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An Executive Guide to Evaluating AI (beyond just Generative AI):

Use Cases and Adoption Strategies

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Evaluating AI

2023 has been dominated by generative AI headlines. Generative AI, or "GenAI," especially related to generative pre-trained transformers (GPTs) that enable large language models (LLMs) such as GPT-4 (and numerous others, including open-source models), has overshadowed a large body of other non-generative AI/machine learning (AI/ML) tools that help build up a collective set of purpose-built analytical capabilities. These tools help generate predictive and prescriptive insights to assist business users — quite often embedded "behind the scenes" into business applications.

LLM-based chatbots have certainly captured imaginations because of the engaging conversational user experience. However, the latest advancements in GenAI are also a cause of massive upheaval in the technology provider ecosystem. They have created equal measure of hype/"FOMO" and concerns about data quality/reliability, explainability (e.g., LLM-powered GenAI chatbots that "hallucinate" answers), security/privacy, responsibility/ethics, cost and tech ecosystem volatility in the market.

So, while the mega hyperscalers (like Google, Microsoft and AWS) and other best-of-breed GenAI providers (like OpenAI, Cohere, Anthropic) battle it out to build the largest generalizable LLMs, there are plenty of old-school "mundane" AI areas that are narrowly focused but still valuable from an automation standpoint.

This is especially true in a source-to-pay (S2P) context. For both upstream (source-to-contract) and downstream (purchase-to-pay) processes (and broader enterprise processes such as supply chain, finance, etc.), AI has increasingly played a larger role in everyday processes, leading to increased efficiency and quicker time-to-value on key technology investments. While this AI may not be as flashy or trendy as generative AI, it is hugely valuable in terms of improving digital capabilities and business outcomes.

Why traditional and generative AI are both needed for broader supply-side automation

Procurement needs to augment its internal knowledge and skills with "outside-in" intelligence to help stakeholders identify opportunities and risks to prioritize and act upon. The sheer volume of data and business/market complexity is overwhelming the function and its staff. CPOs recognize this problem keenly. ***See sidebar.***

AI/ML of all forms is needed, therefore, to augment the typically under-resourced and outmatched supply professionals and their stakeholders (internal and suppliers) that are seeking to improve their analytical capabilities to automate away lower-value activities.

In this analysis, we focus on AI/ML use cases in S2P that are currently adding value in the field and we augment those examples with select generative AI trends that are gaining traction (and give some recommendations to overcome the most pressing emerging issues).

CHIEF PROCUREMENT OFFICER STATISTICS

- 70% of CPOs have seen risk continue to grow over the last 12 months and their perceived effectiveness as a business partner has dropped given the multiple priorities.
- 87% of CPOs agree that talent is the single greatest factor in driving procurement performance, but roughly half do not believe they have the talent they need (with digital training being the largest perceived gap).
- Talent is drowning in data and tools but starving for insights. Tech budget allocation has dropped and this under-resourcing and poor data quality are the top two digital barriers.

Source: 2023 Deloitte CPO Study (in collaboration with Spend Matters)

Use Case: Spend Analytics

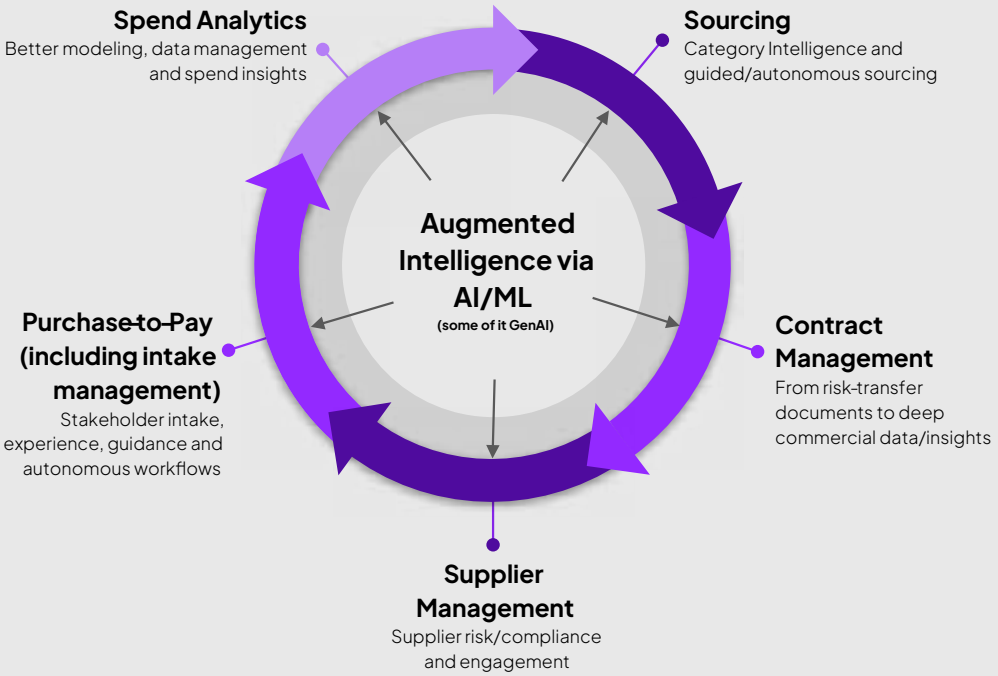
AI is working its way into business systems and into S2P software (in fact, roughly 20% of the functional requirements in our S2P SolutionMap vendor benchmarking assessment include ML/AI within the individual enumerated scoring scales). Throughout the most popular S2P modules, AI-based features improve efficiency and effectiveness within transactional processes, internal analytics, data pipelines, master data management, risk/compliance support and other areas. While some of these AI examples may be somewhat difficult to notice relative to some of the newer LLM-based generative AI use cases, they are also easier to implement because they are usually baked into the platform itself.

