

Intelligent Procurement from SAP Ariba

Making Procurement Solutions Smarter



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Executive Summary

The ability to connect people and mine data to make more informed decisions and respond quickly to a dynamic global business environment is vital to the high-performing procurement organization. For more than 20 years, SAP Ariba has been on the forefront of leading procurement trends. Our dynamic digital marketplace, Ariba® Network, and our cloud-based applications for buyers and suppliers today serve the business commerce needs of millions of trading partners.

Cognitive technologies represent the next frontier, and SAP Ariba is taking advantage of these technologies to help procurement optimize business outcomes. We have incorporated and are further enhancing our existing solutions with self-learning software to understand behaviors and recommend options for greater efficiency through artificial intelligence and machine learning. These technologies effectively meld large amounts of data across internal demand, spend, and supplier and network data with social, mobile, and cloud technologies to make procurement smarter so you can work better. As we continue to deepen our use of these technologies in our source-to-settle solutions, you can expect increasingly powerful capabilities that deliver cost-effective, highly personalized, and context-specific information. This means better outputs for procurement that you can rely on to improve top- and bottom-line results.

This paper explores applications of these innovative technologies and outlines how we're integrating them into procurement. Our goal is to create a new generation of intelligent solutions that will improve your ability to link people and processes in ways that transform business performance.

Understanding Intelligent Procurement

WHAT IS COGNITIVE COMPUTING?

Cognitive computing refers to self-learning systems that allow computers to simulate human thought processes through computer models. Enabling computers to mimic the functioning of the human brain, and combining that with the ability to rapidly process vast amounts of data, can dramatically improve decision making.

The field of cognitive computing spans multiple technologies, including terms such as artificial intelligence (AI), machine learning, deep learning, neural networks, natural language generation and processing (including speech to text and text to speech), and image recognition. Using these technologies, an application can simulate human logic and thought flow to understand how people work and what they need without programming or rule-based definitions. Combining this with rich processing power to analyze vast amounts of data – not only within your procurement system, but also across your connected enterprise, external data, and digital content sources – creates a system that can make intelligent recommendations to automate tasks, correct errors, identify hidden patterns in data and transactions, and recommend actions.

AI and machine learning are becoming essential to digital transformation. AI can be used to identify changing demand behaviors as well as to optimize inventory levels and replenishment plans so you can dramatically streamline product life-

cycle management. These capabilities can help you uncover entirely new business insights from your day-to-day operations. By integrating weather data with operational data, for example, you can predict potential problems before they impact your business. This could involve alerting transportation and logistics service personnel with recommended actions to provide order fulfillment and prevent delays.

INTELLIGENT PROCUREMENT

As procurement has evolved with new technology, talent, and ideas, it has moved from the backroom to the boardroom and become more strategic to the business. In rapidly evolving digital supply networks, the powerful combination of social, mobile, analytic, and cloud technologies has enabled procurement to expand its role in supporting the business, improve collaboration with customers and suppliers, build trust with stakeholders, and communicate the value of its role beyond just cost savings and operational efficiencies.

Cognitive technologies can further extend the impact of procurement across the entire source-to-settle process. SAP Ariba is constantly evaluating new applications of these technologies for procurement – either to improve current processes or, in some cases, to transform processes completely. Some examples of this are illustrated in Table 1 on the following page.

Table 1

Use Case	Functionality	Benefits
Invoice Creation, Reconciliation, and Approval	<p>For suppliers: An invoice digital assistant combined with machine learning that can offer guidance during the invoice creation process, whether this involves a purchase order (PO) that is “flipped” using the PO-Flip feature or a non-PO invoice</p> <p>For buyers: A digital assistant that can recommend options to resolve exceptions or determine optimal queue management during invoice reconciliation</p>	<ul style="list-style-type: none"> • Shorter invoice cycle • On-time payment • Increased process efficiency
Productivity Mobile Apps	<p>Conversational interfaces that enable users to interact with natural language and voice commands to access the status of key objects like POs, invoice status, or payments as well as approval workflows and other activities</p>	<ul style="list-style-type: none"> • Enhanced visibility • Faster decision and follow-up action • Increased process efficiency
Sourcing	<p>Strategy assistance for sourcing managers with activities such as defining the ideal auction type, event duration, and number of suppliers based on region/commodity category</p>	<ul style="list-style-type: none"> • Optimized sourcing results • Better price points • Higher savings
Contract Negotiation	<p>Help creating a comprehensive contract for the specific region or commodity based on company policy, processes, and preferences</p>	<ul style="list-style-type: none"> • Better supplier contracts • Shorter contract negotiation cycle • Optimized resource utilization
Category Management/ Demand Analysis	<p>Assistance for category managers in activities such as understanding buying patterns, recognizing price variations, and identifying changing demands</p>	<ul style="list-style-type: none"> • Reduced risks • Optimized price • Increased savings
Customer Support 2.0	<p>Self-service experience to help answer common questions regarding invoice creation, supplier registration, or fees</p>	<ul style="list-style-type: none"> • Faster issue resolution • Higher customer satisfaction • Lower support costs • Greater process efficiency

SAP® Ariba® Solutions

SAP Ariba is embedding cognitive technologies in many different solutions so that users can perform their jobs better. In addition, we are bringing the technology into these applications without users being aware of any changes. Here are some of the solution areas we are currently enhancing with cognitive technologies.

