



# **AI in Negotiations: The Perspective of Procurement Managers**

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## ABSTRACT

**Title:** AI in procurement negotiations: The Perspective of procurement managers

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This study explores the adoption and impact of artificial intelligence (AI) in negotiations through qualitative interviews with 22 procurement managers and negotiation experts. Using the Technology Acceptance Model, the research investigates AI adoption, perception, and influencing factors in negotiation processes.

Findings reveal early-stage AI adoption with growing interest. AI is perceived as beneficial for efficiency, data analysis, and communication, particularly in more straightforward standardized negotiations. Key adoption factors include negotiation frequency and complexity, data quality, security concerns, and the perceived value of human skills.

Despite its advantages, professionals express concerns about AI's limitations in creativity, interpreting subtle signals, and potential impact on supplier relationships. There is a preference for using AI as a support tool rather than for full automation.

The study recommends gradual AI implementation through low-risk pilot projects. It highlights the need for professionals to communicate the use of AI transparently to suppliers and evaluate AI tools thoroughly prior adoption. Further research is needed on integrating AI with human skills, evaluating AI effectiveness across negotiation phases, and exploring ethical implications, especially regarding supplier relationships.

**Keywords:** Artificial Intelligence (AI), Negotiation, Technology Acceptance Model (TAM), AI Adoption, Negotiation Automation

## RESUMO

**Título:** A IA nas negociações de contratos públicos: A perspectiva dos gestores de compras

**Autor:** Jordin Schurer

Este estudo explora a adoção e o impacto da inteligência artificial (IA) nas negociações através de entrevistas qualitativas com 22 gestores de aquisições e peritos em negociação. Utilizando o Modelo de Aceitação de Tecnologia, o estudo investiga a adoção, percepção e factores de influência da IA nos processos de negociação. Os resultados revelam que a adoção da IA se encontra numa fase inicial, com um interesse crescente. A IA é vista como benéfica para a eficiência, análise de dados e comunicação, particularmente em negociações padronizadas mais simples. Os principais factores de adoção incluem a frequência e complexidade das negociações, a qualidade dos dados, as preocupações com a segurança e o valor percebido das competências humanas. Apesar das suas vantagens, os profissionais manifestam preocupações quanto às limitações da IA em termos de criatividade, interpretação de sinais subtis e potencial impacto nas relações com os fornecedores. Existe uma preferência pela utilização da IA como uma ferramenta de apoio e não para a automatização total. O estudo recomenda a implementação gradual da IA através de projectos-piloto de baixo risco. Salienta a necessidade de os profissionais comunicarem a utilização da IA de forma transparente aos fornecedores e avaliarem exaustivamente as ferramentas de IA antes da sua adoção. É necessária mais investigação sobre a integração da IA com as competências humanas, a avaliação da eficácia da IA em todas as fases de negociação e a exploração das implicações éticas, especialmente no que respeita às relações com os fornecedores.

**Palavras-chave:** Inteligência Artificial (IA), Negociação, Modelo de Aceitação de Tecnologia (TAM), Adoção de IA, Automatização da Negociação

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**LIST OF ABBREVIATIONS**

AI	Artificial Intelligence
BATNA	Best Alternative to a Negotiated Agreement
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
TAM	Technology Acceptance Model
RFQ	Request for Quotation
LLM	Large Language Model
GPT	Generative Pretrained Transformer

# 1 INTRODUCTION

Artificial intelligence (AI) is beginning to reshape how companies procure products and services from suppliers. With the growing capabilities of AI, there is increasing interest in AI-powered tools to improve procurement processes (Guida et al., 2023). However, despite significant technological advancements in recent years (Jackson et al., 2024) and a vast amount of data generated in supply chains (Brinch, 2018; Allal-Chérif et al., 2021;), the full potential to improve procurement processes remains largely untapped (Handfield et al., 2019; Allal-Chérif et al., 2021; Flechsig et al., 2022). Although there is extensive research on AI and procurement (Guida et al., 2023; Hendriksen, 2023; Jackson et al., 2024), it rarely focuses on AI in procurement negotiations and primarily concentrates on technical models and feasibility. Therefore, this study aims to explore the adoption of AI in procurement negotiation processes with the following research questions intended to be answered:

- How is AI currently being adopted in supplier negotiations?
- How do procurement managers and negotiation experts perceive the usefulness and ease of use of AI in the negotiation processes?
- What factors influence the adoption of AI in negotiations?

These research questions will be embedded in a theoretical foundation based on the Technology Acceptance Model. This study is relevant and timely as the emergence of AI negotiation software for procurement necessitates understanding the factors influencing its adoption. Recent literature emphasizes the importance of this research. Guida et al. (2023) highlighted a significant research gap and called for investigations into AI's role in "supporting the negotiation with suppliers, in terms of applicability and implementation paradigms" stating this could bring "advancements to both scientific knowledge and managerial practice" (Guida et al., 2023, p. 14). This thesis aims to fill the knowledge gap by investigating current AI adoption in negotiations, procurement professionals' perceptions of AI, and factors influencing AI implementation in negotiation processes. In addition to theoretical contributions, this thesis offers managerial implications for procurement professionals considering AI adoption in their negotiation processes by highlighting critical areas where AI capabilities and negotiation requirements overlap and diverge.

This thesis is structured as follows: Chapter 2 provides a literature review, including background information on AI technologies, negotiation fundamentals, automation in negotiations, and the Technology Acceptance Model as the theoretical framework. It also reviews existing literature on AI in procurement negotiations, exploring benefits, limitations, adoption barriers, and enablers. Chapter 3 details the methodology, including sample selection, data collection, and analysis approaches. Chapter 4 presents the findings, organized by the research questions on AI adoption, perceptions, and influencing factors. Chapter 5 discusses the findings through the lens of the Technology Acceptance Model and existing literature, highlighting contributions to research, practical implications, limitations, and areas for future research. Finally, Chapter 6 concludes the thesis by summarizing key findings and their implications for the field of AI in procurement negotiations.

## 2 LITERATURE REVIEW

### 2.1 Definitions and Background

Artificial Intelligence (AI), an area of computer science, can be defined as intelligent systems and programs that can replicate human behavior (Nilsson, 1982; Russell & Norvig, 2016). The goal is to get computer systems to perform tasks such as knowledge acquisition and retention, logical thinking, pattern recognition, learning from past experiences, and reasoning, which are particularly useful in decision-making contexts when finding the optimal solution is too costly or challenging with human involvement (Adamopoulou & Moussiades, 2020; Min, 2010; Nilsson, 1982; Russell & Norvig, 2016). Due to its diverse application possibilities, AI can be regarded as a general-purpose technology (Crafts, 2021). AI is also often used in chatbots, software programs designed to emulate human conversation by interacting with users through natural language (Adamopoulou & Moussiades, 2020; Shawar & Atwell, 2007). One of the most popular AI chatbots is ChatGPT, a large language model developed by OpenAI trained on extensive text data to generate human-like responses for various natural language processing tasks (Currie, 2023). In contrast to older AI language programs, ChatGPT uses GPT (Generative Pretrained Transformer) as architecture, which is “*designed to generate human-like language by predicting the next word in a sequence*” (Currie, 2023). This architecture enables it to generate coherent text content, making it a versatile tool for various potential use cases (Currie, 2023).

A negotiation is defined as a discussion or “interpersonal communication” among multiple conflicting parties to reach an agreement about divergent interests (Pruitt, 1998; Lewicki et al., 2011, p.165). During the negotiation phase, offers and counteroffers are usually exchanged. The BATNA (Best Alternative to a Negotiated Agreement) influences the dynamics of the outcome of this process (Lewicki et al., 2011). Negotiation situations range from purely competitive to purely cooperative, often containing a mix of both (Pruitt & Carnevale, 1993). The final agreement can be a middle-ground compromise, an integrative agreement with more significant mutual benefit, or a Pareto optimal agreement with maximized mutual benefit without wasting resources (Thompson, 2022).

Negotiators often settle for less optimal negotiation outcomes due to various factors, including a win-lose attitude and the complex nature of negotiations (Thompson, 2022; Lewicki et al., 2003). Because human characteristics often prevent achieving an optimal negotiation

outcome, researchers have long been attempting to automate the negotiation process to increase efficiency and quality (Sycara, 1990; Bichler et al., 2003; Wang & Chen, 2007; Lopes & Coelho, 2010; Baarslag et al., 2017; Schulze-Horn et al., 2020; Dinnar et al., 2021). Pactum's AI chatbot represents a significant example of automation efforts in negotiation. It employs a "value function" to conduct multiple autonomous, text-based negotiations simultaneously, with the goal of achieving mutual benefit for all parties involved (Dinnar et al., 2021).

## 2.2 Technology adoption

For new technologies to be effectively adopted, users must be willing to accept and engage with them (Davis et al., 1989). User acceptance forms the basis of the Technology Acceptance Model (TAM), which serves as the theoretical framework for this study (see Figure 1). It was developed by Davis et al. (1989) to understand factors impacting technology adoption. It has since been applied in many studies to investigate the adoption of AI across various sectors (Kelly et al., 2023).

The theoretical foundations of the TAM can be traced back to the theory of reasoned action (Fishbein & Ajzen, 1977) and the theory of planned behavior (Ajzen, 1991). These theories posit that behavioral intentions are influenced by attitudes and subjective norms, which in turn predict actual behavior. The TAM adapts these concepts specifically to technology adoption contexts. As stated by Davis et al. (1989), an individual's actual usage of a technology is predicted by their intention to use it. This intention is determined by the individual's attitude towards the technology, which is influenced by the perceived usefulness (PU) and perceived ease of use (PEOU) of the technology (Davis et al., 1989). Davis et al. (1989) defined PU as how much users believe using a particular technology will enhance their job performance and PEOU as how effortlessly users can adopt new technology. These two factors, PU and PEOU, have proven to be powerful predictors of technology adoption, with studies demonstrating their ability to explain up to 40% of the variance in adoption behavior (Lee et al., 2003). In the context of AI adoption in procurement negotiations, PU might relate to the perceived benefits of AI in improving negotiation outcomes or efficiency, while PEOU could refer to how easily procurement professionals believe they can integrate AI tools into their existing workflows. These factors are particularly relevant to this study, as they directly influence the likelihood of AI adoption in procurement negotiations.

While the Technology Acceptance Model (TAM) was chosen as the primary theoretical framework for this study, it's important to address why it was selected over other relevant frameworks. Several models have been developed to explain technology adoption and usage, each with its own strengths and focuses. The Diffusion of Innovation (DOI) Theory (Rogers, 2003) focuses on how, why, and at what rate new ideas and technology spread. While useful for understanding adoption at a broader societal level, it lacks the specific focus on individual acceptance that TAM provides, which is crucial for this study of procurement professionals. The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) combines elements from multiple models, including TAM. While comprehensive, its complexity (with numerous constructs and moderating variables) makes it less suitable for this focused study on AI in procurement negotiations. The Technology-Organization-Environment (TOE) Framework (Tornatzky & Fleischer, 1990) considers technological, organizational, and environmental contexts influencing adoption. While valuable for organizational-level analysis, the Technology-Organization-Environment (TOE) Framework does not provide the individual-level insights necessary for understanding procurement professionals' acceptance of AI. The Task-Technology Fit (TTF) model (Goodhue & Thompson, 1995) focuses on how well technological capabilities match task requirements. Although relevant, it does not explicitly address perceptions of ease of use and usefulness, which are central to the research questions of this study.

TAM was selected over these alternatives for several reasons. For one, it offers a balance between explanatory power and simplicity, making it well-suited for a focused study on the core factors influencing AI adoption. Additionally, its individual focus directly addresses individual perceptions and intentions, which aligns with the research aim of understanding the acceptance of AI in procurement. Furthermore, its flexibility allows for the inclusion of additional variables, such as trust and technological readiness, and other context-specific variables that are crucial for understanding AI adoption in a negotiation and procurement context (Choung et al., 2023; Kelly et al., 2023). Finally, the extensive validation of TAM to investigate the adoption of AI across various sectors (Kelly et al., 2023) provides a solid foundation for this research. This study examines AI adoption in procurement negotiations through the lens of TAM, while remaining open to identifying additional factors specific to this context.

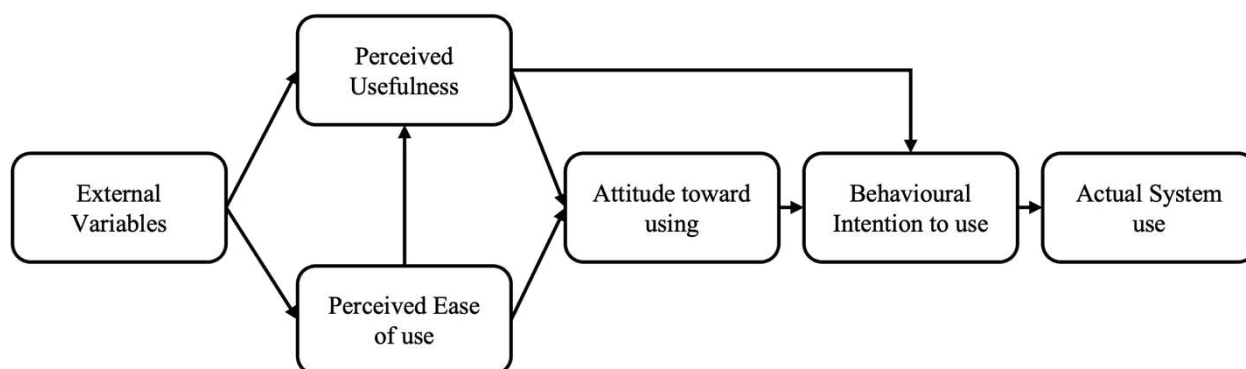


Figure 1: Technology Acceptance Model based on Davis et al. (1989)

### 2.3 Benefits of AI in negotiations in the literature

One key benefit of using AI in procurement negotiations is increasing the efficiency of the negotiation and reducing costs for the purchased goods. Early research in the automation of negotiations already advocated that AI could improve the efficiency of negotiations by automating repetitive tasks and reducing errors (Sycara, 1990). More recent studies confirm this as AI enhances negotiations by enabling companies to engage with more suppliers simultaneously (Baarslag et al., 2016; Gao & Qian, 2022), maintaining endurance throughout prolonged negotiations (Gao & Qian, 2022), and leveraging extensive market intelligence to secure better pricing from suppliers (Cui et al., 2022). Implementing AI in supply chain management also enhances operational efficiency, reduces costs and errors, and increases customer satisfaction (Hangl et al., 2022). AI-powered negotiation software Pactum has enabled major retailers such as Walmart to achieve 3% cost savings on average per negotiated supplier deal, closing agreements with 68% of suppliers (Van Hoek et al., 2022). Furthermore, AI is not subject to the influence of human emotions and can learn during negotiations to enhance its performance in future negotiations (Fu et al., 2023; Gao & Qian, 2022).

According to Dell'Acqua et al. (2023), employees who used Open AI's GPT-4 have seen a 40% higher task completion rate and 25.5% increased speed per task while enabling 12.2% more tasks to be completed. Allal-Chérif et al. (2021) found that AI tools like Silex could reduce procurement time for simple purchases by up to 90% while maintaining or improving supplier satisfaction levels, indicating that AI accelerates procurement processes without compromising quality. Notably, Dinnar et al. (2021) reported that suppliers preferred interacting with AI negotiators over having no negotiation opportunities at all, citing the AI's clarity, speed, and politeness as advantages.

