INSIGHT: AI-DRIVEN NEGOTIATION AGENTS

WHERE WE STAND, WHAT'S NEXT AND WHAT TO LOOK FOR

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By bringing together different experts with different viewpoints, this study provides a holistic perspective on AI-driven Negotiation Agents.

EXECUTIVE SUMMARY

The procurement function is entering a new era; one shaped by artificial intelligence, data-driven decision-making, and the rise of autonomous systems. Among these innovations, **negotiation agents** stand out as both a breakthrough technology and a strategic challenge. These AI-powered systems are redefining how organizations engage with suppliers, optimize cost structures, and manage complex sourcing environments.

This insight paper, developed in collaboration by **EFESO Management Consultants, Rayol AI Solutions Ltd. , mysupply**, and **Neg-S**, examines the current state, opportunities, and risks associated with negotiation agents in procurement. It brings together four leading perspectives from the fields of consulting, AI governance, sourcing automation, and professional negotiation practice.

Key Insights

- **Negotiation agents are gaining traction**, particularly in repetitive or tail-spend categories, where speed, consistency, and scalability are critical.
- **All contributors agree** on the potential for efficiency, cost savings, and strategic augmentation; but diverge on the pace of adoption, ethical boundaries, and the extent of AI autonomy.
- **Governance, trust, and human oversight** emerge as non-negotiables for successful implementation.
- **Regulatory frameworks such as the EU AI Act** are set to play a major role in shaping adoption pathways and accountability mechanisms.

THREE STRATEGIC OUTLOOKS

The paper proposes a phased future model for negotiation agent adoption:

1.

Cautious Exploration

Pilots and human-in-the-loop models dominate.

2.

Hybrid Integration

AI co-pilots assist procurement professionals in semi-structured negotiations.

3.

Intelligent Autonomy

In select domains, AI agents may fully negotiate with limited human involvement.

Call to Action for Leaders

To harness the value of negotiation agents while mitigating their risks, procurement and business leaders should:

- Define a clear AI vision linked to their broader transformation agenda.
- Start with controlled, high-impact pilots in low-risk sourcing areas.
- Build digital and ethical governance capabilities.
- Invest in AI literacy and new operating models that position humans and machines as collaborative actors.

Negotiation agents are not a question of "if" but of "how, where, and under what control." This paper is a guide to navigating those questions with strategic clarity and operational rigor.

CONTENT

1 INTRODUCTION

The Rise of Negotiation Agents

The world of procurement and negotiation is undergoing a fundamental transformation. As artificial intelligence (AI) continues to advance, its role in business negotiations is expanding beyond basic automation into more strategic and complex decision-making. AI-powered negotiation agents promise to enhance efficiency, optimize outcomes and reduce costs. But they also raise critical questions about trust, governance and the evolving role of human negotiators.

Scope and Relevance

This paper explores the current state and future trajectory of negotiation agents. With rapid advancements in AI-driven decision-making, procurement leaders must understand how these technologies fit into their strategies and how to leverage them. However, perspectives on AI in negotiations vary widely: while some see it as a game-changer that will revolutionize deal-making, others remain cautious about its limitations, ethical implications and legal constraints.

Different Perspectives: The Four Contributors

To provide a comprehensive view, this paper brings together insights from four leading organizations, each with a unique perspective on AI-driven negotiation:

- **EFESO**: Strategic implications for procurement organizations and the digital transformation journey. Impacts on sourcing, negotiation and awarding related processes.
- **Rayol AI Solutions Ltd.** : The role of AI in negotiation, power dynamics, governance, accountability and ethical considerations.
- **mysupply**: Practical applications of negotiation agents, human-controlled AI in action and sourcing automation.
- **Neg-S**: The perspective of negotiation experts vs. machine, detecting AI and impact on procurement leadership in an AI-driven world.

By combining these viewpoints, this paper aims to provide a balanced and thought-provoking discussion on the opportunities and challenges that negotiation agents present today and in the future.

2 THE CURRENT STATE OF NEGOTIATION AGENTS

2.1 Definition of AI Agent and Agentic AI

AI Agent

An AI agent is a software entity capable of autonomously performing tasks on behalf of a user or another system by designing its own workflow and utilizing available tools and data sources. AI agents can encompass decision-making, problem-solving, interaction with external environments and execution of actions without constant human intervention.

Agentic AI

Agentic AI describes AI systems designed to autonomously make decisions and act to pursue complex, multi-step goals with limited supervision, combining the flexible reasoning of large language models with traditional programming accuracy. These systems leverage machine learning, reinforcement learning, knowledge representation and natural language processing to plan, adapt and execute strategies end-to-end.

In Summary, AI agents excel at repeatable, narrowly scoped tasks under close supervision, ensuring predictable outcomes, whereas Agentic AI aims for broader autonomy, stitching together multiple capabilities (LLM reasoning, planning, tool usage) to pursue high-level, evolving goals with less hands-on control.

These distinctions matter when choosing the right approach for negotiation: simple AI agents are ideal for transactional processes, while agentic systems are better suited to complex, adaptive negotiations where multi-step reasoning and dynamic adjustment are required.

Where We Stand Today

Negotiation agents have evolved from simple rule-based systems into sophisticated AI-driven tools capable of analyzing vast datasets, identifying patterns and autonomously executing negotiation strategies. While still in the early stages of widespread adoption, these agents are already being tested and implemented across industries, particularly in procurement and supply chain management.

Many organizations view negotiation agents as a means to enhance efficiency, improve decision-making and reduce human bias in negotiations. However, adoption remains inconsistent due to concerns around trust, transparency and regulatory implications. Companies that successfully integrate these technologies often do so in controlled environments, where human oversight ensures that AI-driven negotiations align with business goals and ethical considerations.

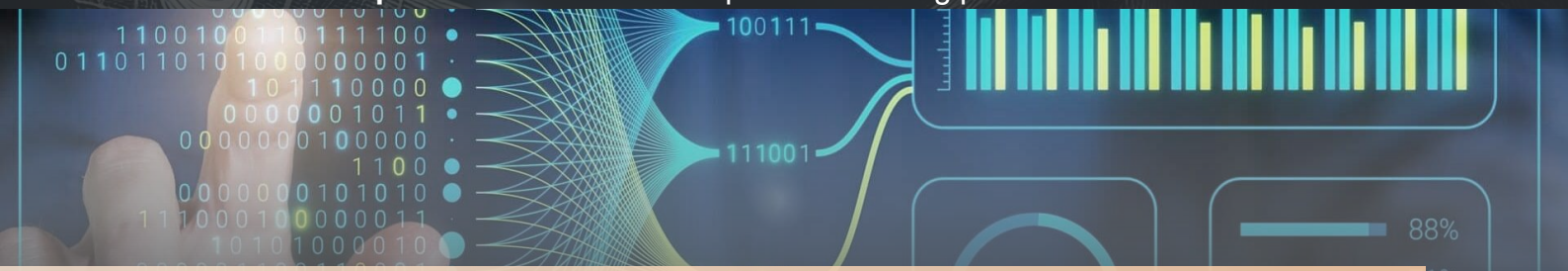
Technology and Applications

Modern negotiation agents leverage a combination of AI technologies to simulate and execute negotiation processes:

- **Natural Language Processing (NLP)**: Enables negotiation agents to understand and generate human-like communication, allowing them to interact with suppliers and stakeholders.
- **Machine Learning (ML) & Predictive Analytics**: Helps agents assess historical data, forecast outcomes and optimize negotiation strategies in real time.
- **Game Theory & Decision Science**: Provides frameworks for dynamic, strategic decision-making to maximize negotiation outcomes.
- **Automation & Robotic Process Automation (RPA)**: Facilitates seamless execution of repetitive tasks such as bid comparisons and counteroffer generation.
- **Integration with Procurement Platforms**: Negotiation agents are increasingly embedded within sourcing and procurement tools, working alongside human negotiators to optimize deal structures.

Current use cases for negotiation agents include:

- **Automated supplier negotiations** for cost savings and efficiency.
- **Real-time market benchmarking** to inform pricing strategies.
- **Dynamic contract management** to adjust terms based on external factors.
- **Auction-based procurement** where AI optimizes bidding processes.



