in contrast to buyers, might be under greater pressure to maintain operational agility to effectively cater to dynamic client demands.

When the focal company is a *supplier*, such as in cases C2, C4, C6, C8, C10, C12, C16, C19, and C22, it is notable that they often have access to a high number of "*Financial capacity and resources*" (R22-R25). This might imply that suppliers, possibly due to their position in the value chain, may need to manage their financial resources more meticulously. In contrast, a financial challenge, particularly for smaller *buyers*, is underscored by threat T6. This is evident in companies like C1, C3, C5, C7, C9, C11, C13, C14, C15, C17, C18, C20, and C21, emphasizing an association between buying roles and potential *financial constraints*.

Most companies operating as buyers (C1, C3, C5, C7, C9, C11, C13, C14, C15, C17, C18, C20, and C21) also face threats related to product development and technological advancements (T3 and T4). This may indicate a common challenge for buyers in the high tech industry: keeping pace with rapid technology changes. The threat T4 (*High specialization in technology, Capability to develop product with customer & speedy prototyping*) seems more prevalent in cases where the focal company

operates as a *buyer* (C3, C7, C9, C15, C18, and C20). This suggests that buyers in the high-tech sector may face higher expectations and pressures regarding technological innovation and rapid product development.

Universality across most cases is identified. The resources that seem to be utilized by most companies, regardless of their power base or role (buyer or supplier), are R1 (*Low competitor in product/service domain*) and R2 (*Big market size/global footprint*). This suggests that these two resources are key elements for many businesses across different contexts, possibly due to their direct impact on market positioning and competition. On the other hand, threats T1 (*Similar competitor production rate*) and T2 *(Company size*) appear across various types of power bases. These two threats seem to be almost universal, affecting companies regardless of their specific power base or role. This underlines the persistent competitive pressures in the high-tech context.

4.6.3 Perceived Power association with power bases

In the contemporary high-tech industry landscape, the perception of power and its subsequent influence on power bases plays a pivotal role in shaping supplier-client dynamics.

Expertise as a Power Pillar – In C2, C13, C17, and C20, the focal companies are rooted in an "*Expert*" power base. This resonates with their perception of themselves in relation to their suppliers. For instance, C2 views itself as a middleman, dependent on its supplier, who holds the reins in the value chain. C13, in a similar vein, shares early-stage designs with suppliers, emphasizing collaboration despite the power struggle brought about by larger tech clients. The association is clear: expertise often translates to a unique value proposition, even in the face of challenges from larger entities.

Legitimacy and the Dynamics of Influence – Companies like C1, C4, C8, C10, and C12, anchored in the "*Legitimate*" power base, navigate a complex web of influence. C1's acknowledgment of the supplier's superior influence, courtesy of its technical prowess and global clientele, exemplifies this. C4, despite its growth phase, yearns for intensified client communication, stemming from its product's non-critical nature in client operations. The legitimate power base often correlates with companies recognizing their position but also understanding the critical value others bring to the table.

The Coercive Edge and Its Implications – C3, C6, C7, C9, and C19 showcase the dynamics of the "*Coercive*" power base. Companies like C6 face negotiation challenges with major clients, emphasizing the importance of contract discussions. C9, despite its perception of being dependent on suppliers, employs multiple sourcing strategies, highlighting the coercive undertone of diversifying supply chains. It's evident that companies with a coercive edge often grapple with power struggles, necessitating strategic moves to ensure equilibrium.

Balancing Act: Reward and Its Ramifications – In instances like C5, C11, C18, C21, and C22, the "*Reward*" power base comes to the fore. C5, despite its significant contribution to the supplier's income, experiences short-term financial burdens due to the supplier's independent decision-making. C11, on the other hand, aims for an open relationship, emphasizing trust. The reward-based power dynamic often revolves around mutual benefits, with companies aiming to strike a balance to ensure sustained collaboration.

The Interplay of Multiple Power Bases – Certain companies, like C3, C7, C15, and C21, combine "*Expert*" with other power bases. C15, for instance, acknowledges suppliers' technical expertise while grappling with limited interaction resources. C21, meanwhile, employs storytelling as a tool, influencing suppliers with market attractiveness narratives. This combination often results in companies adopting multifaceted strategies, leveraging expertise while also tapping into other power dimensions.

In principle, the perception of power and its exercise is a delicate dance, influenced by a company's intrinsic value, market dynamics, and strategic intentions. Whether it's expertise providing a competitive edge, legitimacy underscoring mutual value recognition, or coercion demanding strategic agility, the chosen power base often serves as a beacon, guiding companies in their quest for optimal supplier-client dynamics. By understanding these associations, companies can better navigate their strategic partnerships, ensuring mutual growth and sustained collaboration.

4.6.4 Compromises (trade-offs) and power bases

Compromise and varied involvement levels in joint decision-making are interconnected. They form a dynamic relationship in which the level of involvement of each party is associated with the extent of the compromises made. Higher involvement levels can lead to more nuanced compromises. When both parties are heavily involved, they tend to understand each other's perspectives, constraints, and priorities more thoroughly. This understanding can facilitate a more effective compromise, as each party has a clearer picture of what concessions may be acceptable and beneficial for the other party. For example, in Case C11, the client and the supplier were both heavily involved in the decision-making process, leading to compromises that benefitted both parties.

The level of involvement can also influence the balance of power in decision-making. In situations where one party is more involved than the other, they may be able to exert more influence over the decision-making process. For example, in Case C10, the client had a high level of involvement and was able to assert legitimate power, binding the supplier to a contract. The degree of each party's involvement may also affect the scope of the compromise. Greater involvement often means that more aspects of the decision are open to negotiation and compromise. In Case C2, for instance, the client had a high involvement level, and the compromise included aspects like pricing and availability.

The level of involvement can shape the nature of the relationship between the parties, which in turn affects the way compromises are made. When both parties are deeply involved, they might build stronger relationships, promoting trust and understanding. This relationship can facilitate compromises that are more balanced and mutually beneficial, like in Case C15 where the supplier was given freedom to develop new products, but was also expected to provide competitive prices and functionality.

Further, the relationship between power bases and involvement levels in joint decision-making is reciprocal and complex. The type of power base a party holds association with their level of involvement in decision-making. For instance, a party with expert power (like the supplier in Case C16), by virtue of their specialized knowledge or skills, may demand higher involvement in the decision-making process. Conversely, a party exercising reward power (like the client in Case C20), could limit the other party's involvement, making decisions based on rewards or incentives.

The level of involvement in decision-making can significantly influence the balance of power. High involvement often allows a party to exert more influence over the process, which can manifest in different power bases. For example, the client in Case C10, who had a high level of involvement, was able to exert legitimate power, binding the supplier to a contract. The level of involvement of each party can change the power base over time. Greater involvement can lead to better understanding and familiarity with the process, enabling a shift from referent or reward power to expert or legitimate power. For instance, in Case C14, the supplier's involvement in product development led to the accumulation of expertise, forming a basis for expert power.

The level of involvement can shape the nature of the relationship between parties, which in turn affects the power bases. A higher level of involvement can lead to stronger relationships, promoting trust and potentially shifting the power base from coercion or reward to referent or legitimate. In Case C15, the supplier's high involvement and the ensuing trust led to a referent power base. Thus, the type of power base can influence the level of involvement, and vice versa. This dynamic interaction shapes the decision-making process and the nature of compromises made.

4.6.5 The interplay between involvement and compromises

In analyzing the association between involvement levels and the complexity of compromises in the joint decision-making process, we take a closer look at two specific cases:

Case 6: This case represented a scenario where a company with strong expert power was engaged in a B2B relationship. The focal company, due to its specialized knowledge in a particular high-tech sector, had a high involvement in the decision-making process. It was actively involved in all stages, from initiation to evaluation. This active involvement led to a more complex decision-making process as the company did not simply agree to proposals but made counterproposals, asked

insightful questions, and was deeply engaged in negotiating terms. This demonstrated a clear positive association between high involvement and complex compromises.

Case 12: This case presented a contrasting scenario where a company with low involvement in the decision-making process made simple compromises. Here, the company held referent power due to its reputation and status in the industry but was not directly involved in the detailed decision-making process. Instead, it relied on its reputation to influence decisions indirectly. The compromises made in this case were simpler and more straightforward, demonstrating the association between lower involvement levels and simple compromises.

In short, these findings suggest a positive association between the level of involvement in decision-making and the complexity of compromises. Higher involvement often leads to complex compromises as companies are more engaged and invested in the decision-making process, while lower involvement tends to result in simpler compromises. However, these are general trends and individual case characteristics, and the specific power dynamics can influence the nature and complexity of compromises.

Table 4.7. The association between involvement levels and the complexity of compromises in the joint decision-making process

	Based on the way compromises are made (exercise of power) we see that the type of power base indicated BY FOCAL COMPANY is…	Based on the way compromises are made (exercise of power) we see that the type of power base indicated BY PARTNER is…	Where in the decision-making phase they desire more control/involvement in
C1	Legitimate	Expert	Full process
C2	Expert	Reward	Early stage
C3	Expert and Coercive	Coercive	Middle stage
C4	Legitimate	Expert	Early stage
C5	Reward	Coercive	Middle stage
C6	Coercive	Legitimate	Final stage
C7	Expert and Coercive	Expert	Full process
C8	Legitimate	Coercive	Early stage
C9	Coercive	Expert	Final stage
C10	Legitimate	Legitimate	Early stage
C11	Reward	Reward	Full process
C12	Legitimate	Coercive	Final stage
C13	Expert	Expert	Middle stage
C14	Referent	Expert	Full process
C15	Expert and Reward	Expert	Middle stage
C16	Legitimate	Coercive	No additional involvement desired
C17	Expert	Expert	Middle stage
C18	Legitimate and Reward	Legitimate	Full process
C19	Coercive	Coercive	Final stage
C20	Expert	Reward	Full process
C21	Expert and Reward	Expert	Early stage
C22	Reward	Reward	Early stage

Many companies, regardless of their power base, seem to desire more control in the early and middle stages of the decision-making process. Fewer companies desire involvement in the final stage, while some prefer involvement throughout the full process. Furthermore, the desired involvement in decision-making often aligns with where these companies feel they can exert the most influence or where they perceive the most risk. For instance, companies with "Expert" power might want early involvement to guide decisions with their specialized knowledge, while those with "Coercive" power might be more involved in the final stages to ensure their demands are met.

Companies with an "Expert" power base are those that rely on their specialized knowledge or technical expertise as a primary source of influence. Involvement Trend: Typically, these companies prefer to be involved in the early stages of decision-making. Reasoning: Their strength lies in their specialized knowledge, so their input is most valuable when projects or negotiations are being conceptualized. By guiding decisions early on, they can ensure that projects are set on the right trajectory, minimizing the need for later adjustments, which can be costly and time-consuming.

Companies with a "Legitimate" power base are recognized or established authorities in their domain. Involvement Trend: These companies often prefer involvement in the early and middle stages. Reasoning: As recognized authorities, they might be consulted during foundational decision-making processes, and their stamp of approval or support can be crucial in garnering broader support for initiatives.

Companies with "Coercive" power use threats, pressure, or force as means of influence. Involvement Trend: They might lean towards involvement in the middle to final stages of decision-making. Reasoning: Their approach is more about ensuring that their demands are met, and they might step in when things are not going according to their desires or when they perceive that their interests are at risk.

Companies with "Reward" power hold the capacity to grant benefits or incentives to others. Involvement Trend: These companies might desire involvement across all stages. Reasoning: Their strategy is often about incentivizing certain actions or decisions at various points in the process. Whether it's kickstarting a project with a promise of rewards, ensuring momentum in the middle stages, or offering final-stage bonuses for timely completion, their involvement is consistent.

Companies that exhibit combinations of power bases have a multifaceted approach to exerting influence. Involvement Trend: Their involvement can vary widely based on the specific combination of power bases they possess. For instance, a company with both "Expert" and "Reward" power might be involved early on for guidance (Expertise) and then again in the final stages to offer incentives (Reward). Reasoning: Their multifaceted nature allows them flexibility in choosing when to intervene, and they can employ different strategies at different stages of the decision-making process.

Hence, the power base a company holds often dictates its preferred stage of involvement in decision-making processes. Their involvement is strategically chosen based on where they believe their particular form of power will be most influential and effective.

4.7 Managerial Implications

This study offers several key insights for managers in high-tech B2B environments. Understanding the influence of power dynamics on joint decision-making can significantly enhance collaborative efforts and strategic outcomes. Managers should recognize that power sources, such as market positioning and company size, play a crucial role in shaping power bases and involvement levels. By leveraging these power sources effectively, managers can navigate power asymmetries to foster more balanced and productive partnerships. Additionally, perceptions of power are vital in shaping behaviors and decision-making processes. Managers need to be aware of how their power is perceived by partners and use this knowledge to build trust and transparency in relationships. This awareness can lead to more strategic negotiations and better alignment of goals between partners.

The study's findings also highlight the importance of early involvement in decision-making processes, especially for companies with expert power. Managers should ensure that their specialized knowledge is integrated early on to influence key decisions effectively. Conversely, understanding when to exercise coercive or reward power can help in steering negotiations towards mutually beneficial outcomes without causing unnecessary conflicts. Finally, establishing clear governance structures and aligning strategic objectives are critical for managing power dynamics. Managers should focus on creating robust frameworks that support transparent and accountable decision-making processes. This approach will not only minimize conflicts but also pave the way for sustained collaboration and innovation in high-tech B2B partnerships.

4.8 Conclusion and future research

The high-tech industrial landscape is characterized by intricate dynamics of power and influence that shape supplier-client relationships. This study elucidated the interplay between power bases, involvement levels, and the nature of compromises in joint decision-making within high-tech B2B contexts. The findings highlighted the considerable influence of power dynamics and participation levels in shaping negotiation and decision-making processes. Expertise emerged as a significant pillar of power, providing companies with a competitive edge but also posing challenges in keeping up with rapid technological advancements. Legitimacy emphasized established authority and mutual recognition of value, while coercive power highlighted strategic agility and power struggles. Reward-based dynamics revolved around mutual benefits, emphasizing the balance needed for sustained collaboration. Additionally, the combination of multiple power bases showcased the diverse strategies companies adopt, leveraging various power dimensions. The study also underscored

universal challenges faced by companies, regardless of their specific power base or role, indicating persistent competitive pressures in the high-tech industry.

Joint decision-making in B2B relationships is intricately tied to power dynamics and involvement levels. The complexity of compromises made between companies is greatly influenced by the power bases each party holds and their desired level of involvement. Companies with expert power often seek early involvement to leverage their specialized knowledge, those with legitimate power seek involvement during foundational stages, while those with coercive power tend to intervene when their interests are at risk. Companies wielding reward power often span their involvement across all stages, using incentives strategically. The interplay between power and involvement dictates the nature of compromises. Higher involvement often leads to more complex compromises due to a better understanding of each party's constraints and priorities, while low involvement typically results in simpler compromises. Additionally, the alignment of goals, shared values, and clear governance structures play pivotal roles in the decision-making process, influencing power dynamics and paving the way for productive B2B relationships.

Recommendations for future studies

Future studies should delve deeper into how companies can balance short-term gains with long-term strategic investments and innovations in the context of power bases and involvement levels in joint decision-making. Investigating the role of different power bases in shaping companies' willingness to compromise for long-term benefits and their impact on B2B relationships can provide nuanced insights into sustainable value creation in business collaborations. In the context of B2B joint decision-making, goal alignment and sharing of collective values are pivotal, influencing involvement levels and fostering a conducive environment for collaboration, compromises, and trust. However, integrating shared values and goals requires a profound understanding of each party's motivations and strategic objectives.

Moreover, establishing clear governance structures is crucial as they determine power dynamics and involvement levels in decision-making processes, ensuring fair compromises and minimizing conflicts. Governance mechanisms play a vital role in coordinating activities, managing risks, and maintaining transparency and accountability in joint decision-making. Future research should explore the role of governance in regulating joint B2B decision-making, focusing on building trust, resolving disputes, and aligning strategic objectives between companies with different cultures and values. Additionally, examining the impact of power balance on joint decision-making outcomes is crucial, as balanced power structures can foster environments conducive to collaboration and mutual respect.

Furthermore, research should investigate strategies companies employ to shift power dynamics as a contingency plan to mitigate deviations from partners, and how these shifts can create more stable and mutually beneficial partnerships. Thus, future studies should emphasize the

exploration of goal alignment, governance structures, power balance, and shifting power dynamics in B2B joint decision-making, considering their significant impact on the success and productivity of business relationships.

References

Apospori, E., & Ioannou, V. (2012). The Effect of Participation in Strategic Decisions on Organizational Commitment and Satisfaction. International Journal of Business and Management, 7(14), 109-123.

Bacharach, S., & Lawler, E. (1980). Power and Politics in Organizations. Jossey-Bass.

Benton, W. C., & Maloni, M. (2005). The influence of power driven buyer/seller relationships on supply chain satisfaction. Journal of Operations Management, 23(1), 1-22.

Bonoma, T. V. (1985). Case research in marketing: opportunities, problems, and a process. Journal of Marketing Research, 22(2), 199-208.

Brown, A. (2018). Market Size Analysis. In The Research Process in Sport, Exercise, and Health (pp. 45-56). Routledge.

Brown, A., & Davis, B. (2020). Organizational priorities and joint decision making. Harvard Business Review, 98(3), 67-74.

Brown, S. P., Lusch, R. F., & Muehling, D. D. (1983). Conflict and power-dependence relations in retailer-supplier channels. Journal of Retailing, 59(4), 53.

Chen, Y., Li, L., Li, X., & Liang, X. (2017). Joint decision making in a supply chain with a risk-averse retailer and a loss-averse supplier. International Journal of Production Economics, 187, 97-108.

Chicksand, D. (2015). Partnerships: The role that power plays in shaping collaborative buyer-supplier exchanges. Industrial Marketing Management, 48, 121-139.

Choi, T. Y., & Kim, Y. (2008). Structural dynamics of supply networks: a dyadic perspective. Journal of Supply Chain Management, 44(3), 40-65.

Cuevas, J. M., Julkunen, S., & Gabrielsson, M. (2015). Power symmetry and the development of trust in interdependent relationships: The mediating role of goal congruence. Industrial Marketing Management, 48, 149-159.

Dada, O. L., & Onyas, W. I. (2021). Negotiating agency in mitigating franchisee failure: A critical discourse analysis. Industrial Marketing Management, 98, 1-16.

Davis, M. (2016). Company Size. In The SAGE Encyclopedia of Corporate Reputation (pp. 139-141). Sage Publications.

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. Journal of Marketing, 11-27.

Eisenhardt, K. M. (1989). Building theories from case study research. Academy of Management Review, 14(4), 532-550.

Emerson, R. M. (1962). Power-dependence relations. American Sociological Review, 27(1), 31-41.

French, J. R., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), Studies in social power. Ann Arbor, MI: Institute for Social Research.

French, J., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), Studies in social power (pp. 150-167). Institute for Social Research.

Gimenez, C., Sierra, V., & Rodon, J. (2012). Sustainable operations: Their impact on the triple bottom line. International journal of production economics, 140(1), 149-159.

Gölgeci, I., Murphy, W. H., & Johnston, D. A. (2018). Power-based behaviors in supply chains and their effects on relational satisfaction: A fresh perspective and directions for research. European Management Journal, 36(2), 278-287.

Gray, D. E. (2014). Doing research in the real world. Sage.

Gulati, R., & Singh, H. (1998). The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances. Administrative Science Quarterly, 43(4), 781-814.

Harker, M. J., & Gillingham, D. (2014). When and How to Use Interfirm Power Tactics in Business-to-Business Relationships. Journal of Marketing, 78(1), 1-14.

Hinkin, T. R., & Schriesheim, C. A. (1989). Development and application of new scales to measure the bases of social power. Journal of Applied Psychology, 74(4), 561–567.

Johnson, M. (2017). Market Positioning and Branding. In Marketing Strategy (pp. 53-67). Palgrave Macmillan.