AI can significantly enhance human cognitive capabilities in negotiations by providing comprehensive data analysis (Guida et al., 2023), such as accurate price prediction (Liu & Zheng, 2020), facilitating multi-goal strategy development (Schulze-Horn et al., 2020), and enabling real-time strength-weakness assessments (Lopes & Coelho, 2010). This allows negotiators to make more informed strategic decisions previously limited by bounded rationality (Simon, 1997; Vincent, 2021). Companies such as Pactum, Levadata, Oracle, and Icer-tis offer solutions for negotiation preparation and assistance, which gather information from external sources, create supplier profiles, and provide real-time recommendations and strategies to human negotiators (Guida et al., 2023; Dinnar et al., 2021). Moreover, AI has made people negotiate more ethically, leading to fairer outcomes (de Melo et al., 2016).

#### **2.4 Limitations of AI in negotiations in the literature**

According to the literature, several aspects limit the effectiveness of AI in negotiations. De Melo et al. (2016) observed that individuals are inclined to propose less favorable offers when dealing with AI than direct human interactions. The researchers also noted a sense of psychological detachment between human participants and AI systems, which could undermine cooperation and decision-making. Due to ethical issues and technical restrictions, AI currently lacks social and emotional intelligence, which significantly limits the effectiveness of AI as they are crucial in negotiations (Gao & Qian, 2022; Vincent, 2021). These limitations further restrict AI's ability to understand subtext in communication (Gao & Qian, 2022), to make intuitive decisions with limited knowledge (Vincent, 2021), and to determine the relative importance of information to different parties in a negotiation (Gao & Qian, 2022). Researchers found that AI negotiation systems are prone to bias and inflexibility in adapting to new information due to limitations in their training data (Gao & Qian, 2022; Liu & Zheng, 2020; Vincent, 2021). Furthermore, Liu and Zheng (2020) found that the complexity of negotiations with multiple parameters can lead to inaccuracies in AI predictions. Considering these limitations, Gao and Qian (2022) argue that currently, fully automating negotiations with AI remains challenging, which could potentially undermine the anticipated labor-saving benefits of AI adoption.

#### **2.5 Barriers to AI adoption in the literature**

In the emerging research on barriers to AI adoption in negotiations, Baarslag et al. (2017) cite trust issues and technical hurdles to make AI understand human intention and make

long-term decisions. Voeth et al. (2023) identified six ethical issues of using AI in negotiations: fairness, openness, privacy, accountability, avoiding harm, and doing good. The researchers stress that company leaders must establish ethical guidelines for AI use in negotiations and recommend the creation of easy-to-follow checklists to ensure these principles are followed (Voeth et al., 2023).

In related fields, researchers identified additional AI adoption barriers: lack of explainability, data security issues, organizational challenges, insufficient employee skills, job displacement fears, and concerns about isolated work environments (Ahmad, 2024; Cadden et al., 2022; Hangl et al., 2022; Ulrich & Frank, 2021; Zhang et al., 2023).

Research across fields reveals common barriers to AI adoption: technical issues, human factors, organizational readiness, and ethical concerns. This study examines how procurement professionals perceive potential barriers to AI adoption in negotiations, revealing nuanced insights into challenges specific to this context.

## **2.6 Enablers of AI in negotiation in the literature**

While this paper focuses on AI in negotiations, the limited research in this area necessitates extending the insights from related fields such as supply chain management and production systems. Studies in the context of supply chains (Cadden et al., 2022; Dora et al., 2022) and production systems (Merhi & Harfouche, 2024) identified technology readiness (i.e., technical skills and infrastructure) as the most critical enabler. Organizational factors such as top management support, cross-functional collaboration, and sufficient finances are key enablers of AI adoption (Cadden et al., 2022; Merhi & Harfouche, 2024). Dora et al. (2022) ranked environmental and institutional factors second in importance for food supply chains, with peer and competitive pressure as key drivers. Merhi and Harfouche (2024) identified regulations and laws as the most significant environmental enabler in production systems.

Furthermore, the adoption of AI is also significantly influenced by human and cultural factors. In their study, Dora et al. (2022) identified human aspects as the third most important factor in food supply chains, with enhanced customer satisfaction as a critical subfactor in accelerating adoption. Cadden et al. (2022) emphasized the significance of cultural enablers, namely the promotion of a data-driven culture that prioritizes decision-making on data above intuition.

### 3 METHODS

The prevailing research methodologies are quantitative, qualitative, or combined approaches (Mulisa, 2022). This study employs a qualitative approach utilizing semi-structured interviews and thematic analysis for three main reasons. Firstly, analyzing AI's impact in negotiations requires understanding complex, evolving contexts, achievable through exploratory qualitative research (Grzeszczyk, 2018; Mulisa, 2022). Secondly, interviews reveal nuances that other methods, such as surveys, cannot capture (Grzeszczyk, 2018). Lastly, a qualitative approach emphasizes understanding experiences and processes in AI integration for negotiations rather than just quantifying results, which would be challenging due to the subjectivity and complexity of negotiation outcomes (Langenegger & Ambühl, 2018; Mulisa, 2022). In short, qualitative research methods, mainly interviews, are suitable for this study as they enable a comprehensive understanding of AI's diverse impacts on negotiations.

#### 3.1 Sample selection

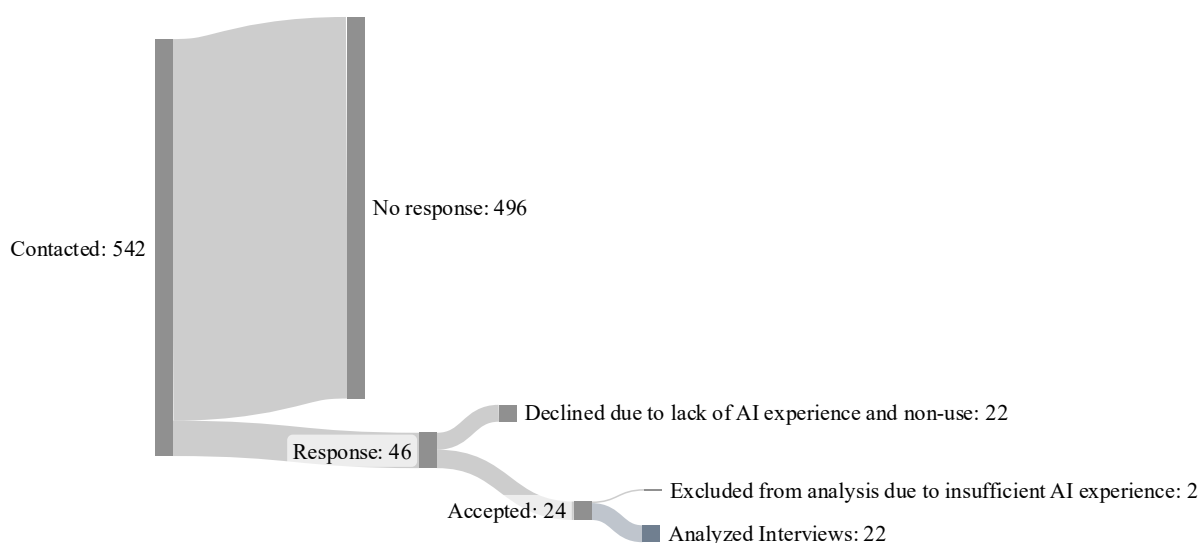


Figure 2: Sankey diagram of sample selection process.

The study involved contacting 542 interviewees via LinkedIn (529) and through the professional network of the researcher (13). As seen in Figure 2: Sankey diagram of sample selection process. 46 individuals responded, out of which 24 agreed to participate in the study. Due to the scarcity of AI-negotiation experts and low response rates (Baker et al., 2013), non-probability sampling methods were employed, including purposive, convenience, and

snowball sampling. Interviewees were selected using purposive sampling based on having at least two years of procurement/negotiation experience, hands-on experience with digital tools, and experience applying AI in procurement/negotiation or private familiarity with AI technologies. Additionally, the participants were selected by convenience sampling based on availability and by snowballing on participant referrals (Vehovar et al., 2016). Two interviews were subsequently excluded from the analysis due to the interviewees' lack of experience with AI. As a result, interviews with 22 procurement managers and negotiators were analyzed, who indicated some level of AI knowledge, interest, or experience, even if they were not currently using AI in their negotiations. The final sample is comprised of a diverse international group from five countries with 3-33 years of experience across various industries and company sizes (see Appendix A).

### **3.2 Data collection**

Semi-structured interviews were conducted to gather qualitative data, with the goal to obtain a comprehensive understanding of the factors influencing AI implementation in negotiation processes. To overcome geographical and temporal constraints and allow for communication with facial expressions, interviews were conducted digitally via video platforms (Zoom and Microsoft Teams). Each interview lasted between 30 and 70 minutes and was recorded and transcribed for further analysis.

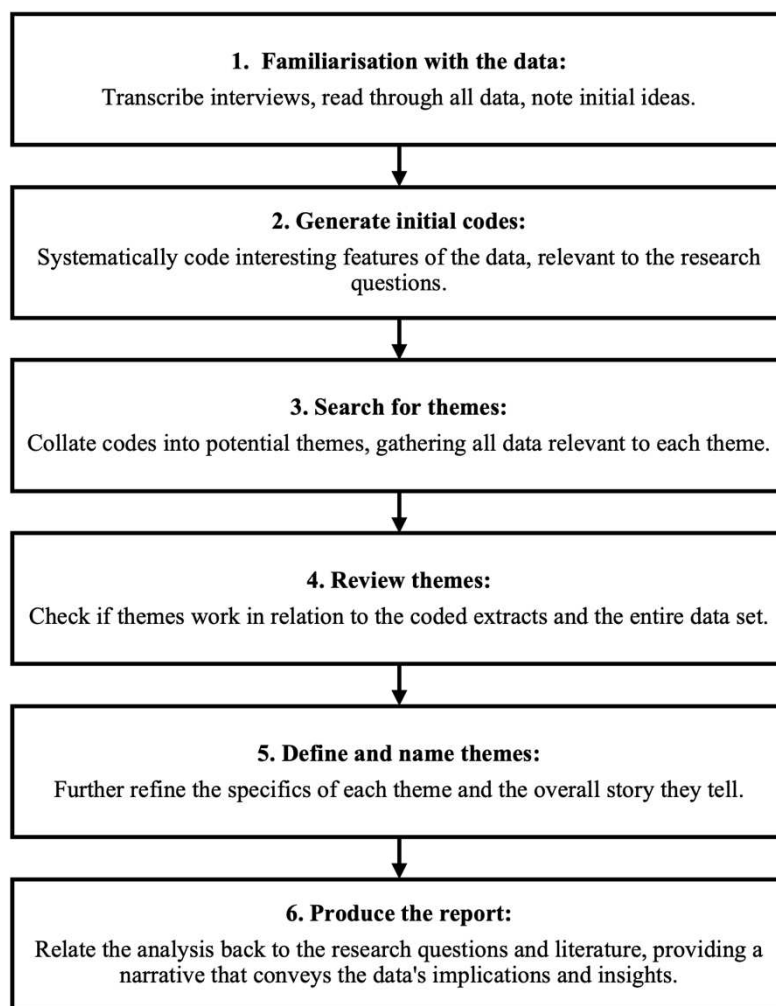
As typical in qualitative information system research (Myers & Newman, 2007), semi-structured interviews with open-ended questions were conducted using a guide (see Appendix B), which ensured consistency and allowed for flexibility in follow-up questions to gain a more profound exploration in this qualitative study (Kallio et al., 2016; Saunders et al., 2009).

During data collection and analysis, names and other identifying information were anonymized to protect participants' privacy. The study was voluntary, and participants were informed about the research objective and methods.

### **3.3 Data analysis**

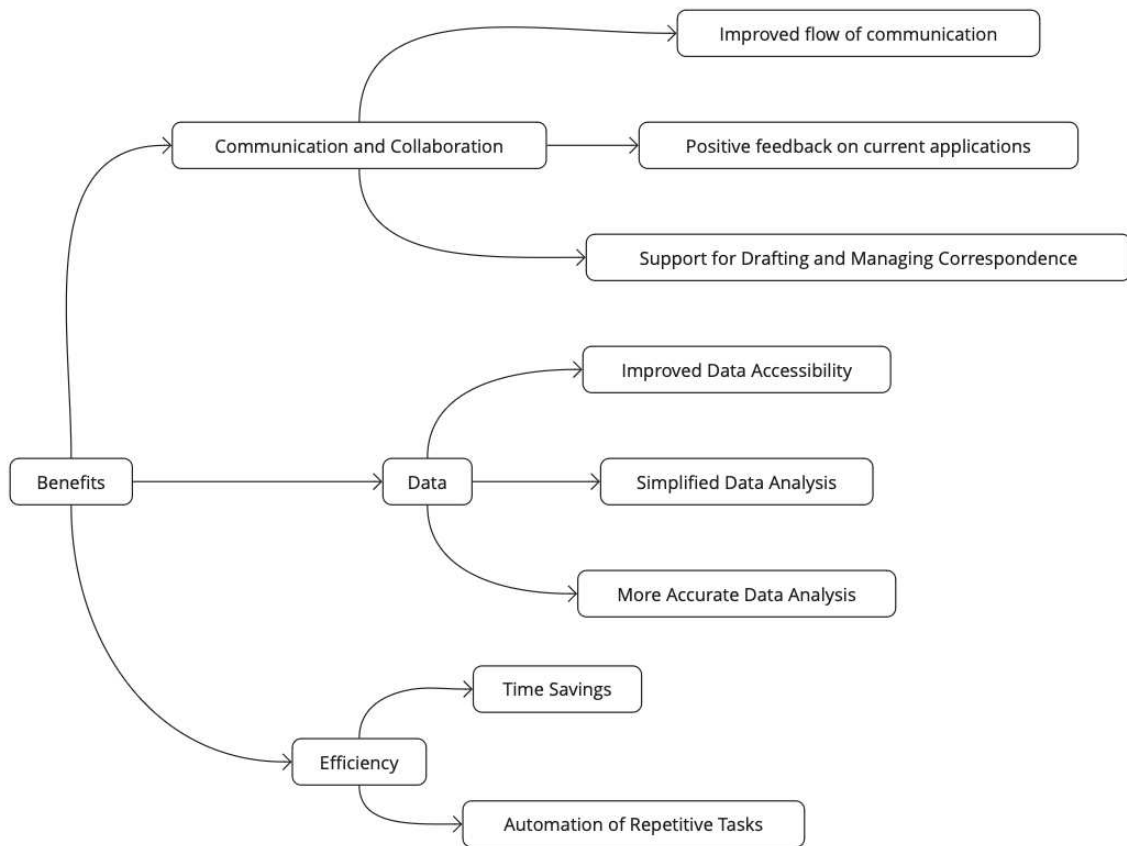
Given that the researcher's understanding of the subject matter evolved continuously throughout the study, thematic content analysis, as defined by Braun & Clarke (2006), was employed to identify themes within the data. This method enables a detailed analysis of participants' experiences and perspectives (Braun & Clarke, 2006), making it well-suited

for exploring the intertwined relationships between AI and negotiations. The data was examined using the six-step process outlined by Braun & Clarke (2006) (see Figure 3).