2.2 Successes and Challenges

Success Stories

Early adopters of negotiation agents report significant gains in efficiency and cost savings. Companies leveraging AI-driven negotiations have achieved:

- Faster deal closures by automating the back-and-forth negotiation process.
- Improved consistency in procurement decisions through data-driven strategies.
- Cost reductions by identifying optimal negotiation tactics.
- Enhanced compliance by ensuring negotiation parameters align with legal and corporate policies.

Key Challenges

Despite these successes, several challenges hinder broader adoption:

- Trust and Transparency: Many procurement professionals remain skeptical about fully delegating negotiations to AI, fearing a lack of transparency in decision-making.
- Complexity of Human Negotiation: While AI excels in structured, data-driven negotiations, it struggles with complex, relationship-based discussions that require emotional intelligence and cultural awareness.
- Regulatory and Ethical Concerns: Compliance with regulations such as the EU AI Act introduces legal uncertainties regarding AI-driven decision-making in negotiations.
- Data Quality and Bias: AI models depend on high-quality, unbiased data, but procurement datasets often contain inconsistencies that can skew outcomes.
- Human-AI Collaboration: Organizations must define clear roles for AI and humans in negotiations to strike the right balance between automation and human judgment.

In Summary

Negotiation agents are steadily gaining traction, offering substantial benefits in efficiency and strategic decision-making. However, organizations must navigate trust, regulatory and technological challenges before these tools can reach widespread adoption. The next section explores differing expert perspectives on how negotiation should and should not be integrated into procurement and business strategy.

3 EXPERT PERSPECTIVES: THE FOUR VIEWPOINTS

Diverse Perspectives on Negotiation Agents

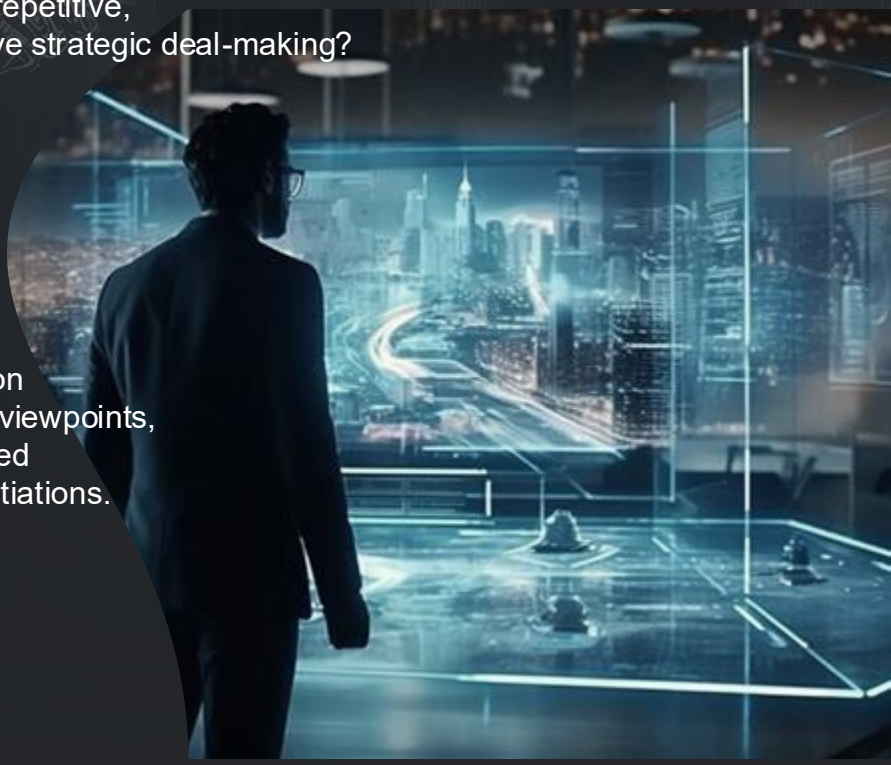
The rise of negotiation agents has sparked intense debate across industries. While some view these AI-driven tools as a breakthrough that enhances efficiency and decision-making, others remain skeptical about their limitations, ethical implications and long-term impact on procurement and supplier relationships. The reality is complex; negotiation agents are neither a universal solution nor an outright threat, but rather a tool whose effectiveness depends on its implementation, governance and strategic alignment.

To provide a well-rounded analysis, this chapter presents four distinct perspectives from leading experts in procurement, AI and professional negotiation. Each contributor brings a unique viewpoint, shaped by their expertise and experience.

A Debate of Efficiency vs. Control

While all contributors acknowledge the potential of negotiation agents, their views diverge on how, when and to what extent these agents should be integrated into negotiation processes. Key areas of debate include:

- **Automation vs. Human Oversight**: Should AI handle all negotiations, or should it remain an assistive tool for procurement professionals?
- **Ethical and Regulatory Considerations**: How do organizations ensure transparency, fairness and compliance when using AI-driven negotiations?
- **Strategic vs. Transactional Use Cases**: Are negotiation agents best suited for repetitive, low-value negotiations, or can they drive strategic deal-making?
- **Trust and Adoption Barriers**: What are the biggest obstacles preventing organizations from fully embracing AI-driven negotiations?



This chapter presents these perspectives in detail, providing insights into both the opportunities and challenges of negotiation agents. By understanding these differing viewpoints, organizations can develop a more informed and balanced approach to AI-driven negotiations.

3.1 EFESO Perspective: Strategic Implications for Procurement Organizations

AI-Driven Negotiation: A Paradigm Shift in Procurement

The integration of negotiation agents into procurement represents a fundamental shift in how organizations approach supplier management, cost optimization and value creation. Procurement is no longer solely about cost reduction, it is about strategic enablement, resilience and competitive differentiation. AI-driven negotiation agents, when effectively integrated, offer procurement organizations the ability to transform from transactional executioners to proactive value orchestrators.

As organizations accelerate their digital transformation journeys, the adoption of negotiation agents is not merely an operational enhancement but a strategic imperative. These AI-powered agents have the potential to augment human decision-making, enhance speed and precision in supplier interactions and unlock new levers of value creation. However, their implementation must be carefully orchestrated to align with an organization's broader procurement strategy, governance framework and digital maturity.

Strategic Implications for Procurement Leaders

For procurement leaders, the introduction of negotiation agents necessitates a re-evaluation of core procurement capabilities and operating models. Key strategic considerations include:

1. Procurement's Evolving Role: From Negotiators to Strategic Orchestrators

Traditionally, procurement has been viewed as a function centered around cost containment and contract negotiation. With AI-driven negotiation agents handling routine and structured negotiations, procurement teams must pivot toward higher-value activities such as supplier relationship management, risk mitigation and long-term value creation. This transition demands new skill sets, including data analytics proficiency, AI governance and strategic decision-making.

2. Redefining the Human-AI Collaboration Model

Negotiation agents should not be viewed as replacements for procurement professionals but as force multipliers. The most successful organizations will develop a hybrid model where AI enhances, rather than replaces, human expertise. This requires a well-defined framework for "human-in-the-loop" governance, ensuring that AI-driven negotiations align with corporate strategy, ethical considerations and regulatory compliance.

To achieve this balance, organizations must establish clear guidelines on:

- When to fully automate negotiations (e.g., standardized, low-complexity sourcing events).
- When to implement AI-assisted negotiations with human oversight.
- When negotiations should remain fully human-driven due to complexity, relationship dynamics, or strategic significance.

3. Digital Procurement Architecture: Ensuring Seamless Integration

Negotiation agents cannot operate in isolation; they must be embedded within a **digitally mature procurement ecosystem**.
This includes seamless integration with enterprise resource planning (ERP) systems, supplier relationship management (SRM) platforms and procurement analytics tools. Organizations must assess their existing digital infrastructure and ensure that AI-driven negotiation capabilities are interoperable with broader procurement and supply chain functions.
Furthermore, **data quality and governance** become critical enablers of success. AI models rely on high-integrity data sets to optimize negotiation strategies. Procurement organizations must establish robust **data validation, cleansing and bias-mitigation processes** to ensure that AI-driven decisions are both reliable and ethically sound.