Jones, R. (2020). Supply Base Alternatives. In The Palgrave Encyclopedia of Strategic Management (pp. 1-4). Palgrave Macmillan.

Jones, R., & Lee, T. (2017). Unforeseen technical issues and joint decision making. Journal of Business and Technical Communication, 31(2), 121-136.

Keohane, R.O. and Nye, J.S. (1977). Power and Interdependence. Pearson.

Kim, B., & Oh, H. (2005). The impact of decision-making sharing between supplier and manufacturer on their collaboration performance. Supply Chain Management: An International Journal, 10(3), 223-236.

Kim, D., Shin, G. C., Cavusgil, S. T., & Chen, C. (2023). Degree of involvement in supply chain system development and relational performance: A potential dark side in supply chain relationships. Journal of Business Research, 154, 113278.

Kim, K., & Frazier, G. L. (1997). Measurement of manufacturer-retailer working relationships. Journal of Marketing Research, 379-389.

Kumar, N., Scheer, L. K., & Steenkamp, J. E. M. (1995). The effects of perceived interdependence on dealer attitudes. Journal of Marketing Research, 348-356.

Lewin, J. E., Donthu, N., & Kennett, P. A. (2016). Strategic supplier segmentation: The role of power, dependence, and relationship context. Industrial Marketing Management, 55, 112-123.

Mallin, M. L., & Ragland, C. B. (2017). Power-base effects on salesperson motivation and performance: A contingency view. Journal of business-to-business marketing, 24(2), 99-121.

Maloni, M., & Benton, W. C. (2000). Power influences in the supply chain. Journal of Business Logistics, 21(1), 49-73.

Marshall, C., & Rossman, G. B. (2014). Designing qualitative research. Sage publications.

Marty, J., & Ruel, S. (2024). Why is "supply chain collaboration" still a hot topic? A review of decades of research and a comprehensive framework proposal. International Journal of Production Economics, 273, 109259.

Meehan, J., & Wright, G. H. (2012). The origins of power in buyer-seller relationships. Industrial Marketing Management, 41(4), 669-679.

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. Journal of Marketing, 20-38.

Nurhayati, K., Rezaei, J., & Tavasszy, L. (2021). The interplay between power structure and decision-making in supply chains: A systematic review. Journal of Supply Chain Management Science, 2(3-4), 85-114.

Nurhayati, K., Tavasszy, L., & Rezaei, J. (2023). Joint B2B supply chain decision-making: drivers, facilitators and barriers. International Journal of Production Economics, 256, 108721.

Patrucco, A., Harland, C. M., Luzzini, D., & Frattini, F. (2022). Managing triadic supplier relationships in collaborative innovation projects: a relational view perspective. Supply Chain Management: An International Journal, 27(7), 108-127.

Pfeffer, J., & Salancik, G. R. (1978). The external control of organizations: A resource dependence perspective. Stanford University Press.

Porter, M. E. (1980). Competitive strategy: Techniques for analyzing industries and competitors. The Free Press.

Porter, M. E., & Kramer, M. R. (2011). Creating shared value. Harvard Business Review, 89(1/2), 62-77.

Qiu, T. (2018). Dependence concentration and fairness perceptions in asymmetric supplier–buyer relationships. Journal of Marketing Management, 34(3-4), 395-419.

Rahim, M. A. (1989). Managing Conflict in Organizations. Praeger.

Rezaei, J., Pourmohammadzia, N., Dimitropoulos, C., Tavasszy, L., & Duinkerken, M. (2020). Co-procurement: making the most of collaborative procurement. International Journal of Production Research, 58(15), 4529-4540.

Saldana, J. (2015). The coding manual for qualitative researchers. Sage.

Schmelzle, U., & Mukandwal, P. S. (2023). The impact of supply chain relationship configurations on supplier performance: investigating buyer–supplier relations in the aerospace industry. The International Journal of Logistics Management, 34(5), 1301-1321.

Sheffi, Y. & Rice, J. B. (2015). The power of resilience: How the best companies manage the unexpected. MIT Press.

Siemieniako, D. (2024). Power dynamics in business relationships in a turbulent environment: focus on anticipated power consequences and value creation. Central European Management Journal.

Smith, J. (2019). Changing market conditions and joint decision making. Journal of Marketing Research, 56(3), 345-356.

Sting, F. J., & Bode, C. (2015). Coping with Supplier Uncertainty: The Use of Formal and Relational Governance Mechanisms. Journal of Management, 41(6), 1521-1548.

Swierczek, A., & Szozda, N. (2024). The impact of dyadic relationships in supply chain triads. International Journal of Operations & Production Management, 44(1), 155-178.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319-1350.

Thompson, A. (2015). Value Proposition. In Crafting & Executing Strategy: The Quest for Competitive Advantage: Concepts and Cases (pp. 37-39). McGraw-Hill Education.

Touboulic, A., & Walker, H. (2015). Theories in sustainable supply chain management: a structured literature review. International Journal of Physical Distribution & Logistics Management, 45(1/2), 16-42.

Webster, F.E. (1992). "The Changing Role of Marketing in the Corporation," Journal of Marketing, Vol. 56, No. 4, pp. 1-17.

Yin, R. K. (2009). Case study research: Design and methods. Sage publications.

5 Sway & Obey: Power bases, compliance, and satisfaction in B2B relationships[10]

Abstract – This study investigates the nuanced role of power bases—coercive, legitimate, expert, referent, and reward—in shaping compliance, satisfaction, and long-term collaboration in business-to-business (B2B) relationships within the high-tech semiconductor industry. Based on an analysis of 22 in-depth case studies, the research reveals how these power dynamics evolve and interact in an environment marked by rapid innovation and interdependence. Unlike previous work that treats power solely as a tool for control, our findings demonstrate that, when managed strategically, power can foster trust, stimulate innovation, and enhance collaboration. In particular, coercive power secures immediate compliance but undermines trust and satisfaction, while expert and referent power lead to more sustainable relationships, provided they are aligned with partner needs. Moreover, reward power functions as an effective motivator only when its value and fairness are perceived as balanced. This study contributes a dynamic framework for understanding power as an adaptive tool and offers practical insights for managers aiming to balance short-term control with long-term relational goals, thereby building more resilient, innovation-driven B2B partnerships.

Keywords: B2B relationships, power dynamics, compliance, high-tech industry, semiconductor industry, collaboration

5.1 Introduction

Power dynamics in business-to-business (B2B) relationships play a critical role in shaping compliance, trust, and long-term collaboration potential between partners. In global supply chains, failures to manage power balances effectively have been linked to increases in operational disruptions and financial repercussions (Touboulic et al., 2014; Zinn & Goldsby, 2020). Recent analyses highlight the practical costs of power misalignment in buyer-supplier relationships (Glavee-Geo et al., 2021; Gyarmathy et al., 2020). For instance, supply disruptions in advanced manufacturing stem from unclear or imbalanced power arrangements, often resulting in financial losses (Paranikas et al., 2020; Sharma et al., 2022). These disruptions underscore the critical role power management plays in maintaining operational continuity and securing innovation advantages. These disruptions are especially costly in industries where rapid innovation and agility are paramount, placing significant

[10] This chapter has been submitted for publication in a peer-reviewed scientific journal as Nurhayati, K., Tavasszy, L., & Rezaei, J. Sway & Obey: Power bases, compliance, and satisfaction in B2B relationships.

pressure on firms to navigate power structures thoughtfully (Perrons, 2009; Polcari, 2005; Pai & Yeh, 2015; Touboulic et al., 2014; Siemieniako et al., 2022).

On the theoretical side, many established models highlight how different power bases (coercive, expert, reward, etc.) can drive compliance within organizations (French & Raven, 1959; Nyaga et al., 2013; Siemieniako et al., 2023). However, current research often overlooks the interplay between multiple power bases—particularly how they might transition from leveraging short-term control to building long-term, innovation-centric partnerships (Tjosvold & Wisse, 2009; Galinsky et al., 2012; Anderson & Brion, 2014; Gray et al., 2022; Liu et al., 2023). This lack of a holistic lens risks reducing power to a one-dimensional "tool" rather than appreciating its evolving, relational nature.

When power is mismanaged—whether through overreliance on coercion or undervaluation of expert contributions—firms risk creating employee dissatisfaction, supplier disengagement, and compromised innovation. Studies estimate that poorly aligned power in industrial buying can lead to high turnover among key technical staff along with increased relational conflict (Amaeshi et al., 2007; Touboulic et al., 2014). Furthermore, conflicts stemming from power struggles can erode inter-organizational trust, ultimately jeopardizing ongoing collaborations crucial to competitive advantage (Glavee-Geo et al., 2021; Gyarmathy et al., 2020). Despite these consequences, practitioners still lack clear frameworks for harnessing different power bases not just to enforce compliance but also to nurture strategic partnerships. Scholars likewise grapple with how coercive, legitimate, or expert power might interact in contexts where both parties rely heavily on each other's resources and capabilities (Huo et al., 2016; Kähkönen & Lintukangas, 2014; Shukla, 1982). Addressing these gaps is essential for improving both B2B relationship outcomes and the broader theoretical understanding of power's functional role in modern supply chains.

Despite growing interest in understanding how power shapes relationships, particularly in global supply chains, significant gaps remain. Prior studies tend to treat power in B2B contexts as unidimensional, focusing predominantly on the negative outcomes of coercive power—such as dissatisfaction and reduced trust—while missing to adequately explore the dynamic interplay of other power bases, such as legitimate, referent, and expert power, in high-tech sectors (Keegan et al., 2022; Kiyak et al., 2001; Wang & Hsu, 2014). Unlike prior studies that have examined power bases in isolation, we explore how these power bases are strategically used and how they evolve, not just to enforce compliance but also to drive mutual satisfaction and partnership sustainability.

While these power challenges emerge across a variety of sectors, the high-tech semiconductor industry provides an especially vivid context for studying them. This sector is emblematic of the problem because it combines (1) high interdependency between buyers and suppliers—often involving proprietary knowledge and specialized machinery (Qiu, 2024)—with (2) rapid technological cycles that force partners to continually renegotiate roles, responsibilities, and pricing (Meehan & Wright, 2013; Hingley et al., 2015).

However, the insights gleaned from examining power in semiconductors are equally relevant to other fast-evolving B2B settings—such as pharmaceuticals, aerospace, and high-value machinery—where specialized knowledge grants suppliers significant influence, and buyers often wield large-volume contracts (Dubey et al., 2021; Hüllmann et al., 2024; Liu et al., 2024). Therefore, although semiconductors serve as a prime illustration of high-stakes power negotiations, its principles may extend to multiple industries confronting similar relational and technological complexities.

In light of these practical stakes and theoretical tensions, this study poses the following research question: How do different power bases—coercive, legitimate, expert, referent, and reward—shape compliance and satisfaction in B2B supplier-customer relationships, and how might these dynamics foster (or undermine) collaboration and innovation? By addressing this question, we aim to: (i) elucidate how power bases can shift from short-term control mechanisms to long-term relational assets, (ii) challenge the prevailing notion that power is primarily about enforcing compliance, showing instead how it can cultivate mutual satisfaction and trust, and (iii) demonstrate that while the semiconductor context is illustrative due to its complexity, the underlying principles apply broadly to technology-driven B2B ecosystems. The study contributes both theoretically and practically to the literature on power dynamics, challenging the traditional view of power as solely a control mechanism and positioning it as a potential driver for long-term trust and innovation (Baek et al., 2020; Lai et al., 2004).

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature on power dynamics in B2B relationships, particularly focusing on the role of different power bases. Section 3 presents the theoretical framework. Section 4 outlines the methodology used, including the case study approach and data collection techniques. Section 5 presents and discusses the key findings from the case analyses, illustrating how different power dynamics influence compliance and satisfaction. Section 6 proposes a set of testable propositions derived from our empirical insights. Finally, section 7 concludes the paper by summarizing the key insights, offering actionable managerial recommendations, and pointing to avenues for future inquiry.

5.2 Literature Review

Power dynamics in business-to-business (B2B) relationships have long been a focus of research, particularly in industries where collaboration, dependency, and negotiation are pivotal (Hingley et al., 2015; Augustine & Cooper, 2008; Eisenhardt & Schoonhoven, 1996). The theoretical underpinnings of power in organizational relationships have their roots in seminal works like those of French and Raven (1959), who identified five bases of power—coercive, reward, legitimate, referent, and expert. These power bases provide a framework for understanding how firms in B2B contexts influence and shape the behavior of their partners. Over time, scholars have built on this framework to explore how different power bases affect the quality, longevity, and success of interfirm relationships (Shukla, 1982; Meehan & Wright, 2013).

Coercive power, which relies on the ability of one party to impose sanctions or negative consequences on another, is often viewed as an effective means of securing short-term compliance. However, research suggests that the use of coercive power can come at the cost of long-term relationship quality (Lui et al., 2006; Kiyak et al., 2001). The literature on coercive power in B2B relationships points to its potentially detrimental effects on trust and satisfaction, with firms often complying to avoid punishment rather than out of a desire to collaborate (Bouncken et al., 2020). This dynamic has been especially pronounced in sectors where customers wield significant purchasing power, compelling suppliers to comply even when it strains their operational capacities (Porteous et al., 2015; Müller et al., 2017).

Past research has often emphasized coercive power as a form of "last resort," effective for immediate results but unsustainable for long-term relationship building (Benton & Maloni, 2005). As industries become more dependent on innovation and collaborative processes, coercive power is increasingly seen as counterproductive, limiting the potential for mutual trust and partnership growth (Kreuzer, 2016). Despite this, coercive power continues to be a pervasive feature of many high-power asymmetry relationships, particularly in buyer-dominated sectors such as retail and manufacturing (Nyaga et al., 2013).

Expert power, based on specialized knowledge or skills, plays a particularly important role in high-tech industries where firms rely on each other's technical expertise to stay competitive (Wang & Hsu, 2014). In sectors like semiconductors, where innovation cycles are short and technological capabilities are paramount, expert power becomes a key source of influence. Firms that possess unique knowledge or intellectual property can leverage this expertise to shape decision-making and drive partnerships forward (Bernstein, 2015).

However, the effectiveness of expert power is highly contingent on the counterpart's recognition and trust in the expertise being offered. As Zhao et al. (2021) argue, expert power is most effective when the supplier's technical capabilities align with the customer's evolving needs. Misalignment can lead to conditional compliance, where the customer follows the supplier's lead only as long as they believe the expertise is relevant. This conditional nature of expert power introduces a potential vulnerability in long-term partnerships, particularly in dynamic industries where technological needs are in constant flux (Watts & Hamilton, 2007; Yli-Renko et al., 2001).

Referent power, which is grounded in the respect or admiration one party holds for another, is often associated with strong, positive relational outcomes. In B2B relationships, referent power typically emerges when one firm values the reputation, reliability, or identity of another and is motivated to comply with its requests to maintain the relationship (Gaski, 1984). This is especially important in industries where long-term collaboration is essential, and firms seek to maintain favorable reputations and strong relational ties (Cox et al., 2004, Corsaro & Murtarelli, 2024).

Scholars have noted that referent power fosters voluntary compliance and often leads to stronger, more resilient relationships (Zhao et al., 2007; Nyaga et al., 2013). However, referent power also requires ongoing reciprocity; if one party feels their goodwill is being exploited, the relationship can quickly deteriorate (Dunbar, 2004). This highlights a key tension in the use of referent power—while it can create deep relational bonds, it is also fragile and highly dependent on mutual respect and benefit.

Reward power operates through the promise of financial or non-financial benefits and has been widely studied in contexts where firms incentivize their partners to achieve specific outcomes (Cowan et al., 2015; Bresnen & Marshall, 2000). In B2B settings, customers may offer rewards such as preferential contracts, financial bonuses, or strategic development opportunities in exchange for compliance or enhanced performance (Lenz et al., 2002; Bhattacharya et al., 2014). The literature suggests that while reward power can be effective in fostering B2B cooperation, its impact on long-term satisfaction is mixed, as firms may comply only as long as the rewards are perceived as valuable and attainable (Chae et al., 2017; Bresnen & Marshall, 2000).

Reward power is particularly relevant in high-tech sectors like semiconductors, where strategic partnerships often involve joint investments in research and development (Hauser et al., 1994; Manso, 2011). However, firms must carefully manage reward systems to ensure they are perceived as fair and equitable. Mismanagement of rewards can lead to disillusionment and weaken the partnership over time (Bhaskaran & Krishnan, 2009; Polcari, 2005; Faems et al., 2010).

Legitimate power, based on formal authority or established norms, is a key driver of compliance in structured, contract-based relationships (Bh et al., 1969). In B2B settings, legitimate power is often exercised when one party has a formal role or recognized authority, such as when a large customer dictates terms to smaller suppliers within an established framework (Rhee et al., 2014; Ivens, 2011). However, the rigidity of legitimate power may stifle flexibility, which is critical in fast-paced, innovation-driven industries like semiconductors (Perrons, 2009; Huo et al., 2016).

While legitimate power can ensure adherence to contractual terms, it may limit the potential for creative problem-solving and collaboration (Bouncken et al., 2020). In high-tech industries, where agility and adaptation are paramount (Ng & Ahmed, 2024), firms may need to reconsider how they balance formal authority with the need for flexible, adaptive partnerships (Jong & Woolthuis, 2008).

In this paper, we deep dive into the plausible relationships between power bases, compliance, and satisfaction within B2B context. While the literature has explored the individual effects of these power bases, there has been little examination of how power dynamics interact and evolve in industries driven by rapid technological change and inter-firm dependency. Most studies have treated power bases as static, overlooking the fluidity with which firms may shift between different power strategies depending on the context and relational dynamics (Kähkönen & Lintukangas, 2014; Hingley et al., 2015).

Different power bases (coercive, reward, expert, etc.) can achieve the same basic outcome of compliance, but they do not necessarily produce the same level of satisfaction or relational quality. Industries characterized by rapid technological change (e.g., semiconductors) may experience a faster erosion of satisfaction if power is misapplied because innovation depends heavily on collaboration and knowledge sharing. Thus, the same power tactic that works in traditional or stable supply chains may be counterproductive in sectors requiring high trust and frequent knowledge exchange.

While numerous studies have examined power dynamics in supply chain relationships—focusing primarily on achieving compliance or immediate performance outcomes (Brinker & Haasis, 2022; Gruchmann, 2022)—relatively little attention has been paid to how the functional deployment of different power bases impacts both partners' satisfaction and the sustainability of the relationship. This gap in the literature invites further exploration into the ways in which coercive, reward, legitimate, expert, and referent power may lead to similar compliance outcomes yet have markedly different effects on long-term satisfaction, trust, and collaboration.

5.2.1 Theoretical Framework

Scholars differ on whether power should be treated strictly as a resource one party holds or as a relational construct emerging from interdependencies (Emerson, 1964; Gaski & Nevin, 1985). This tension remains central to modern discussions (Glavee-Geo et al., 2021; Hekkala et al., 2021; Pansardi & Bindi, 2021), motivating us to consider both structural (resource-driven) and reciprocal (relationship-driven) aspects of power in our multi-case analysis. Against this backdrop, In response, this study takes a dual approach: (i) Power Dependency Theory underscores that power stems from the structural resource dependencies between actors; (ii) Social Exchange Theory highlights the relational, reciprocal dimension of power, where value exchange and trust-building matter as much as resource control. By integrating these perspectives, we can better explain which power bases emerge in specific B2B contexts, why certain power deployment are more common, and how those deployment influence compliance and satisfaction.

Power Dependency Theory

Power Dependency Theory, as established by Emerson (1964), posits that the power one actor has over another is directly related to the degree of dependency the latter has on the former. In B2B relationships, this theory suggests that the power dynamics between customers and suppliers are heavily influenced by how much one party relies on the other for critical resources, technology, or expertise (Pai & Yeh, 2015; Benton & Maloni, 2004).