*Figure 3: Six-step process for thematic analysis based on Braun & Clarke (2006)*

During coding the data, the research focused on significant themes rather than frequency. A latent theme analysis with a constructionist perspective was used, aligning with the subjective nature of negotiation outcomes (Langenegger & Ambühl, 2018). An inductive, data-driven approach was chosen for exploratory purposes, employing a rich thematic description to capture a wide range of patterns in this under-researched topic. Figure 4 shows an example of the coding process for benefits of AI in negotiations.



*Figure 4: Own example of themes during the coding process*

## 4 FINDINGS

### 4.1 How is AI Adopted in Negotiations?

#### 4.1.1 Current Use and Adoption of AI in negotiations

Despite the considerable advances made by AI technology in recent years and the growing awareness of its advantages among the general public, decision-makers remain hesitant to integrate AI into their negotiation processes. As noted in the methodology chapter, 24 out of the 46 responding procurement managers cited a complete lack of AI experience and non-use of AI in their procurement department.

Some companies have attempted to implement AI in negotiations but faced challenges. For instance, JB reported that his company discontinued projects to automate negotiations after several failed pilot projects: *“After the five cases at [company department name], which all failed [...] the decision was made to stop using Pactum.”* (JB)

However, there is a growing interest in using AI for negotiations. As one interview noted, *“I’m actually trying to engage AI way more in the way we are negotiating”* (LJ). Another participant observed that AI *“is currently becom[ing] more and more, [...] hot topic”* (DK).

Despite this interest, AI use is currently limited to specific contexts. It is *“mostly used for standard needs, products and services”* (PZ) and *“only used for online meetings”* (CH), not for on-site negotiations of larger contracts. Companies emphasize that they are *“not replacing ourselves with AI, but rather augmenting our own capabilities”* (NB).

#### 4.1.2 Use cases

With the growing interest, three interview partners reported piloting AI in negotiations, while 14 have already implemented use cases. The interviews discovered 26 different use cases for AI in negotiations. Out of those, the participants mentioned 15 implemented use cases, two piloted use cases and eleven potential use cases. Most interviewees reported implemented use cases in the preparation phase (12 participants) and analysis phase (four participants) of the negotiation. Only one participant has implemented full automation of the negotiation. (see Table 1).

Phase	Use Case	Implemented	Piloted	Potential
Preparation	Clarify and structure procurement requirements	TA		
	Support preparation of tender events	FF		
	Research and gather data from public sources	AH, DE2		
	Research past negotiations and offers			SG, DB
	Initial pricing	JB, DB		DE1, AH
	Draft requests for quotations (RFQs)		DK	
	Identify opportunities in complex portfolios	MN		
	Generate arguments and discussion guidelines	BP		
	Advise on post-RFQ strategies	MK		
	Create BATNA through competitive dialogue	TA		
	Simulate simple negotiation scenarios for training			SG, DB
	Draft polite and structured opening offer emails	SG, PR		
	Negotiation	Fully autonomous negotiations	TA	PZ, MN, LJ
Automate communication with suppliers		TA		
Provide real-time feedback on supplier proposals		TA		
Automated contract lifecycle management			JS	CH
Analysis	Transcribe negotiations	DB, CH, MK		
	Document negotiation agreements	DB, CH, MK		
	Behavioral analysis of negotiators			DB
	Analyze proposals with predefined criteria			PZ, NB, TA, EA
	Uncover hidden fees			PZ, NB, TA, EA
	Review contracts			JS, EA
	Risk assessment for supplier compliance	JS		
	Enhance transparency and prevent supplier fraud			DE2

Table 1: AI use cases in negotiations based on interview findings

### Preparation Phase

“I think you can use AI very well in your preparation [...] because the one who comes prepared is the one who wins that usually the case. Information is key and AI can really help you doing so.” (LJ)

Starting in the preparation phase, AI is already used to define the negotiation objectives. AI is used to clarify and structure the procurement requirements (TA) and to support the preparation of a tender event (FF). Furthermore, custom AI tools, like in-house ChatGPT variants, are used to research and gather data from public sources (AH, DE2). Interviewees suggest expanding this to include past negotiations and offers as potential data sources (SG, DB). To prepare the first opening offer, the interviewees piloted and implemented AI for initial pricing (JB, DB), implemented drafting structured emails (SG), and piloted drafting requests for quotations (RFQs) (DK). However, others view AI-driven pricing as a future potential rather than an immediate solution (DE1, AH). Upon receiving supplier proposals, interviewees mentioned using AI to set negotiation strategies, by identifying opportunities in complex portfolios (MN), generating arguments and discussion guidelines (BP), and advising on post-RFQ strategies (MK). TA uses AI *“to dialogue competitively with unlimited number of vendors to create a BATNA (best alternative to a negotiated agreement).”* (TA). Furthermore, SG and DB mentioned the potential use of AI for simulating simple negotiation scenarios to train negotiation skills.

### **Negotiation Phase**

There are also several use cases in which AI is used during the negotiation. Most use cases during the negotiation phase focus on exchanging information between procurement managers and the suppliers. While two participants still see fully autonomous negotiations in the distant future (PZ, FF), autonomous negotiations are already being tested by PZ, MN, and LJ. TA is one step further and has already implemented fully autonomous negotiations with AI. TA integrated sequential AI tools to automate the communication with the supplier and provide real-time feedback on the supplier's proposals. Despite the current inability of automated contract lifecycle management to facilitate the conclusion of transactions (CH, JS), pilot programs are underway to test its feasibility (JS).

### **Analysis Phase**

After the negotiation – in the analysis phase – AI is used to transcribe the negotiations and document the negotiation agreements (DB, CH, MK). Furthermore, DB suggests the potential deployment of AI for behavioral analysis through the examination of negotiators' gestural communication. It is also proposed that AI be employed for the analysis of proposals with predefined criteria or to uncover hidden fees (PZ, NB, TA, EA). JS and EA have addi-

tionally put forward the suggestion that AI be used for the review of contracts. In this context, JS is employing AI for risk assessment purposes, with a view to monitoring supplier compliance, while DE2 proposes the use of AI to enhance transparency and prevent supplier fraud.

## **4.2 How is AI perceived by Procurement Managers and Negotiation Experts for Negotiations?**

### **4.2.1 Perceived benefits**

When talking about their perception of AI for negotiations the interview participants mentioned that it enhances their communication, collaboration, efficiency, data management and data analysis.

#### **Efficiency**

*“The advantage is [...] a huge increase in efficiency. I don't have to search through 15 or 20 sources, I don't have to ask around, I get the information at the touch of a button.” (DE2)*

For many interview participants the main benefit of AI lays in efficiency gains, as they said *“it's a time saver” (PR)*. The time saving effect is largely reached through *“administrative and legwork [...] that can [...] be taken over by an AI” (AH)*. AI is also increasing the efficiency when automating simple negotiations with a low-spend suppliers:

*“I have a huge amount of suppliers with a very low average spend [...] if I would [...] have 1500 suppliers, about 1250 will not even be engaged [...] This is really the area where we want to extend the scope of our negotiations with AI.” (LJ)*

As LJ notes, AI enables them to negotiate with more suppliers than possible with humans, which would otherwise just be overlooked due to resource constraints. This could also lead to reducing the overall spend, improving the efficiency of the procurement process.

#### **Enhanced Communication and Collaboration**

Using AI in the negotiation has led to better communication and collaboration among procurement managers and with suppliers. Participants report that AI is supporting them in drafting and managing correspondence, and improved the flow of communication in the negotiation, which results in positive feedback on tools that use AI from both procurement and supply side.

Interviewees described the benefit that AI provides in drafting as *“not starting from the blank sheet” (DK)* to *“overcome this first hurdle” (SG)*, stating that the *“examples and*

*starting points*” (DK) provided by AI make it “*much easier and faster to get to the final product*” (DK). An interviewee that uses an AI transcription tool for negotiations claimed that the AI transcription tool “*facilitates the flow of language and simply makes the negotiation a little more efficient*” (CH). Because AI takes the repetitive work, such as transcribing and drafting, off the hands of negotiators, they can concentrate on what they want to say which improves the flow of the negotiation.

Through this improved negotiation flow, the implementation of AI can also encourage procurement managers and suppliers to collaborate in the negotiation, as AI’s use seems to be seen quite positive by the suppliers. Two participants (LJ, MN) refer to claims of negotiation AI provider Pactum, stating that the majority of suppliers prefer negotiating with a chatbot.

### **Improved Data Accessibility and Analysis**

According to eight interview participants, the use of AI in negotiations has greatly improved data management processes. AI impacts two main data related areas positively: access to data and analysis of data. AI technologies have streamlined the process of accessing and managing data. As one participant noted “*It’s easier to access contracts and information [with AI] than if I search through it manually.*” (JS). This improved access to data not only saves time but provides comprehensive insights which leads to better decision making.

Beyond accessibility, AI can be used to analyze complex and non-standardized data sets, which is especially valuable for negotiations where data often comes in different formats and contains nuanced information:

*“[AI] makes it easier to analyze non-standardized results. [...] And it’s difficult to read something like that with standard tools” (JS)*

*“You have a lot of unstructured data. If you would talk to vendors, you have a price [...] a number, but then a price always comes with nuances [...] for example as a service, [...] So with AI, a price can be comparable across the market.” (TA)*

These remarks seem to evidence that interview participants see the benefit of AI in facilitating to analyze data which would be challenging to evaluate manually. By using AI, data analyses can provide a more profound basis for decision-making.

AI does not only make it easier to analyze data, but it also increases the accuracy of results. Participant CH, who uses an AI transcription tool also reported a lower error rate compared to manual transcription, stating that “*with the tool, you have a higher degree of certainty*”

since they “*don't lose the thread so quickly*”. CH further added that the accurate transcripts generate by AI provide a “*record [...] in case there are [...] legal disputes.*”

Another participant mentioned AI's ability to learn and improve as a benefit:

*“The big advantage of ChatGPT is that you can imagine it as if we were having a conversation with an employee, you can also give the system feedback and it works quite well. [...] It also gains experience and gets [...] better. [...] The knowledge grows with it. [...] This algorithm [...] can also be updated again and again [...] So, this algorithm also develops.” (PZ)*

This shows that AI's capabilities are not set in stone from the start and that AI can develop the skills it needs for a task with sufficient training and feedback.

Regarding the accuracy, another interviewee highlights the rapid technological development in AI:

*“OpenAI increases the LLMs [Large Language Models] every time from 100 million data points to 100 billion or so. The increase was huge very quickly. The more data points, that's what I meant with the calculation tool, the more data points, the more accurate the values are in the end.” (JB)*

JB refers to the considerable and accelerated technological advancement observed in the development of LLMs, which serve as the underlying technology of many AI tools. This progress is accompanied by an enhancement in the precision and reliability of the analyses performed by the tools.

The integration of AI into negotiation processes offer significant benefits for procurement managers and negotiators. AI tools are enhancing efficiency and communication and provide deeper insight into data. AI not only streamlines operations but also enables the negotiators to focus on their strategy. The fast evolution of AI technology implies that its capacity to acquire knowledge and enhance itself indicates even more significant possibilities for future implementations. The positive feedback by both procurement managers and suppliers reacting after AI implementation shows that there is optimism towards wider adoption of AI in negotiations, which could transform the way businesses engage with their suppliers.

#### **4.2.2 Perceived limitations**

The interviewees' perception of AI in negotiations is not only positive. This research has also discovered several of AI's limitations, namely limited general scope of functionality, lack of human touch and relationship building, absence of creative problem solving and generic output.

### **Limited scope of functionality compared to expectations**

Many interviewees reported that they were disappointed by unmet promises from the AI providers:

*“The software manufacturer promised us a high school graduate. [...] what we got was a kindergarten child. [...] the artificial intelligence [...] was not at all suitable for conducting a serious negotiation.” (SG)*

Participants criticized that AI is seen as a universal tool which results in the neglect of thorough preparation and comprehensive process improvements.

### **Generic Output**

AI was also often criticized by participants for its generic output:

*“[AI] gives me a lot of information that I can't really use at the negotiation table. The responses I get are very general in nature, not like tangible arguments to justify a certain position. Not Yet.” (BP)*

In this regard, BP added that “[AI] doesn't work in the gray area” because “it's not built to give their own thoughts, [...] or to infer things”. These remarks suggest that AI still lacks capabilities in decision-making, which is crucial for successful negotiations.

### **Risk of false output**

According to interviewees, another limitation of AI is its tendency to generate false outputs. When hallucinations occur (PR), it means that AI “will just make up” (NB) information that is not in the training data and present “strange results” (JB) as a fact. In the end, the AI results always require some manual verification and error checking.

### **Limitations in Handling Complex Negotiations**

AI systems face significant difficulties when dealing with complex, non-standardized negotiations. These limitations stem from the unpredictability of negotiations when dealing with multiple parameters, especially in high-stake, strategic negotiations. For some participants, AI can only be used for standardized goods or services in non-strategic segments.

*“If you are negotiating goods or services in a strategic segment [...] I do not see how we can input AI on that because there are a lot of variables [...] But for segments with low risk and high economic importance, you can simplify and automate.” (EA)*

Another participant observed that the negotiating bot they tested lacked the ability to enhance leverage from simultaneous negotiations and could not generate a BATNA from it. Therefore, further advancements are necessary for AI to be able to handle negotiations reliably.

### **Lack of creative problem-solving**

Another limitation frequently mentioned is AI's lack of creativity in problem-solving. In particular, CH and PR noted that AI cannot "enlarge the pie" (AH) or provide a win-win solution for both negotiation parties:

*"And you reach some point of an understanding. For example, okay, I'll pay you a little bit less. But for example, we allow marketing considerations, or we do a case study with you, or we do a balance of trade agreement or 20 different other things that the human will think of. But an algorithmic, non creative AI never will. [...] If you have two LLMs talking to each other [...] they will never reach a deal because they are an algorithm [...] There is no creativity whatsoever." (PR)*

### **Inability to read between the lines**

Another limitation impacting the decision-making capabilities of AI is its inability of psychologically understanding the negotiation counterpart.

*"In [negotiations], there's a lot of signaling that goes on back and forth that is below the surface." (CK)*

*"To know when the sales counterpart is reaching his limits [...] But that is more of a feeling [...] which I cannot prove or validate with data support [...]." (DB)*

*"If you put an AI in there, it will probably work well objectively. But [...] the AI doesn't read the vibes like that either. So you have to approach each vendor a little differently, which is logical. And I think you just need that human factor." (NB)*

The interviewees state that human intuition cannot be translated into data and, as a result, cannot be replicated by AI.

### **Loss of personal relationship**

AI in negotiations can significantly affect the personal relationship between procurement managers and suppliers. Managers worry about losing emotional connections:

*"[If] you then only start communicating via artificial intelligence, then every emotion and every passion is ultimately gone [...] And that may even end up ruining the relationships you have with companies." (SG)*

Human skills remain crucial for relationship-building in negotiations, particularly when dealing with conflicts:

*"[AI in negotiations] would perhaps be a bit more efficient, but [...] when things aren't going so well, you often don't get anywhere with such a super rational approach. So you [...] have to do relationship work" (SG)*

Using AI can also lead to a loss of authenticity:

*"You can still sniff it from a mile away [...] It's written by an AI [...] sellers don't exactly enjoy talking to an AI with my name on it. They prefer to talk to me." (PR)*

This deterioration of relationships could negatively impact negotiation outcomes:

*“If you get to a salesperson that recognizes you’re actually talking with an AI [...] you’re losing that relationship [...] can also be detrimental to [...] your chances to discount.” (AH)*

In conclusion, the limitations of AI in negotiations stem from concerns about output reliability and its inability to fully replicate human skills like creativity, intuition, and relationship building.