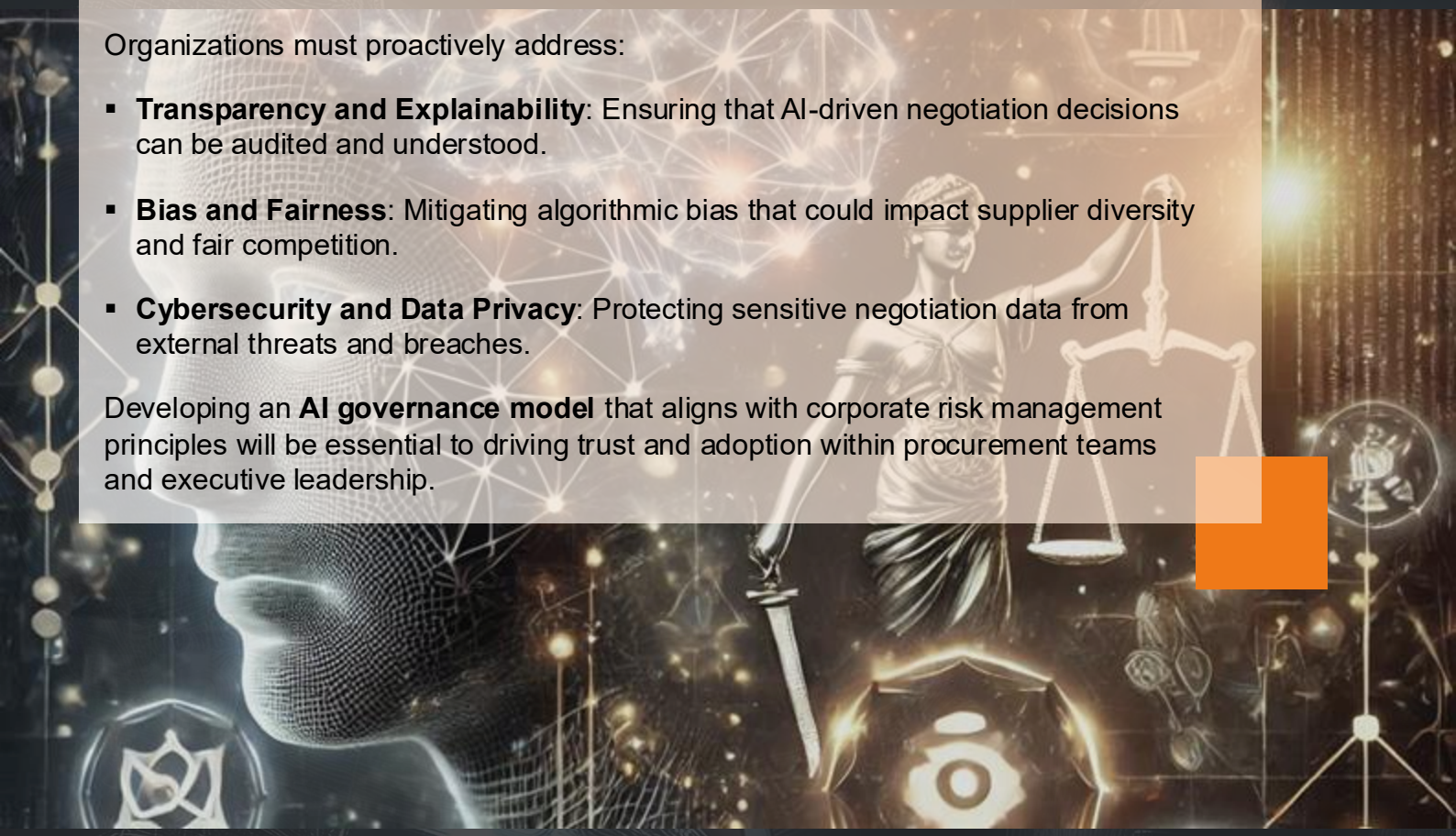
4. Risk, Compliance and the Regulatory Landscape

The deployment of negotiation agents introduces new risk considerations, particularly in regulated industries and cross-border procurement.
The **EU AI Act** and other emerging regulations place increased scrutiny on AI-driven decision-making, necessitating **compliance frameworks that align with legal and ethical standards**.

Organizations must proactively address:

- **Transparency and Explainability**: Ensuring that AI-driven negotiation decisions can be audited and understood.
- **Bias and Fairness**: Mitigating algorithmic bias that could impact supplier diversity and fair competition.
- **Cybersecurity and Data Privacy**: Protecting sensitive negotiation data from external threats and breaches.

Developing an **AI governance model** that aligns with corporate risk management principles will be essential to driving trust and adoption within procurement teams and executive leadership.



3.1.1 Conclusion: A Call to Action for Procurement Executives

Negotiation agents represent a transformative opportunity for procurement organizations, but only if implemented strategically. To capture the full potential of AI-driven negotiations, procurement leaders must:

1. **Develop a clear AI strategy** that defines the role of negotiation agents within the broader procurement transformation roadmap.
2. **Invest in digital capabilities and data governance** to ensure AI-driven decisions are accurate, ethical and aligned with corporate objectives.
3. **Establish a hybrid human-AI operating model** that leverages AI for efficiency while maintaining human oversight for strategic and complex negotiations.
4. **Ensure compliance with evolving regulatory frameworks** to mitigate risks associated with AI-driven procurement decisions.

By proactively embracing AI-driven negotiation capabilities, procurement organizations can position themselves at the forefront of digital transformation, driving efficiency, resilience and long-term value creation.

3.2 Rayol AI Solutions Ltd. : The role of AI in negotiation, power dynamics, governance, accountability and ethical considerations

Introduction

As we engage with the potential and implications of AI agents in negotiation, Rayol AI Solutions Ltd. firmly believes in the responsible and informed integration of AI technology to complement and enrich human capabilities rather than replace human decision making. There needs to be continuous improvement in the human–AI loop. A clear and purposeful Mission, Vision and Values (MVV) framework is a condition sine qua non: such a framework delivers alignment to avoid inefficiencies and misunderstandings; clarity about what to do, why and how; measurable impact; risk mitigation; and ethics intentionality when building and using AI systems for negotiation.

It is important to first acknowledge that the current landscape around AI driven negotiation is marked by ambiguity and fear. Companies often use terms like “AI agents” and “agentic” interchangeably, causing confusion and inconsistent expectations. Clear definitions and scopes are essential to ensure transparent and reliable usage.

AI Needs a Human Foundation: Mission, Vision, Values (MVV)

Anchoring AI in an organization’s Mission, Vision & Values ensures it operates responsibly and in service of human-centered goals. This is relevant and not optional when building AI systems for negotiation.

As outlined in Rayol AI Solutions Ltd. ’s original framework, MVVs:

- Provide ethical orientation for the system. AI behaviors and guardrails derive from core values, ensuring alignment with organizational purpose.
- Guide AI design and deployment to serve human-centered goals. MVV steers feature prioritization, data selection and UX design toward outcomes that matter for people.
- Ensure alignment across technical and non-technical teams. Shared MVV language bridges silos, developers, legal, ethics and business stakeholders collaborate on consistent objectives.

Contextualizing AI in Procurement Negotiations

Negotiation contexts significantly influence the suitability of AI use. In a business context, especially within procurement, AI tools can dramatically enhance negotiation performance, but only when deployed in line with the complexity of the procurement activity, the level of relationship management required, and the strategic value of the goods or services involved.

1. Standardized, Repetitive Procurement Scenarios

AI, particularly AI agents, is highly effective in routine procurement negotiations involving standardized products or services with clearly defined parameters. These include:

- Fixed product specifications (e.g., office supplies, IT hardware)
- Non-variable delivery terms
- Pre-negotiated price ranges or catalog agreements
- Structured vendor onboarding criteria

In such environments, AI agents can automate RFQ issuance, benchmark bids, apply supplier scoring models and initiate negotiations based on threshold pricing or service levels.

2. Parametric vs. Strategic Procurement

AI is most suitable when procurement parameters are pre-defined, measurable and comparable. This includes:

- Unit price
- Quantity tiers
- Payment terms
- Incoterms
- Penalty clauses

AI can model millions of combinations in seconds to identify Pareto-optimal solutions for both buyer and seller.

However, when procurement becomes more strategic, AI needs to shift from agent behavior to more agentic autonomy, where decisions must consider:

- Long-term relationship impact
- Innovation potential of the supplier
- Multi-stakeholder constraints (legal, compliance, ESG)
- Dynamic market and power conditions (e.g., commodity price fluctuations, sanctions, technological level)

In these cases, AI must not just follow rules; it must reason, adapt and learn.