In industries like semiconductors, where suppliers often possess unique technological capabilities or knowledge, customers may depend on them for innovation and product development. This dependency grants suppliers expert power, as their specialized knowledge becomes a critical resource (Handfield et al., 1999; Alcacer & Oxley, 2013). Conversely, when suppliers are dependent

on large orders or long-term contracts from customers, the customer may exercise coercive or legitimate power, particularly if the supplier lacks alternative clients or market opportunities (Barber, 2011; Flynn et al., 2008).

For example, where the customer wields *Coercive Power* and the supplier defaults to *Referent Power*, this can also be understood through dependency asymmetry. Suppliers attempt to maintain the relationship (referent power) if the customer controls a critical revenue stream, reinforcing structural factors that push the supplier toward compliance.

Social Exchange Theory

Social Exchange Theory (SET), developed by Blau (1964), emphasizes that relationships are built on reciprocal exchanges that aim to maximize rewards and minimize costs. In the context of B2B relationships, this theory suggests that power is not only about control but also about the continuous exchange of value between partners (Blois & Ivens, 2007; Voss et al., 2019). When one party provides resources, expertise, or benefits, the other party responds in kind, fostering collaboration and trust over time.

In this study, we explore how reward power and referent power operate within the framework of Social Exchange Theory. For example, companies that offer strategic development opportunities or financial incentives (reward power) can strengthen their relationships by increasing the perceived value of the partnership (Cowan et al., 2015; Meehan & Wright, 2013). Similarly, referent power, which is based on admiration and the desire to maintain a positive relationship, aligns with the idea of reciprocal exchanges that build long-term trust and satisfaction (Pieperhoff, 2018).

By applying Social Exchange Theory, this study examines how companies use these power bases to foster voluntary compliance and mutual satisfaction, rather than coercion or force. In industries that rely on long-term collaboration, such as semiconductors, the ability to leverage social exchanges for mutual benefit becomes critical to the sustainability of partnerships.

By integrating Power Dependency Theory and Social Exchange Theory, we capture both the structural (resource-driven) and reciprocal (relationship-driven) aspects of power. Power Dependency Theory explains why one party holds more sway—due to critical resource asymmetries—while Social Exchange Theory reveals how this power is enacted and reciprocated within ongoing exchanges. Together, these perspectives illuminate the dual capacity of power to secure compliance and to affect long-term satisfaction, particularly in high-tech industries like semiconductors, where innovation, rapid technological change, and mutual dependencies are paramount.

5.3 Methodology

This study adopts a qualitative, multiple case study approach to explore the role of power dynamics in shaping compliance and satisfaction within business-to-business (B2B) relationships in the high-tech semiconductor industry. The case study method is particularly well-suited for this research because it allows for an in-depth examination of complex, context-specific phenomena (Yin, 2018). Given the nuanced and dynamic nature of power relations between customers and suppliers, this approach enables us to capture the real-world intricacies that might be missed by quantitative methods alone.

The study investigates 22 customer-supplier relationships within the semiconductor industry, focusing on the interactions that involve the exercise of different power bases—coercive, legitimate, expert, reward, and referent. This industry was chosen because it is characterized by rapid technological innovation, high interdependence between firms, and the need for robust, adaptive partnerships (Perrons, 2009). These factors make it an ideal context for studying power dynamics, as both suppliers and customers wield significant influence over each other's business success.

Cases were strategically selected through theoretical sampling to reflect a broad spectrum of experiences and perspectives within the semiconductor industry (Pai & Yeh, 2015; Yin, 1989). Cases for this study were selected based on three criteria: (i) collaboration type, (ii) supply chain position, and (iii) company characteristics. These criteria ensured diverse and representative perspectives. As for collaboration type, cases were selected according to Lambert's (1996) three-tier partnership framework: Type I (short-term, repeated transactions), Type II (long-term relationships, shared goals, cross-functional cooperation), and Type III (Strategic alliances, Just-in-Time practices). As for supply chain position, a balanced selection of upstream (supplier) and downstream (manufacturer) roles prevented response bias, ensuring insights from both perspectives within supply chain interactions. Finally, as for company attributes, we select companies varied by turnover, size (number of employees), establishment years, and public/private status. Diversity was pursued to capture varying decision-making behaviors and commitment tendencies. Saturation in similar attributes prompted the exclusion of further cases with the same characteristics.

Exclusion criteria was in place when selecting cases. This study specifically analyzes dyadic, interdependent supplier-manufacturer collaborations. Excluded were joint ventures, horizontal or competitive relationships, arm's-length interactions, indirect transactions involving intermediaries, and vertically integrated supply chains due to limited decision autonomy.

From an initial target of 24 cases (12 companies), indirect relationships involving intermediaries were excluded. Ultimately, the study included 13 supplier and 9 manufacturer direct-interaction cases (see Table 5.1).

Data collection involved semi-structured interviews with professionals from selected companies. The cases selected for this study focus exclusively on Dutch high-tech companies with operational offices located in key tech hubs, including Delft, Eindhoven, and Amsterdam. This geographic proximity enabled face-to-face interviews, facilitating richer interaction and greater interview efficiency. Respondents were specifically targeted using LinkedIn Premium's advanced search, focusing on professionals holding at least middle-management roles such as supply chain managers or equivalent, procurement leads, or senior specialists in direct interaction with suppliers or manufacturers. All respondents possessed at least a Bachelor's degree and a minimum of eight years of relevant professional experience to ensure sufficient topic expertise. This method was selected to allow for flexibility in exploring how power is exercised in various contexts while maintaining a consistent framework for comparison across cases (Galinsky et al., 2012). The identities of both companies and individual respondents remain confidential in this study.

Interviews were conducted face-to-face to encourage open and candid responses and typically lasted between 60 and 90 minutes, focusing on participants' experiences of negotiating terms, handling conflicts, and managing long-term partnerships. At first, interviewees were asked to discuss their direct relationships with at least one supplier or manufacturer, focusing specifically on decision-making processes, interactions, and repeat transactions within these B2B relationships. Participants were asked about the power dynamics they experienced, how power was exercised, and how this influenced their willingness to comply with requests or demands, as well as their satisfaction with the relationship. Additional probing questions were used to delve into the effects of different power bases, such as expert power (e.g., specialized knowledge) or coercive power (e.g., threats of contract termination), in shaping the relationship.

The analysis followed a thematic coding approach (Braun & Clarke, 2006), where data from interviews and documents were coded to identify recurring themes related to the exercise of power bases and their effects on compliance and satisfaction. The coding was conducted in two stages: first, we applied open coding to allow for emerging themes without imposing pre-set categories, and then we applied axial coding to refine these into coherent categories aligned with the study's theoretical framework (Strauss & Corbin, 1998).

Each case was analyzed individually to understand the unique power dynamics at play, followed by a cross-case analysis to identify patterns and contrasts across cases (Eisenhardt, 1989). This dual approach allowed us to capture both the specificities of each case and broader trends across the semiconductor industry.

Table 5.1. List of high tech companies interviewed*

Company	Case number	Which partner is discussed	Total years of establishment	Status	Total employees	Description
A1	C1	Supplier	31-35	Public	10,001+	The company provides industrial clients with solutions in Electrification, Process Automation, Motion, Robotics and Discrete Automation.
	C2	Buyer				
A2	C3	Supplier	6-10	Privately Held	11-50	The company is a university spin-off and provides expertise in nanoparticle manufacturing and integration. Their technology helps companies develop faster by generating nanoparticles on-site and integrating them directly into the final product. Applications includes sensor, battery, catalysis, solar cell, healthcare, additive manufacturing, and nanosafety.
	C4	Buyer				
A3	C5	Supplier	66-70	Privately Held	501-1,000	The company creates and enhances components, modules, and systems. It also provides supply chain management, milling, and sheet metal manufacturing. Industry and health-tech industries are served by the company.
	C6	Buyer				
A4	C7	Supplier	51-55	Public	1,001-5,000	The company specializes in the design, development, assembly, and maintenance of high-level functional modules and subsystems. It produces high-mix, low-volume electrical components for worldwide Original Equipment Manufacturers.
	C8	Buyer				
A5	C9	Supplier	51-55	Public	1,001-5,000	The company offers solutions for product lifecycle management of sophisticated electronic applications as an international one-stop-shop provider in the Electronic Manufacturing Services (EMS) sector, for electrical components, assemblies, and operating systems (box builds). Also, they offer customised solutions for PCBA's, cables, microelectronics and box construction applications, always striving for the lowest total cost of ownership.
	C10	Buyer				
A6	C11	Supplier	36-40	Public	10,001+	The company is a significant global supplier of lithography equipment for the semiconductor industry, producing complicated machinery required to manufacture integrated circuits or microchips.
	C12	Buyer				
A7	C13	Supplier	71-75	Privately Held	1,001-5,000	The company provides farmers with innovative solutions and personalised services for every cowshed task, from milking to cleaning. The company advises on how to operate a dairy farm efficiently using management systems.
	C14	Supplier				
A8	C15	Supplier	21-25	Privately Held	501-1,000	The company is a technology partner that specializes in the development and
	C16	Buyer				

						manufacture of technical goods and solutions. Clients hire their specialists in the areas of Technical Software, Mechatronics, Electronics, Mathware, and Assembly to augment the expertise or outsource projects. The company can assist with research and development or perhaps take on the role of the R&D and production departments.
A9	C17	Supplier	>100	Public	10,001+	The company delivers integrated solutions using innovative technologies and clinical and consumer data. In addition to diagnostic imaging, the firm is a pioneer in consumer health and home care.
A10	C18 C19	Supplier Buyer	51-55	Public	1,001-5,000	The company is a global one-stop provider of Electronic Manufacturing Services (EMS), and proclaims as a market leader in: Automotive, Medical, Industrial, and Semiconductor. They provide tailored solutions for the entire product life cycle (from concept to after-sales support) of electrical components and complete (box-built) electronic control systems.
A11	C20	Supplier	36-40	Public	201-500	The company is leader in making highly automated beverage machine in-house for consumer and professional buyers. They focus on providing superior solutions for Office, Hotel, Restaurant, and Automatic Vending locations. They conduct their own R&D and in-house manufacturing. Initially a private company, they were acquired by a larger stakeholder to cater bigger market and became one subsidiary.
A12	C21 C22	Supplier Buyer	11-15	Public	10,001+	The company is one of global pioneers in secure embedded connection solutions for the automotive, industrial, IoT, mobile, and communication equipment industries.

**Sources: LinkedIn and corresponding company websites.*

To ensure the rigor and credibility of the study, we employed several strategies. First, we used member checking by sharing preliminary findings with a subset of participants to validate our interpretations and ensure they accurately reflected their experiences (Lincoln & Guba, 1985). Second, triangulation was used by comparing labeling decisions with reference from literature to reduce the risk of biased or incomplete interpretations (Denzin, 2017). This iterative process helped us refine our understanding of how power dynamics evolve in B2B relationships, particularly in high-tech industries.

Coding was justified as such:

Thematic Analysis: Initially, thematic analysis was applied to the verbatim responses to extract preliminary themes, such as compromise and trade-offs, which serve as indicators of the underlying power bases.

Mapping to Key Themes: Each identified theme was mapped to specific categories, such as "Power Base by Focal Company" and "Power Base by Partner," to analyze the influence of different power bases on compliance.

Justification: Each categorization was justified with explanations based on the respondents' verbatim responses, demonstrating how these responses reflected particular power dynamics.

Literature Support: The categorization was reinforced by relevant academic literature, including French and Raven's theory on the bases of social power. For example, occurrences of "Legitimate" power were linked to formal positions of authority, as supported by literature on organizational behavior and management.

In the context of the high-tech semiconductor industry, where demand for quality, complexity, and adaptability is high, labeling power dynamics in customer-supplier relationships requires careful consideration. To operationalize these distinctions, criteria were developed to differentiate coercion from legitimate requests, as well as to distinguish between referent, expert, and legitimate power. These criteria were then applied to the 22 case studies to identify which power base was being exercised and how it shaped the dynamics of the relationship. The full criteria and detailed case applications can be found in Appendix B.

While the multiple case study method provides in-depth insights, it is inherently limited by the scope of generalizability. The findings of this study are context-specific to the semiconductor industry, which may limit their applicability to other industries with different power structures and market conditions. Additionally, the study relied on self-reported data from interviews, which may be subject to biases such as social desirability (Podsakoff et al., 2003). However, by triangulating interview data with company documents and using rigorous validation techniques, we have aimed to mitigate these limitations and enhance the reliability of our conclusions.

5.4 Results and Discussion

5.4.1 Power base analysis

In our study, we explored the use of five distinct sources of power in supplier-customer relationships. Theoretically, with each party capable of using one of the five power sources, we could expect to observe 25 possible pairings. However, in our analysis of 22 cases, we identified only 9 unique pairings. The absence of certain pairings suggests that some power dynamics are less prevalent or simply not utilized in the cases examined. This is discussed later in this article. We interpret this

result in the context of the semiconductor industry in the next subsection. The observed pairings, their frequency, and the specific cases are summarized as follows:

Table 5.2 The observed pairings, their frequency, and the specific cases

Power Base Pair	**Count**	**Case numbers**
(CustomerLegitimate, SupplierExpert)	6	C1, C2, C6, C9, C14, C21
(CustomerCoercive, SupplierReferent)	5	C8, C12, C13, C19, C22
(CustomerReward, SupplierLegitimate)	3	C5, C15, C18
(CustomerLegitimate, SupplierLegitimate)	2	C10, C16
(CustomerReward, SupplierReferent)	2	C11, C20
(CustomerLegitimate, SupplierCoercive)	1	C3
(CustomerLegitimate, SupplierReferent)	1	C4
(CustomerCoercive, SupplierExpert)	1	C7
(CustomerCoercive, SupplierCoercive)	1	C17

The most common dynamic involved CustomerLegitimate Power paired with SupplierExpert Power, reflecting situations where customers leveraged their authority while suppliers defended their pricing or decision-making through their specialized knowledge. Coercive Power was more frequently used by customers, particularly in scenarios involving unpredictable demands, while suppliers often employed Referent Power to maintain positive relationships.

For more detailed case-by-case descriptions, based on verbatim transcriptions, we refer the reader to Appendix C.

From a Power Dependency Theory perspective (Emerson, 1964), these dominant pairings indicate that structural resource dependencies—such as the customer's position to dictate terms (legitimate power) and the supplier's unique knowledge (expert power)—are particularly salient in semiconductors. Social Exchange Theory (Blau, 1968) further clarifies why referent power is prevalent on the supplier side, as maintaining goodwill and trust can be crucial for long-term collaboration.

Typical power dynamics chosen by supplier and customer

The following table presents a summary of the power bases identified across 22 cases in the semiconductor industry, illustrating the frequency with which each power dynamic was exercised by customers and suppliers.

This table illustrates how frequently different power bases were applied across the cases. For example, CustomerLegitimate Power was the most frequently observed, appearing in 10 of the 22 cases, while SupplierReferent Power was employed in 8 cases.

Across the 22 cases, the observed compliance and satisfaction levels varied based on the power base employed. Coercive power generally resulted in high compliance but was often linked to low satisfaction, as pressure typically led to reluctant compliance. Expert power fostered high satisfaction, with compliance being conditional on the supplier's expertise aligning with the customer's needs.

Reward power drove compliance through incentives, but satisfaction was moderate, closely tied to the value of the rewards.

Table 5.3 The power bases identified across 22 cases in the semiconductor industry

Power Base	Case Numbers	Count
CustomerLegitimate	C1, C3, C9, C14, C21, C2, C4, C6, C10, C16	10
SupplierReferent	C4, C8, C12, C19, C22, C11, C13, C20	8
CustomerCoercive	C7, C13, C17, C8, C12, C19, C22	7
SupplierExpert	C2, C6, C1, C7, C9, C14, C21	7
CustomerReward	C5, C11, C15, C18, C20	5
SupplierLegitimate	C10, C16, C5, C15, C18	5
SupplierCoercive	C3, C17	2

Effect of power bases on compliance and satisfaction levels

Legitimate power produced moderate to high compliance, as both parties recognized each other's authority within established frameworks. Satisfaction tended to be moderate, depending on how well the legitimate demands aligned with each party's expectations and the structure of the agreements. Lastly, referent power encouraged voluntary compliance and strong satisfaction, especially in relationships built on mutual respect.

The patterns observed in the Results Section reveal several key insights into how power dynamics play out in customer-supplier relationships in the semiconductor industry. Below we discuss the results further through case summaries. For detailed case-by-case compliance and satisfaction levels, refer to the table in Appendix D.

5.4.2 Case summaries

One key insight from this study is that power bases are not exercised in isolation, but rather in combination, depending on the specific context and nature of the relationship.

For instance, the most frequent pairing, CustomerLegitimate, SupplierExpert – This pairing of customer exerting Legitimate Power, while the supplier relied on Expert Power is observed in 6 cases. It reflects a dynamic where customers rely on their authority to demand favorable terms, while suppliers use their expert knowledge to resist and justify their decisions. This combination often arose when the customer had an established relationship with the supplier but relied on the supplier's unique knowledge, technology, or market position to maintain control over pricing or strategic decisions. This dynamic tends to balance authority with expertise, fostering negotiations where both parties have influence. In cases 1, 2, 6, 9, 14, 21, customers typically demanded lower prices or better terms, leveraging their legitimate authority based on long-standing relationships. However, suppliers resisted by using their expert knowledge to justify price stability or propose innovative solutions. For instance, in Case 1, the customer used legitimate power to push for better prices, while the supplier defended its pricing using expertise in economies of scale and transaction history.

From the lens of Power Dependency Theory, each side wields a unique resource: customers have formal authority (legitimate power) through contracts or volume control, whereas suppliers hold specialized knowledge or capabilities (expert power). Because both are crucial for the success of semiconductor projects, each party depends on the other in a relatively balanced way. However, Social Exchange Theory reveals that if the relational 'give-and-take' is perceived as lopsided—say, when expert-driven cost increases appear excessive—tensions emerge despite the mutual dependence. Maintaining collaboration thus requires ongoing negotiation to ensure the exchange remains equitable and both sides remain satisfied.

CustomerCoercive, SupplierReferent – In 5 cases, the customer exercised Coercive Power, while the supplier employed Referent Power. This dynamic often occurred when customers placed volatile or strict demands on suppliers, forcing suppliers to comply. Suppliers, in turn, used referent power to maintain a positive relationship, often adapting to the demands even at a cost. In cases 8, 12, 13, 19, 22, customers frequently imposed unpredictable or demanding product requirements, sometimes without transparency, forcing suppliers to be flexible and cooperative. For example, in Case 8, the customer changed product requirements without sharing critical downstream information, imposed last-minute changes without transparency, and the supplier adapted by exercising referent power, focusing on maintaining a strong relationship despite the challenges. This power imbalance may achieve short-term results but can strain relationships over time if coercive demands continue. According to Power Dependency Theory, tension arises because the supplier is structurally vulnerable, relying on the customer's large orders but lacking a resource with which to counter coercion. Social Exchange Theory further explains this dynamic: while the supplier attempts to build goodwill (referent power), the customer's coercive stance undermines reciprocal trust—resulting in compliance but eroding long-term satisfaction. Note that while suppliers rely on goodwill, customers are not reciprocating, thus making the relationship precarious from a Social Exchange lens.

CustomerReward, SupplierLegitimate – In 3 cases, the customer used Reward Power to incentivize the supplier, while the supplier responded by exercising Legitimate Power. This dynamic typically appeared when customers offered financial or operational rewards to encourage the supplier to meet specific demands. The supplier responded with legitimate power, negotiating terms within their established rights and capacities. In cases 5, 15, 18, customers motivated suppliers with larger contracts or greater autonomy in product development in exchange for maintaining high quality or responsiveness to volatile demand. In Case 5, for example, the customer offered the supplier better terms ("a bigger pie") to ensure that the supplier met their quality standards, and the supplier, in turn, exercised legitimate power by negotiating terms when facing capacity challenges, for example with a more flexible production schedules to meet those expectations. This dynamic often promotes collaboration as both parties work toward mutual benefit. From a Power Dependency Theory standpoint, this synergy emerges because each actor controls resources that the other depends on: the customer can offer financial or strategic incentives, while the supplier controls contract adherence

and operational know-how (legitimate authority). Meanwhile, Social Exchange Theory suggests that these rewards heighten the sense of reciprocity—when suppliers fulfill contract terms legitimately and competently, the customer reciprocates with tangible benefits. This reciprocal dynamic boosts mutual satisfaction and fosters a more stable, innovation-friendly relationship.