### **4.3 What factors influence the adoption (diffusion and implementation) of AI for Negotiations?**

#### **4.3.1 Perceived barriers**

In the interviews this study identified a wide range of barriers to the implementation of AI, including a general aversion, ethical concerns, and specific technical challenges.

#### **Reluctance and Lack of Trust**

Before even considering implementing AI into the negotiation process decision makers need to be aware of potential tools. Six participants, including DE1, admitted that a lack of awareness and knowledge about specific AI tools for negotiations:

*“It’s probably more a lack of knowledge. I could imagine that there is guaranteed potential there. Yes, there are already some tools. We probably don’t know about them yet. I assume that’s the main reason why we’re not using AI yet.” (DE1)*

While a considerable proportion of respondents indicated that they perceive general potential in AI, a subset expressed skepticism, such as SG, who has tried some AI negotiation tools, is concerned that *“a hype is being built up for what doesn’t really work, at least not today”*. MK also raised concerns about AI authenticity and questioned *“how much AI is really behind it”*, when evaluating new AI tools. Experts like LJ doubt AI’s reliability in critical negotiations, refusing to *“risk doing anything with an AI bot”* for important, high-volume purchases.

Additionally, resistance against AI may originate from a fear of change in the responsibilities of procurement managers. CK and AH observed that AI is perceived as a threat to preferred tasks by procurement managers:

*“From a buying side. I hear a lot of resentment against [AI] because they say, well, it takes away my creative element [...] And what I see, a lot of people consider themselves an expert in negotiation and that’s what they like in their job. Are they willing to give that, you know, fun part of the job, away to a piece of equipment?” (CK)*

The resistance is further fueled by concerns “that their jobs would be replaced” which took “*some time to convince them*”, as MN recounted. Some participants feel “*very strong job security as a procurement negotiator*” (PR), viewing AI as support rather than a replacement. LJ addressed job replacement concerns emphasizing that AI “*should not replace, it should make people more efficient*”.

AI adoption in negotiations is low partly because decision-makers see other use cases as “*more relevant*” (PZ). Implementation in negotiation is often “*not a priority*” and only seen as a “*capacity issue*” (MK). For many, negotiations are infrequent and only “*a very small part of a much larger value chain*” (CK).

### **Ethical Concerns**

Ethical concerns about AI adoption in professional settings fall into two main categories: societal implications and fairness. JB highlights societal changes:

*“The world of work will change completely. [...] There is hardly anyone who says that when AI has taken over completely, everyone will be better off.”*

Regarding ethical standards, SG noted:

*“I never lie to my suppliers. [...] But artificial intelligence, as it exists today, does exactly that.”*

DB raised concerns about competitive advantage and manipulation:

*“Whoever uses the latest technology, or the better AI always has the advantage” and “How can I then negotiate with someone who also provides this technology?”*

However, opinions vary. Some participants expressed no ethical reservations, with BP stating: “*If I'm more prepared than the person I'm negotiating with, then that's not my fault.*”

### **Data-related Challenges**

Data challenges in AI negotiations relate to quality, quantity and security.

Collecting appropriate data is difficult: “AI works [...] only on data [...] personalized to the problem” (TA). This is especially challenging for complex negotiations:

*“I've been doing it for ten years and have worked on hundreds of cases, [...], I can't say that two were completely identical. [...] Where are you going to get the large number of cases that would be necessary for an artificial intelligence to come to valid conclusions?” (SG)*

Smaller companies struggle with data quantity: “*Comparing with the other big players [...] we are maybe 20 times smaller [...] our data is not so extensive as theirs.*” (PF)

Security concerns include data privacy and confidentiality: *“This is also what prevents many people [...] from saying that we provide data that is then ubiquitous or available within these chat GPTs”* (DB).

To mitigate potential security risks, companies are establishing AI guidelines: *“There are the [company name] Gen AI guidelines [...] Then there are the regulations of the European Union [...] which must be adhered to”* (JS). Overcoming these data-related challenges requires careful planning, robust data collection and taking measures to protect sensitive information.

### **Preference for face-to-face negotiations**

Preference for face-to-face negotiations and human decision-making hinders AI adoption in negotiations. Many professionals emphasize the importance of in-person interactions:

*“Many price negotiations are discussed face-to-face, not via teams”* (DEI).

*“I want to negotiate face to face and not through a screen like this, because I can only grasp 15% of what really happens around you. So what your body language says, what you're doing, how you are behaving [...] those are all signals in the negotiation”* (CK).

Human involvement remains crucial, particularly regarding responsibility and decision-making authority:

*“At some point, someone has to make a nomination decision. [...] And now the question is, who makes that decision?”* (MK).

This quote raises important questions about accountability when AI is involved in negotiation and decision-making.

### **4.3.2 Perceived enablers**

As the adoption of AI is still in its early stages, there are only few successful AI implementations of AI in negotiations. However, this research identified several potential enablers and practical tips that could facilitate implementation in the future. It's important to note these enablers are often the inverse of existing barriers and are based on limited successful implementations or expert projections.

#### **Data Availability and Quality**

Since the training of AI requires large amounts of high-quality data, PF noted that large multinational companies with high data quantities are better positioned for AI adoption than

smaller companies. On the other hand, clean and well-organized data facilitates quicker AI setup with accurate results, as NB explained:

*“The [AI-] system had a large part spot-on straight away. It was good that the data was so clean beforehand.” (NB)*

### **Low-Risk and Simple Negotiation Scenarios**

According to findings, the current state of the relationship and the complexity of the negotiated product or service influence the adoption. Implementation of AI is most successful when applied to standardized products, such as commodities (NB, FF, JS). Additionally, the implementation is facilitated by negotiation scenarios characterized by

1. low continuity in transactions, resulting in minimal existing relationships between procurement and vendor (LJ),
2. low negotiated volumes (LJ, PR),
3. and high purchasing power of the implementing party over their negotiation counterpart prior to AI implementation (JS).

These conditions mitigate the risk of a potential unfavorable impact on the outcome of negotiations due to a possible deterioration in the relationship after AI implementation.

### **Tips for Implementing AI in Negotiations**

The respondents provided several recommendations for firms to consider while implementing AI. Firstly, it is crucial that companies should actively inform themselves about AI potential and use cases to stay prepared (PZ). Secondly, human interaction should be always provided as a fallback option when AI fails to reach a satisfactory negotiation result (LJ). Thirdly, human oversight of AI decisions should be ensured, particularly those pertaining to financial matters (CK). Finally, to guarantee that humans possess the necessary competencies to oversee AI-driven decisions, it is essential to ensure that human skills are continuously developed in parallel with technical advancements (SG).

## 5 DISCUSSION

In the following chapter, the findings are interpreted through the lens of the Technology Acceptance Model and compared with existing literature to derive contributions to research (see Figure 5 for an overview).

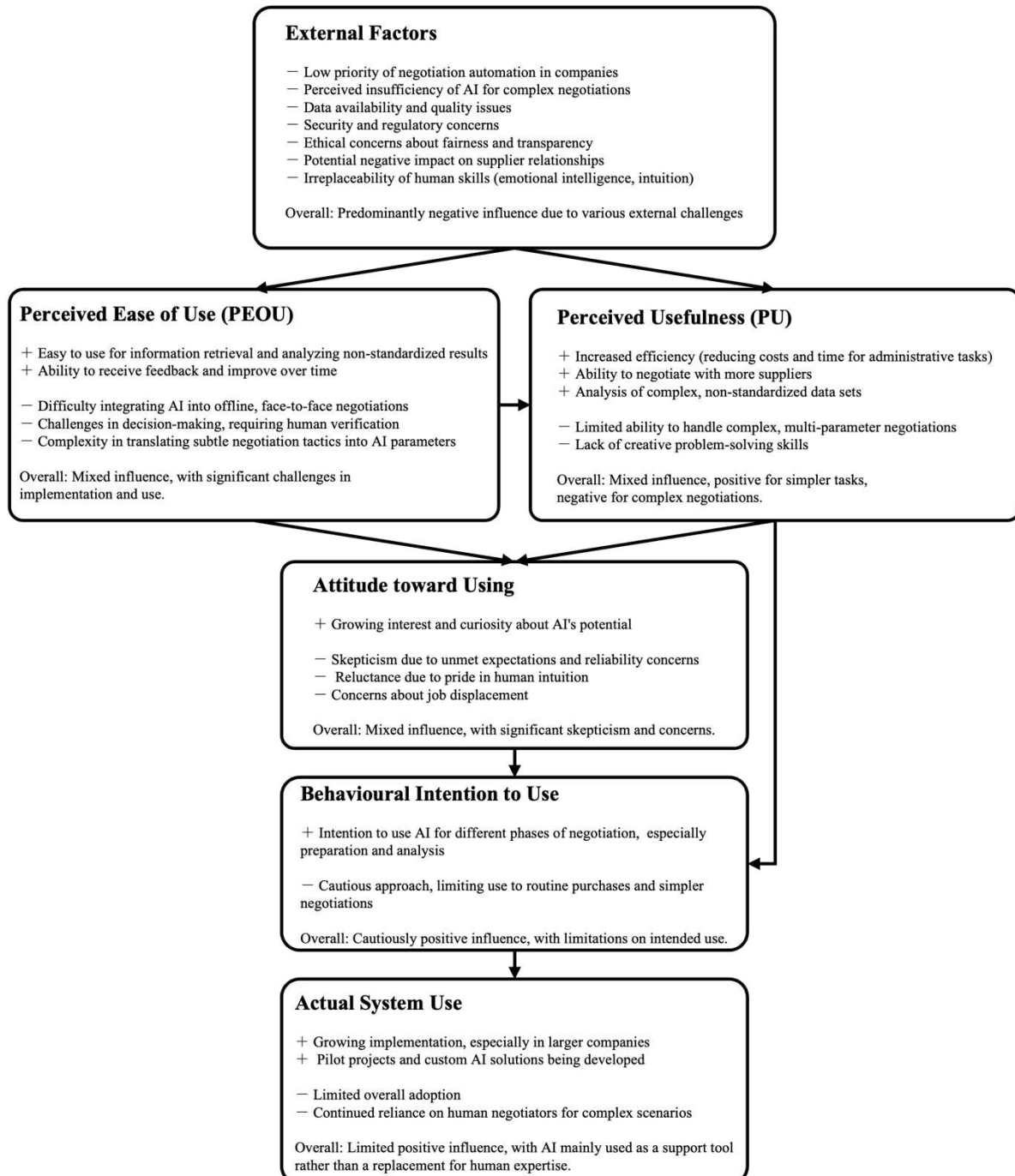


Figure 5: Interview findings adapted to the Technology Acceptance Model by Davis et al. (1989)

## 5.1 Synthesis of Novel Findings and Contributions to the Literature

This study contributes to the existing literature on AI adoption by providing new insights specific to the context of procurement negotiations. By offering a first in-depth exploration into the current use of AI among procurement managers, the research reveals that AI is presently scarcely implemented in the context of negotiations. In those instances, where AI is utilized, it is predominantly employed for activities surrounding the negotiation process rather than for automating the negotiation itself. The study identifies negotiation frequency and complexity as key factors influencing AI adoption, thereby extending the existing research on general technology adoption factors. However, challenging the current literature's prevailing optimism about AI's negotiation capabilities, this work demonstrates that procurement managers doubt AI's ability to conduct truly complex, multi-parameter negotiations. According to the findings, trust in AI negotiation systems is undermined by unmet expectations regarding AI performance and skepticism arising from vendors overpromising AI capabilities. In addition to the trust issue, the interviews highlight unique implementation challenges, particularly in integrating AI with face-to-face negotiations. Additionally, the research finds that procurement managers are therefore hesitant to delegate the negotiation process to AI because they enjoy the personal interaction in negotiations.

## 5.2 External factors

Several external factors emerged from the interviews that impact the perceived usefulness and ease of use of AI which in turn influence attitude towards, intention and adoption of AI in negotiations.

The participants indicated that the **frequency of negotiations** influences the adoption of AI. This is a new factor not previously identified in the literature on AI in negotiations. Several interviewees indicated that their company currently prioritizes the introduction of AI in other areas over negotiation. In these cases, it was argued that negotiations occur with minimal frequency, perhaps only once a month or once a year, which puts these company not in a position where the use of AI for negotiations is a necessity. This finding suggests that AI adoption in negotiations may be more likely in contexts with higher negotiation volumes.

Interviewees mentioned that the **degree of complexity of the negotiation** impacts adoption, as they perceive current AI capabilities as insufficient for high-stake negotiation with

multiple parameters. To take an example, the price and conditions of a contract for the purchase of an individualized software or a consulting service are dependent on more variables than is the case for the purchase of commodities.

The **availability and quality of data** emerged as a key factor. On one hand, this study found challenges in gathering enough data for AI training, especially for small companies with limited number of transactions. On the other hand, the availability of clean and structured data was mentioned as a success factor facilitating AI implementation. This study confirms earlier findings that data quality and availability influence AI adoption (Cadden et al., 2022; Dora et al., 2022; Fu et al., 2023; Merhi and Harfouche, 2024).

The interviewees highlighted **security and regulatory concerns** regarding the use of AI, since negotiations often contain sensitive information. Additionally, **ethical concerns** limit procurement managers' AI use in negotiations. They fear AI may create unfair market conditions and deceive suppliers due to its lack of transparency in decision-making. The findings on ethical and security concerns confirm prior research on AI (Ahmad, 2024; Dinnar et al., 2021; Hangl et al., 2022; Voeth et al., 2023; Zhang et al., 2023).

The **relationship with suppliers** was described as a critical factor. Several procurement managers have received favorable feedback from suppliers regarding the implementation of AI, aligning with existing research that indicates AI enhances supplier satisfaction (Allal-Chérif et al., 2021; Dinnar, 2021), which is comparable to improved customer satisfaction (Dora et al., 2022; Hangl, 2022). Other participants, however, worry about negative effects on emotional connections and authenticity in supplier relationships and reported discontinuing implementation after they lost suppliers due to the use of AI. This concern is supported by research indicating that humans tend to make less favorable offers to AI than to other humans (De Melo et al., 2016). The interviews thus confirm that social acceptance and subjective norms influence technology use in negotiations (Pommeranz et al., 2012).

Finally, the interviews confirm findings that the **irreplaceability of human skills** in negotiations hinder AI adoption, especially emotional intelligence and intuition (Gao & Qian, 2022; Vincent, 2021). As these skills are essential for building relationships in negotiations, this reinforces the psychological distance found between humans and AI systems (De Melo et al., 2016).

### 5.3 Perceived usefulness (pu)

While external factors shape the environment for AI adoption, the perceived usefulness of AI directly influences users' attitudes and intentions. The interviewees perceive AI as useful regarding increasing **efficiency**, by reducing costs and time for administrative tasks (Sycara, 1990; Baarslag et al., 2016; Gao & Qian, 2022) and enabling negotiation with a larger number of suppliers (Baarslag et al., 2016; Gao & Qian, 2022). The interviewees highlighted AI's usefulness to **analyze complex, non-standardized data sets**, which aligns with prior research (Guida et al., 2023; Liu & Zheng, 2020). However, while the literature suggests AI can enhance decision-making and strategy development (Guida et al., 2023; Schulze-Horn et al., 2020), the procurement professionals questioned AI's ability to handle complex, multi-parameter negotiations and noted that AI **lacks creative problem-solving skills**.