DISCRIMINATIVE AI VS. GENERATIVE AI

Generative AI is a relatively new technique that uses advanced machine learning to generate predicted content outputs based on user-prompted inputs (done via deep data patterns established in pre-trained LLMs). Discriminative/traditional AI modeling pertains to simpler prediction algorithms (e.g., using supervised machine learning for highly bounded analytical tasks) such as the classification/clustering and tagging (i.e., "feature extraction") of structured data.

Examples of this include contract/invoice document conversion (from document files to structured sets of data values) or spend classification to a target spend category taxonomy. For the contract example, generative modeling involves the creation of new material (e.g., generating new clause language in a contract in response to a supplier-originated contract agreement), while discriminative modeling makes decisions based on differences the model has learned between different data sets (e.g., extracting out contract/clause metadata to predict a contract type or clause type to populate a CLM module in a S2P suite or a linked CLM system).

AI Use Cases by Procurement Area



Spend Analytics

→ Taxonomy-building and classification for spend data and associated master data (supplier, organization, chart-of-accounts, contracts, material/service masters, etc.) helps model the hierarchies and associated data attributes for use in various analytics.

→ Graph databases for richer data/knowledge modeling beyond relational database models. We expect that these data/knowledge graphs will be critical to augmenting LLM-based GenAI models for explainability and efficiency.

→ AI-enabled spend data classification can be done via supervised learning models/algorithms that help accurately classify spend data to standardized target taxonomies. Probabilistic confidence scoring helps humans review the models and create repeatable/portable rules to improve match rates and data quality.

Use Case: Sourcing

- AI-based data cleansing and normalization algorithms help remove duplicate data, fill in missing data and then format the remaining data. This enables organizations to normalize data across multiple ERPs, languages and business units in a timely manner. If the data isn't cleansed and normalized, it cannot effectively be analyzed!
- Specialized data partnerships and benchmarking insights paired with AI add more data insights. Supplier master deduplication helps deliver volume leverage savings, and duplicate material master data also enables inventory-reduction opportunities. Benchmarking brings collective insights for opportunity identification, and many external benchmarks themselves are developed with AI (e.g., commodity price forecasts or contingent labor-rate benchmarking).

Sourcing

- AI can "generatively" auto-create sourcing events based on templates — matched against event content (e.g., category) and/or historical events (can be community-based). Suppliers are then automatically assigned (matched between supplier status/qualifications and event content) and even awarded. This frees up time for end users who can then re-allocate their time on higher-value activities.
- Some solutions can also use AI to suggest suppliers based on specific criteria (performance, risk, past events, etc.) and can detect opportunities based on market trends. Supplier discovery is also mentioned below.
- AI analyzes historical data and market trends to forecast demand, which helps identify when to source and what opportunities to target. Better demand data also helps firms identify more levers to pull for value creation.
- Intelligently guided category strategy and sourcing execution allows for real-time and automated insights derived from specific market/category attributes to then drive categories strategies and workflow content (e.g., auto-creation of tailored n-step processes, supplier shortlists, event strategy, RFx documents, and even SoWs. AI can also streamline the UX away from hard-coded business logic towards intelligent chatbots that ask a minimum set of needed context-specific prompted questions.
- Sourcing solutions can also use AI to auto-suggest optimized prices by pulling cost elements from several sources (community, market indices and historic events/supplier behavior) to give buyers a benchmark "anchor" price and even recommended supplier "nudges" to improve event outcomes. Bots can also be deployed here.
- AI is very impactful in complex sourcing events via combinatorial bid optimization. Complex sourcing events (e.g., transportation sourcing) accommodate a vast amount of core data (scenarios, line items, cost elements, suppliers) and allow suppliers to flexibly bundle and bid on line items that best meet their capabilities. These bids are then optimized/allocated in a way typically impossible for humans to manage.