CustomerLegitimate, SupplierLegitimate – In 2 cases, both the customer and supplier relied on Legitimate Power, representing a balanced relationship where both parties adhered to agreed-upon terms. Cases 10 and 16 highlighted relationships where both the customer and supplier operated within contractual boundaries, mutually respecting each other's authority. For instance, in Case 10, the customer required the supplier to follow specifications outlined in a binding contract, while the supplier negotiated flexibility in terms of production process standards. From a Power Dependency Theory standpoint, this symmetrical use of legitimate power indicates that neither side holds a decisive resource advantage, so each respects the other's formal authority. Meanwhile, Social Exchange Theory helps explain why such contractual clarity can sustain a sense of reciprocity and fairness, promoting steady compliance and moderate-to-high satisfaction on both sides.

CustomerReward, SupplierReferent – In 2 cases, the customer employed Reward Power while the supplier relied on Referent Power. These cases reflect a scenario where customers offered incentives to suppliers, who responded by adapting to customer needs to maintain a positive relationship. In cases 11 and 20, customers offered rewards, such as capacity development support or incentives, to ensure suppliers met their logistical or production demands. In response, suppliers exercised referent power by remaining flexible and cooperative, even when challenges, such as volatile demand, arose. Viewed through Power Dependency Theory, both parties are relatively interdependent: the supplier benefits from additional resources, while the customer depends on the supplier's goodwill and willingness to prioritize its demands. Social Exchange Theory further clarifies that the reciprocal nature of rewards (financial or strategic) and referent commitment (admiration or loyalty) creates a reinforcing cycle: each positive act (incentive from the customer, flexibility from the supplier) is reciprocated, deepening trust and satisfaction. This synergy is especially valuable in high-tech sectors where collaboration is vital to innovation.

CustomerLegitimate, SupplierCoercive – In 1 case, the customer used Legitimate Power, while the supplier exercised Coercive Power. In case 3, the customer exercised legitimate power by expecting the supplier to meet specific delivery and quality standards. However, the supplier used coercive power by refusing to fulfill orders when over capacity, forcing the customer to adapt to the supplier's limitations. From a Power Dependency Theory viewpoint, the supplier's ability to refuse orders indicates that it controls a critical resource (production capacity). This structural leverage allows the supplier to exercise coercive tactics despite the customer's formal authority. In terms of Social Exchange Theory, the mismatch between "rightful" authority and coercive refusal undermines reciprocity and mutual trust. While the customer seeks compliance through formal frameworks, the

supplier's ultimatum-like stance disrupts a balanced exchange and can strain the relationship's long-term stability.

CustomerLegitimate, SupplierReferent – In 1 case, the customer used Legitimate Power, while the supplier relied on Referent Power. In case 4, the customer exercised legitimate power by setting clear specifications that the supplier needed to follow. In response, the supplier used referent power, focusing on building a trusting and cooperative relationship to meet the customer's requirements. According to Power Dependency Theory, the customer's legitimate authority reflects a resource advantage (e.g., contractual leverage), while the supplier's reliance on referent power shows its strategic choice to preserve goodwill despite the customer's hierarchical position. Drawing on Social Exchange Theory, the supplier's use of referent power aims to establish or reinforce reciprocal commitment—by demonstrating deference and cooperation, the supplier hopes the customer will reciprocate in future negotiations or collaborative ventures.

CustomerCoercive, SupplierExpert – In 1 case, the customer exerted Coercive Power, while the supplier relied on Expert Power. In case 7, the customer used coercive power by enforcing strict product specifications without allowing renegotiation. The supplier, however, exercised expert power by leveraging its unique technological capabilities to justify their decisions, maintaining influence in the relationship despite the customer's rigid demands and preventing the customer from exerting complete control. From the perspective of Power Dependency Theory, even though the customer attempts to dominate the relationship through coercive measures, the supplier's specialized knowledge constitutes a pivotal resource, effectively balancing the power dynamic. Within the framework of Social Exchange Theory, the forced compliance stemming from coercion collides with the respect typically afforded to a supplier's unique expertise. While coercive tactics often erode trust, the supplier's technological advantage can still command recognition, revealing a delicate exchange where expertise tempers the customer's otherwise unilateral control.

CustomerCoercive, SupplierCoercive – In 1 case, both the customer and supplier exercised Coercive Power, creating a highly adversarial dynamic. In case 17, the customer and supplier both exerted coercive power, with the customer threatening to switch suppliers, while the supplier withheld key cost information and maintained discrepancies in pricing. This created a tense relationship where both parties used their power to pressure the other. This scenario illustrates how coercive power from both sides can escalate into a zero-sum situation, undermining collaboration. From a Power Dependency Theory perspective, this scenario arises when both parties attempt to exert pressure—perhaps because neither holds a decisive resource advantage, or because each is unwilling to cede ground. Meanwhile, Social Exchange Theory would view this as a breakdown in reciprocal goodwill: since both parties are focused on forcing compliance rather than offering mutual benefits, no foundation for trust remains. The result is a short-term, adversarial dynamic ill-suited for the complex, innovation-driven semiconductor context.

Across the 22 cases, the most common dynamic involved Legitimate Power from the customer and Expert Power from the supplier, reflecting a typical situation where customers rely on their authority while suppliers defend their pricing or decision-making based on specialized knowledge. Coercive Power was more frequently used by customers, especially in scenarios involving unpredictable demand or high levels of control over the supplier. In contrast, suppliers often employed Referent Power to maintain positive relationships, especially when they faced strict or volatile customer demands.

As indicated above, only 9 pairings appeared in our analysis from the 25 possible pairings of power bases (5 customer power bases × 5 supplier power bases). This is likely due to the specific dynamics of the semiconductor industry, where technical expertise (expert power) and formal authority (legitimate power) dominate (Moguilnaia et al., 2005). Some power pairings, such as both parties using coercive or referent power, may be less common because they are either unsustainable or not conducive to the collaborative nature of B2B relationships in this sector. Some combinations (e.g., both parties wielding reward power or both relying on referent power) appear infrequently, suggesting that resource-driven asymmetry in semiconductors leaves less room for purely relational or symmetrical power structures. Others, like mutual coercive power (observed only once), might be and thus unsustainable for long-term partnerships.

Further, certain pairings (like mutual coercive or mutual referent) may be theoretically improbable in an industry where resource asymmetry is high or where trust-based relationships are overshadowed by structural dependence. Power Dependency Theory could clarify that high dependence on specialized technology or large contract volumes explains why certain pairings dominate (e.g., the repeated CustomerLegitimate–SupplierExpert scenario) and others never appear. On the other hand, Social Exchange Theory might suggest that pure "both-sides referent" pairings might be less likely if there isn't enough relational reciprocity or mutual admiration in a high-stakes, capital-intensive environment.

Additionally, asymmetric power relations—where one party holds more influence—can limit the variety of power combinations observed (Nyaga et al., 2013). The missing pairings may be more applicable in other industries where different power dynamics, like mutual coercion or admiration (referent power), are more relevant.

In other industries, the power dynamics can differ significantly. For example, in retail or consumer goods, reward power may be more commonly observed on both sides, as suppliers offer discounts or incentives to retailers, while retailers offer shelf space and access to consumers in return (Rawwas et al., 1997). In construction industry, legitimate and coercive power combinations may be more prevalent, as both parties adhere to strict contractual obligations with penalties for non-compliance (Lu & Hao, 2012). Similarly, in service-based industries, referent power may be more common on both sides, where relationships and reputational influence drive compliance and

satisfaction, such as in consultancy or advertising sectors (Wang & Chen, 2011). These examples highlight how industry context shapes which power pairings are used, with more relational or transactional industries favoring different dynamics than those seen in the high-tech sector.

In the following sections, we turn to a cross-case analyses and discuss the different power base pairings, their dynamics and their observed impacts.

5.4.3 Power case pairings and their effectiveness

Legitimate power and expert power: a structured yet tense partnership

One of the most frequent pairings observed is between Legitimate Power and Expert Power. This combination typically manifests in relationships where the focal company exercises legitimate authority by setting clear expectations and guidelines, while the supplier leverages their specialized expertise to influence the relationship. For example, in Case 9, the focal company emphasizes the importance of on-time delivery, exercising legitimate power, while the supplier uses their expert knowledge to meet these stringent requirements. Similarly, in Case 14, the focal company sets standards for quality and logistics, expecting the supplier to comply, while the supplier utilizes their expert power to manage the logistics and production processes effectively. This interplay underscores a key tenet of Power Dependency Theory that each side leverages the resource the other depends on (authority vs. specialized knowledge) to shape negotiations.

However, this pairing can sometimes lead to tension, particularly when the supplier's expertise results in higher costs. In Case 7, the supplier locks in pricing early, based on their expert knowledge, which limits the focal company's ability to renegotiate terms, leading to frustration. A similar dynamic is observed in Case 15, where the supplier's expert power in cost estimation occasionally results in unexpected price increases during production, causing dissatisfaction for the focal company. While this pairing can be effective in maintaining structured and high-quality partnerships, it requires careful management to avoid conflicts over costs and pricing.

Referent power and coercive power: a fragile balance

Another common dynamic is the pairing of Referent Power and Coercive Power, often resulting in strained relationships. In these cases, the focal company typically seeks to maintain a positive relationship with their partner by exercising referent power, while the client or supplier exerts coercive power to enforce their demands. This dynamic is evident in Case 12, where the focal company tries to preserve a good relationship with the client by accommodating their demands, but the client's coercive power leads to dissatisfaction. Similarly, in Case 22, the focal company goes to great lengths to accommodate the client's large volume orders, reflecting referent power, but the client's coercive tactics result in operational strain and inefficiencies.

This pattern is also seen in Case 8, where the focal company desires closer collaboration with the client during the design phase, hoping to align with the client's expectations through referent power. However, the client's coercive power in setting final terms leaves the focal company feeling pressured and undervalued. In Case 19, the focal company's efforts to align with the client's demands, despite the challenges, demonstrate referent power, but the client's micromanagement and strict requirements create a stressful environment, showcasing the pitfalls of coercive power. These cases illustrate that while referent power can help maintain relationships, it often leads to frustration and strain when paired with a coercive partner. From a Social Exchange perspective, suppliers relying on referent power are demonstrating a willingness to absorb costs or operational strain, hoping that the relationship yields reciprocity in the future.

Reward power and referent power: building cooperative relationships

When Reward Power is paired with Referent Power, the result is often a more cooperative and mutually beneficial relationship. This dynamic is particularly effective in fostering collaboration and ensuring that both parties feel valued. In Case 11, the focal company uses reward power by offering strategic development opportunities to the supplier, who responds with referent power, showing flexibility and a strong commitment to the relationship. This mutually beneficial dynamic helps maintain a positive partnership, even in challenging situations.

Similarly, in Case 20, the focal company provides financial incentives to ensure quality and meet lead times, exercising reward power. The supplier, despite facing resource constraints, continues to work under pressure to maintain the relationship, reflecting referent power. This pairing demonstrates how aligning incentives with a commitment to the relationship can lead to successful and sustainable partnerships, particularly in an industry where collaboration is key.

Resource constraints and transparency: In Case 20, the supplier is specifically challenged by resource constraints, leading them to rely on the focal company's financial support and understanding. This adds a layer of complexity where the supplier's referent power is tied to their need for the focal company's continued financial and logistical support.

Scope of reward: The rewards offered by the focal company in Case 20 are more direct and financial, aimed at addressing immediate operational needs. In Case 11, the rewards are more strategic and long-term, focused on the supplier's growth and development.

The dynamics in Case 20, involving the focal company's use of reward power and the supplier's reliance on referent power, are indeed seen in previous cases, particularly Case 11. However, the specific circumstances and the nature of the rewards and challenges differ, with Case 20 focusing more on immediate financial incentives and transparency about operational difficulties, while Case 11 involves more strategic, long-term rewards. The recurring theme across these cases is the focal company's use of resources to ensure supplier performance and the supplier's reliance on

maintaining a positive relationship, even when facing challenges. This is aligned with Social Exchange Theory, as reward power fosters a sense of give-and-take, which is reciprocated by suppliers through referent power.

5.4.4 Typical power dynamics chosen by supplier and customer

Suppliers: the strategic use of expert, legitimate, and referent power

In the semiconductor industry, suppliers frequently leverage Expert Power as a primary means of influence. This power base was used in 7 of the 22 cases (C2, C6, C1, C7, C9, C14, C21). Given the highly specialized nature of semiconductor technology, suppliers' deep knowledge and technical capabilities become crucial assets, allowing them to negotiate terms more favorably.

For instance, in Case 7, the supplier's ability to dictate pricing early in the process based on their technical expertise demonstrates how expert power is wielded to secure advantages in negotiations. Similarly, in Case 15, the supplier's expertise in material cost estimation plays a pivotal role in shaping the pricing and production process.

Legitimate Power was exercised by suppliers in 5 cases (C10, C16, C5, C15, C18), often in situations where roles and responsibilities are clearly defined by contractual agreements. For instance, in Case 9, the supplier's adherence to the delivery expectations established in the contract reflects their recognition of the customer's legitimate authority. In Case 15, the supplier follows the established process of providing cost estimates, adjusting them as needed, further demonstrating reliance on legitimate power within a structured business framework.

In 8 cases, suppliers relied on Referent Power (C4, C8, C12, C19, C22, C11, C13, C20) to maintain positive relationships with their customers. In Case 20, for example, the supplier continues working under pressure to maintain a good relationship with the customer, demonstrating their reliance on referent power. Similarly, in Case 11, the supplier's flexibility and cooperative attitude reflect the use of referent power to sustain a valuable partnership over the long term.

Customers: balancing coercive, legitimate, and reward power

Customers in the semiconductor industry frequently wield Coercive Power, observed in 7 cases (C7, C13, C17, C8, C12, C19, C22), particularly when they hold significant leverage due to purchasing volume or strategic importance. This dynamic becomes visible when customers impose strict demands on suppliers, compelling them to comply in order to maintain the business relationship. For example, in Case 19, the customer's micromanagement and demand for detailed information throughout the product development process highlight the use of coercive power. Similarly, in Case 22, the customer's ability to push for large volume orders at lower prices, despite the strain on the supplier's capacity, exemplifies this dynamic.

While coercive power can secure short-term compliance, customers also exercise Legitimate Power, observed in 10 cases (C1, C3, C9, C14, C21, C2, C4, C6, C10, C16). In Case 2, the customer sets the pricing terms within a structured negotiation framework, which the supplier acknowledges and accepts as legitimate. Similarly, in Case 12, the customer operates within established decision-making frameworks, even while enforcing tight deadlines.

Finally, customers often employ Reward Power, observed in 5 cases (C5, C11, C15, C18, C20), providing incentives to suppliers based on performance. In Case 11, for instance, the customer (acting as the focal company) offers the supplier strategic development opportunities, using reward power to motivate continued collaboration. In Case 20, the customer provides financial incentives to ensure quality and meet lead times, effectively using reward power to align the supplier's actions with their objectives.

These findings demonstrate the complexity of power dynamics in customer-supplier relationships within the semiconductor industry. Suppliers strategically use Expert Power and Legitimate Power to assert their authority in negotiations, while Referent Power helps maintain long-term relationships. Suppliers in a vulnerable position may rely on referent power to preserve relational value and reduce the customer's incentive to switch.

On the other hand, customers frequently balance Coercive Power with the strategic use of Reward Power and Legitimate Power, depending on the nature of the relationship and their leverage in the market. Because customers typically control large contract volumes or final markets, they can more credibly threaten or reward.

5.4.5 Effect of power bases on compliance and satisfaction levels

The power bases exercised in customer-supplier relationships have a significant influence on compliance and satisfaction levels, and this relationship varies depending on the type of power used.

Coercive power and compliance: high compliance, low satisfaction

Coercive power is effective in securing compliance, but it often leads to low satisfaction. In Cases 19 and 22, the counterpart complies due to the pressure exerted by the customer, fearing the consequences of non-compliance. In Case 22, the focal company complies with the client's demand for large volume orders, despite operational strain. This results in high compliance but low satisfaction, as the focal company only follows through to avoid negative consequences. The compliance is thus superficial, motivated by fear rather than genuine commitment, and often leads to lower long-term engagement or investment in the relationship. In Power Dependency Theory lens, the threatened party has no choice if they depend on the power holder's resources. In Social Exchange Theory lens, the lack of reciprocity or trust leads to resentful compliance.

Expert power and compliance: high satisfaction, conditional compliance

Expert power tends to foster a higher level of satisfaction because it is rooted in respect for the supplier's specialized knowledge. In Cases 7 and 15, the supplier's expertise in pricing and cost estimation secures compliance from the customer, who trusts the supplier's judgment. However, this compliance is often conditional, depending on the supplier's ability to continuously demonstrate relevant and applicable expertise. For example, in Case 15, the customer initially complies with the supplier's cost estimation, but as costs increase later in the process, their satisfaction and willingness to comply diminish. The satisfaction and compliance here are contingent on the supplier's ability to meet evolving customer needs, highlighting that while expert power can lead to high satisfaction, it requires ongoing validation to maintain its effectiveness. Explained in Power Dependency Theory lens, the knowledge resource can shift over time (conditional if the knowledge is still relevant). In Social Exchange Theory lens, expert power might foster respect-based ties, but if the knowledge ceases to be unique, the power dissolves.

Reward power and compliance: incentivized compliance, moderate satisfaction

Reward power operates by incentivizing compliance through tangible benefits such as financial rewards or strategic opportunities. In Cases 20 and 11, the suppliers comply with the customer's demands as long as the rewards remain valuable. However, this compliance is also conditional and linked directly to the continuation of these rewards. In Case 20, financial incentives ensure the supplier meets quality and delivery expectations, but if the rewards were to disappear, compliance might wane. The satisfaction that results from reward power is generally moderate and heavily dependent on the perceived value and relevance of the incentives. In Social Exchange Theory lens, compliance here might be driven by expected gains, but it is transactional. In Power Dependency Theory lens, once resource asymmetry changes (e.g., the incentives no longer matter), the compliance goes away.

Referent power and compliance: voluntary compliance, strong satisfaction

Referent power, driven by mutual respect and admiration, typically leads to voluntary compliance and strong satisfaction. In Cases 11 and 20, the suppliers are motivated to comply because they value the relationship and wish to sustain it. The satisfaction in these cases is high, as compliance is voluntary and based on a desire to maintain a positive, long-term partnership. However, as seen in Case 12, when referent power is exercised in an imbalanced relationship, it can lead to a strain if the counterpart feels their efforts are not being reciprocated. Thus, while referent power generally fosters strong satisfaction, it is dependent on mutual respect and recognition. In Social Exchange Theory lens a high sense of relational equity leads to genuine collaboration. In Power Dependency Theory lens, it matters less, but if the admiration or brand advantage is lost, the power also erodes.

The role of conditional compliance and satisfaction

In several instances, compliance and satisfaction were labeled as "conditional" to reflect their dependence on specific factors. This term captures situations where compliance or satisfaction is not absolute but contingent upon the fulfillment of certain conditions. For example:

Expert Power often leads to conditional compliance if the expertise offered continues to meet the customer's needs. As seen in Case 15, when the expertise provided does not align with changing circumstances, compliance can waver.

Reward Power results in conditional satisfaction, as seen in Case 20, where the supplier's satisfaction is directly tied to the financial incentives provided by the customer. If the rewards are perceived as insufficient or no longer relevant, satisfaction diminishes.