3. Examples of Context-Sensitive Suitability

Procurement Type	Suitable AI Form	AI Functionality
Raw material sourcing	AI Agent	Price comparison, logistics optimization, automated purchase order negotiation
Outsourcing and software development	Agentic AI	Multi-criteria vendor analysis, long-term relationship evaluation, IP/legal terms
Regional logistics contract	AI Agent	Routing efficiency, SLA enforcement, fee negotiation within predefined constraints
Green energy supplier selection	Agentic AI	Sustainability scoring, emissions reporting negotiation, ESG trade-offs

4. Transparency and Strategic Use of AI

At Rayol AI Solutions Ltd. , we believe that deploying AI systems, whether AI agents or agentic AI, requires more than technical readiness. It demands a structured and ethical approach anchored in both a **maturity model** and clear **deployment guidance**.

The **maturity model** should be a step-by-step framework that outlines how AI adoption typically progresses within an organization. It enables decision-makers to assess where they stand and what cultural, technical and regulatory steps they must take next.

Deployment guidance includes practical and ethical instructions on how to:

- Choose the right type of AI system for the task (e.g., AI agent vs. agentic AI).
- Ensure high-quality, transparent and representative data throughout the lifecycle.
- Train staff and embed clear human oversight policies.
- Align AI design and outputs with the organization's Mission–Vision–Values (MVV) framework.
- Mitigate risks such as algorithmic bias, misuse and regulatory non-compliance.

At Rayol AI Solutions Ltd. , we view both the maturity of the model and deployment guidance as **preconditions** for the responsible rollout of AI systems. Deploying without this structure increases the likelihood of **technical failure**, **cultural pushback** and **regulatory infractions**, as our own client case studies have demonstrated.

To support transparency and responsible use, we emphasize:

- **Using bots confidently** in structured, low-risk negotiations (e.g., procurement tenders), where parameters are clearly defined and stakes are limited.
- **Exercising caution** in sensitive or high-stakes scenarios (e.g., strategic sourcing or legal settlements), where human agency must remain central.
- **Promoting transparency by default**, ensuring participants always know when they are engaging with an AI system and understand the rationale behind its outputs.

According to our vision, AI negotiation systems should be introduced through **a three-phase maturity model**:

Phase 1: AI-Assisted (Limited Deployment)

AI supports decision-making in low-stakes contexts under close human supervision. This phase prioritizes explainability, transparency and learning through feedback.

Phase 2: Semi-Autonomous (Hybrid Models)

AI begins operating more independently in well-defined domains. Humans remain co-pilots; validating decisions, ensuring accountability and feeding performance insights back into the system.

Phase 3: Trusted Partial Autonomy (Autonomous Negotiation)

With demonstrated transparency, fairness and robustness, AI systems can manage complex, high-frequency or high-value negotiations autonomously. Human oversight remains available, but trust in the system has been earned through consistent performance and ethical alignment.

Deploying AI in negotiation contexts, especially in sensitive areas like procurement, requires **intentionality, structure and accountability**. The combination of a maturity model and deployment guidance ensures that **AI tools are introduced responsibly, transparently and in line with organizational values**. By phasing deployment across maturity stages and aligning each step with human-centered oversight and ethical governance, organizations can minimize risk and maximize trust, efficiency and strategic value.

5. Ethical and Moral Dimensions

AI-driven agents—whether narrow AI systems or more autonomous agentic models—do not possess intrinsic moral reasoning. Their decisions are based on data patterns and algorithms, not ethical understanding, which makes it critical to embed explicit ethical guidelines that account for human values, fairness, and cultural context. At Rayol AI Solutions, we emphasize that ethical frameworks must be adaptable, culturally sensitive, and inclusive of diverse stakeholder perspectives to prevent bias and ensure respectful, trustworthy negotiations. Negotiation outcomes are not just about efficiency—they also involve trust, relational dynamics, and perceptions of fairness that vary across regions.

6. Regulatory Context: The EU AI Act

The AI Act (Regulation (EU) 2024/1689) is the first comprehensive legal framework on AI worldwide, establishing a risk based approach that prohibits unacceptable risk systems, regulates high risk systems and imposes transparency obligations on limited risk systems citeturn0search2.

6.1 Classification of AI Negotiation Bots

Under Article 6, any AI system used to assess or influence individual rights or to make decisions of legal or significant economic impact, such as automated negotiation agents, may be classified as **high risk**, especially if they:

- **Profile parties or assess contract terms automatically**, affecting price or legal obligations without direct human oversight
- **Influence pricing, creditworthiness, or legal commitments without human review**, carrying significant economic or legal consequences that demand stringent safeguards

6.2 Obligations for High Risk AI Systems

Providers of high risk AI systems must:

- Establish a risk management system throughout the lifecycle.
- Ensure data governance, using representative, error free datasets.
- Produce technical and design documentation detailing architecture, algorithms and decision logic.
- Implement record keeping for auditability of inputs, outputs and human interventions.
- Enable human oversight features allowing intervention and override.
- Achieve appropriate accuracy, robustness and cybersecurity levels through stress and adversarial testing.
- Maintain a quality management system aligned with ISO or equivalent standards.

6.3 Conformity Assessment and CE Marking

Before placing a high risk AI negotiation bot on the market or into service, the provider or, where applicable, the authorized representative shall register themselves and their system in the EU database referred to in Article 71. They must also undergo a conformity assessment, internal or via a notified body and affix a CE marking to demonstrate compliance, according to Article 48 of the EU AI Act.

6.4 What Makes an AI Negotiation Agent EU AI Act Compliant?

1. **Risk Management**
Continuous identification, evaluation and mitigation of risks related to fairness, bias and security, supported by documented procedures.

2. **Data Governance**
Use of high quality, representative datasets; regular audits for bias and completeness; and transparent data lineage tracking.

3. **Transparency & Documentation**
Clear documentation of model specifications, training processes, decision making logic and user instructions to facilitate external review.

4. **Human Oversight**
Built in controls allowing human intervention and override at any stage of the negotiation process, with escalation protocols.

5. **Robustness & Security**
Rigorous testing against adversarial inputs and cybersecurity threats; resilience verification under varied operating conditions.

6. **Conformity Assessment**
Completion of required internal or third party conformity procedures and CE marking, with certificates readily available.

7. **Post Market Monitoring**
Mechanisms for logging operational data, reporting serious incidents and updating models to address newly identified risks in a controlled manner.

8. **Strategic Recommendations**
- Human in the Loop
  Ensure humans retain ultimate responsibility and oversight, with clear escalation paths and audit trails.
- Cross Cultural AI Ethics Dialogue
  Develop adaptable, culturally informed negotiation standards through international cooperation, workshops and shared toolkits.
- Investment in AI Literacy
  Global education initiatives, such as online courses, certifications and local training programs, to raise capacity and understanding, particularly in disadvantaged regions.
- Standardization of Terms
  Industry wide clarity on definitions of “AI agents,” “agentic AI,” and their capabilities, promoted through white papers, standards bodies and consortiums.

9. Conclusion

Rayol AI Solutions Ltd. believes AI driven negotiations hold immense potential when responsibly implemented within clear ethical frameworks, transparent practices and robust regulatory compliance. Achieving this vision requires collective commitment – from policymakers to businesses, technologists and civil society – to ensure fair, transparent and ethically sound integration of AI into the negotiation domain.

3.3 mysupply: View on Automation and Efficiency in sourcing and negotiations. Human-controlled AI in action. Where can I apply negotiation agents?

3.3.1 Why Procurement Negotiations Matter More Than Ever

In today's business environment, the pressure to reduce costs is intensifying. The economic downturn has already taken a visible toll: Germany's Top 100 companies experienced a 19% drop in EBIT in 2024, according to a study by EY (Jan Brorhilker, Managing Partner at EY). Manual processes, limited negotiation capacity and overlooked savings opportunities are costing companies millions. Across industries, procurement is under increasing pressure, not just to ensure supply, but to deliver measurable cost reductions.