### 5.4 Perceived Ease of Use (PEOU)

Beyond its perceived usefulness, the ease with which AI can be implemented and operated also plays a crucial role in its adoption. Multiple interviewees reported positively about AI's ease of use. The participants found that it is easy to use AI for information retrieval, analyzing non-standardized results, drafting communication at the *"touch of a button"*. This finding is consistent with the conclusions of Davis et al. (1989), who demonstrated that the design features of user interfaces are correlated with ease of use. Another factor that emerged from the interviews is the ability of AI to receive feedback and to learn and improve over time, a finding that is also reported in prior research (Gao & Qian, 2022). This could contribute to increased ease of use because as negotiators experience more tailored output, they perceive the system as easier to use because it meets their needs more precisely.

However, participants also reported factors impeding AI's ease of use. A significant challenge highlighted by some participants is the difficulty in integrating AI systems into offline, face-to-face negotiations. Since many negotiators prefer in-person interactions, the challenge lies in creating effective interfaces for input and output that can seamlessly bridge the digital information flow of AI with the physical presence of human negotiators. Furthermore, interviewees have indicated that AI systems frequently encounter difficulties when it comes to decision-making. Due to this lack of decision-making abilities, there is a necessity for human expertise to be integrated into the process, as participants have indicated a need

for manual verification of AI output, which further complicates the automation of negotiations through AI. The necessity for human skills in the process negatively impacts the ease of use, as other participants have reported the difficulty in translating subtle negotiation tactics into AI parameters. These findings extend prior research beyond technical barriers regarding the intricacy of setting up AI negotiations (Fu et al., 2023; Schulze-Horn et al., 2020), such as programming AI to fully understand complex human preferences and make decisions with long-term consequences (Baarslag et al., 2017).

### **5.5 Attitude toward using**

The perceived ease of use, combined with usefulness, contributes significantly to shaping the overall attitudes of users towards AI in negotiations. Similar to findings about the use of AI in academia (Currie, 2023), the interviews demonstrate a growing interest to use AI, including awareness of AI's potential and curiosity about its ability to improve negotiation outcomes. On the other hand, procurement managers expressed skepticism towards AI in negotiations, stemming from concerns about the technology's maturity and reliability which aligns with prior research on trust issues regarding AI in negotiation (Baarslag et al., 2017) and research that found change management and human acceptance significant barriers to AI adoption in supply chain management (Hangl et al., 2022). This study provides additional insights into the underlying causes of the trust issues that seem to originate from unmet expectations and exaggerated vendor claims, such as an AI that was supposed to have the skills of a “high school graduate” but turned out to have only those of a “kindergartener,” according to one interviewee. Furthermore, the interviews show that some negotiators are reluctant to use AI in negotiation because of their pride in their intuition and their skepticism about AI's ability to understand nuanced needs, which was also found by Guida et al. (2023) in the context of negotiation and discussed by Fountaine et al. (2019) in the context of customer relationship management. Several participants, though not all, raised concerns about job displacement due to AI, including role replacement, automation of core negotiation tasks they enjoy, and skill obsolescence as AI capabilities advance. These negotiation-specific insights extend the findings of Fountaine et al. (2019), who emphasized the importance of reassuring workers that AI will augment rather than replace their roles. While their research suggests that most workers will need to adapt to working alongside AI rather than being entirely displaced, the interviews reveal a more nuanced perspective in the context of negotiations, where participants fear the loss of personally fulfilling aspects of their work.

## **5.6 Behavioral Intention to Use**

These attitudes, whether positive or skeptical, directly influence procurement professionals' intentions to incorporate AI into their negotiation processes. The interviewed professionals intend to use AI cautiously for different use cases along all phases of the negotiation. However, most procurement managers currently see AI as more valuable in negotiation preparation and analysis than in automating the actual negotiation. Additionally, the study indicates that professionals perceive AI as suitable for automating routine online purchases and negotiations, but less so for strategic negotiations. These nuanced adoption intentions extend existing research, aligning with Pommeranz et al. (2012) who found that technology acceptance was lower when the negotiation opponent was perceived as more important, which would be the case in strategic negotiations. It also corresponds with Schulze-Horn et al. (2020), who question the universal acceptability of AI-driven decisions in purchasing, particularly for high-value and strategically significant transactions.

## **5.7 Actual system use**

While intentions provide insight into future adoption, this study provides practical novel insights into how procurement managers are currently implementing AI in negotiations, a topic not previously explored in depth. The interviews uncover that overall adoption of AI in negotiations is limited to the preparation and analysis phase of the negotiation with full automation only implemented in one instance. However, as these approaches have only recently been implemented, it is too early to determine concrete final project results at the time of this study. Pilot projects are growing, with experimental use of AI for specific tasks in low-risk negotiations and incremental expansion based on pilot results. It was also disclosed that companies created custom AI solutions for their unique negotiation needs. Nevertheless, participants indicated that they continue to rely on human negotiators for complex scenarios and use AI as a support tool, such as for drafting and analysis of offers, rather than as a replacement for human expertise. This aligns with Schulze-Horn et al. (2020), who suggest AI should complement human activities in purchasing, enhancing effectiveness without replacing human roles.

## **5.8 Managerial implications**

Taking into consideration the current available AI tools with their limitations they can be useful to improve efficiency in administrative tasks and data preparation before the negotia-

tion. Pilot projects and experimental use of AI in low-risk negotiations can be a suitable approach for gradual adoption. For complex negotiations, however, human expertise seems to be currently still in advantage to maintain the personal relationships between the buyers and sellers. As AI technology continues to evolve, it is important for practitioners to remain up to date on the latest developments in AI capabilities and applications. Periodic re-evaluation of AI integration strategies is also essential to ensure continued relevance and effectiveness. The introduction AI into negotiations has the potential to jeopardize supplier relationships. Therefore, evidence suggests exercising caution when supplier relationships are a significant factor in the negotiations to be automated. Especially the way in which suppliers are communicated to about the use of AI is of particular importance. By ensuring transparent communication of intentions prior to the implementation of AI, it is possible to identify potential supplier-side issues before they arise, thus enabling timely intervention or the finding of a mutually satisfactory solution.

## **5.9 Limitations and further research**

This study provided extensive insights into several areas of AI implementation in negotiations, including current adoption, use cases, perceived benefits, and barriers. However, it's important to note some limitations. The section on enablers and key success factors for AI adoption in negotiations may not have reached full theoretical saturation, as the findings in this section are less extensive compared to the other sections. This lack of saturation in enablers may be due to the early stage of AI in negotiation and the scarcity of successful implementations. Additionally, the sample size was limited to 22 participants due to the researcher's resource constraints, namely the fact that the elaboration of this thesis is limited in time. These constraints might have hindered expanding the research scope further to fully saturate all categories. Based on the findings, the following topics require further research:

1. Given the only moderate theoretical saturation about facilitating factors, more research might be needed to uncover additional enablers or success factors of AI in negotiations.
2. In this context, more studies can examine the effectiveness and technology acceptance of AI along the different negotiation phases, i.e. preparation, execution, and analysis.

3. Future AI research may focus on psychological aspects like emotional intelligence, intuition, and trust to find ways to overcome current negotiation-related limitations of AI.
4. Research could explore ways to effectively combine AI capabilities with human skills in face-to-face negotiations, since many negotiators prefer personal interactions.
5. Further investigations exploring ethical implications and potential biases would be necessary to better understand the effects of AI adoption in supplier relationships.

## 6 CONCLUSION

AI adoption in procurement negotiations is still in its early stages, with limited widespread implementation but growing interest and experimentation. The study reveals that while AI offers significant potential benefits in negotiations, including increased efficiency, improved data analysis, and enhanced communication. Its current application is primarily seen as most effective for simpler, standardized negotiations rather than complex, high-stakes scenarios.

Using the Technology Acceptance Model as a framework, the thesis identified that key factors influencing AI adoption in negotiations are negotiation complexity and frequency, availability and quality of data, concerns about security and ethics, and the relationship with suppliers. It emphasizes the importance of considering these factors when implementing AI in negotiation processes.

Despite the potential advantages, procurement professionals express concerns about AI's limitations, including its lack of creativity, inability to read subtle signals, and potential negative impacts on personal relationships with suppliers. As a result, there is a preference for using AI as a support tool in negotiation preparation and analysis rather than fully automating negotiations. The research also uncovers unique implementation challenges, particularly in integrating AI with face-to-face negotiations, and highlights procurement managers' hesitation to delegate the negotiation process to AI due to their enjoyment of personal interactions in negotiations.

Considering the findings, this research suggests a cautious approach to AI adoption in negotiations. Organizations may consider gradual implementation through pilot projects in low-risk areas, with periodic re-evaluation as AI capabilities evolve. Moreover, companies should place importance on transparent communication with suppliers about AI use and thorough evaluation of AI tools prior to incorporating them into their negotiation processes.

Looking ahead, further research could explore several areas: (1) additional enablers and success factors for AI in negotiations, (2) AI effectiveness across different negotiation phases, (3) psychological aspects like emotional intelligence and trust in AI negotiations, (4) ways to potentially combine AI with human skills in face-to-face negotiations, and (5) ethical implications of AI use in supplier relationships.

In conclusion, while AI shows promise in enhancing certain aspects of negotiations, its role remains largely supportive rather than transformative at this stage. The human element in negotiations continues to be highly valued, particularly in complex, high-stakes scenarios. As AI technology advances, its integration into negotiations will likely evolve, which requires ongoing adaptation and learning. This study provides a foundation for understanding and future research, offering both theoretical insights and practical guidance for the future of AI in negotiations.

## REFERENCES

- Adamopoulou, E., & Moussiades, L. (2020). An Overview of Chatbot Technology. In I. Maglogiannis, L. Iliadis, & E. Pimenidis (Eds.), *Artificial Intelligence Applications and Innovations* (Vol. 584, pp. 373–383). Springer International Publishing.  
[https://doi.org/10.1007/978-3-030-49186-4\\_31](https://doi.org/10.1007/978-3-030-49186-4_31)
- Ahmad, A. Y. A. B. (2024). Ethical implications of artificial intelligence in accounting: A framework for responsible ai adoption in multinational corporations in Jordan. *International Journal of Data and Network Science*, 8(1), 401–414.  
<https://doi.org/10.5267/j.ijdns.2023.9.014>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Allal-Chérif, O., Simón-Moya, V., & Ballester, A. C. C. (2021). Intelligent purchasing: How artificial intelligence can redefine the purchasing function. *Journal of Business Research*, 124, 69–76. <https://doi.org/10.1016/j.jbusres.2020.11.050>
- Baarslag, T., Kaisers, M., Gerding, E., Jonker, C. M., & Gratch, J. (2017). When will negotiation agents be able to represent us? The challenges and opportunities for autonomous negotiators.
- Baker, R., Brick, J. M., Bates, N. A., Battaglia, M., Couper, M. P., Dever, J. A., Gile, K. J., & Tourangeau, R. (2013). Summary Report of the AAPOR Task Force on Non-probability Sampling. *Journal of Survey Statistics and Methodology*, 1(2), 90–143.  
<https://doi.org/10.1093/jssam/smt008>
- Bichler, M., Kersten, G., & Strecker, S. (2003). Towards a Structured Design of Electronic Negotiations. *Group Decision and Negotiation*, 12(4), 311–335.  
<https://doi.org/10.1023/A:1024867820235>

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Brinch, M. (2018). Understanding the value of big data in supply chain management and its business processes. *International Journal of Operations & Production Management*, 38(7), 1589–1614. <https://doi.org/10.1108/IJOPM-05-2017-0268>
- Hendriksen, C. (2023). Artificial intelligence for supply chain management: Disruptive innovation or innovative disruption? *Journal of Supply Chain Management*, 59(3), 65–76. <https://doi.org/10.1111/jscm.12304>
- Cadden, T., Dennehy, D., Mantymaki, M., & Treacy, R. (2022). Understanding the influential and mediating role of cultural enablers of AI integration to supply chain. *International Journal of Production Research*, 60(14), 4592–4620. <https://doi.org/10.1080/00207543.2021.1946614>
- Choung, H., David, P., & Ross, A. (2023). Trust in AI and Its Role in the Acceptance of AI Technologies. *International Journal of Human–Computer Interaction*, 39(9), 1727–1739. <https://doi.org/10.1080/10447318.2022.2050543>
- Chui, M., Hazan, E., Roberts, R., Singla, A., Smaje, K., Sukharevsky, A., Yee, L., & Zimmel, R. (2023). *The economic potential of generative AI: The next productivity frontier*. McKinsey. <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/The-economic-potential-of-generative-AI-The-next-productivity-frontier#/>
- Crafts, N. (2021). Artificial intelligence as a general-purpose technology: An historical perspective. *Oxford Review of Economic Policy*, 37(3), 521–536. <https://doi.org/10.1093/oxrep/grab012>
- Cui, R., Li, M., & Zhang, S. (2022). AI and Procurement. *Manufacturing & Service Operations Management*, 24(2), 691–706. <https://doi.org/10.1287/msom.2021.0989>

- Currie, G. M. (2023). Academic integrity and artificial intelligence: Is ChatGPT hype, hero or heresy? *Preclinical*, 53(5), 719–730. <https://doi.org/10.1053/j.semnuclmed.2023.04.008>
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003.
- Dinnar, S. “Mooly,” Dede, C., Johnson, E., Straub, C., & Korjus, K. (2021). Artificial Intelligence and Technology in Teaching Negotiation. *Negotiation Journal*, 37(1), 65–82. <https://doi.org/10.1111/nej.12351>
- Dora, M., Kumar, A., Mangla, S. K., Pant, A., & Kamal, M. M. (2022). Critical success factors influencing artificial intelligence adoption in food supply chains. *International Journal of Production Research*, 60(14), 4621–4640. <https://doi.org/10.1080/00207543.2021.1959665>
- Fishbein, M., & Ajzen, I. (1977). Belief, attitude, intention, and behavior: An introduction to theory and research.
- Flechsig, C., Anslinger, F., & Lasch, R. (2022). Robotic Process Automation in purchasing and supply management: A multiple case study on potentials, barriers, and implementation. *Journal of Purchasing and Supply Management*, 28(1), 100718. <https://doi.org/10.1016/j.pursup.2021.100718>
- Fountaine, T., McCarthy, B., & Saleh, T. (2019). Building the AI-powered organization. *Harvard Business Review*, 97(4), 62–73
- Fu, Y., Peng, H., Khot, T., & Lapata, M. (2023). Improving language model negotiation with self-play and in-context learning from ai feedback. *arXiv Preprint arXiv:2305.10142*.
- Goodhue, D. L., & Thompson, R. L. (1995). Task-Technology Fit and Individual Performance. *MIS Quarterly*, 19(2), 213–236. <https://doi.org/10.2307/249689>