This notion of conditionality underscores the fragility of compliance and satisfaction when they are contingent on specific factors, indicating that while these power bases can be effective, their influence may shift if the underlying conditions change. This is aligned with Social Exchange Theory's emphasis on ongoing reciprocity and resource flows.

Therefore, power bases significantly influence compliance and satisfaction in customer-supplier relationships. Coercive power, though effective in securing compliance, often results in low satisfaction. Expert and referent power, on the other hand, foster higher levels of satisfaction but can lead to conditional compliance, where alignment with expertise or mutual respect must be maintained. Aligned with Social Exchange Theory, power bases that rely on mutual respect (referent) or expertise (expert) tend to engender higher satisfaction because they fulfill the partners' expectations of equitable exchange. Reward power leads to incentivized compliance, but the satisfaction it produces is also conditional, tied directly to the ongoing provision of rewards. These dynamics highlight the importance of understanding how different power bases impact both compliance and satisfaction, particularly in high-tech industries where long-term collaboration and innovation are key to success.

5.4.6 Propositions

In reviewing the power dynamics identified across the 22 cases in this study, several key findings emerge that offer both theoretical and managerial implications. Drawing on Power Dependency Theory and Social Exchange Theory, the interactions between coercive, legitimate, expert, and referent power bases both challenge established norms in B2B power research and point to potential theoretical refinements. Below are five propositions for future research.

Proposition 1: *Coercive power secures compliance but reduces long-term satisfaction*

The coercion here is especially buyer-driven. In line with previous studies, this research supports the notion that buyer's coercive power achieves immediate compliance but at the cost of

long-term relational satisfaction (Pai & Yeh, 2015; Kiyak et al., 2001). Several cases (e.g., Cases 19, 22) demonstrated high compliance levels, where suppliers adhered to customer demands. This proposition confirms how resource or contract asymmetry enables one party to coerce the other. However, our findings suggest a refinement: when innovation and rapid product cycles are critical (as in semiconductors), the damage to long-term trust may accelerate because the coerced party needs both autonomy and collaborative input. The erosion of satisfaction aligns with the idea that coercive tactics break the reciprocity norm, undermining mutual trust. Further research could examine how ongoing coercion shifts the cost–benefit perception of the vulnerable party, potentially reducing future collaboration or joint innovation.

Proposition 2: *Expert power fosters high satisfaction, but compliance may be conditional*

The expertise here is especially supplier-driven. As observed in cases involving expert power, such as Cases 7 and 15, suppliers with unique technological expertise tend to foster higher levels of satisfaction among their customers. The customers recognize the value brought by the supplier, leading to greater trust and respect (Ritter & Walter, 2008; Ryu et al., 2007; Fang et al., 2011). High satisfaction emerges because the party in need values the expertise, reinforcing a positive exchange cycle. Yet the conditional nature of compliance hinging on "continuing relevance" points to possible theory-building around temporary reciprocity: partners remain satisfied only as long as the expert's solutions address evolving challenges. Our findings reveal an important conditionality: once the expertise is no longer unique or indispensable, the expert power diminishes—indicating a dynamic rather than static form of resource dependence. The compliance achieved through expert power is often contingent on the immediate relevance and applicability of that expertise. Future research could explore how the conditional nature of expert power impacts the durability of B2B relationships, particularly when market conditions or technological needs shift.

Proposition 3: *The effectiveness of reward power depends on the perceived value and consistency of rewards*

This especially pertains to buyer-driven incentives. The use of reward power in Cases 11 and 20 showed that incentivizing suppliers through financial or strategic development opportunities can secure compliance (Chae et al., 2017). However, the depth of satisfaction and the durability of compliance were shown to depend heavily on how consistently and fairly these rewards are applied. While reward power can initially shift dependencies (e.g., the rewarding party compensates for resource deficits), the variability of rewards over time means the structural advantage is not constant. Future research can explore how shifting resource conditions (e.g., changing market prices or new entrants) affect the durability of reward-based influence (short-term compliance vs. long-term relational commitment), especially when rewards are linked to performance-based metrics. This proposition also aligns with Social Exchange Theory's emphasis on perceived fairness and reciprocity. If rewards cease or are deemed unfair, the exchange becomes unbalanced, eroding trust. Hence,

theory-stretching might explore whether consistent rewards can permanently alter the relational norm, leading to deeper commitment even beyond the immediate rewards.

Proposition 4: *Legitimate power mutually works best in clear, structured relationships*

This proposition supports the view that clarity in roles (e.g., contractual definitions) stabilizes the power dynamic because each party recognizes the other's formal authority. However, in fast-evolving industries, legitimate power might fail if it cannot adapt to shifting technical requirements—suggesting a theoretical boundary condition for Power Dependence Theory: stable authority structures are less effective in volatile contexts. Legitimate power, as seen in Cases 10 and 16, tends to yield high compliance when the roles and responsibilities of each party are well-defined and mutually understood (Hoppner et al., 2014; Kiyak et al., 2001). However, in rapidly evolving industries like semiconductors, strict adherence to traditional roles may hinder flexibility and innovation. While legitimate power can yield compliance, the quality of the relationship also depends on whether the formally prescribed expectations feel equitable. If the "rules" appear too rigid or unfair, trust may erode. Further research might test how frequently parties renegotiate structured agreements to maintain a balanced exchange and adaptability.

Proposition 5: *Referent power can bolster long-term satisfaction, but its use requires reciprocity*

Referent power is traditionally considered less "structural." However, in contexts where brand reputation, relational goodwill, or unique partnerships are crucial, referent power can itself be a type of "resource." Referent power is especially supplier-driven, with mutual implications. In Cases 11, 12, and 20, suppliers exercising referent power tended to demonstrate greater flexibility in response to customer demands, reflecting a desire to maintain a positive and lasting relationship (Benton & Maloni, 2004; Gaski & Nevin, 1985; Huo et al., 2016). Our findings hint that, in semiconductors, referent power is especially relevant for forging collaborative innovation—an area where theory might be extended to show that intangible resources (like goodwill) can offset the absence of tangible resources.

However, without mutual respect and appreciation from the customer, the goodwill engendered by referent power can erode. This proposition strongly aligns with Social Exchange Theory's emphasis on reciprocity: referent power thrives only when both sides recognize and reciprocate respect. Future work might investigate theory-building questions such as how much reciprocity is adequate to sustain referent-based influence and what happens if the focal partner fails to reciprocate over time, particularly in high-stakes or high-innovation industries.

5.5 Conclusion

This study advances the understanding of power dynamics in B2B relationships by offering a more nuanced exploration of how different power bases influence not only compliance, but also long-term satisfaction and collaboration in high-tech industries. Unlike many prior studies that focus

solely on the direct outcomes of power in B2B settings—such as compliance, efficiency, or immediate performance outcomes—this research delves deeper into how power can act as a catalyst for either innovation or relational decline, depending on how it is applied. By analyzing 22 cases from the semiconductor industry, we reveal that power is fluid and interdependent, adapting to the demands of the business environment and evolving as trust and mutual benefit develop between partners.

From the perspective of Power Dependency Theory, we see that high-tech contexts magnify certain structural dependencies—particularly where specialized knowledge or large contract volumes come into play. Our findings propose a refinement to Power Dependency Theory by showing that while formal authority or a key resource can secure immediate compliance, this structural advantage may degrade if it fails to accommodate the rapid technological changes and collaborative needs typical of semiconductors. Meanwhile, Social Exchange Theory clarifies how relational elements such as reciprocity, goodwill, and perceived fairness can bolster or erode satisfaction over time. We propose to extend Social Exchange Theory by highlighting that in dynamic, innovation-driven industries, reciprocity may need continual renegotiation as market conditions shift, making power bases like expert or referent power highly contingent.

This study observes the most common occurrences of power exercised by a supplier and a customer across different circumstances. Firstly, the most common pairing of Customer Legitimate Power and Supplier Expert Power illustrates a balanced dynamic where customers use their established position to influence suppliers, who, in turn, leverage their specialized knowledge. This relationship often results in high compliance and satisfaction when expertise is valued (Flynn et al., 2008); but satisfaction can erode if legitimate power is overused. Secondly, Customer Coercive Power combined with Supplier Referent Power resulted in high compliance but low satisfaction, demonstrating the potential for coercive power to undermine long-term partnerships. These findings align with previous studies (Kiyak et al., 2001; Pai, 2015; Chae et al., 2017; Benton & Maloni, 2004; Gaski & Nevin, 1985), which warn of the risks of over-reliance on coercion in maintaining business relationships. Thirdly, Reward Power was found to incentivize supplier compliance (Chae et al., 2017) but did not always translate into high satisfaction unless the rewards were perceived as equitable and consistently applied over time. Here, Power Dependency Theory insights suggest that offering tangible resources can momentarily shift dependencies, but Social Exchange Theory underlines that lasting satisfaction demands a fair exchange that each party sees as mutually beneficial. This underscores the need for reward structures to be aligned with long-term strategic objectives.

Finally, a surprising finding was the underutilization of referent power in fostering long-term satisfaction, even though it is typically associated with stronger relational ties. This suggests that in fast-paced, high-stakes industries, referent power may become more defensive than collaborative, challenging previous assumptions about its effectiveness in partnership-building (Dyer et al., 2018; Young-Ybarra & Wiersema, 1999). In theory, this highlights that intangible resources like goodwill

or admiration (key to referent power) may not always thrive under extreme competition or technological turbulence, challenging the traditional Social Exchange assumptions.

This study underscores the importance of viewing power dynamics not as static or zero-sum but as evolving and context dependent. Firms must strategically navigate these dynamics, recognizing that the judicious use of power can help create resilient, mutually beneficial relationships that promote both innovation and agility. In doing so, our findings offer fresh lenses for both Power Dependency Theory and Social Exchange Theory: (i) we illustrate that resource-based leverage must continually adapt to the unique, fast-changing conditions of high-tech markets, and (ii) we emphasize that relational equity is fragile when market pressures intensify and must be consciously nurtured through consistent mutual exchange.

Altogether, this study offers three key contributions that set it apart from prior research:

i. While much of the literature on B2B power dynamics has focused on traditional manufacturing or service industries, this research highlights the unique challenges faced in high-tech sectors where agility, innovation, and rapid technological change are critical (Mohrman & Glinow, 1990; Wang & Hsu, 2014) . The findings show that expert power and referent power play a more significant role than previously considered, especially in settings where firms rely heavily on each other's knowledge and collaborative innovation to stay competitive. In these environments, power is not merely a tool of control but a dynamic force that shapes the very nature of the partnership.

ii. This study challenges the traditional notion that power's primary outcome is compliance. It highlights the importance of satisfaction as a key outcome of power dynamics in B2B relationships, particularly in long-term partnerships where trust and relational equity are paramount (Hingley et al., 2015; Pinnington & Scanlon, 2009; Chicksand, 2015). The findings reveal that coercive power, though effective at securing short-term compliance, leads to low satisfaction, and may undermine the partnership's stability. In contrast, expert and reward power, when used judiciously, foster both high compliance and satisfaction, promoting collaboration and shared goals.

iii. A significant contribution of this research is its emphasis on the interdependence and fluidity of power bases in high-tech industries, where relationships evolve in response to market pressures, technological advancements, and shifting strategic priorities. This challenges earlier studies that often treated power bases as static or unidimensional (Medcof, 2001; Meehan & Wright, 2013; Constantinides & Barrett, 2006; Bahrami & Evans, 1989). By highlighting how power dynamics shift over time, this research

underscores the importance of understanding power as an adaptive tool, rather than a fixed characteristic of B2B relationships.

In sum, this research refines and extends both Power Dependency Theory and Social Exchange Theory, offering a fresh perspective on the role of power in B2B relationships, especially in industries that thrive on innovation and rapid technological shifts. Managers and scholars alike must reconsider how they approach power in these contexts—not simply as a mechanism for control, but as a strategic asset for building resilient, innovation-driven partnerships. Future research can build on these insights by exploring how firms can better align their power strategies with long-term relational goals, examining the boundary conditions under which each power base is most effective, and investigating how reciprocal trust-building or resource reconfiguration can bolster adaptability and relational endurance.

Managerial Implications

For managers, these findings underscore the necessity of moving beyond traditional approaches to power in B2B relationships. In industries like semiconductors, where innovation is paramount, power must be wielded thoughtfully to maintain not only compliance but also mutual satisfaction, trust, and long-term collaboration. The different power bases can support the management function as follows:

- While coercive power may yield immediate results, managers should be aware of its potential to erode trust and satisfaction over time. To build sustainable partnerships, firms should prioritize the use of expert power and reward power, which encourage cooperation and foster innovation.
- In high-tech industries, expert power is critical. Firms that can leverage their specialized knowledge while respecting their partners' needs and expertise are more likely to build long-term, resilient partnerships. Managers should ensure that expert power is used not as leverage for short-term gains but as a foundation for innovation-driven collaboration.
- Reward power can be highly effective in driving compliance, but its success depends on clear, equitable, and consistent application. Reward systems should not be used solely to incentivize short-term goals but must be aligned with the broader strategic objectives of both firms. Managers should focus on creating reward structures that recognize both performance and long-term relationship-building, ensuring that incentives are perceived as fair and sustainable (Manso, 2011).
- While referent power is often viewed as a source of strength in relationship-building, this study highlights its limitations in high-pressure industries where firms may resort to it as a defensive mechanism. Managers should not assume that referent power alone

will be sufficient to maintain positive relationships. Instead, it should be complemented by transparent negotiation, fair reward systems, and the mutual recognition of legitimate authority (Tjosvold & Wisse, 2009; Gaski & Nevin, 1985). By rethinking how referent power is used, firms can avoid it becoming a passive strategy and instead use it as a proactive tool for fostering meaningful collaboration.

Finally, the semiconductor industry is characterized by rapid technological change and shifting market conditions. Firms must therefore be flexible in their use of power, adapting their strategies as the partnership evolves. Managers should continuously assess whether their power strategies are enabling or hindering collaboration, especially in high-stakes environments where agility is crucial.

References

Alcacer, J., & Oxley, J. (2013). Learning by Supplying. Strategic Management Journal, 34(10), 1299-1321.

Amaeshi, K., K. Osuji, O., & Nnodim, P. (2007). Corporate Social Responsibility in Supply Chains of Global Brands: A Boundaryless Responsibility? Clarifications, Exceptions and Implications. In Journal of Business Ethics (Vol. 81, Issue 1, p. 223). Springer Science+Business Media. https://doi.org/10.1007/s10551-007-9490-5

Anderson, C., & Brion, S. (2014). Perspectives on Power in Organizations. Annual Review of Organizational Psychology and Organizational Behavior, 1(1), 67-97.

Augustine, M. S., & Cooper, C. D. (2008). Getting the Most from Strategic Partnering: Opportunities and Challenges. Organizational Dynamics, 38(1), 37-51.

Baek, S., Ando, H., & Hikihara, T. (2020). Decentralized Algorithms for Consensus-Based Power Packet Distribution. Cornell University.

Bahrami, H., & Evans, S. (1989). Emerging Organizational Regimes in High Technology Firms: The Bi-Modal Form. Human Resource Management, 28(1), 25-50.

Barber, E. (2011). Strategic Approaches to Domination in Supply Chains. InTech.

Benton, W. C., & Maloni, M. J. (2004). The Influence of Power-Driven Buyer/Seller Relationships on Supply Chain Satisfaction. Journal of Operations Management, 23(1), 1-22.

Bernstein, L. (2015). Beyond Relational Contracts: Social Capital and Network Governance in Procurement Contracts. Journal of Law and Economics, 58(2), 561-621.

Bh, M., Ln, G., & Jt, R. (1969). Behavioral Measurement of Operating Power Structures: Characterizations of Asymmetrical Interaction. American Sociological Review, 34(4), 474-474.

Bhaskaran, S. R., & Krishnan, V. (2009). Effort, Revenue, and Cost Sharing Mechanisms for Collaborative New Product Development. Management Science, 55(7), 1152-1169.

Bhattacharya, S., Gaba, V., & Hasija, S. (2014). A Comparison of Milestone-Based and Buyout Options Contracts for Coordinating R&D Partnerships. Management Science, 60(5), 1115-1124.

Blau, P. M. (1968). Social exchange. International encyclopedia of the social sciences, 7(4), 452-457.

Blois, K., & Ivens, B. S. (2007). Method Issues in the Measurement of Relational Norms. Journal of Business Research, 60(5), 556-565.

Bouncken, R. B., Ratzmann, M., Tiberius, V., & Brem, A. (2020). Pioneering Strategy in Supply Chain Relationships: How Coercive Power and Contract Completeness Influence Innovation. IEEE Transactions on Engineering Management, 69(6), 2826-2841.

Bresnen, M., & Marshall, N. (2000). Motivation, Commitment, and the Use of Incentives in Partnerships and Alliances. Construction Management and Economics, 18(5), 587-598.

Brinker, J., & Haasis, H. (2022). Power in the Context of SCM and Supply Chain Digitalization: An Overview from a Literature Review [Review of Power in the Context of SCM and Supply Chain Digitalization: An Overview from a Literature Review]. Logistics, 6(2), 25. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/logistics6020025

Chae, S., Choi, T. Y., & Hur, D. (2017). Buyer Power and Supplier Relationship Commitment: A Cognitive Evaluation Theory Perspective. Journal of Supply Chain Management, 53(2), 39-60.

Chicksand, D. (2015). Partnerships: The Role That Power Plays in Shaping Collaborative Buyer–Supplier Exchanges. Industrial Marketing Management, 48, 121-139.

Constantinides, P., & Barrett, M. (2006). Large-Scale ICT Innovation, Power, and Organizational Change. Journal of Applied Behavioral Science, 42(1), 76-90.

Corsaro, D., & Murtarelli, G. (2024). B2B collaborative economy: a joint sphere perspective. Management Decision.

Cowan, K., Paswan, A. K., & Steenburg, E. V. (2015). When Inter-Firm Relationship Benefits Mitigate Power Asymmetry. Industrial Marketing Management, 48, 140-148.

Dubey, R., Bryde, D., Graham, G., Foropon, C., Kumari, S., & Gupta, O. K. (2021). The role of alliance management, big data analytics and information visibility on new-product development capability. In Annals of Operations Research. Springer Science+Business Media. https://doi.org/10.1007/s10479-021-04390-9

Dunbar, N. E. (2004). Theory in Progress: Dyadic Power Theory: Constructing a Communication-Based Theory of Relational Power. Journal of Communication Theory, 4(3-4), 235-248.

Dyer, J. H., Singh, H., & Hesterly, W. S. (2018). The Relational View Revisited: A Dynamic Perspective on Value Creation and Value Capture. Strategic Management Journal, 39(12), 3140-3162.

Eisenhardt, K. M., & Schoonhoven, C. B. (1996). Resource-Based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms. Organization Science, 7(2), 136-150.

Emerson, R. M. (1964). Power-Dependence Relations: Two Experiments. American Sociological Review, 27(3), 282-282.

Faems, D., Janssens, M., & Looy, B. V. (2010). Managing the Cooperation-Competition Dilemma in R&D Alliances. Creativity and Innovation Management, 19(1), 74-89.

Fang, Y., Chiu, C., & Wang, E. T. (2011). Understanding Customers' Satisfaction and Repurchase Intentions. Internet Research, 21(4), 479-503.

Flynn, B. B., Zhao, X., Huo, B., & Yeung, J. H. Y. (2008). We've Got the Power! How Customer Power Affects Supply Chain Relationships. Business Horizons, 51(3), 169-174.

Galinsky, A. D., Chou, E. Y., Halevy, N., & Kleef, G. A. V. (2012). The Far-Reaching Effects of Power: At the Individual, Dyadic, and Group Levels. Research in Organizational Behavior, 81-113.

Gaski, J. F., & Nevin, J. R. (1985). The Differential Effects of Exercised and Unexercised Power Sources in a Marketing Channel. Journal of Marketing Research, 22(2), 130-130.