One of procurement's most immediate levers is negotiation. Unlike broad strategic initiatives, effective negotiation produces clear outcomes: better terms, lower prices and improved conditions. Yet many organizations fail to tap into its full potential. The need is clear: companies must find scalable, sustainable ways to achieve savings without overloading existing teams. AI-driven negotiation is emerging as one such solution.

Negotiation has always been central to procurement, particularly in strategic categories where supplier relationships and contract terms shape long-term value. But it's equally relevant in tactical and operational procurement, especially in high-volume, low-value purchases, where even small improvements can lead to meaningful savings.

The challenge is bandwidth. Strategic negotiations tend to receive proper attention, while Tail spend, comprising frequent lower-value transactions, often goes unmanaged. These areas are left under-negotiated simply because teams don't have the time, staff, or tools. As a result, organizations leave significant savings on the table.

AI-driven negotiation tools help address this gap by bringing structure, scale and analytical support to a broader range of procurement activities.

3.3.2 Traditional Approaches to Negotiation: Strengths and Gaps

Negotiation in procurement can take many forms. At the strategic level, it may involve long-term contracts with key suppliers and performance metrics. In operational procurement, it typically focuses on pricing, delivery terms and responsiveness.

Over the past two decades, digital tools such as e-auctions, RFQs and sourcing platforms have helped standardize and scale supplier interactions. These tools have introduced structure and a measure of transparency, but they also have limitations. They mostly:

- Focus on price only (as seen in reverse auctions).
- Require substantial manual setup and oversight.
- Demand significant time for one-off or small purchases.
- Struggle to adjust dynamically to supplier responses.

As a result, negotiation efforts often concentrate on high-value categories, leaving a long tail of spend untapped.

3.3.3 The Rise of AI in Procurement

Artificial intelligence has become a new element in procurement software. In spend analysis, AI can classify and clean large datasets. In supplier risk management, it helps identify potential issues. In forecasting, it improves demand planning with prediction models.

More recently, AI has begun to influence the way negotiations are conducted. AI in negotiation is designed not to make all decisions autonomously but to support better ones. It processes large volumes of data, considers multiple negotiation parameters and engages with suppliers in real time. While human negotiation is limited by capacity and time, AI can operate continuously and across numerous categories simultaneously.

3.3.4 Use Cases for AI Negotiation Agents

AI negotiation tools have applications across a range of procurement scenarios, including:

- Indirect Procurement: Automating repetitive negotiations for office supplies, IT services and general expenses.
- Tail Spend Management: Bringing order to decentralized purchasing activities.
- Contract Renewals: Engaging suppliers to update pricing or other terms.
- Dynamic Market-Based Pricing: Adjusting terms in real time according to shifts in commodity prices or supply-demand balances.
- Strategic Support: Providing category managers with data, simulations, or margin benchmarks to aid in negotiations.

3.3.5 AI Negotiations in Practice: The mysupply Example

Tail spend often goes without proper negotiation, not because the value isn't there, but because procurement teams are stretched thin.
At the same time, a considerable amount of time and effort is spent managing this area without yielding meaningful financial returns.

Introducing automation into this part of the process creates an opportunity to reduce workload and improve savings. However, automation alone is insufficient. For consistent results, automated negotiations must be linked to the sourcing process. Negotiations based on a single supplier's offer lack the competitive element needed for better outcomes. Engaging several suppliers simultaneously creates more competitive conditions, thereby increasing the chance of achieving favorable results.

Traditional e-auctions are structured and effective but typically focus on one factor at a time, usually price. AI agents can address additional conditions, such as payment terms or delivery schedules, while interacting with multiple suppliers at once. By applying negotiation models such as those derived from game theory, AI agents can choose suitable strategies and adjust to varied supplier responses.
Running these negotiations in parallel helps procurement teams cover more ground in less time, without reducing the quality of outcomes.

3.3.6 AI Agents in Perspective: Capabilities Today and Tomorrow

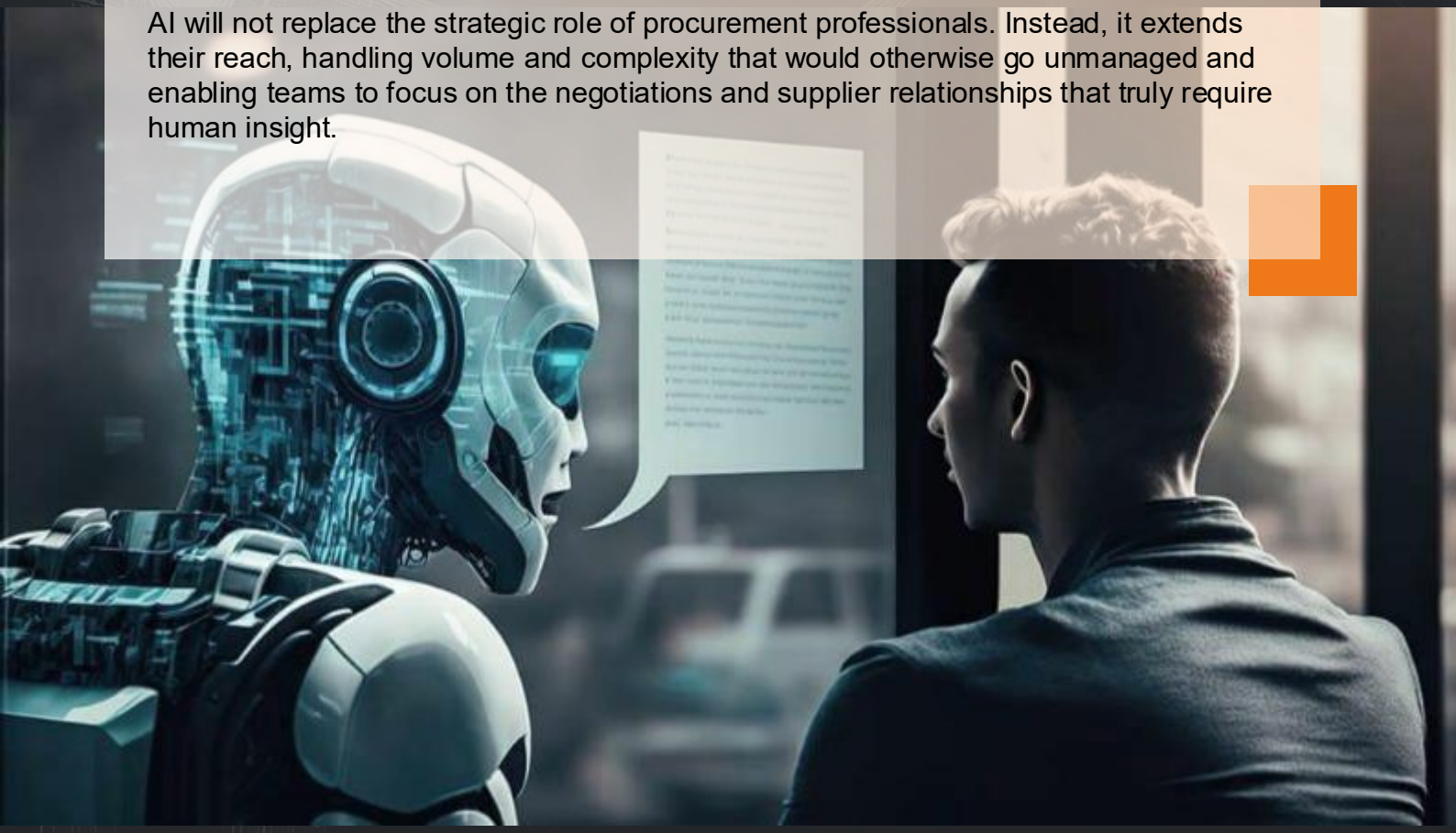
AI agents are already changing how procurement negotiations are conducted, especially in categories that are traditionally left untouched due to time or resource constraints. At mysupply, these systems are used primarily for less strategic negotiations, where human-led processes typically wouldn't happen. As a result, bots aren't just replacing manual effort; they're creating new savings opportunities where none existed before.

A key advantage is the ability to negotiate on multiple dimensions beyond price, such as delivery terms, payment schedules, or volumes, simultaneously. Several agents can even engage a supplier at once, each focusing on a different aspect of the offer. This creates a negotiation dynamic that feels much closer to human interaction than traditional e-auctions.