- Grzeszczyk, T. A. (2018). Qualitative Evaluation Methods. In T. A. Grzeszczyk (Ed.), *Mixed Intelligent Systems: Developing Models for Project Management and Evaluation* (pp. 41–66). Springer International Publishing. [https://doi.org/10.1007/978-3-319-91158-8\\_4](https://doi.org/10.1007/978-3-319-91158-8_4)
- Guida, M., Caniato, F., Moretto, A., & Ronchi, S. (2023). The role of artificial intelligence in the procurement process: State of the art and research agenda. *Journal of Purchasing and Supply Management*, 29(2), 100823. <https://doi.org/10.1016/j.pursup.2023.100823>
- Handfield, R., Jeong, S., & Choi, T. (2019). Emerging procurement technology: Data analytics and cognitive analytics. *International Journal of Physical Distribution & Logistics Management*, 49(10), 972–1002. <https://doi.org/10.1108/IJPDLM-11-2017-0348>
- Hangl, J., Behrens, V. J., & Krause, S. (2022). Barriers, Drivers, and Social Considerations for AI Adoption in Supply Chain Management: A Tertiary Study. *Logistics*, 6(3), 63. <https://doi.org/10.3390/logistics6030063>
- Jackson, I., Ivanov, D., Dolgui, A., & Namdar, J. (2024). Generative artificial intelligence in supply chain and operations management: A capability-based framework for analysis and implementation. *International Journal of Production Research*, 1–26. <https://doi.org/10.1080/00207543.2024.2309309>
- Kallio, H., Pietilä, A., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954–2965. <https://doi.org/10.1111/jan.13031>
- Kelly, S., Kaye, S.-A., & Oviedo-Trespalacios, O. (2023). What factors contribute to the acceptance of artificial intelligence? A systematic review. *Telematics and Informatics*, 77, 101925. <https://doi.org/10.1016/j.tele.2022.101925>
- Langenegger, T. W., & Ambühl, M. (2018). Negotiation Engineering: A Quantitative Problem-Solving Approach to Negotiation. *Group Decision and Negotiation*, 27(1), 9–31. <https://doi.org/10.1007/s10726-017-9547-5>

- Lee, Y., Kozar, K. A., & Larsen, K. R. T. (2003). The Technology Acceptance Model: Past, Present, and Future. *Communications of the Association for Information Systems, 12*.  
<https://doi.org/10.17705/1CAIS.01250>
- Lewicki, R. J., Barry, B., & Saunders, D. M. (2011). *Essentials of negotiation*. McGraw-Hill Education.
- Liu, T., & Zheng, Z. (2020). Negotiation Assistant Bot of Pricing Prediction Based on Machine Learning. *International Journal of Intelligence Science, 10*(02), 9–21.  
<https://doi.org/10.4236/ijis.2020.102002>
- Lopes, F., & Coelho, H. (2010). Strategic and tactical behaviour in automated negotiation. *International Journal of Artificial Intelligence, 4*(S10), 35–63.
- Merhi, M. I., & Harfouche, A. (2024). Enablers of artificial intelligence adoption and implementation in production systems. *International Journal of Production Research, 62*(15), 5457–5471. <https://doi.org/10.1080/00207543.2023.2167014>
- Min, H. (2010). Artificial intelligence in supply chain management: Theory and applications. *International Journal of Logistics Research and Applications, 13*(1), 13–39.  
<https://doi.org/10.1080/13675560902736537>
- Mulisa, F. (2022). When Does a Researcher Choose a Quantitative, Qualitative, or Mixed Research Approach? *Interchange, 53*(1), 113–131. <https://doi.org/10.1007/s10780-021-09447-z>
- Myers, M. D., & Newman, M. (2007). The qualitative interview in IS research: Examining the craft. *Information and Organization, 17*(1), 2–26. <https://doi.org/10.1016/j.infoandorg.2006.11.001>
- Nilsson, N. J. (1982). *Principles of artificial intelligence*. Springer Science & Business Media.
- Pommeranz, A., Wiggers, P., Brinkman, W.-P., & Jonker, C. M. (2012). Social acceptance of negotiation support systems: Scenario-based exploration with focus groups and online

- survey. *Cognition, Technology & Work*, 14(4), 299–317. <https://doi.org/10.1007/s10111-011-0181-8>
- Pruitt, D. G. (1998). Social conflict. In *The handbook of social psychology, Vols. 1-2, 4th ed.* (pp. 470–503). McGraw-Hill.
- Pruitt, D. G., & Carnevale, P. J. (1993). *Negotiation in social conflict.* (pp. xvii, 251). Thomson Brooks/Cole Publishing Co.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed). Free Press.
- Russell, S. J., & Norvig, P. (2016). *Artificial intelligence: A modern approach.* Pearson.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* (5. ed). Financial Times Prentice Hall.
- Schulze-Horn, I., Hueren, S., Scheffler, P., & Schiele, H. (2020). Artificial Intelligence in Purchasing: Facilitating Mechanism Design-based Negotiations. *Applied Artificial Intelligence*, 34(8), 618–642. <https://doi.org/10.1080/08839514.2020.1749337>
- Shawar, B. A., & Atwell, E. (2007). Chatbots: Are they really useful? *Journal for Language Technology and Computational Linguistics*, 22(1), 29–49.
- Simon, H. A. (1997). *Models of bounded rationality: Empirically grounded economic reason* (Vol. 3). MIT press.
- Sycara, K. P. (1990). Negotiation planning: An AI approach. *Group Decision and Negotiation Support Systems*, 46(2), 216–234. [https://doi.org/10.1016/0377-2217\(90\)90133-V](https://doi.org/10.1016/0377-2217(90)90133-V)
- Thompson, L. L. (2022). *The mind and heart of the negotiator* (Seventh edition, global edition). Pearson.
- Tornatzky, L. G., & Fleischer, M. (1990). *The Processes of Technological Innovation.* Lexington Books.
- Ulrich, P., & Frank, V. (2021). Relevance and Adoption of AI technologies in German SMEs – Results from Survey-Based Research. *Knowledge-Based and Intelligent Information &*

- Engineering Systems: Proceedings of the 25th International Conference KES2021*, 192, 2152–2159. <https://doi.org/10.1016/j.procs.2021.08.228>
- Van Hoek, R., DeWitt, M., Lacity, M., & Johnson, T. (2022). How walmart automated supplier negotiations. *Harvard Business Review*.
- Vehovar, V., Toepoel, V., & Steinmetz, S. (2016). Non-probability Sampling. In C. Wolf, D. Joye, T. Smith, & Y. Fu, *The SAGE Handbook of Survey Methodology* (pp. 329–345). SAGE Publications Ltd. <https://doi.org/10.4135/9781473957893.n22>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425–478.
- Vincent, V. U. (2021). Integrating intuition and artificial intelligence in organizational decision-making. *Business Horizons*, 64(4), 425–438. <https://doi.org/10.1016/j.bushor.2021.02.008>
- Voeth, M., Oryl, M., & Weinmann, N. (2023). Ethical Issues of the Use of Artificial Intelligence in Purchasing Negotiations. In M. Bruhn & K. Hadwich (Eds.), *Gestaltung des Wandels im Dienstleistungsmanagement* (pp. 615–652). Springer Fachmedien Wiesbaden. [https://doi.org/10.1007/978-3-658-41815-1\\_24](https://doi.org/10.1007/978-3-658-41815-1_24)
- Wang, J., & Chen, Y. (2007). Agent-Based Price Negotiation System for Electronic Commerce. *Seventh International Conference on Intelligent Systems Design and Applications (ISDA 2007)*, 90–93. <https://doi.org/10.1109/ISDA.2007.66>
- Zhang, C., Zhu, W., Dai, J., Wu, Y., & Chen, X. (2023). Ethical impact of artificial intelligence in managerial accounting. *International Journal of Accounting Information Systems*, 49, 100619. <https://doi.org/10.1016/j.accinf.2023.100619>

## APPENDIX

### Appendix A: Interview Participants

#	Participant	Position	Industry	Domain Expertise	Country	Years of experience
1	LJ	Procurement Negotiation Manager	Health Technology	Negotiation	Germany	3
2	PZ	Consultant Procurement	Professional Services (Audit, Tax, Advisory)	Digitalization Procurement	Germany	3
3	PF	Procurement Manager	Beverage Manufacturing	Procurement	Portugal	5
4	CH	Procurement Manager	Telecommunications and Consumer Electronics	Procurement	Germany	7
5	DK	Project Manager, Negotiation Excellence Center	Procurement Consulting	Negotiation	Germany	8
6	MK	Director Negotiation Factory	Automotive and Industrial Components	Negotiation	Germany	8
7	NB	Head of Procurement	Human Resources Software	Procurement	Germany	8
8	MN	Procurement Digitalization Manager	Chemical Manufacturing	Procurement	Germany	9
9	AH	Operational Procurement Team Lead	Process Mining Software	Procurement	Germany	10
10	SG	Procurement and Negotiation Expert, Lecturer	Automotive and Industrial Technology	Procurement & Negotiation	Germany	11
11	DE2	Strategic Purchasing Manager	Industrial Manufacturing	Procurement	Germany	12
12	PR	Senior IT Procurement Manager	Process Mining Software	Procurement	Germany	12
13	FF	Global Procurement Operations Manager	Reinsurance	Procurement	Germany	13
14	DB	Vice President Procurement	Process Mining Software	Procurement	Germany	14
15	DE1	Director, Head of Consulting Procurement	Pharmaceuticals and Chemicals	Procurement, AI Tool Development	Germany	19

<b>#</b>	<b>Participant</b>	<b>Position</b>	<b>Industry</b>	<b>Domain Expertise</b>	<b>Country</b>	<b>Years of experience</b>
16	TA	Co-founder of GenAI Procurement Negotiation Tool	Software Development	Procurement	France	19
17	BP	Contracts Negotiation, Senior Manager	Aerospace and Defense	Negotiation	USA	22
18	ID	Head of Procurement	Insurance	Procurement	Portugal	22
19	JS	Director, Lead genAI Initiative for Contract Analysis	Automotive and Industrial Technology	AI Tool Development	Germany	23
20	EA	Director of Procurement	Pharmaceutical Manufacturing	Procurement	Portugal	24
21	JB	Head of Procurement IT Services	Telecommunications	Procurement	Germany	26
22	CK	Negotiation and Procurement Expert	Logistics and Shipping	Negotiation	Netherlands	33

## Appendix B: Semi-structured interview protocol

#	Topic	Questions:
1	Introduction	<ol style="list-style-type: none"> <li>1. What is your experience in the field of procurement negotiations?</li> <li>2. Can you describe the steps of your typical procurement negotiations process?</li> <li>3. Definition of AI: computer replicating human behaviour Artificial Intelligence (AI), an area of computer science, can be defined as intelligent systems and programs that are capable of replicating human behaviour (Nilsson, 1982; Russell &amp; Norvig, 2016). The goal is to get computer systems to perform tasks such as knowledge acquisition and retention, logical thinking, pattern recognition, learning from past experiences and reasoning, which are particularly useful in decision making contexts when finding the optimal solution is too costly or challenging (Nilsson, 1982; Min, 2010; Russell &amp; Norvig, 2016). Due to its diverse application possibilities, AI can be regarded as a general-purpose technology (Crafts, 2021). In this sense, AI's potential increases with the advancements of applications and the associated infrastructures, systems and capacities (Åström et al., 2022).</li> <li>4. Were you involved in recent initiatives regarding negotiations process enhancement or improved efficiency? If so, which?</li> <li>5. What has been your experience with AI in procurement or negotiation processes?</li> <li>6. How do you use AI in your daily work?</li> </ol>
3	Perception and Effectiveness of AI	<ol style="list-style-type: none"> <li>7. In your own your experience, how do you perceive the role of AI in the negotiation processes in procurement?</li> <li>8. Can you share any examples where AI impacted negotiation outcomes?</li> </ol>
4	Benefits and Limitations	<ol style="list-style-type: none"> <li>9. Can you describe the advantages and disadvantages you've observed from integrating AI into procurement and negotiation processes within your organization?</li> <li>10. Could you share a detailed example that you have observed in which AI significantly impacted procurement activities?</li> </ol>

#	Topic	Questions:
5	Barriers and Enablers	<p>11. Which factors helped or hindered you in the integration of AI in this area?</p> <p>12. Reflecting on your experience, what would you say were the main lessons you have learned in the process implementing AI in procurement? What would you say were the key success factors, if any?</p>
6	AI Adoption in Procurement	<p>13. From your experience, to what extent is your company/ industry using AI in procurement processes?</p> <p>14. What other types of AI applications are commonly used in your procurement and negotiation processes?</p>
7	Ethical Aspects	<p>15. What ethical considerations you consider crucial when implementing AI in procurement and negotiation processes?</p>
8	Outlook & Closing	<p>16. From your perspective, what future developments do you foresee in the use of AI in procurement negotiation?</p> <p>17. Do you have any recommendations for organizations looking to integrate AI into their procurement negotiation processes?</p> <p>18. Are there any additional insights or comments you would like to share?</p>

### Appendix C: Thematic analysis of the interviews based on Braun & Clarke (2006)

Interviewee	Direct Citation	Second Order theme	Category
CH	"Especially when we [...] negotiate larger contracts, we also do this on site. [AI] is not active there, for example. It is only used for online meetings." (CH)	AI only used during online negotiation situations	
PZ	"Yes, I would say this AI tool is mostly used for standard needs, products and services." (PZ)	AI only used for low stake products	
JB	"After the five cases at [company department name], which all failed [...] the decision was made to stop using Pactum." (JB)	Discontinuation	
LJ	"I'm actually trying to engage AI way more in the way we are negotiating." (LJ)		
DK	"I was not yet involved in improving the negotiation process with AI but this is something which is currently become more and more, let's say, hot topic." (DK)	Growing Interest	AI Adoption in Negotiations
JB	"We also exchange ideas in purchasing. In most categories, AI does not yet play a role in the preparation of negotiations." (JB)		
CK	"I have never negotiated against an AI environment and I have not negotiated with an AI environment." (CK)	Minimal Adoption	
NB	"We always say we are not replacing ourselves with AI, but rather augmenting our own capabilities." (NB)		
JS	"The tool is available as a proof of concept. There are tools that are also currently being developed and tested and are now also available in the early phase." (JS)	Trials and Integration	
AH	"Negotiation and the job of a procurement manager [...] involves [...] administrative and legwork [...] that can [...] be taken over by an AI." (AH)		
LJ	"I have a huge amount of suppliers with a very low average spend [...] if I would [...] have 1500 suppliers, about 1250 will not even be engaged [...] This is really the area where we want to extend the scope of our negotiations with AI." (LJ)	Automation of Repetitive Tasks	Benefits

Interviewee	Direct Citation	Second Order theme	Category
NB	"It feels like 50 per cent of the work [...] is some transactional stuff, reporting [...] where I definitely see the potential." (NB)	Automation of Repetitive Tasks	Benefits
CH	"The main effect of this transcription tool is that we can really concentrate on discussing everything during the negotiation and not taking notes the whole time." (CH)		
JS	"I have existing contracts somewhere, and I want to know which contract relates to manufacturer X and product Y? And how long is the term of the contract? That's somewhere, of course. That can be retrieved manually. But it's a lot of work and of course prone to errors." (JS)	Improved Data Accessibility	
CH	"I would say [the AI transcription tool] facilitates the flow of language and simply makes the negotiation a little more efficient." (CH)	Improved flow of communication	
PZ	"The big advantage of ChatGPT is that you can imagine it as if we were having a conversation with an employee, you can also give the system feedback and it works quite well. [...] It also gains experience and gets [...] better. [...] The knowledge grows with it. [...] This algorithm [...] can also be updated again and again [...] So, this algorithm also develops." (PZ)		
JB	"OpenAI increases the LLMs every time from 100 million data points to 100 billion or so. The increase was huge very quickly. The more data points, that's what I meant with the calculation tool, the more data points, the more accurate the values are in the end. " (JB)	More Accurate Data Analysis	
CH	"The fact that [with an AI transcription tool] [...] you don't lose the thread so quickly. [...] higher probability of making [...] mistakes [...] manually. [...] with the tool, you have a higher degree of certainty. [...] On the other hand, you have [...] the record behind it, [...] in case there are [...] legal disputes." (CH)		
PZ	"It's already live and has been developed and is now being offered to various customers. The feedback is actually very good, because ultimately you can think of it as a bit of a modular system." (PZ)	Positive feedback on current applications	