Glavee-Geo, R., Engelseth, P., & Buvik, A. (2021). Power Imbalance and the Dark Side of the Captive Agri-food Supplier–Buyer Relationship. In Journal of Business Ethics (Vol. 178, Issue 3, p. 609). Springer Science+Business Media. https://doi.org/10.1007/s10551-021-04791-7

Gray, B., Purdy, J. M., & Ansari, S. (2022). Confronting Power Asymmetries in Partnerships to Address Grand Challenges. In SAGE Publishing (Vol. 3, Issue 2). Organization Theory.

Gruchmann, T. (2022). Theorizing the impact of network characteristics on multitier sustainable supply chain governance: a power perspective. In The International Journal of Logistics Management (Vol. 33, Issue 5, p. 170). Emerald Publishing Limited. https://doi.org/10.1108/ijlm-08-2021-0429

Gyarmathy, A., Peszynski, K., & Young, L. (2020). Theoretical Framework for a Local, Agile Supply Chain to Create Innovative Product Closer to End-user: Onshore-Offshore Debate. In Operations and Supply Chain Management An International Journal (p. 108). https://doi.org/10.31387/oscm0410256

Handfield, R., Ragatz, G. L., Petersen, K. J., & Monczka, R. M. (1999). Involving Suppliers in New Product Development. California Management Review, 42(1), 59-82.

Hauser, J. R., Simester, D., & Wernerfelt, B. (1994). Customer Satisfaction Incentives. Marketing Science, 13(4), 327-350.

Hekkala, R., Stein, M., & Sarker, S. (2021). Power and conflict in inter-organisational information systems development. In Information Systems Journal (Vol. 32, Issue 2, p. 440). Wiley. https://doi.org/10.1111/isj.12335

Hingley, M., Angell, R. J., & Campelo, A. (2015). Introduction to the Special Issue on Power in Business, Customer, and Market Relationships. Industrial Marketing Management, 48, 101-102.

Hoppner, J. J., Griffith, D. A., & Yeo, C. (2014). The Intertwined Relationships of Power, Justice and Dependence. European Journal of Marketing, 48(9/10), 1690-1708.

Hüllmann, J. A., Kimathi, K., & Weritz, P. (2024). Large-Scale Agile Project Management in Safety-Critical Industries: A Case Study on Challenges and Solutions. In Information Systems Management (p. 1). Taylor & Francis. https://doi.org/10.1080/10580530.2024.2349886

Lambert, D. M., Emmelhainz, M. A., & Gardner, J. T. (1996). So you think you want a partner?. Marketing Management, 5(2), 24.

Lu, S., & Hao, G. (2012). The Influence of Owner Power in Fostering Contractor Cooperation: Evidence from China. International Journal of Project Management, 31(4), 522-531.

Liu, Y., Li, D., Liu, Y., & Shou, Y. (2023). Digitalization for supply chain resilience and robustness: The roles of collaboration and formal contracts. In Frontiers of Engineering Management (Vol. 10, Issue 1, p. 5). Higher Education Press. https://doi.org/10.1007/s42524-022-0229-x

Liu, Z., Li, Z., Zhang, Y., Mutukumira, A. N., Feng, Y., Cui, Y., Wang, S., Wang, J., & Wang, S. (2024). Comparing Business, Innovation, and Platform Ecosystems: A Systematic Review of the Literature [Review of Comparing Business, Innovation, and Platform Ecosystems: A Systematic Review of the Literature]. Biomimetics, 9(4), 216. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/biomimetics9040216

Moguilnaia, N., Vershinin, K., Sweet, M., Spulber, O., Souza, M D., & Narayanan, E S. (2005). Innovation in Power Semiconductor Industry: Past and Future. IEEE Transactions on Engineering Management, 52(4), 429-439.

Ng, S. P., & Ahmed, P. K. (2024). The role of dynamic capabilities in the development of organisational ambidexterity and its effect on timely responsiveness in emerging market high-tech firms. R&D Management.

Nyaga, G. N., Lynch, D. F., Marshall, D., & Ambrose, E. (2013). Power Asymmetry, Adaptation and Collaboration in Dyadic Relationships Involving a Powerful Partner. Journal of Supply Chain Management, 49(3), 42-65.

Pansardi, P., & Bindi, M. (2021). The new concepts of power? Power-over, power-to and power-with. In Journal of Political Power (Vol. 14, Issue 1, p. 51). Routledge. https://doi.org/10.1080/2158379x.2021.1877001

Paranikas, P., Whiteford, G. P., Tevelson, B., & Belz, D. (2020). How to Negotiate with Powerful Suppliers. https://hbr.org/2015/07/how-to-negotiate-with-powerful-suppliers

Qiu, B. (2024). Analysis of Supply Chain Risk in the Semiconductor Industry. https://doi.org/10.4108/eai.23-2-2024.2345901

Rawwas, M. Y. A., Vitell, S. J., & Barnes, J. H. (1997). Management of Conflict Using Individual Power Sources: A Retailers' Perspective. Journal of Business Research, 40(1), 49-64.

Sharma, A., Kumar, V., Borah, S. B., & Adhikary, A. (2022). Complexity in a multinational enterprise's global supply chain and its international business performance: A bane or a boon? In Journal of International Business Studies (Vol. 53, Issue 5, p. 850). Palgrave Macmillan. https://doi.org/10.1057/s41267-021-00497-0

Siemieniako, D., Makkonen, H., & Mitręga, M. (2023). Buying center-selling center interaction as a driver for power dynamics in buyer-supplier relationships. Industrial Marketing Management, 114, 94-109.

Siemieniako, D., Mitręga, M., Makkonen, H., & Pfajfar, G. (2022). Power in business relationships: dynamics, strategies and internationalisation. Routledge.

Tjosvold, D., & Wisse, B. (2009). Power and Interdependence in Organizations. Cambridge University Press.

Touboulic, A., Chicksand, D., & Walker, H. (2014). Managing Imbalanced Supply Chain Relationships for Sustainability: A Power Perspective. Decision Sciences, 45(4), 577-619.

Voss, K. E., Tanner, E. C., Mohan, M., Lee, Y., & Kim, H. K. (2019). Integrating Reciprocity into a Social Exchange Model of Inter-Firm B2B Relationships. Journal of Business & Industrial Marketing, 34(8), 1668-1680.

Wang, C., & Hsu, L. (2014). Building Exploration and Exploitation in the High-Tech Industry: The Role of Relationship Learning. Technological Forecasting and Social Change, 81, 331-340.

Wang, X., & Chen, K. (2011). The Effects of Different Dimensions of Service Provider Power on Customer Compliance. Proceedings of the International Conference on Service Systems and Service Management.

Watts, A. D., & Hamilton, R. D. (2007). Excessive Resource Control and Strategic Alliance Failure. International Journal of Technology Intelligence and Planning, 3(2), 157-169.

Yli-Renko, H., Sapienza, H. J., & Hay, M. (2001). The Role of Contractual Governance Flexibility in Realizing the Outcomes of Key Customer Relationships. Journal of Business Venturing, 16(6), 529-555.

Young-Ybarra, C. E., & Wiersema, M. F. (1999). Strategic Flexibility in Information Technology Alliances: The Influence of Transaction Cost Economics and Social Exchange Theory. Organization Science, 10(4), 439-459.

Zhao, X., Huo, B., Flynn, B. B., & Yeung, J. H. Y. (2007). The Impact of Power and Relationship Commitment on the Integration Between Manufacturers and Customers in a Supply Chain. Journal of Operations Management, 26(3), 368-388.

Zinn, W., & Goldsby, T. J. (2020). Global Supply Chains: Globalization Research in a Changing World. In Journal of Business Logistics (Vol. 41, Issue 1, p. 4). Wiley. https://doi.org/10.1111/jbl.12241

6 Conclusion

This comprehensive research project has produced valuable insights and findings that make important contributions to scholarly discussions on the topic of power dynamics. As the dissertation nears its conclusion, it is crucial to summarize the key takeaways and identify potential areas for future investigation.

6.1 Summary of key findings

This dissertation explores the role of power dynamics in high-tech business-to-business (B2B) relationships, with a specific focus on the semiconductor industry. Through four research articles, this work provides both theoretical insights and practical implications for understanding how power bases influence decision-making, joint collaboration, compliance, and long-term partnerships in highly interdependent and innovation-driven environments.

Paper 1 addresses the overarching question: How do power structures influence supply chain decision-making processes in B2B, based on literature?

Paper 1 offers a comprehensive **systematic review** of the literature on power structures in supply chains, identifying the key power bases—coercive, expert, legitimate, reward, and referent (Pfeffer, 1981)—and their distinct roles in shaping B2B decision-making processes. This review synthesizes findings from 281 research articles, spanning a range of industries, but placed particular emphasis on the high-tech and innovation-driven sectors.

The review also highlights substantial **gaps** in existing research, particularly the need to move beyond viewing power purely as a tool of control. It calls for deeper exploration of power as a **context-dependent force** that can be leveraged to foster not only compliance but also **collaboration and innovation** in supply chains.

Paper 2 addresses the following research questions: What are the main sets of drivers and facilitators that allow joint supply chain decision-making to happen across high-tech suppliers and manufacturers? What are the barriers for these companies to make joint decisions?

Paper 2 provids an in-depth exploration of **joint decision-making** mechanisms in B2B relationships, focusing on high-tech industries where firms are heavily reliant on one another's resources and expertise (Choe, 2017). Through qualitative case studies of Dutch high-tech firms, the research identifies the critical **drivers, facilitators, and barriers** that influence whether firms engage in joint or individual decision-making.

The key insights from Paper 2 include:

- **Drivers** of joint decision-making include aligned strategic objectives, mutual dependencies on critical resources (such as technological capabilities), and the need for collaborative solutions in managing supply chain complexities.
- **Facilitators** of joint decision-making include communication platforms and shared governance structures that promote transparency and trust. Firms that invested in such platforms saw higher levels of collaboration, leading to more effective decision-making.
- **Barriers** to joint decision-making were often related to **misaligned power structures**, where one firm held significantly more power (e.g., through coercive or legitimate power), resulting in decisions that favored individual over collective outcomes.

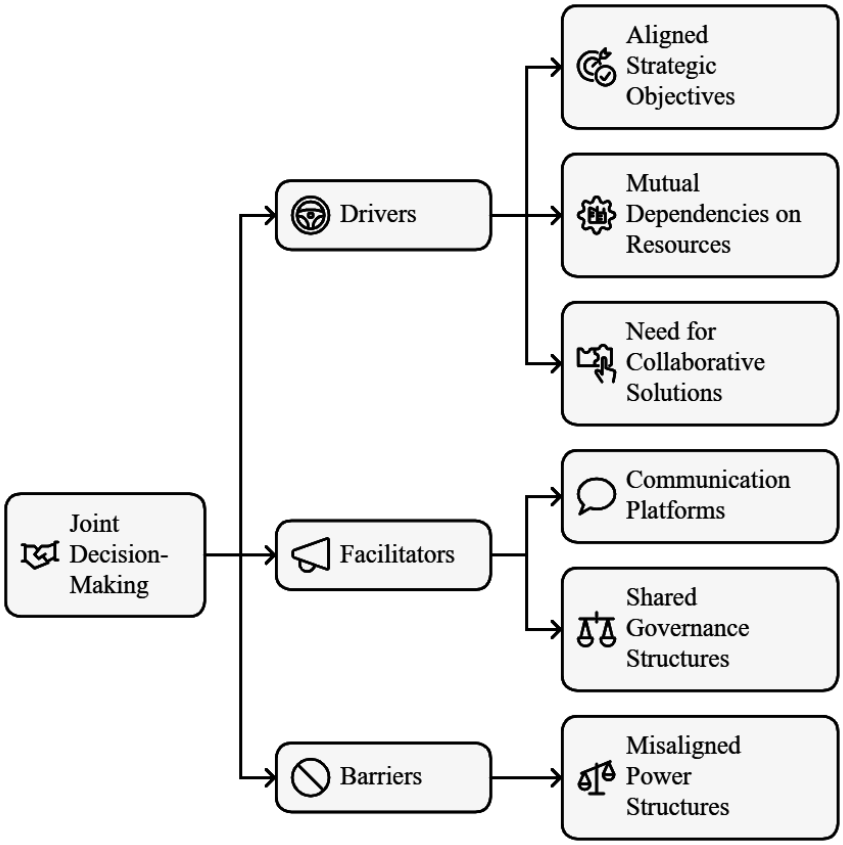


Figure 6.1. Key insights of Paper 2 - Drivers, facilitators, and barriers in B2B joint decision-making

The findings emphasizes that while joint decision-making can lead to significant operational and strategic advantages, such as shared innovation and reduced operational risks, external pressures (e.g., market volatility, competitive pressures) and misaligned power dynamics can **undermine collaboration**. The research also highlights the delicate balance firms must maintain between leveraging their power and fostering collaborative environments that drive long-term value.

Paper 3 addresses the following research question: How does a set of power sources of high-tech companies lead to their exercise of certain power bases? How do the dynamics of power bases impact the outcomes of joint decision-making?

Paper 3 extends the analysis by examining the **empirical context** of Dutch high-tech firms and exploring how various power sources shape the exercise of power bases in B2B decision-making. This paper delves into the **dynamics of power bases** and their influence on the complexity of compromises reached in joint decision-making processes.

The key findings from Paper 3 are:

- **Coercive power** was often used in situations where immediate compliance was necessary, particularly in contexts where firms had significant control over resources or contracts. However, the overuse of coercive power led to diminished trust and lower levels of involvement from other decision-makers in subsequent negotiations.
- Firms wielding **expert power** (rooted in technological expertise) or **referent power** (based on reputation and relational influence) tended to foster more **collaborative and trust-based outcomes**. These firms experienced greater involvement from their partners in decision-making, as well as higher levels of commitment to long-term agreements.
- The dynamics of power influenced the **complexity of compromises** reached during joint decision-making. Firms that adopted a flexible approach, shifting between different power bases depending on the context, achieved more balanced and sustainable outcomes. By contrast, those that relied heavily on one power base (e.g., coercive power) often faced greater resistance and more complex compromises, particularly when the decisions involved high levels of interdependency.

This paper provides practical insights into how firms can **strategically manage power** to ensure successful joint decision-making, suggesting that firms need to be mindful of the power bases they employ during negotiations to avoid compromising long-term relational outcomes.

Paper 4 addresses the following research question: How do different power bases—coercive, legitimate, expert, referent, and reward—shape compliance and satisfaction in B2B supplier-customer relationships, and how might these dynamics foster (or undermine) collaboration and innovation?

Paper 4 examines how power bases relate to compliance and satisfaction levels in B2B joint decisions within the semiconductor industry, drawing on a multiple-case study of 22 customer-supplier relationships. This approach provides rich empirical insights into the interplay of power, compliance, satisfaction, and collaboration in high-tech contexts.

The major findings from Paper 4 include:

- **Power Pairings Identified:** Out of the theoretically possible 25 (5 × 5) combinations of customer and supplier power bases, only nine emerged in practice. Notably, Customer Legitimate–Supplier Expert was the most frequent pairing, suggesting that

a balance between formal authority (customer) and specialized knowledge (supplier) is common in semiconductors.

- **Divergent Effects on Compliance vs. Satisfaction:**
  - Coercive power typically yielded high short-term compliance but eroded trust, resulting in lower satisfaction and jeopardizing long-term collaboration.
  - Expert and referent power bases were more likely to produce both compliance and sustained satisfaction, though expert power sometimes led to conditional compliance if the expertise became less relevant over time.
  - Reward power secured compliance when incentives were perceived as equitable and consistently applied. However, satisfaction and partnership stability often hinged on ongoing fairness in distribution.
  - Legitimate power ensured adherence to structured terms (e.g., contracts) but could limit adaptability in fast-paced, innovation-driven contexts.
- **Context-Dependent Pairings:** Certain power combinations (e.g., mutual coercive power or mutual referent power) rarely appeared, reflecting the high-tech environment's need for both structure and specialized expertise. Semiconductor firms often combined **legitimate authority** with **expert knowledge** to navigate volatile markets—an interplay that can secure consistent compliance if neither side overextends its power.
- **Propositions for Theoretical Refinement:** Drawing on Power Dependency Theory and Social Exchange Theory, the paper proposes several testable ideas. For instance, coercive power may be functionally equivalent to other bases in achieving compliance but uniquely undermines long-term satisfaction. Expert power fosters satisfaction but demands ongoing demonstration of value. These insights clarify why certain pairings are more stable or collaborative, suggesting that industries requiring continual innovation (like semiconductors) demand balanced, adaptive use of power bases.
- **Implications for Collaboration and Innovation:** Semiconductor firms rely heavily on cooperative problem-solving and knowledge exchange. Heavy reliance on coercive tactics tended to weaken relational trust, harming future joint innovation. Conversely, referent or expert approaches encouraged voluntary engagement, knowledge-sharing, and co-development—critical for product complexity and rapid technology cycles.

Paper 4 extends the literature on B2B power dynamics by demonstrating that not all power bases are equally effective in high-tech, interdependent partnerships. Managers are encouraged to use power more strategically—balancing structural authority and specialized expertise with relational respect and fair incentives. Scholars gain new propositions on how power bases shift over time, offering more nuanced insights that go beyond simple compliance outcomes and emphasize long-term satisfaction and collaborative innovation.

6.2 Theoretical contributions

This dissertation makes several significant theoretical contributions to the fields of supply chain management, power dynamics, and organizational behavior:

Dynamic power framework: By integrating multiple power bases (coercive, legitimate, expert, referent, and reward) into a single, dynamic framework, this research challenges classical perspectives such as French and Raven's (1968) bases of social power and Power Dependency Theory (Emerson, 1964). Instead of viewing power as a fixed resource, the framework demonstrates how firms strategically shift between power bases in response to changing contexts and relational needs. This dynamic perspective not only refines our understanding of power but also offers a more realistic depiction of how power operates in complex, interdependent B2B settings.

Power as a driver for collaboration: Traditionally, power has been seen primarily as a tool for control. This dissertation extends Social Exchange Theory (Blau, 1968) by illustrating that when managed strategically, power can serve as a catalyst for building trust, long-term collaboration, and innovation. The findings show that power bases such as expert and referent power foster a more reciprocal and mutually beneficial exchange between partners—suggesting that power can drive not only compliance but also enhanced relational outcomes. This reconceptualization challenges the notion that power dynamics are inherently adversarial, offering a more nuanced view that recognizes their potential to facilitate innovation and collective value creation.

Involvement and compromise in decision-making: The dissertation also contributes to decision-making theory by examining how power dynamics affect the levels of involvement and the complexity of compromises during joint decision-making processes. It reveals that the distribution and exercise of power can shape collaborative strategies and outcomes in high-stakes, innovation-driven environments. This insight bridges the gap between power theory and decision-making theory, suggesting that the interplay of different power bases is crucial in determining both the process and success of collective decision-making. Such a perspective extends current models by incorporating the relational and contextual dimensions of power.

6.3 Practical implications

The practical implications of this research are relevant to managers and decision-makers in high-tech industries, particularly in sectors like semiconductors where innovation and interdependence are critical:

Strategic management of power: Firms must recognize that different power bases have different implications for both short-term and long-term outcomes. Managers should carefully assess which power bases to exercise in different phases of the decision-making process to balance immediate control with long-term relational goals.

Fostering joint decision-making: For firms seeking to engage in joint decision-making, this dissertation provides practical guidance on how to align strategic goals and leverage shared resources to overcome barriers to collaboration. Managers should focus on creating platforms and environments that facilitate communication, trust, and the alignment of interests.

Enhancing long-term collaboration: Firms should adopt a more dynamic approach to managing power, particularly in high-tech sectors where relationships are both interdependent and innovation-driven. The strategic use of expert and referent power can foster satisfaction and strengthen partnerships, whereas over-reliance on coercive power may yield short-term gains but at the expense of long-term stability.