These agents also act independently and can manage complex, multi-variable negotiations at scale. For highly strategic spend, they serve as intelligent companions, supporting buyers with simulations, benchmarks, or recommendations. In less strategic areas, however, AI agents can already take fully over, leading negotiations with measurable success.

Looking ahead, the evolution is accelerating. Soon, AI agents won't just send messages, they'll speak with suppliers in real time. Advances in natural language processing and voice technology are making real-time, human-like dialogue possible. Even complex n:m negotiations, where multiple buyers and suppliers interact simultaneously, are becoming realistic. These capabilities mark a significant shift in what procurement teams can achieve with limited resources.

AI will not replace the strategic role of procurement professionals. Instead, it extends their reach, handling volume and complexity that would otherwise go unmanaged and enabling teams to focus on the negotiations and supplier relationships that truly require human insight.



3.3.7 What's next: The Possibility of Bot-on-Bot Negotiations

One area that has sparked curiosity is bot-on-bot negotiation, where automated systems on both the buyer and supplier side engage with one another.

While this is still a theoretical construct today, it presents interesting possibilities:

Possible Benefits:

- Increased Efficiency: Automated bots can run multiple negotiations at once without delay, reducing overall cycle times.
- Consistent Execution: Bots follow predefined rules and negotiation logic, ensuring consistency across transactions.
- Data-Driven Decisions: With access to large amounts of historical and real-time data, bots can make informed decisions that might be missed in manual processes.

Potential Risks:

- Limited Human Judgment: In complex cases, decisions made solely by automated systems could miss nuances that a human negotiator might catch.
- Supplier Concerns: Suppliers may view bot-on-bot interactions as impersonal if the process lacks transparency or flexibility.
- System Vulnerabilities: Errors in algorithms or data quality issues could lead to unintended outcomes if bots are not carefully monitored.

Administrative Considerations:

- Clear Policies and Escalation Rules: Companies must define clear parameters for when human intervention is required.
- Data Accuracy and Transparency: Maintaining high data quality and ensuring that negotiation logic is understandable to both internal teams and suppliers is key.
- Integration with Existing Processes: Bot-on-bot systems should work within established procurement frameworks.
- Regular Audits and Reviews: Periodic assessments help ensure that the system remains effective and aligned with company objectives.

Conclusion

Negotiation remains a core function within procurement, yet its methods are evolving. With the integration of artificial intelligence, procurement teams are no longer limited to managing only a fraction of their spend. They can engage more suppliers, process more data and negotiate across multiple dimensions; even in categories once deemed too small or cumbersome.

AI does not replace the need for strategic thinking and relationship management. Instead, it extends the scope of procurement by handling volume and complexity, allowing professionals to focus on higher-level decision-making.

In an environment where cost savings directly correlate to profit improvement, the ability to negotiate effectively and at scale is increasingly critical. For many organizations, the question is no longer whether to adopt AI-driven negotiation tools but how quickly to integrate them into existing processes.

AI-driven negotiations are already here. Where does your procurement stand?

3.4 Neg-S: The perspective of negotiation experts, human vs. machine, detecting AI and impact on procurement leadership in an AI-driven world

3.4.1 AI driven negotiations – new opportunities, "old" challenges

You might not believe it, but looking back more than 25 years, provides insight into the use of AI in negotiations. At that time, the first Online auction tools for procurement were established and many procurement organizations implemented solutions and tried to apply auctions to the maximum spend. Targets were defined, such as the percentage of total spend to be auctioned, and the teams were instructed to execute. Quite soon it became obvious that auctions across the board don´t work and don´t make sense. After that "hype", auctions were used for a limited amount of business where it makes sense.

Remarkable for this phase is that the first phase of implementing auctions also impacted trust in the customer-supplier relationship as auctions were partially used without a plan, appropriate set-up and preparation and the results achieved were not accepted. Auction forms were tested sometimes three or four different for the same negotiation. The business partners often got the feeling it is all about a unilateral optimization of commercials.

Many of the patterns described for auctions can be easily transferred into negotiation agents. A "beta test" in a live environment without clear directions and goals can lead to very similar issues. But in general, we should expect that the technology will be used with a first peak at the beginning and then shrink to a percentage of the first peak, then representing the new normal.

3.4.2 Human vs. AI negotiations

Due to the sheer amount of data, AI is trained with, it has various advantages, especially to be very structured and quick-witted. AI will typically outperform on elements like objection handling, collecting facts and figures and sharing huge amounts of information.

AI performs what it is trained for, One of the limitations lies in different domains of application. You can compare it best with the world leading Chess computers. Even the world's best chess players can hardly win against those Supercomputers. But what happened if you switched to a different board game? As long as not trained, they would most likely fail.

From our perspective that shows one essential difference: Human beings can connect the dots totally differently, create new models with new information which might initially not seem to be related to the case. They can mix and bundle, involve other people or elements into the negotiation. Would an AI just go for a coffee with a stakeholder to build an alliance to use for a later negotiation?

The downside: They can be very biased in their assessments and do misinterpretations in the ideation phase.

A great collaboration is AI supporting the data collection and brainstorming phase, providing first ideas and lots of data, which can then be refined and selected by the human negotiator.

3.4.3 Where could Negotiation Agents be used?

From our perspective, short and mid-term the most promising use of negotiation Agents is in the following fields:

- Tail spend negotiations: To create results while releasing capacities for impact negotiations
- Standardized products and services: For manageable negotiation content
- Clear setup and requirements
- Simulating/training/rehearsing for human negotiators: All internal to prepare a negotiation with third parties

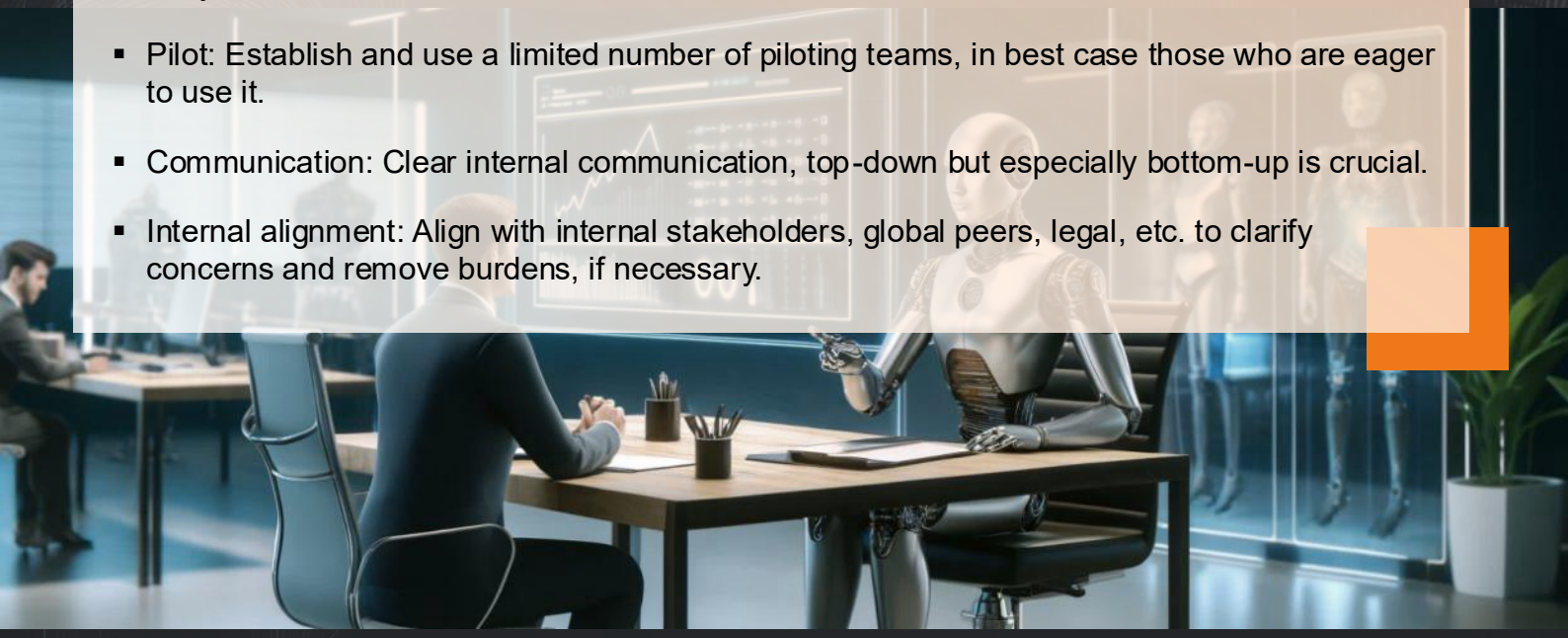
In all above disciplines it is clear and transparent that a negotiation agent is used. All parties involved agree and its use provides clear benefits to the user. Which would typically not be the case with silent use in real life negotiations under use of a negotiation agent.