SPEND ANALYSIS

Invoice classification is a complex process due to the large volumes of invoices that can exist across thousands of product categories. We are using neural networks to improve the quality and coverage of classification and to enhance delivery time for quarterly refreshes. Convolutional neural networks – a machine learning technology often applied to analyzing visual imagery – enrich spend data to provide enhanced features like parent company information and standardized vendor naming in a fraction of the time formerly required. The models tailor themselves to specific customer needs by learning how decision-makers classify spending and organize their data across ERP systems and data warehouses. In current applications, we have found that the time required for data refreshes has dropped by 90% and coverage has increased by 15% while delivering 99% accuracy in spend classification.

SUPPLIER RISK

Anticipated and unanticipated risks associated with suppliers can have a significant impact on manufacturing, on-time product delivery, company brand, and other aspects of your business. We're leveraging cognitive technologies to help procurement specialists stay on top of potential risk situations, allowing them to make the best possible decisions based on a live stream of risk

factor updates including weather, politics, geography, and similar considerations. In addition, further use cases – such as capturing traffic data for logistics optimization or social media monitoring for supplier brand-related events – will incorporate real-time events to improve decision making and business performance. Using cognitive technologies, we will enable specialists to get early alerts into risk situations, assess potential risk levels, and look at resolutions/alternatives to mitigate risks.

CONTRACT INTELLIGENCE

The contract lifecycle consists of four phases: contract creation, contract authorization, contract negotiation/award, and contract compliance. We're exploring how to assist users in the contract authorization process. Applications include automatically identifying relevant terms and conditions matched to a legal library and taxonomy, uncovering similar contracts for a specific commodity or region as a starting point, mapping contracts to company policies and regional/local regulations, and suggesting optimal target prices based on expected volume and contractual discounts. Through a conversational interface, we can recommend additional contract templates, clauses, terms and conditions, and preferred suppliers.

Over time, this new contract intelligence could also provide actionable insight to identify proper terms and conditions, suggest optimal pricing, benchmark with industry best practices, and extract terms to drive forward operational procurement processes that help your business strengthen compliance and ensure capture of negotiated savings.

SOURCING INTELLIGENCE

Sourcing managers need access to real-time intelligence data to assist and inform their sourcing strategies. We're exploring how to intelligently monitor commodity-relevant trends from online news and media. These insights will help sourcing managers identify pricing trends by category and develop optimized sourcing strategies. The solution can also aid sourcing managers in recommending ideal numbers and types of suppliers based on market dynamics, best practices, and company behaviors. Over time, the solution could recommend event structure and initiation based on commodity, category, and region trends. Self-learning processes can also uncover insights, automate tasks, drive efficiencies, and increase savings.

OTHER APPLICATIONS

Another solution under consideration looks at intelligent content parsing and a smart template

search. Intelligent content parsing can parse and autopopulate both structured and unstructured data in RFX event creation to achieve a high degree of confidence for data transformation and learn category- or region-specific data attributes. A smart template search using natural language understanding and natural language classification can provide template suggestions based on key data fields like category and risk to improve navigation and efficiency.

We are also exploring the application of these technologies for catalog enrichment and in supply chain collaboration.

These next-generation intelligent solutions will free procurement professionals from time-consuming research and data aggregation on market trends. They will have at their fingertips valuable insights into pricing, commodity, and related data for improved negotiations.

SAP Ariba, SAP Leonardo, and IBM Watson

SAP Ariba is building cognitive solutions that leverage the SAP® Leonardo digital innovation system as the foundation and bring in best-of-breed ecosystem players as needed.

One such key partnership is with IBM Watson. SAP Ariba and IBM developers are collaborating to develop a set of solutions that combine intelli-

gence from procurement data with insights from unstructured information to enable faster, more efficient decision making across supplier management, contract, and sourcing activities. In addition, we're launching cognitive procurement centers – locations where our developers will be colocated – as well as customer showcase centers in New York City, San Francisco, and Munich.

Business Benefits

Cognitive technologies represent an exciting frontier, with many potential applications for delivering value and capabilities to our customers and users. Key benefits of these technologies include:

DEEPER ENGAGEMENT AND ADOPTION

- Allow users to interact with the system in their natural language through conversational interfaces such as a digital assistant
- Enhance the user experience and make solutions more intuitive so users can take advantage of new features with little or no training

BETTER DECISION MAKING

- Access richer and broader sets of data
- Uncover hidden patterns and discover new insights

IMPROVED BUSINESS OUTCOMES

- Automate repetitive tasks to allow employees and business leaders to spend more time focusing on strategic activities that add greater value to the organization
- Expedite approvals and improve their accuracy
- Increase efficiency by delivering personalized and context-specific information

GREATER ABILITY TO RETAIN KNOWLEDGE AND ATTRACT TALENT

- Retain knowledge as talent retires or leaves the business through self-learning systems that understand behaviors and past history
- Hire and retain good talent by allowing employees to work with state-of-the-art solutions and the latest technology

Conclusion

Intelligent procurement means making your procurement processes smarter so procurement professionals can focus on driving strategic value and working more efficiently. SAP Ariba's development of cognitive technologies helps to make this happen. These technologies leverage data from social, mobile, and cloud applications together with deep knowledge from Ariba Network to deliver valuable new insights that help procurement better understand the business, collaborate with customers and suppliers, and build trust with stakeholders – driving home the message that procurement's contribution to the

business extends far beyond cost savings and operational efficiencies.

With internal development and strong partnerships, SAP Ariba is integrating cognitive technologies throughout the source-to-settle process. The result is a cost-effective and highly personalized experience that enables deeper insight, better decision-making, and improved top- and bottom-line results.

The future of procurement is intelligent. The future of procurement is SAP Ariba.

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