<b>Interviewee</b>	<b>Direct Citation</b>	<b>Second Order theme</b>	<b>Category</b>
MN	"82% of their suppliers, they prefer negotiating with an AI tool, because when a human is negotiating with a supplier, they are not sure whether they would end up with a contract, but they know when an AI tool is negotiating, so it means it's serious." (MN)	Positive feedback on current applications	
JS	"AI is more about the question, am I very differentiated or diversified. Because it [AI] makes it easier to analyze non-standardized results. [...] And it's difficult to read something like that with standard tools. It's easy with Gen AI." (JS)	Simplified Data Analysis	
DE2	"On the other hand, it would be a qualitative leap forward for me. Because of course I have access to information that exists, but which I can't access directly. So having all the information that exists somewhere in the company consolidated also gives me the opportunity to have a different qualitative perspective on the topic. [...] I had maybe an hour, two hours, found maybe 15 per cent of the available data and formed my opinion based on that. Of course, it's different when I get 80, 90 per cent of the data at the touch of a button. It gives me a broader overview, a better understanding. And I think that means I'm better prepared to go into the relevant, whatever, discussions, negotiations, preparations." (DE2)	Simplified Data Analysis	Benefits
TA	"You have a lot of unstructured data. If you would talk to vendors you have a price [...] a number, but then a price always comes with nuances [...] for example as a service, [...] So with AI, a price can be comparable across the market." (TA)		
PZ	"I really see [...] the strengths of AI in these additional sources of information, the additional opinion that you have." (PZ)		
DK	"One of the biggest advantages of AI for me, is not starting from the blank sheet. So having some examples and starting points, because then it's much easier and faster to get to the final product which you can use." (DK)	Support for Drafting and Managing Correspondence	

Interviewee	Direct Citation	Second Order theme	Category
SG	"And then [the colleagues] had started to write an email, but then deleted it again. And then I just said, 'look, I don't know your case exactly now because I missed half an hour and don't know what I was talking about in detail. But have you ever tried it with ChatGPT?' Then we just did it online and then we actually didn't have a good solution, but it was a start. So my colleague said, oh yes, I can already utilise a lot of that. But he immediately realised that the result was cool, but it wasn't quite right. So he knows that he has to rework, but he has overcome this first hurdle. That's a very pragmatic benefit of these large language models." (SG)	Support for Drafting and Managing Correspondence	Benefits
MN	"Just because we implement an AI tool, we won't have negotiation savings, we won't have better results. So we see AI tool, we see AI negotiation as an enabler to be more efficient." (MN)		
JS	"[With AI] the employee gains speed, has higher quality and a better overview. They can focus on their core function of negotiating the new clauses with the customer and not on back-office activities." (JS)	Time Savings	
PR	"It takes me about ten to 15 minutes to write a polite, bullshit filled email to decrease the price [...] I started using ChatGPT specifically for it [...] It's a time saver." (PR)		
BP	"I would say [AI] helps maybe like 10%. It gives me a lot of information that I can't really use at the negotiation table. The responses I get are very general in nature, not like tangible arguments to justify a certain position. Not Yet," (BP)		
BP	"It's all about whenever you ask for its opinion, it's got some generic response that it's not built to give their own thoughts, you know, or to infer things. [...] To take some information and, you know, because there's a lot of gray, and so it doesn't work in the gray area. It's only black and white. So, yeah, that's a limitation right now for us." (BP)	Generic Output	Limitations

Interviewee	Direct Citation	Second Order theme	Category
SG	"Some years ago [...] the software manufacturer promised us a high school graduate. [...] what we got was a kindergarten child. [...] the artificial intelligence [...] was not at all suitable for conducting a serious negotiation. They then switched to making simple rule-based systems [...] So that's not really intelligent either." (SG)	High expectations versus reality	
NB	"If you put an AI in there, it will probably work well objectively. But [...] the AI doesn't read the vibes like that either. So you have to approach each vendor a little differently, which is logical. And I think you just need that human factor." (NB)		
PR	"The initial parts of the process are spent trying to figure each other out, get to know each other, get to know your partner, more like a fact finding mission. And for that, frankly speaking, AI is useless because this is where you, the vendor, is not going to give that to you. [...] You sort of need to figure out the reading behind lines, between the lines. [...] So that is basically where AI is not very helpful." (PR)	Inability to read between the lines	Limitations
DB	"The feeling or the experience that you have as a negotiator [...] to know when the sales counterpart is reaching his limits [...] But that is more of a feeling [...] which I cannot prove or validate with data support [...]." (DB)		
CK	"And if you think for yourself in your negotiations, often you ask questions that are, you're covering up what you really want to know with something else. And in that, there's a lot of signaling that goes on back and forth that is below the surface. And I'm not sure if AI is able to uncover all that part of it. So the whole psychological part of it." (CK)		
AH	"And I think in negotiation, a big part of it is also creativity and ideas on how you can move the conversation forward, how you can enlarge in the pie, are kind of like these buzzwords in negotiation. And for that, you need to know what the other party is looking for. But if more and more happens within the AI sphere, I think that will become very much like a circle of rotation, because they sort of talk about the same thing, [...], there's no additional creativity in there." (AH)	Lack of creative problem-solving	

Interviewee	Direct Citation	Second Order theme	Category
PR	"And you reach some point of an understanding. For example, okay, I'll pay you a little bit less. But for example, we allow marketing considerations, or we do a case study with you, or we do a balance of trade agreement or 20 different other things that the human will think of. But an algorithmic, non creative AI never will. That's the main limitation." (PR)	Lack of creative problem-solving	
EA	"If you are negotiating goods or services in a strategic segment [...] I do not see how we can input AI on that because there are a lot of variables [...] But for segments with low risk and high economic importance, you can simplify and automate." (EA)	Limitations in Handling Complex Negotiations	
MK	"Exactly, that's my criticism of this bot we looked at, it couldn't do multiple negotiations at the same time and generate a BATNA from it." (MK)		
AH	"If you get to a salesperson that recognizes you're actually talking with an AI [...] you're losing that relationship [...] can also be detrimental to [...] your chances to discount." (AH)		Limitations
PR	"You can still sniff it from a mile away [...] It's written by an AI [...] sellers don't exactly enjoy talking to an AI with my name on it. They prefer to talk to me [...] So, for example, I'm a die-hard Laker fan [...] I like to end my message with 'fuck Boston' [...] That creates a personal relationship." (PR)	Loss of personal relationship	
SG	"And that may even end up ruining the relationships you have with companies in business life." (SG)		
PR	"And unfortunately, when you're talking about bigger contracts where you do not accept default clauses, it's either 100% or go to hell, because every mistake on that regard can be very expensive. So if I cannot trust the tool 100%, I will not use it because the risk is too great." (PR)	Need for output verification	
JS	"But you still have to manually check the results again and track them. That will also be the case in the future." (JS)		

<b>Interviewee</b>	<b>Direct Citation</b>	<b>Second Order theme</b>	<b>Category</b>
NB	"Especially if you have a very fresh [AI] system [...] you still have a lot of false positives [...] you make a query [...] can you tell me when the contract expires? [...] [the AI] will just make up an end date for a contract from time to time." (NB)	Risk of false positives and inaccuracies	Limitations
JB	"Yes, the thing is, I've already expressed my doubts that certain results seem strange to me. For example, when I asked 'who are the most successful IT service providers in Europe in the public sector', [company name] came up first at some point. And that can't be right - you have to ask a bit more precisely." (JB)		
DB	"It's just difficult to collect the data, on the one hand. And on the other hand, data is of course limited. Sometimes you don't get the data or it's a very special case. For example, if the supplier has not yet sold to a company of your size. Or it's a large volume or other factors come into play. And then, of course, you have to rely on something else." (DB)	Challenges in collecting and qualifying data	
SG	"Have I provided [the AI] with all the relevant data so that it can make an informed judgment?" (SG)		
SG	"I never lie to my supplier. [...] But artificial intelligence, as it exists today, does exactly that." (SG)		Barriers
DK	"The simplest example is do you, should you lie in the negotiations or not? [...] Because some people think that it's a tactic. [...] Others believe that you should never lie. [...] So it needs to be clarified what are the principles, underlying principles of how the machine gives advice?"	Competitive Advantage and Fairness	
BP	"I mean, we all use things to our advantage, and, [...], if I'm more prepared than the person I'm negotiating with, then that's not my fault." (BP)		

Interviewee	Direct Citation	Second Order theme	Category
DB	"So [in AI negotiations] the person who uses the latest and best technology always has an advantage and everyone else would be at a disadvantage, and that is perhaps also natural when you are sitting opposite people, because everyone has an information advantage or deficit and everyone always has a better or worse negotiating position. So the argument would actually be to say that this is already the case. You never have equal partners in a negotiation." (DB)		
DB	"And then you could perhaps trick one or the other by deliberately spreading information to influence the AI in such a way that the result is resolved in the interests of the other AI or is agreed accordingly. I see the danger of deliberately influencing this, especially with large contracts or large players, such as Microsoft and AWS, who are really at the heart of the development. How can I then negotiate with someone who also provides this technology?" (DB)	Competitive Advantage and Fairness	
DB	"What is the best possible result if everyone on both sides tries to achieve the best possible result [with a negotiation AI], what is the end result? So then whoever uses the latest technology or the better AI always has the advantage." (DB)		Barriers
LJ	"[AI] should not replace, it should make people more efficient. So I think that is a very ethical point that we should take into account." (LJ)		
MN	"People got afraid that their jobs would be replaced. [...] And it took us some time to convince them, hey, we are not going to replace you. We are trying to enable you to focus more on the strategic part." (MN)	Concerns about job replacement	
PR	"Compliantly speaking, I cannot put an entire supplier email into chat GPT, or at least I shouldn't, because there are contractual limitations to it." (PR)		
JS	"There are the [company name] Gen AI guidelines [...] Then there are the regulations of the European Union [...] the rules, framework conditions, which must be adhered to." (JS)	Data security and confidentiality concerns	

Interviewee	Direct Citation	Second Order theme	Category
DB	"This is also what prevents many people, including us in the company at [company name], from saying that we provide data that is then ubiquitous or available within these chat GPTs or whatever and can then be reused and therefore we do not use it because it is not secure where the data is used, how it is reused and who then has access to this data.if I now say, for example, I want to buy 300 licenses from this and that supplier, what is the price for this? And he knows that the request is being made by [company name], then he knows that we have a need for 300 licenses." (DB)	Data security and confidentiality concerns	
DB	"And that, I believe, is also the fundamental danger: what data do I as a company make available to AI that is then shared? This is an information advantage that I might then give to another company, which the company would not have if I were to negotiate myself and withhold this information." (DB)		
PZ	"As always, the result depends on the quality of the information. For example, if you have a very extreme niche product and the data basis is poor, this is also a limitation. Then, of course, ChatGPT can only process the whole thing to a limited extent. But it's the same with humans." (PZ)	Dependence on correct data	Barriers
ID	"If the [AI] model is not well defined, it can lead to disastrous results. It needs to be well defined." (ID)		
SG	"So there are simply an infinite number of wishes, restrictions that play into the cases, so I ask myself again, how should I teach something like this to an artificial intelligence?" (SG)		
DB	"If an AI negotiates with an AI at some point and they all have the perfect information available, who defines the price that is right? Would they then match completely immediately and then strike the perfect balance and the negotiations would then be over after a second more or less? or would they negotiate ad infinitum because both want to try to achieve the best possible value for themselves? So that's something that's not yet clear to me, what that would look like." (DB)	Difficulty in teaching AI the nuances of negotiations	

Interviewee	Direct Citation	Second Order theme	Category
JB	"But in that respect, the world of work will change completely. Many more people will have much more free time than we can even foresee today, and then it will become a social problem. I think so. The statements also coincide. There is hardly anyone who says that when AI has taken over completely, everyone will be better off. Nobody is saying that. Nobody can think it through to the end." (JB)	Ethical and Societal Implications	
JB	"I have two clever systems that have trained themselves. Then the question is, does the market still take place when they are at the same level? [...] It's an autonomisation of the respective business interests that are then represented by the bots." (JB)		
EA	"There are so many variables that I do not think AI can perform a negotiation itself, but it can support the negotiator." (EA)		
SG	"I've been doing it for ten years and have worked on hundreds of cases, which would only ever be a very small number for an artificial intelligence. And of these hundreds, I can't say that two were completely identical. So if you always have highly individualized cases, how are you going to train an artificial intelligence? Where are you going to get the large number of cases that would be necessary for an artificial intelligence to come to valid conclusions? That's a bit of the problem I have." (SG)	High variability in negotiation scenarios	Barriers
DE1	"Many price negotiations are discussed face-to-face, not via teams." (DE1)		
CK	"And that is why I want to negotiate face to face and not through a screen like this, because I can only grasp 15% of what really happens around you. So what your body language says, what you're doing, how you are behaving [...] those are all signals in the negotiation process that I spend a lot of energy on taking in and analyze." (CK)	Importance of face-to-face interactions and personal judgment	
DE1	"It's probably more a lack of knowledge. I could imagine that there is guaranteed potential there. Yes, there are already some tools. We probably don't know about them yet. I assume that's the main reason why we're not using AI yet." (DE1)	Lack of knowledge	

Interviewee	Direct Citation	Second Order theme	Category
LJ	"So something we buy a lot of and that's important to our clients, those are the ones that I'm not going to risk doing anything with an AI bot." (LJ)	Lack of trust in AI reliability	
SG	"[AI in negotiations] would perhaps be a bit more efficient, but at the moment when things start to grate in the relationship, when things aren't going so well, you often don't get anywhere with such a super rational approach. So you are actually involved in relationship work and have to do relationship work. And once you've mended this relationship with a supplier, you'll make progress." (SG)	Necessity for human expertise in negotiations	
LJ	"Once you enter a room, it's a people's game." (LJ)		
MK	"At some point, someone has to make a nomination decision. [...] And now the question is, who makes that decision?" (MK)		
PF	"Comparing with the other big players on the market, we are maybe 20 times smaller than them then. I don't know what kind of AI will fit us because our data is not so extensive as theirs. Because our process is very simple." (PF)	Need for large amounts of data	
PR	"I have still a feeling of very strong job security as a procurement negotiator because I can see llms, they can work for me, but they are not in a position where they replace me. And the dystopia where we have just two llms negotiating with each other, it's not there." (PR)	No concerns about job replacement	Barriers
NB	"Die Verhandlung an sich wäre jetzt wahrscheinlich mit einer der letzten Bereiche, wo ich AI drauf loslassen würde [...] es gibt davor 50, 60 wichtigere Themen, wo ich eher lieber sehen würde als in der eigentlichen Verhandlung." (NB)		
MK	"I think it would be interesting to use Nnamu in practice. It's just a capacity issue, do you have the time and, above all, the IT resources to use such an AI tool? Yes, maybe sooner or later, but it's not a priority 1. Then we'll just have to do it properly. Then I would like to compare other providers in this area." (MK)	Other AI use cases more relevant than negotiation	
CK	"The negotiation is only a very small part of a much larger value chain that you jointly do." (CK)		