3.4.4 Impact on procurement leadership in an AI-driven world

The example of auctions outlines a generic challenge for procurement organizations. The main issues occur when the use of a tool is bound to targets, for example % or a fix number of cases to be negotiated via a negotiation agent. This often leads to a comparably high number of cases where the tool is just used as “tick the box” approach and not because it makes sense. In our experience we have seen many procurement organizations rolling out new tools and setting strict targets to all procurement teams that it should be used, even if it was obvious from the beginning that it does not apply to all potential use cases. The impact was often internal resistance and lots of non-value add work by tracking teams, report-outs, etc. Just to “rightsize” the approach later.

Recommendations for Procurement leads:

- Plan properly: Not just start and try to do it across the board.
- Clear rules and restrictions: The use and limitations should be clearly outlined and defined early.
- Pilot: Establish and use a limited number of piloting teams, in best case those who are eager to use it.
- Communication: Clear internal communication, top-down but especially bottom-up is crucial.
- Internal alignment: Align with internal stakeholders, global peers, legal, etc. to clarify concerns and remove burdens, if necessary.



3.4.5 Detecting AI in a negotiation

Can AI agents be detected in negotiations? Quite often yes, but not always. Some criteria should raise yellow flags to further investigate:

- Communication just in writing: Especially if the contact was before mainly via phone or interpersonal.
- New contact persons without pre-announcement: Especially if the names sound “John Doe” like.
- Communication sounds very “scripted” and default
- Static responding to changed approaches: What happens if you turn more pushy in your verbiage?
- Creative approaches and responses are not answered appropriately
- Your new contact cannot be found in social media

This is just a selection of criteria – Key message is not to just operate but observe and verify!
Some approaches to deal with AI use:

- Clarify Rules with our business partners proactively! For example:
  - The use of AI in a negotiation must be communicated openly and proactively
  - Otherwise, your company would not participate/respond
  - Unilateral implementation can lead to consequences…
- Reach out to the customer or supplier by phone to verify human or AI involvement in this negotiation
  - “I was contacted by a new, unknown person, how does he/she relate to the organization?”
- If you are pulled into a negotiation and a “yellow flag” pops up, try to modulate your approach intensively. Ask various questions, ask for clarifications, challenge assumptions in the response you got. In extreme situations, try to lead the negotiation in a planned deadlock.

4 AREAS OF AGREEMENT AND DISAGREEMENT

4.1 Common Ground: A Shared Understanding of Potential

Despite the diversity of perspectives presented in this paper, all contributors converge on several key points regarding the emergence of negotiation agents:

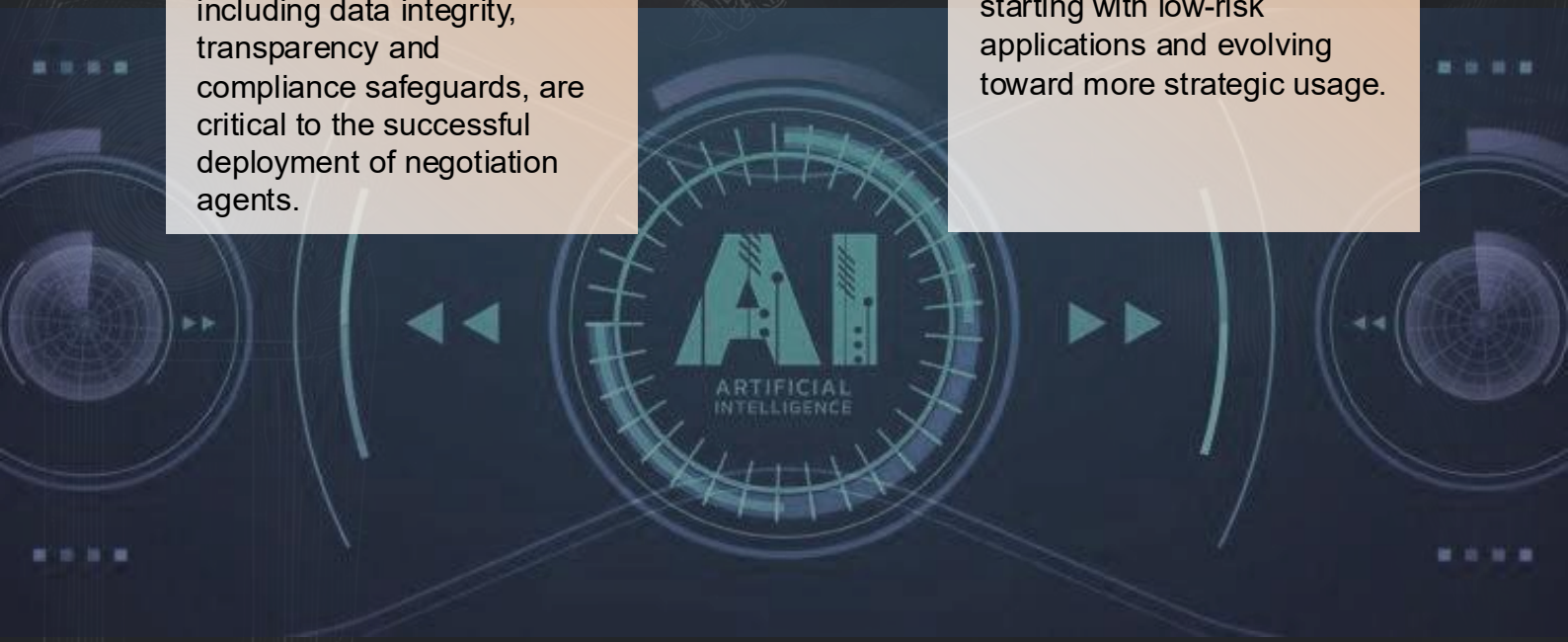
Efficiency Gains:
All parties recognize that AI-supported negotiations deliver significant time and cost efficiencies, especially in high-volume or low-complexity sourcing scenarios.

Strategic Augmentation:
Rather than replacing human negotiators, AI is broadly seen as a complementary capability that enables procurement professionals to focus on high-value, strategic tasks.

Scalability:
Negotiation agents enable procurement functions to manage a broader range of negotiations, particularly in tail spend, without increasing headcount.

Governance Requirements:
There is consensus that clear governance structures, including data integrity, transparency and compliance safeguards, are critical to the successful deployment of negotiation agents.

Phased Adoption:
All contributors recommend a maturity-based rollout model, starting with low-risk applications and evolving toward more strategic usage.



4.2 Points of Divergence: The Open Questions

While agreement exists on foundational principles, divergent views emerge on the following topics.

Topic	Key Questions	Differing Perspectives
Automation vs. Human Oversight	To what extent should AI operate autonomously in negotiations?	mysupply and EFESO emphasize hybrid models; Rayol and Neg-S caution against over-automation, stressing human-in-the-loop governance.
Ethical Boundaries	How can fairness and transparency be guaranteed in AI-led negotiations?	Rayol advocates for ethical-by-design systems anchored in MVVs; Neg-S highlights real-world detection and misuse risks.
Strategic Applicability	Can negotiation agents handle complex, strategic sourcing events?	EFESO and Rayol acknowledge long-term potential; Neg-S remains skeptical, emphasizing relational and contextual nuance.
Adoption Barriers	What are the most critical obstacles to scale?	EFESO cites digital maturity and system integration; Neg-S and Rayol focus on organizational resistance, trust and regulation.

4.3 A Strategic Dialogue Still in Progress

These areas of alignment and divergence reflect the broader debate occurring within the procurement and AI communities. While early experiences suggest significant potential, the path to scalable and responsible adoption remains subject to organizational culture, regulatory readiness and leadership clarity. What unites all perspectives is the recognition that negotiation agents are not a plug-and-play solution, they are a strategic capability that must be introduced with intention, governance and a deep understanding of their operational boundaries.