6.4 Limitations of the study

Despite the valuable contributions of this dissertation, several limitations should be acknowledged:

Generalizability: While the case studies provide in-depth insights into power dynamics within the semiconductor industry, the findings may not be directly generalizable to other industries or contexts. Future research could explore power dynamics in different sectors to validate the applicability of the framework across various industries.

Scope limit: The emphasis on high-tech firms, while offering rich insights into innovation-driven environments, means that the findings are particularly tailored to industries where interdependence and technological advancement are critical. Power dynamics may operate differently in industries with less reliance on innovation or in sectors with more rigid structures (Rikap, 2018; Wang & Hsu, 2013; Ran, 2023).

Methodological constraints: The qualitative nature of the case studies, while providing depth and context, limits the ability to quantify the impact of different power bases on decision-making and collaboration outcomes. Future research could complement these findings with quantitative approaches to offer a more comprehensive analysis (Choi & Robertson, 2014; Latta, 2019).

6.5 Directions for future research

Building on the findings and limitations of this dissertation, several avenues for future research are recommended:

Exploring power dynamics in different contexts: Future studies could extend the framework developed in this dissertation to other industries, such as manufacturing, retail, or financial services, to explore whether the same power dynamics hold across different sectors. This would help to generalize the findings and further refine the understanding of power in B2B relationships.

Quantitative analysis of power bases: Future research could use quantitative methods to measure the relative influence of different power bases on decision-making, compliance, and collaboration. This would provide a more comprehensive view of how firms can strategically manage power to achieve both short-term and long-term goals.

Longitudinal studies of power evolution: Given the dynamic nature of power dynamics, longitudinal studies could provide valuable insights into how power structures evolve over time within B2B relationships. Such studies could track how shifts in power bases impact both relational and performance outcomes, particularly in industries undergoing rapid technological change.

Power and innovation: Further exploration into the relationship between power and innovation would be valuable, particularly in understanding how firms can leverage power dynamics to foster technological advancements and co-create value in supply chains. Examining how power influences the adoption of new technologies or joint innovation efforts could be a rich area for future research.

References

Blau, P. M. (1968). Social exchange. International encyclopedia of the social sciences, 7(4), 452-457.

Choe, J. (2017). The Classification of Types of Business-to-Business Electronic Commerce. *University of Zagreb, Faculty of Organization and Informatics*, 41(1), 1-20. https://doi.org/10.31341/jios.41.1.1

Choi, T., & Robertson, P. J. (2014). Caucuses in Collaborative Governance: Modeling the Effects of Structure, Power, and Problem Complexity. *Taylor & Francis*, 17(2), 224-254. https://doi.org/10.1080/10967494.2014.905398

Emerson, R. M. (1964). Power-Dependence Relations: Two Experiments. American Sociological Review, 27(3), 282-282.

French, J. R. P., Jr., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), Studies in social power (pp. 150-167). Univer. Michigan.

Latta, G. F. (2019). A complexity analysis of organizational culture, leadership and engagement: integration, differentiation and fragmentation. *Taylor & Francis*, 23(3), 274-299. https://doi.org/10.1080/13603124.2018.1562095

Pfeffer, J. (1981). Power in organizations. https://ci.nii.ac.jp/ncid/BA10108142

Ran, D. (2023). Review on the influence of enterprise network power on innovation performance. *Business and Economic Research*, 47, 254-262. https://doi.org/10.54691/bcpbm.v47i.5224

Rikap, C. (2018). Innovation as economic power in Global Value Chains. *Éditions De Boeck Supérieur*, 35-75. https://doi.org/10.4000/rei.7226

Wang, C., & Hsu, L. (2013). Building exploration and exploitation in the high-tech industry: The role of relationship learning. *Technological Forecasting and Social Change*, 81, 331-340. https://doi.org/10.1016/j.techfore.2013.04.008

Appendices

A. List of questions: guide for interviewer in semi-structured interview (Chapter 3)

Research question	Constructs	Question for interviewees
What are the drivers and facilitators to make decisions with your partners? What are the drivers and facilitators to NOT make decisions with your partners?	**Decision-making structure: Individual Decision (ID) / Joint Decision (JD)** **Probe for JD 'drivers':** access to resources, risk sharing, financial incentive distribution, alignment of target cost, market access **Probe for JD 'facilitators':** ERP, ease of access, location proximity, transaction history, established contract, trust	[Note to interviewer: Before asking these questions, please define what JD and ID are so that respondents understand the context and provide relevant responses. Ask respondents to explain JD in their own words to ensure similar understanding of constructs.] Think of and pick one supplier (or one B2B customer that is a manufacturing company). How familiar are you with that company, based on your day-to-day interaction with them? Unfamiliar vs. familiar. Select only companies with answer 'familiar' and minimum period of interaction of at least one year. **ID** What motivates you to make JD with your partners? Probe: JD 'drivers'. What kind of supply chain decisions are usually made jointly with your partners? Give examples. What facilitates your JD process with your partners? Probe: JD 'facilitators'. What are the challenges or barriers in making JD? **ID** In which circumstances do you find the lack of—or no need to—make JD with your partners? What kind of supply chain decisions are better made individually by your company without involving your partner? In which circumstances do you find the need to make JD with your partners but denied the chance to do so/refused by your partner? This may be indicative of the decisions your partner wants full control of or lacks of interest in. What kind of decisions are better made jointly involving your partner, yet you have little access to do so, thus resorting to making ID? This is about the lack of facilitators that allows you to make JD, even when the partner wants it too. "Is there anything we haven't addressed yet that might be necessary to discuss?"

B. Guidelines for Labeling Power Bases (Chapter 5)

The following framework provides adaptable guidelines for differentiating similar-sounding, subtle, or overlapping power dynamics in customer-supplier relationships. It serves to help future researchers apply consistent labels to instances of power based on interview findings.

This nuanced approach helps differentiate different power bases and provides insight into how power bases are exercised in the complex, high-tech semiconductor industry.

Starting with legitimate power as the baseline in industry relationships is a wise approach, because it reflects industry norms, established roles, and expected duties. By using legitimate power as a comparison point, one can clearly distinguish when something deviates from standard expectations—whether it's moving toward coercion (excessive pressure) or referent/expert power (based on relationships or expertise).

Distinguishing Between Coercion and Legitimate Ask

Given the volatile and complex nature of the semiconductor business, suppliers are often expected to be flexible. However, there is a fine line between reasonable industry expectations and coercion.

- **Legitimate Ask**:
  - **Contextual Normalcy**: The request aligns with standard industry practices, where high adaptability is the norm due to the rapid evolution of semiconductor technology.
  - **Mutual Benefit**: Both customer and supplier gain from the request, such as in innovation, quality, or long-term partnership.
  - **Reasonable Demands**: The supplier is capable of meeting the demands without excessive strain, even if the demands are challenging.
  - **Negotiable and Collaborative**: There is space for negotiation, with both parties actively discussing terms.
- **Coercion**:
  - **Excessive Pressure**: The customer's demands strain the supplier's capacity beyond reasonable industry norms.
  - **Unilateral Benefit**: The customer benefits disproportionately, leaving the supplier with little choice but to comply due to lack of alternatives or market power imbalance.
  - **Lack of Flexibility**: The supplier is given no room to negotiate or reject unreasonable demands.
  - **Punitive Consequences**: There is an explicit or implied threat of losing business or facing negative consequences if the supplier does not comply.

Application to Case Examples

1. **Case 13: A Mix of Legitimate Ask and Coercion**
    - **Referent Power (Supplier)**: The supplier's flexibility in adapting to changes during the testing phase is a legitimate ask, as this adaptability is an industry standard for meeting high-tech requirements.
    - **Coercive Power (Customer)**: The customer's persistent pricing strategy, where they "always strive to have the product cheaper than what the supplier sells to us," could cross into coercion if it places unsustainable pressure on the supplier. Whether the pricing demands are within industry norms or coercive depends on the supplier's ability to negotiate without fear of losing business.
2. **Case 11: A Non-Coercive, Collaborative Relationship**
    - **Referent Power (Supplier)**: The supplier demonstrates flexibility in adapting to volatile logistics and lead times, aiming to strengthen the relationship. This willingness to adapt indicates referent power, as the supplier values being seen as a reliable and cooperative partner.
    - **Reward Power (Customer)**: The customer offers strategic development opportunities to the supplier, fostering a mutually beneficial relationship without coercion.
3. **Case 12: Coercion through Unpredictable Demands**
    - **Referent Power (Supplier)**: The supplier adapts to the customer's volatile demands to maintain a positive relationship, driven by a desire to continue the partnership.
    - **Coercive Power (Customer)**: The customer's imposition of volatile demands without adequate market information places undue operational strain on the supplier, forcing them to comply despite the challenges.

Distinguishing Between Referent Power, Legitimate Power, and Expert Power

In addition to differentiating coercion from legitimate asks, this study distinguishes between **referent power**, **legitimate power**, and **expert power** in supplier-customer relationships. The following criteria were applied to categorize these forms of power:

- **Referent Power**:
    - **Relationship-Driven**: Actions taken to maintain or strengthen the business relationship, often involving flexibility and cooperation.
    - **Beyond Duty**: The supplier or customer goes beyond contractual obligations to ensure a positive, long-term relationship.
    - **Mutual Respect and Admiration**: Behavior motivated by a desire to be seen as reliable, adaptable, or indispensable.
- **Legitimate Power**:
    - **Role-Driven**: Actions taken as part of a party's recognized duties within the business relationship, based on agreed-upon roles and expectations.
    - **Formal Authority**: Compliance with requests is based on the recognition of the other party's authority to set terms.

    - **Normal Business Operations**: The supplier or customer is meeting typical industry demands without going beyond their expected role.
- **Expert Power**:
    - **Knowledge-Driven**: The party uses specialized expertise or knowledge to influence the relationship, especially in areas such as innovation or unique technical capabilities.
    - **Leverage of Expertise**: The supplier or customer uses their unique capabilities to negotiate terms, provide value, or resist demands.

Application to Case Examples

1. **Case 15: Legitimate Power by the Supplier**
    - **Legitimate Power (Supplier)**: The supplier provides competitive pricing, fast responsiveness, and functionality, meeting the buyer's expectations. These actions align with legitimate power because they are fulfilling their normal responsibilities as part of a mutually agreed business relationship.
    - **Why Not Expert Power?**: Although the supplier possesses technical expertise, the case emphasizes that the customer grants the supplier freedom to innovate as a reward, not as something the supplier negotiated based on expertise.
    - **Why Not Referent Power?**: The supplier's compliance is based on fulfilling expected duties rather than maintaining or enhancing the relationship.
2. **Case 11: Referent Power**
    - **Referent Power (Supplier)**: The supplier is highly flexible and willing to adapt to the customer's volatile demands, prioritizing the long-term relationship. This behavior is motivated by the desire to maintain a positive partnership, even when it involves extra effort.
    - **Why Referent Power?**: The supplier's actions go beyond standard expectations, driven by the need to be seen as a reliable partner, thus reflecting referent power rather than legitimate or expert power.
3. **Case 12: Referent and Coercive Power**
    - **Referent Power (Supplier)**: The supplier adapts to volatile demands to preserve the relationship, going beyond standard obligations.
    - **Coercive Power (Customer)**: The customer's unpredictable demands, combined with insufficient information, impose strain on the supplier, forcing compliance under pressure.

C. Detailed Case Analyses (Chapter 5)

This appendix provides a comprehensive breakdown of the power dynamics observed in each of the 22 cases studied. The cases are grouped based on the dominant power dynamic, with each group providing key evidence and a summary for both the focal company and the partner (supplier or customer). The evidence quotes are highlighted to emphasize the importance of specific statements used to illustrate the power bases. This structure allows for easy comparison and identification of patterns across cases.

Legitimate Power vs. Expert Power

These cases highlight instances where the focal companies leveraged **Legitimate Power** due to their established authority or relationship with the partner. The partners, in turn, relied on **Expert Power**, using specialized knowledge, technological advantages, or market position to resist demands or maintain control over certain aspects of the partnership.

Case 1

- **Focal Company Power Base**: Legitimate
  - *Key Evidence*: *"We won't shop around either if the price is not up to our liking."*
  - *Analysis*: The focal company uses its long-standing relationship with the supplier to demand price adjustments, expecting compliance based on their established authority.
- **Partner (Supplier) Power Base**: Expert
  - *Key Evidence*: *"They're already the cheapest we could find due to the economies of scale and transaction history we had with this supplier."*
  - *Analysis*: The supplier uses their expertise in pricing and economies of scale to resist further price reductions, maintaining control over the situation.
- **Summary**: The focal company exercises **Legitimate Power** through their relationship, while the supplier uses **Expert Power** to justify their pricing.

Case 2

- **Focal Company Power Base**: Expert
  - *Key Evidence*: *"Our product will bring financial benefits or efficiencies in the Customer's operation."*
  - *Analysis*: The focal company relies on its expertise in the product's value and quality to justify a higher price point, leveraging its specialized knowledge.
- **Partner (Customer) Power Base**: Legitimate
  - *Key Evidence*: *"The Customer will buy our product even when it is beyond their expected price because there is a lack of alternative supplier."*

    - *Analysis*: The customer exercises legitimate power by acknowledging the critical market position of the focal company, accepting the higher price due to a lack of alternative suppliers.
- **Summary**: The focal company exercises **Expert Power** through product knowledge, while the customer uses **Legitimate Power** by recognizing the supplier's essential role.

Case 6

- **Focal Company Power Base**: Legitimate
    - *Key Evidence*: *"We can see the whole connection of processes and activities required to deliver the product they need."*
    - *Analysis*: The focal company uses legitimate power by leveraging its deep understanding of the process to influence the customer's decision-making and demand compliance with timelines.
- **Partner (Customer) Power Base**: Expert
    - *Key Evidence*: *"The way to resolve is to accelerate that to higher ranks in their bureaucracy, which slows down our process at the end."*
    - *Analysis*: The customer uses expert power through its organizational hierarchy to control final decisions, even if it slows the process.
- **Summary**: The focal company uses **Legitimate Power** through process expertise, while the customer uses **Expert Power** through bureaucratic decision-making.

Case 9

- **Focal Company Power Base**: Legitimate
    - *Key Evidence*: *"Our priority is speed."*
    - *Analysis*: The focal company exercises legitimate power by prioritizing speed over the supplier's technological advancements, enforcing its operational needs.
- **Partner (Supplier) Power Base**: Expert
    - *Key Evidence*: *"Our supplier offered an idea to develop a new technology based on their new skill and research."*
    - *Analysis*: The supplier uses expert power by proposing a new technology, relying on their specialized knowledge to influence the focal company's decisions.
- **Summary**: The focal company exercises **Legitimate Power** by prioritizing operational speed, while the supplier uses **Expert Power** through technological expertise.

Case 14

- **Focal Company Power Base**: Legitimate
    - *Key Evidence*: *"We ask them to respect our boundary which is quality."*
    - *Analysis*: The focal company uses legitimate power by setting clear quality boundaries that the supplier must respect as part of their relationship.
- **Partner (Supplier) Power Base**: Expert

    - *Key Evidence*: *"Since our supplier knows a lot about their product, sometimes we follow their suggestions on material."*
    - *Analysis*: The supplier uses expert power by leveraging their product knowledge to influence the focal company's material decisions.
- **Summary**: The focal company uses **Legitimate Power** by enforcing quality standards, while the supplier uses **Expert Power** through their specialized knowledge.

Case 21

- **Focal Company Power Base**: Legitimate
    - *Key Evidence*: *"We discuss with our suppliers about their future prediction... Finally, we will ask our supplier for their commitment to provide enough capacity to support our business."*
    - *Analysis*: The focal company exercises legitimate power by setting expectations and seeking a commitment from the supplier to meet their future capacity needs.
- **Partner (Supplier) Power Base**: Expert
    - *Key Evidence*: *"Sometimes, the supplier will disagree with our offered pricing... We don't normally challenge their pricing because we understand they're the best supplier in the market."*
    - *Analysis*: The supplier uses expert power by leveraging their advanced market knowledge and technological capabilities to maintain control over pricing decisions.
- **Summary**: The focal company exercises **Legitimate Power** by managing capacity commitments, while the supplier uses **Expert Power** to maintain pricing authority.

Coercive Power vs. Referent Power

In these cases, the customers exerted **Coercive Power**, often through volatile demands, while suppliers or focal companies relied on **Referent Power** to maintain positive relationships despite challenging circumstances.

Case 8

- **Focal Company Power Base**: Referent
    - *Key Evidence*: *"This causes us (manufacturers) to have to be very flexible with lack of informed planning."*
    - *Analysis*: The focal company demonstrates referent power by being flexible and adaptive to the customer's frequent changes, prioritizing the relationship over operational control.
- **Partner (Customer) Power Base**: Coercive
    - *Key Evidence*: *"Following Customer's volatility of product requirements, even when Customer shows lack of initiative to share more market demand / downstream information."*

    - *Analysis*: The customer uses coercive power by frequently changing product requirements without providing adequate downstream information, forcing the focal company to operate under pressure.
- **Summary**: The focal company relies on **Referent Power** to maintain flexibility, while the customer uses **Coercive Power** through volatile demands.

Case 12

- **Focal Company Power Base**: Referent
    - *Key Evidence*: *"We normally adapt to our Customer's volatile demand, to sustain our business."*
    - *Analysis*: The focal company uses referent power by adapting to volatile customer demands to sustain the relationship, even when it causes operational strain.
- **Partner (Customer) Power Base**: Coercive
    - *Key Evidence*: *"We understand that the high-tech market is volatile."*
    - *Analysis*: The customer uses coercive power by exerting pressure on the focal company through volatile demands, forcing continuous adaptation.
- **Summary**: The focal company uses **Referent Power** to sustain the relationship, while the customer employs **Coercive Power** through volatility.

Case 13

- **Focal Company Power Base**: Coercive
    - *Key Evidence*: *"PRICING: there is always a compromise because we always strive to have the product cheaper than what our supplier sells to us."*
    - *Analysis*: The focal company uses coercive power by pushing the supplier to lower prices, creating pressure through persistent negotiation.
- **Partner (Supplier) Power Base**: Referent
    - *Key Evidence*: *"Suppliers have to be flexible to adapt to changes in measurements for prototypes in order to reach quality... Normally, they will accommodate us in testing phase & development phase."*
    - *Analysis*: The supplier uses referent power by being flexible and accommodating during the testing and development phases to maintain a positive relationship.
- **Summary**: The focal company uses **Coercive Power** by enforcing lower prices, while the supplier uses **Referent Power** by being flexible in the development phase.

Case 19

- **Focal Company Power Base**: Referent
    - *Key Evidence*: *"If they insist, we have no choice but to use our power upstream to put the stress to our suppliers."*
    - *Analysis*: The focal company uses referent power by trying to align with the customer's demands, passing the pressure onto upstream suppliers.

- **Partner (Customer) Power Base**: Coercive
    - *Key Evidence*: *"Our Customer is very demanding and dictating... They want to micromanage our product spec & high flexibility."*
    - *Analysis*: The customer uses coercive power by micromanaging product specifications and placing strict demands on the focal company, leaving little room for flexibility.
- **Summary**: The focal company uses **Referent Power** to maintain the customer relationship, while the customer exerts **Coercive Power** by imposing strict controls.

Case 22

- **Focal Company Power Base**: Referent
    - *Key Evidence*: *"They would always give us large volume so that they could get from us cheaper price, but enough to push us to accommodate with our capacity regardless of demand fluctuation."*
    - *Analysis*: The focal company uses referent power by accommodating the customer's large volume demands, even when it strains their own capacity.
- **Partner (Customer) Power Base**: Coercive
    - *Key Evidence*: *"When we already started our manufacturing with our suppliers, sometimes our Customer communicated a change of demand from their side, and it results in us having to absorb the excess inventory together with supplier."*
    - *Analysis*: The customer uses coercive power by changing demand after production begins, forcing the focal company and suppliers to absorb excess inventory.
- **Summary**: The focal company uses **Referent Power** to accommodate demand fluctuations, while the customer employs **Coercive Power** by imposing last-minute changes.