Interviewee	Direct Citation	Second Order theme	Category
PZ	"Although, to be honest, other use cases are even more relevant [than negotiations] for many customers. For example, when it comes to the topic of ESG. Evaluation of sustainability reports. And yes, AI can of course map this quite efficiently." (PZ)	Other AI use cases more relevant than negotiation	
CK	"And what I see, a lot of people consider themselves an expert in negotiation and that's what they like in their job. Are they willing to give that, you know, fun part of the job, away to a piece of equipment?" (CK)	Reluctance and resistance from team members	Barriers
CK	"From a buying side. I hear a lot of resentment against [AI] because they say, well, it takes away my creative element." (CK)		
SG	"And somehow a hype is being built up for what doesn't really work, at least not today. And I don't think we should fall for that hype. That's the concern I have." (SG)	Skepticism and Hype Around AI	
MK	"Yes, how much AI is really behind it is always a question. Some people have their color world created with AI and then say they are AI-driven." (MK)		
PF	"Automatization with AI for the purchase department [...] will start on the big companies and the big multinational companies [...] The quantity of data is very high [...] maybe for reports and for decision making [...] they can see the big data more easily before the small companies."(PF)	Availability of big data	
SG	"And that's where I come to the point where I say, well, perhaps we shouldn't completely disregard the development of natural intelligence in all the development of artificial intelligence." (SG)	Balancing Artificial and Natural Intelligence Development	Enablers
NB	"What was really positive was how quickly the [AI] system was able to make a lot of connections straight away. [...] It was good that the system had a large part spot-on straight away. It was good that the data was so clean beforehand." (NB)	Clean and accurate data	

Interviewee	Direct Citation	Second Order theme	Category
JS	"At the moment, it's more the case that they have too many tasks, that they are naturally happy when recurring tasks, when recurring [...], boring [...], standardized tasks can be handled or processed differently. I can't speak for everyone, but basically I see it as ongoing support and help. So the fear that the purpose will be rationalized away is not there, but I think that is rather the positive aspect of the opportunities that arise from it." (JS)	Company-wide interest and discussion	
LJ	"One thing is certain, that there is always an option for human interaction. [...], for instance, Pactum, that test case, they had a 68% success rate. That meant that 32% did not reach a satisfactory result. And then you should always have the option to reach out to a person [...] once they were not able to go to an agreement with the chatbot, then there would always be a way to interact." (LJ)	Human Interaction Options	Enablers
JS	"The more standardised the [product or service] is and the greater the purchasing power [...] the easier it is to enforce, of course." (JS)	Standardized products or services	
CK	"Remain a master of your own destiny [...] don't give your wallet to the machine because it could go wrong." (CK)	The importance of maintaining control over AI	
JS	"Of course, there is also the issue of contract lifecycle management, the creation of contracts. But we haven't got that far yet. That will be handled by other tools such as Salesforce and so on, where the contract creation process is automated with the various contents and approval procedures. That is currently being prepared." (JS)	Close the Deal	Piloted Use Cases
PZ	"In this context, we have primarily focused on ChatGPT and developed a number of use cases, including those relating to negotiations and conducting negotiations. And we are now in the development phase where we are also carrying out specific projects and selling the whole thing to customers." (PZ)	Exchange Information	

Interviewee	Direct Citation	Second Order theme	Category
MN	"We are trying to pilot AI tools which would help to negotiate on our behalf [...] I would see more fitting is this tail spend because that's where we won't be able to concentrate a lot [...] AI could act on its own and it can go to the suppliers, negotiate the prices, come back and put it into the system." (MN)	Exchange Information	Piloted Use Cases
LJ	"And we are now having a trial with AI chatbot, which can be integrated in our procurement processes so that if we want to buy something. The AI would reach out to the supplier, The AI would negotiate a price in a framework, and the AI will let us know what the price is for the one offs, for example. [...] We are using Pactum." (LJ)		
MK	"I think we'll have a tool at some point that records meeting minutes, and I now use DeepL as an AI translation tool all the time." (MK)	Post-Negotiation Review	Piloted Use Cases
DB	"What we have also done, for example, we have now simply asked ChatGPT from some suppliers and said, hey, what is a good price for a company with our size and demand for licenses that we need. You can find something there." (DB)	Prepare Opening Offer	
DK	"With AI [...] I think the first steps which are currently sort of being taken, it's more like either optimize or at least have first drafts of the RFQ documents or supplier letters and so on, but not yet into the, like let's set up a strategy or let's say and imitate how the discussion can go." (DK)		
CH	"The next step would probably be for [AI] to be able to draw up a contract at some point. But we're not that far yet." (CH)	Close the Deal	
PZ	"But you could also tell the chatbot to please take over the negotiation, i.e. you would tell it that your goal is to reduce costs by 10%, for example, [...] and then [...] the chatbot would respond to the answers received from the other side and then find the appropriate answer [...]. This fully automated process is not yet being used with customers, because the buyers are of course still talking themselves, but you can then enter these answers [from the salesperson], among other things, and then you would receive an answer from the chatbot." (PZ)	Exchange Information	Potential Use Cases

Interviewee	Direct Citation	Second Order theme	Category
FF	"You get offers from suppliers [...] that the AI then independently renegotiates based on the data [...] I haven't seen that before. But it's certainly an interesting use case. [...] That's the next level." (FF)	Exchange Information	
DB	"The other thing is [...] to analyze what the other person is like, how did they react, [...] how safe was it? [...] Perhaps there is also the possibility of analyzing this through gestures, facial expressions or other things [...]." (DB)	Post-Negotiation Review	
DE1	"I could imagine that AI could probably also help with preparation in terms of raw material costs etc., which are an important price basis. [...] I think there is definitely a lot that can be done in the future to provide useful tools that make preparation easier." (DE1)	Prepare Opening Offer	
AH	"So for example, we even thought about asking ChatGPT to tell us what prices we could expect from a certain supplier. So we can say, hey, what's the current common price?" (AH)		
JS	"So the genAI analysis that we are currently carrying out can, of course, be mirrored in the purchasing contracts. They are also available and have to be read and evaluated." (JS)		Potential Use Cases
EA	"So today I think it's possible to assess a contract review by AI that defines the critical clauses, for example, penalties, liabilities, jurisdiction. You can parameterize the system to give you alerts when it reviews a contract. Instead of outsourcing that review in external lawyer, the machine can do it and can support you." (EA)	Proposal Analysis	
SG	"So of course you could tell an intelligence in the sense of an expert system, you pay attention, in the past, this and that and these and these things have already been offered. You could do that." (SG)		
LJ	"I think you can use AI very well in your preparation [...] because the one who comes prepared is the one who wins that usually the case. Information is key and AI can really help you doing so." (LJ)	Research and Gather Information	
DB	"So, an AI can deliver a positive impact by also drawing on data, what has already been achieved with the supplier in the past. [...] Or perhaps also develop new ideas, which I hadn't yet considered." (DB)		

Interviewee	Direct Citation	Second Order theme	Category
DE2	"In principle, AI can play a huge role in verified information [...]. [...] It would hopefully lead to everything becoming more transparent, verified and a supplier [...] no longer having the opportunity to cheat." (DE2)	Risk Assessment	
DB	"If I think about it now, what could an AI do [...] it collects all the data [...] similar to ChatGPT [...] it learns through the negotiations [...] defines [...] price X [...] and then works out a strategy [...] how do I get to that price as close as possible." (DB)	Set Negotiation Strategy	Potential Use Cases
SG	"For training purposes, [AI] could certainly be suitable [...] This could certainly be transferred to [...] negotiations [...] simulate a negotiating partner [...] But these are also simpler settings." (SG)	Training of Negotiation Skills	
DB	"With AI, you could perhaps create an additional module for employee training, which then analyzes what would be suitable for future training or something like that based on the learning successes." (DB)		
TA	"I use first AI to make sure that the problem statement of my customer is understandable." (TA)		
FF	"And there are also solutions with AI, so that you really support the buyer themselves at a tendering event." (FF)	Define Objectives	
TA	"I also use AI to structure the business requirements [...] based on the [customers'] problem statement [the AI] will identify all [...] relevant [...] vendors on the market." (TA)		
TA	"I use AI to dialogue competitively with unlimited number of vendors to create a BATNA." (TA)	Determine BATNA	Implemented Use Cases
TA	"A third AI dialogues with the vendors so that I will not spend my personal time to answer the question" (TA)		
TA	"When the vendor replies and gives a price, [...] if it's not clear in real time, I will tell the vendor through the AI [...] that says, 'this is not clear, your proposal didn't address the problem' and so on." (TA)	Exchange Information	
TA	"So it's an interplay of several AI's that will work in sequence." (TA)		

Interviewee	Direct Citation	Second Order theme	Category
CH	"We actually have our own tool, which is also based on AI, which helps us a bit with the transcripts. So we sometimes record a lot of things, especially during contract negotiations, with prior permission of course, and then we have a transcription tool like this." (CH)	Post-Negotiation Review	
DB	"There are already [...] AI tools, to summarize the negotiations." (DB)		
JB	"We have now designed a live pricing tool, which is all about initial pricing of a resource. We then have a standard skillset. There is always a senior consultant, an architect or a tester. And then we want to use intelligent data analysis to provide those who are interested in calculating such resources with the corresponding values. But now, normal analysis tools are also sufficient, which then say, I either take all my framework agreements and see what prices are in them, or I take the most common studies that are available on the market and extract the information from them." (JB)	Prepare Opening Offer	
SG	"So when you send an email and formulate an email, it's also a negotiation. There are a lot of colleagues who find it difficult to find the beginning of the email. How do I even start now? And then you can just tell the chat GPT, pay attention, why don't you formulate a nice email to a supplier with whom I would like to meet and discuss the topics." (SG)	Present Opening Offers	Implemented Use Cases
PZ	"But then we also have the tender manager [...] to compare offers. This tender comparison can be carried out very efficiently. You can upload and compare different offers [...] and that helps a lot. [...] example: [for] consulting services, the technology can compare [...] daily rates and [...] plan projects [...] uncover hidden fees. [...] That supports the negotiation because a negotiation is [...] only as good for the information the buyer has." (PZ)	Proposal Analysis	
NB	"But [procurement processes] are very reporting-heavy. We are currently automating all this reporting with OCR solutions, so that all the e-mails from vendors are simply read out and then all the responses are somehow more or less aggregated." (NB)		

Interviewee	Direct Citation	Second Order theme	Category
TA	"So I have a list of all vendors, but then I need to expose the problem only to those who are relevant to the problem [...] AI extracts those that [...] are very relevant." (TA)		
TA	"After I have collected all the answers, I create a mapping [...] which are the best answers [...] and then the AI creates a script for each vendor, for the buyer as to how we should negotiate after." (TA)		
EA	"Another thing that it's already ongoing. [...] When you have a project with predefined specifications and suppliers, you can launch RFPs automatically and receive proposals. The system compares proposals based on criteria [...] and gives an indication of supply selection. [...] OCR systems capture data. [...] The system compares offers and decides based on criteria like cost or delivery time." (EA)	Proposal Analysis	
NB	"So it goes something like this, the e-mails that come to our inbox are tapped, so to speak, and then summarized accordingly and then we have a kind of negotiation stream [...]. In other words, we then see a kind of feed [...], okay, what's happened now? Where are we with the price right now? Where are we with the deliverables? [...]. So you can see at a glance what was negotiated last. It's super useful for me as a lead, of course, because A, by now people know that I actually bring them so little in day-to-day that they don't automatically put me on CC for everything and B, I can't read all the emails in the world." (NB)		Implemented Use Cases
AH	"And I think for, especially in these initial stages, AI can be always already for us quite useful. [A colleague] uses [AI] especially for sending out RFP invitations. We can also use [AI] for research on asking for comparable suppliers, for example, and asking to describe what they do. " (AH)	Research and Gather Information	

Interviewee	Direct Citation	Second Order theme	Category
DE2	"But then we also have the tender manager [...] to compare offers. This tender comparison can be carried out very efficiently. You can upload and compare different offers [...] and that helps a lot. [...] example: [for] consulting services, the technology can compare [...] daily rates and [...] plan projects [...] uncover hidden fees. [...] That supports the negotiation because a negotiation is [...] only as good for the information the buyer has." (PZ)	Research and Gather Information	
DE2	"We use this primarily for purchasing background information and updates. The service market in general is very broad. If you need specific information, the latest updates on a certain consultation, then we also use ChatGPT." (DE2)		
JS	"A buyer [...] could [...] use the same tool and [...] see [...] which ones have production in Russia and where I have to point out to the suppliers that I don't want anything more there." (JS)	Risk Assessment	
MK	"Nnamu says we have artificial intelligence here that tells you how you should actually negotiate with your supplier [...] at the end of the RFQ phase [...] negotiation strategies are made [...] with AI we can tell you in a completely system-driven way how these negotiation phases are structured." (MK)		Implemented Use Cases
BP	"And, and sometimes, sometimes I'll type in, 'hey, what's a good argument to defend XYZ?' You know, and it'll help me come up with talking points." (BP)		
PZ	"Yes, exactly, we generally have a chatbot that works in a similar way to [...] ChatGPT. We built this in collaboration with Microsoft. This chatbot can [...] be used [...] to prepare for negotiations. The chatbot really offers a great opportunity because [...] up-to-date data can be used. It can practically look for alternative suppliers. Information [...] can be recorded in a structured way and [...] helps the buyer [...] to be prepared for a conversation and the bot supports [...] to work out strategies, [...] identify levers and [...] call up trade-offs [...] during negotiations and [...] use ChatGPT [...] as an assistant [...] in negotiations." (PZ)	Set Negotiation Strategy	

Interviewee	Direct Citation	Second Order theme	Category
MN	"We have one of the complex raw material portfolios. So there AI can say, hey, here is an opportunity, act on it. And then as soon as this opportunity pops up, you click on it. So this opportunity is nothing but the number crunching, which is done by AI." (MN)	Set Negotiation Strategy	Implemented Use Cases
DK	"To a certain extent, actually negotiation skills might improve, especially if recommendations are good [...] But if you resort to the machine and it gives you the, let's say, advice in a special form, which actually makes sense, you can learn from it." (DK)	AI potentially improving negotiation skills through recommendations	
MN	"Humans are much better negotiators as compared to the AI tools that's there in the market out now. But this would change [...] in a couple of years." (MN)	AI will surpass human negotiation skills in the future	
PZ	"In the past, negotiations [were] driven a lot by personal contacts and interactions. And [the negotiation] is changing a bit because this AI algorithm works in a very fact-based way. It's not the case that the emotional level is strongly represented." (PZ)	Fair and Data-Driven Negotiation Outcomes	Outlook
CK	"Creative thinking remains extremely important and the ability to be a critical thinker." (CK)	Human skills will remain important	
MK	"I think these big strategic negotiations, purchasing negotiations, they will always retain a personal component, but I can imagine that you can outsource a lot of [...] bread and butter [...] negotiation processes completely to AI and then [...] give your AI negotiator the right framework conditions, I can already imagine that we will get there [...]." (MK)	Outsourcing negotiation processes to AI	