5 THE FUTURE OUTLOOK: SCENARIOS AND PREDICTIONS

Looking ahead, the evolution of negotiation agents will follow distinct phases; each characterized by varying levels of adoption, trust and technological sophistication. Below is a proposed three-stage scenario framework:

Phase 1: Cautious Exploration (2025-2027)

- Characteristics: Low-risk use cases, human-in-the-loop models, pilot-based deployments.
- Challenges: Trust barriers, regulatory uncertainty, internal resistance.
- Enablers: Structured maturity models, clear governance, transparency.
- Typical Application: Tail spends, indirect categories, contract renewals.

Phase 2: Hybrid Integration (2027-2030)

- Characteristics: Widespread integration of negotiation agents in standardized sourcing, supported by AI co-pilots in strategic domains.
- Challenges: Cultural adaptation, process alignment, ethical scaling.
- Enablers: Proven use cases, successful pilots, AI literacy across procurement.
- Typical Application: Mixed-model sourcing strategies with automated support for mid-level negotiations.

Phase 3: Intelligent Autonomy (Beyond 2030)

- Characteristics: Fully autonomous negotiations in selected domains, including bot-to-bot interactions.
- Challenges: Legal liability, ethical reasoning, auditability of outcomes.
- Enablers: Regulatory harmonization, AI-native organizations, generative negotiation frameworks.
- Typical Application: Real-time, dynamic negotiations across digital ecosystems.

Across all scenarios, one constant remains: Human leadership will determine the success or failure of AI in procurement negotiations. Technology will evolve, but strategic deployment, governance and ethics will define the outcome.

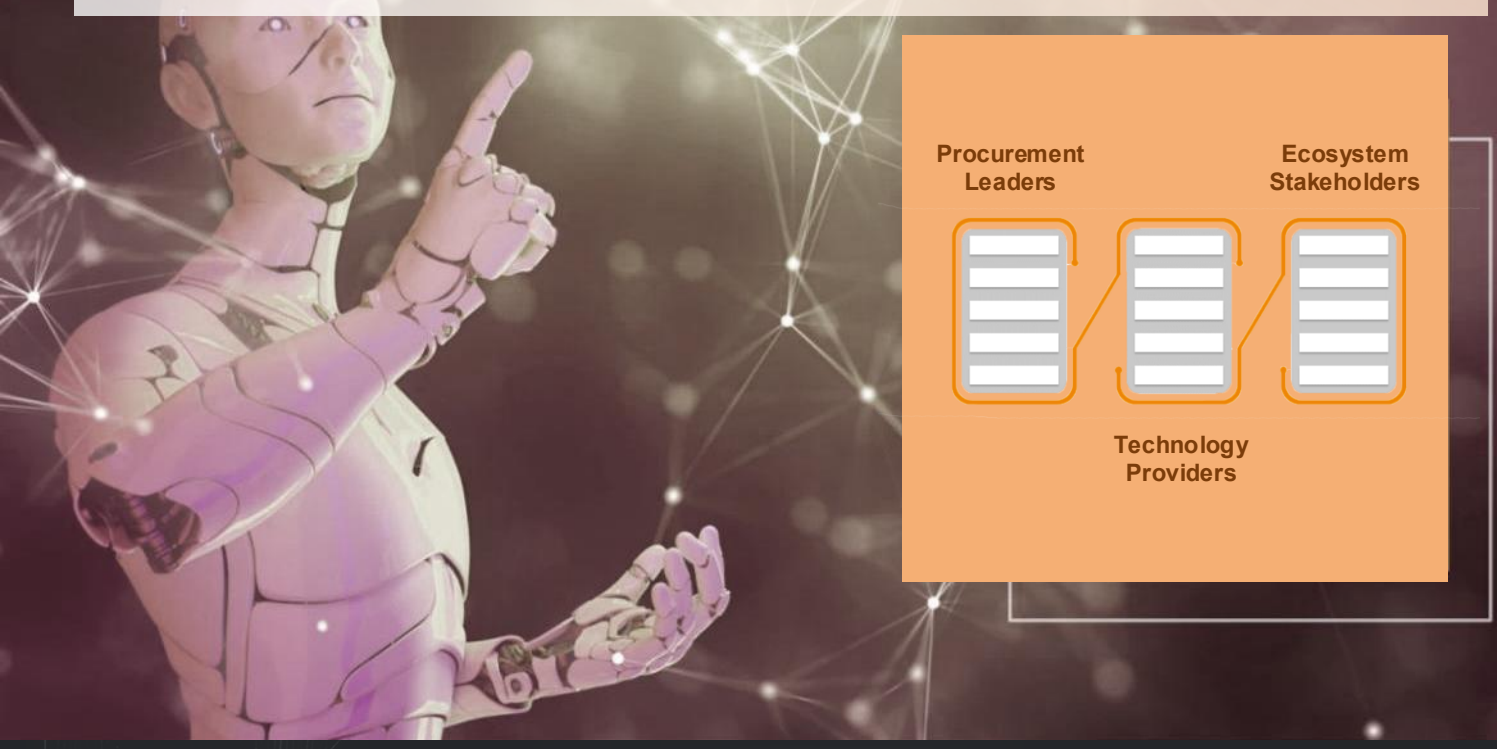
6 CALL TO ACTION

Negotiation agents are no longer a speculative concept; they are becoming a tangible lever for performance in procurement. Yet their successful deployment depends not only on technology, but on leadership, design choices, and strategic alignment. The time to move is now, but with intent, governance, and vision.

Below, we outline tailored actions for the three primary stakeholder groups driving this evolution.

For Procurement Leaders: Lead the transformation

- **Set a Strategic Direction**: Articulate how negotiation agents support your procurement function's long-term value agenda; not just short-term savings.
- **Prioritize Use Cases**: Focus on domains with high frequency and low complexity (e.g., tail spend, renewals) to build credibility and momentum.
- **Define Operating Models**: Establish clear decision boundaries between fully automated, AI-assisted, and human-led negotiations.
- **Invest in Talent and Capabilities**: Upskill teams in AI fluency, data interpretation, and hybrid negotiation strategies.
- **Govern Proactively**: Embed ethical and regulatory safeguards early; don't wait for compliance to become a roadblock.
- **Define a Clear AI Roadmap**: Position negotiation agents within your broader digital transformation strategy and articulate the procurement vision they enable.
- **Start Small, Scale Wisely**: Begin with pilot use cases in tail spend or indirect categories to build trust and demonstrate ROI before expanding to complex domains.



For Technology Providers: Build with purpose and focus

Focus on Transparency and Control: Design systems with explainable AI, audit trails, and built-in oversight features.

Drive Seamless Integration: Ensure agents are interoperable with ERP, sourcing platforms, and contract management systems.

Design for the Real World: Prioritize user-centric functionality and integration with existing procurement ecosystems.

Enable Human Oversight: Embed human-in-the-loop controls and clear escalation pathways.

Support Ethical Deployment: Offer clients tools and frameworks to comply with evolving regulations like the EU AI Act.

Collaborate with Procurement Experts: Ensure solutions are built with an understanding of real negotiation dynamics, not just algorithmic logic.

For the Broader Ecosystem: Shape the Rules of Engagement

- **Advance Standards and Interoperability**: Promote industry-wide definitions and maturity frameworks to avoid fragmentation and confusion.
- **Encourage Cross-Functional Dialogue**: Involve legal, compliance, procurement, and IT in shaping responsible AI policy.
- **Champion Responsible AI**: Position ethical design, inclusivity, and human agency as default, not optional, features of AI adoption.
- **Monitor Policy Developments**: Stay ahead of legislative shifts like the EU AI Act and anticipate their implications across geographies.

The opportunity ahead

By recognizing both the promise and complexity of negotiation agents, stakeholders across the procurement ecosystem can turn this emerging capability into a powerful driver of competitive advantage, if they act deliberately, ethically and strategically.

The organizations that act early, and act wisely, will shape the rules, set the benchmarks, and unlock new forms of competitive advantage. Negotiation agents are not just tools; they are strategic assets. The call to action is not simply to adopt them, but to lead their responsible and value-generating integration into the procurement function.

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