Reward Power vs. Legitimate Power

These cases show how focal companies used **Reward Power** to incentivize suppliers, while suppliers exercised **Legitimate Power** by adhering to agreed-upon terms in response.

Case 5

- **Focal Company Power Base**: Reward
    - *Key Evidence*: *"Giving the supplier a bigger pie as long as the quality is good/not compromised."*
    - *Analysis*: The focal company uses reward power by offering better terms to incentivize the supplier to maintain high-quality standards.
- **Partner (Supplier) Power Base**: Legitimate
    - *Key Evidence*: *"Open for discussion when unforeseen situation happens which hinders our supplier to not fulfill their promises in manufacturability."*
    - *Analysis*: The supplier uses legitimate power by negotiating terms when unforeseen challenges affect production capacity.

- **Summary**: The focal company uses **Reward Power** to motivate the supplier, while the supplier exercises **Legitimate Power** during negotiations.

Case 15

- **Focal Company Power Base**: Reward
  - *Key Evidence*: *"The Supplier is given a freedom to develop new product using their technical expertise, without restrictions."*
  - *Analysis*: The focal company uses reward power by offering the supplier the freedom to innovate and develop new products, encouraging creativity.
- **Partner (Supplier) Power Base**: Legitimate
  - *Key Evidence*: *"They are requested by the buyer to provide good price/cost under the Customer's budget, fast responsiveness to market volatility, and also competitive functionality of end product."*
  - *Analysis*: The supplier uses legitimate power by fulfilling the focal company's requests within agreed-upon terms regarding price, responsiveness, and functionality.
- **Summary**: The focal company uses **Reward Power** by granting innovation freedom, while the supplier exercises **Legitimate Power** by adhering to agreed terms.

Case 18

- **Focal Company Power Base**: Reward
  - *Key Evidence*: *"We give them more freedom to set the price in exchange."*
  - *Analysis*: The focal company uses reward power by offering the supplier pricing freedom in exchange for maintaining quality and meeting production standards.
- **Partner (Supplier) Power Base**: Legitimate
  - *Key Evidence*: *"We request that they follow us in terms of quality... We expect them to have the same structure as we have with our customer."*
  - *Analysis*: The supplier exercises legitimate power by adhering to the focal company's quality requirements as part of the business agreement.
- **Summary**: The focal company uses **Reward Power** to incentivize compliance, while the supplier exercises **Legitimate Power** by following quality standards.

Coercive Power vs. Coercive Power

In one standout case, both the focal company and the supplier exercised **Coercive Power**, creating a tense dynamic of mutual control and pressure.

Case 17

- **Focal Company Power Base**: Coercive
  - *Key Evidence*: *"We are free to choose another more compatible supplier."*

    - *Analysis*: The focal company uses coercive power by retaining the flexibility to switch suppliers if expectations are not met, using this as leverage over the current supplier.
- **Partner (Supplier) Power Base**: Coercive
    - *Key Evidence*: *"For strategic purposes, our supplier is not very transparent, there is hidden information about the estimate cost."*
    - *Analysis*: The supplier uses coercive power by withholding critical information, maintaining control over the pricing process and forcing the focal company into a vulnerable position.
- **Summary**: Both the focal company and the supplier use **Coercive Power**, leading to a high-pressure relationship where both parties leverage their controls to gain the upper hand.

Grouping the cases by power dynamics allows for easier comparison of similar cases.

D. Effect of Power Bases on Compliance and Satisfaction Levels (Chapter 5)

Supplier

Case Number	Power Base Exercised by Supplier	Compliance Level (Supplier)	Compliance Explanation (Supplier)	Satisfaction Level (Supplier)	Satisfaction Explanation (Supplier)
C1	Expert Power	High	Supplier expertise respected	High	High satisfaction with recognition of expertise
C2	Legitimate Power	High	Aligned with customer demands	Conditional	Conditional based on customer legitimacy
C3	Coercive Power	Moderate	Compliance under pressure	Low	Low satisfaction due to coercion
C4	Legitimate Power	High	Compliance due to customer authority	Moderate	Moderate satisfaction through compliance
C5	Legitimate Power	Moderate	Compliance due to rewards	Moderate	Moderate satisfaction tied to rewards
C6	Legitimate Power	High	Aligned with legitimate customer expectations	Moderate	Moderate satisfaction with customer legitimacy
C7	Expert Power	High	Supplier expertise respected	High	High satisfaction due to recognition of expertise
C8	Referent Power	Moderate	Compliance due to relationship	Moderate	Moderate satisfaction with relationship
C9	Expert Power	High	Expertise aligns with customer needs	High	High satisfaction with recognition of expertise
C10	Legitimate Power	Moderate	Compliance with structured agreements	Moderate	Moderate satisfaction with structured agreements
C11	Referent Power	Moderate	Compliance through positive relationship	Moderate	Moderate satisfaction through positive relationship
C12	Referent Power	Moderate	Compliance through relationship	Moderate	Moderate satisfaction through relationship
C13	Referent Power	Moderate	Compliance with customer needs	Moderate	Moderate satisfaction with recognition of expertise
C14	Expert Power	High	Supplier expertise leads to compliance	High	High satisfaction through recognized expertise
C15	Legitimate Power	High	Compliance due to rewards	Moderate	Moderate satisfaction tied to rewards
C16	Legitimate Power	Moderate	Aligned with legitimate customer expectations	Moderate	Moderate satisfaction through compliance
C17	Coercive Power	Moderate	Compliance due to fear	Low	Low satisfaction due to coercion
C18	Legitimate Power	High	Aligned with customer demands	Moderate	Moderate satisfaction with customer legitimacy
C19	Referent Power	Moderate	Compliance due to positive relationship	Moderate	Moderate satisfaction through positive relationship
C20	Referent Power	High	Compliance through positive relationship	High	High satisfaction through positive relationship
C21	Expert Power	High	Expertise respected by customer	High	High satisfaction with recognized expertise
C22	Referent Power	Moderate	Compliance through relationship	Moderate	Moderate satisfaction through relationship

Customer

Case Number	Power Base Exercised by Customer	Compliance Level (Customer)	Compliance Explanation (Customer)	Satisfaction Level (Customer)	Satisfaction Explanation (Customer)
C1	Legitimate Power	High	Compliance due to structured agreements	High	High satisfaction through structured agreements
C2	Expert Power	High	Compliance driven by supplier expertise	Conditional	Conditional satisfaction through recognized expertise
C3	Legitimate Power	Moderate	Compliance with legitimate supplier demands	Moderate	Moderate satisfaction with legitimate supplier demands
C4	Referent Power	High	Compliance through positive relationship	High	High satisfaction through positive relationship
C5	Reward Power	High	Compliance driven by rewards	Moderate	Moderate satisfaction through rewards
C6	Expert Power	High	Compliance driven by supplier expertise	Conditional	Conditional satisfaction through recognized expertise
C7	Coercive Power	High	Compliance achieved through coercion	Low	Low satisfaction due to coercion
C8	Coercive Power	Moderate	Moderate compliance due to coercion	Moderate	Moderate satisfaction with coercive measures
C9	Legitimate Power	High	Compliance with legitimate supplier demands	High	High satisfaction through legitimate supplier demands
C10	Legitimate Power	Moderate	Compliance with structured agreements	Moderate	Moderate satisfaction through structured agreements
C11	Reward Power	High	Compliance through rewards	Moderate	Moderate satisfaction through rewards
C12	Coercive Power	Moderate	Moderate compliance due to coercion	Moderate	Moderate satisfaction with coercive measures
C13	Coercive Power	Moderate	Moderate compliance through coercion	Low	Low satisfaction due to coercion
C14	Legitimate Power	High	Compliance with legitimate supplier demands	High	High satisfaction through structured agreements
C15	Reward Power	High	Compliance driven by rewards	Moderate	Moderate satisfaction through rewards
C16	Legitimate Power	Moderate	Compliance with legitimate supplier demands	Moderate	Moderate satisfaction with legitimate supplier demands
C17	Coercive Power	High	Compliance through coercion	Low	Low satisfaction due to coercion
C18	Reward Power	High	Compliance driven by rewards	Moderate	Moderate satisfaction through rewards
C19	Coercive Power	Moderate	Moderate compliance due to coercion	Low	Low satisfaction due to coercion
C20	Reward Power	High	Compliance through rewards	High	High satisfaction through rewards
C21	Legitimate Power	High	Compliance with structured agreements	High	High satisfaction through structured agreements
C22	Coercive Power	Moderate	Moderate compliance through coercion	Moderate	Moderate satisfaction with coercion

Acknowledgements

The journey of a PhD is rarely a solitary one. Like building a house, it is shaped by countless hands—those who lay the foundation, those who strengthen the walls, and those who add the finishing touches. In Indonesia, we have a term for this collective effort: *gotong royong*. It represents the spirit of working together, of shared burdens and mutual support, of building something greater than any individual could achieve alone. This concept has not only guided me through my life but has also become a lens through which I view my research, exploring how collaboration and relationships shape outcomes in both supply chains and society.

My PhD has been a reflection of this *gotong royong* spirit—a shared journey where every challenge was met not in isolation but with the encouragement and wisdom of those around me. While the labyrinth of research could feel overwhelming at times, it was the collective effort, the guiding lights of mentors, peers, and loved ones, that kept me moving forward.

To all those who have been part of this shared journey, who lifted me when I faltered, celebrated the milestones, and shared their strength—I dedicate these words to you.

I would like to express my deepest gratitude to my promotor, Prof. Jafar Rezaei, and co-promotor, Prof. Lóri Tavasszy, who offered their invaluable guidance, wisdom, and encouragement throughout this PhD. Their support extended far beyond academic insights. As a researcher with a learning disability, I am especially grateful for the accommodations and inclusivity they provided, which empowered me to pursue my goals. Navigating these challenges has only deepened my commitment to my work, and I am truly thankful for the tools and support that helped me reach this point.

My promotors have guided me through the intricacies of the research process and inspired me to think beyond the limits I once set for myself. They have also been role models, demonstrating the importance of balance, family, building supportive habits and having faith in myself—values that have profoundly shaped my journey. I will always remember Prof. Tavasszy's thoughtful advice during a challenging time: to 'spiral up,' I needed to prioritize self-care and surround myself with a strong, supportive community. Their encouragement has been a cornerstone of my growth throughout this journey.

My sincere appreciation goes especially to Prof. Rezaei, whose guidance was instrumental in shaping the direction of this research. His insights led me to recognize the semiconductor manufacturing industry as a crucial and highly compelling focus early in my PhD. This sector, at the heart of global technology advancements, is not only foundational to countless modern innovations

but also highly susceptible to supply chain disruptions—making it a critical and timely area for study. However, it also operates within a volatile geopolitical climate, where supply chain disruptions, resource dependencies, and international tensions have heightened its strategic importance. Being based in the Netherlands, a hub for the global semiconductor ecosystem, provided a unique opportunity to engage with key players and gain invaluable insights into this dynamic field. Prof. Rezaei's guidance helped me unravel the complexities of decision-making within this industry and shaped the trajectory of my research.

To the senior executives, managers, and key decision-makers from the twelve semiconductor companies I interviewed, thank you for your time, insights, and willingness to share your experiences. Despite your busy schedules, you created space for meaningful conversations that provided real-world depth to this research. Your perspectives were invaluable in bridging theory and practice, bringing clarity to the dynamics explored in this dissertation.

I am also fortunate to have had the opportunity to attend the Executive MBA program module led by Prof. Chris Lonsdale at Birmingham Business School, University of Birmingham, UK. This unique experience arose after I reached out to Professor Lonsdale about his past publications, and I am deeply grateful for his kind invitation to participate. Engaging with professionals from diverse industries across the UK during brainstorming sessions and case studies was both refreshing and enlightening. Their practical perspectives on power dynamics and buyer-supplier relationships brought the concepts I explored in my research to life.

I am profoundly grateful to the Ministry of Finance of the Republic of Indonesia for funding my research and to PPM Manajemen for their extended financial support during the pandemic. Your support made it possible for me to pursue this work through challenging times, and I deeply appreciate the opportunities you have provided. I also recognize my own contribution to funding part of this research, reflecting my dedication to its completion.

To my husband, Nabriz, my unwavering partner, who influenced me to apply to TU Delft PhD program, and supported my pursuit throughout, thank you. Being far from hometown, we had our ups and downs but turned every obstacle into opportunities for growth. We made this research journey a shared experience that will remain a meaningful part of our life together.

To all my family—especially my parents, sisters, aunt, and parents-in-law, who are educators—your steadfast support has been my foundation, even across distances and complexities. I am incredibly proud that some of you visited TU Delft and saw where I worked; knowing you stood here gave me a profound sense of pride and renewed motivation. I also want to honor the memory of my late grandfather, Prof. Soepomo Poedjosoedarmo, the first scholar in our family, who rose from a family of village farmers in Indonesia to pursue his studies in the Cornell University, US, in the 1960s. His journey—marked by an enduring commitment to learning and teaching—has guided me to push

past my own limits in the pursuit of knowledge and to recognize the lasting impact of sharing knowledge as a legacy.

To all my colleagues, friends, mentors, and those who have stood with me, thank you for inspiring collaboration, thought-provoking conversations, and constant reminders that we are stronger when we work together. This dissertation reflects not only my research but also the collective insights, late-night debates, exchanges of practical help, and encouragement I've received along the way. To fellow researchers who paved the way before me and to those who follow—may we continue to support one another, and may our contributions drive meaningful change, however incremental, in our fields and beyond.

Finally, to my younger self—who dared to dream of pursuing knowledge 11,405 kilometers across the world from your hometown to explore new horizons—thank you for your courage. You brought me here, and I promise to honor your vision by always moving forward, always learning, and always believing in the beauty of the journey.

Kartika Nurhayati

April 2025

Delft, The Netherlands

About the Author

Kartika Nurhayati was born in 1990 in Sleman, Yogyakarta, Indonesia. She received her Bachelor's degree in Industrial Engineering from Universitas Indonesia, Jakarta, and a Master's degree in Quality and Performance in Organizations from the Université de Technologie de Compiègne, France.

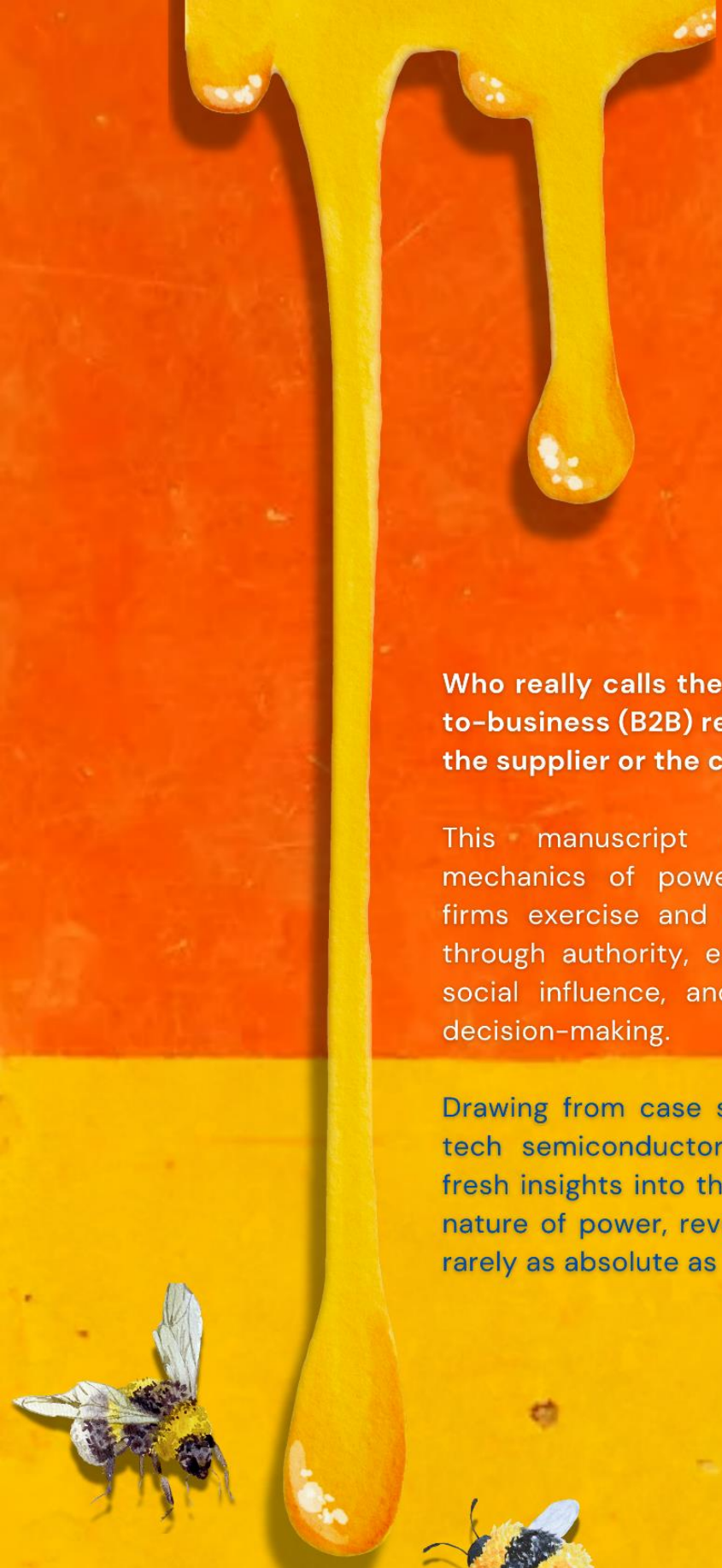
Kartika's work, as reflected in this PhD dissertation, was inspired by her early career experiences in supply chain management, beginning with her Master's thesis, where she helped companies integrate new Enterprise Resource Planning systems across their networks. The work on ERP implementation taught her a deep respect for every moving part of a supply chain, down to the people making it all happen. This experience sparked her interest in supplier-manufacturer dynamics within the manufacturing sector. Kartika held roles in supply chain and manufacturing at Schlumberger, Toyota, and in management consulting firms, where she gained practical knowledge in supplier relationship management. She helped companies identify and address risks critical to their supply networks, which further fueled her passion for the strategic side of supply chain management.

Later, Kartika began her PhD at the Faculty of Technology, Policy and Management at Delft University of Technology. Her research focuses on power dynamics, joint decision-making, and compliance in high-tech B2B relationships, particularly in the semiconductor industry.

Throughout her PhD, Kartika presented her findings at PhD congress, published in peer-reviewed journals, and attended an Executive MBA module in Strategic Procurement & Supplier Management at the University of Birmingham by invitation. She also represented TU Delft in a supply chain competition held by the Industrial Engineering and Operation Management society and the Centre for Supply Chain Improvement, University of Derby, UK, winning first prize for a case study in humanitarian logistics and digital supply chains. Her published article "Joint B2B supply chain decision-making: Drivers, facilitators, and barriers" was nominated as Best PhD Paper Award of 2023 at TU Delft by the faculty of TPM/ESS jury.

As a neurodivergent individual, she found ways to do research with her natural rhythm and adapt her process along the way—a journey that was both exceptionally challenging and rewarding. This experience strengthened her commitment to understanding complex systems and relationships, a theme that runs through both her academic and professional work.

Today, Kartika works as a process modeler/consultant/architect in the area of strategic sourcing, procurement, planning, and logistics. Passionate about navigating complex end-to-end interdependencies, she believes that understanding the human and relational aspects of processes is key to building resilient and sustainable supply chains.



Who really calls the shots in business-to-business (B2B) relationships—the supplier or the customer?

This manuscript delves into the mechanics of power, uncovering how firms exercise and negotiate influence through authority, expertise, incentives, social influence, and pressure in joint decision-making.

Drawing from case studies in the high-tech semiconductor industry, it offers fresh insights into the fluid and dynamic nature of power, revealing that power is rarely as absolute as it seems.

TU Delft Delft University of Technology