Use Case: Supplier Management

→ AI-enabled opportunity detection and recommendations involve the use of data, benchmarks (historical, community, market, etc.) and playbooks to identify opportunities, assess and prioritize them (by value and feasibility) and deliver targeted recommendations rather than forcing users to go fishing in dashboards. Service providers of various stripes also serve up these analytics in various commercial models (e.g., contingency).

Supplier Management

→ AI-enhanced supplier discovery involves the analysis of requests/needs on one side to match to eligible suppliers. A deep AI understanding of language about/from suppliers helps transcend a reliance on structured data to more quickly match suppliers to needs and expand the supplier network pool. Such smart matching can also be extended to performing continuous best-fit scoring to assess whether suppliers are still suitable.

→ AI also helps profile suppliers more richly (who they are, what they do, who they work with) by capturing and analyzing data sources (public and purchased data, connected databases, spend, etc.) to provide deeper insight.

→ AI can embed relevant and contextual community intelligence into Supplier Management processes to help provide "outside-in" collective insights and benchmarks that can instantly augment existing supplier profiles.

→ AI can leverage unstructured communication to capture and assess behavioral/sentiment elements. Data sources can include emails, in-app messages and even external data feeds. These are then translated into factual indicators that can allow users to understand relationships by including "soft" (human) elements that are not typically included in supplier management but that are often more relevant than "hard" facts.

→ AI can capture and analyze real-time supplier risk signals from multiple sources to identify potential risks and contextualize them (via dashboards, alerts, etc.) to each user based on internal data. This continuous and automated monitoring of risk signals also employs machine learning to reduce false positives and end-user effort.

→ AI can also be more prescriptive and recommend risk-mitigation plans by leveraging historical data, market/community data and a customer's risk profile in order to identify priority areas to mitigate and build future resilience. This again lessens manual effort, shortens disruption reaction/recovery time and mitigates future risks.

Use Case: CLM & P2P

Contract Lifecycle Management

- AI scans contracts upon upload (in batch or dynamically from counterparties), extracts the contents and categorizes by what it recognizes as important. By automatically extracting key information, these solutions not only save organizations time but allow for quick access to the most relevant aspects of a particular agreement (dates, parties, clauses, obligations, etc.) for subsequent deeper analysis.
- AI suggests clauses during the negotiation and authoring processes. Factors such as the agreement type and the user roles can drive recommendations for best-fit existing/approved clause language. This saves time during the authoring process and allows users to choose terms that are more applicable to the specific negotiation. GenAI can enhance this further by translating and summarizing "legalese" to ordinary business users.
- Solutions can also flag areas of note (configured by the user). Using data from past negotiations and agreements, AI identifies potential issues (such as language that does not closely align with the organization's playbook) for further review. This is especially useful for supplier-originated contract drafts and helps cut down on manual review time which can create delay and cost (especially if external legal counsel resources are used).
- Moreover, AI-enabled risk detection (clause- and contract-level) is valuable in CLM. AI uses data from past agreements to compare language and identify areas that present risks to the organization (compliance, finance, etc.) that have been modeled and used to train the AI. These are usually displayed as a percentage or on a low-medium-high scale. Overall, it helps to streamline manual review resources and set priorities for negotiation.

Procure-to-Pay

- AI can be involved in casual buying. In this scenario, AI goes beyond basic rules and workflows by analyzing system data and patterns to suggest the most optimal purchasing methods, such as utilizing catalogs, e-forms and other options. This ensures that purchases adhere to company guidelines, fulfill user requirements and align with business objectives. A guided buying experience streamlines and improves the procurement process, resulting in a more user-friendly and customized experience that also supports spend category requirements.
- AI can also be involved in tail spend control, which encompasses one-off or uncommon purchases. AI can offer several benefits in this context, such as (1) categorizing and classifying tail spend items, (2) evaluating the vendor landscape to identify opportunities for consolidating tail spend with preferred or contracted suppliers, (3) automating process orchestration related to tail spend, (4)

What to Consider

SOURCE-TO-PAY IS ONLY ONE ASPECT OF BROADER SUPPLY-SIDE AI

S2P is a core supply-side set of processes, but S2P helps manage supply as well as spend (i.e., "spend is what you pay and supply value is what you get"), and this includes the inbound supply chains/networks and associated third parties needed to help run end-to-end value chains. This implies "extended spend/supply management" use cases such as:

- AI-based optimization of supply chain networks by again ingesting vast amounts of data (in this case, lanes, nodes, modes, prices, tiers, etc.), considering multiple constraints and identifying opportunities for improvement (e.g., changing suppliers, location of warehouses, changing mode, etc.). This enables organizations to have a digital twin of their supply chain to analyze and simulate sensitivity to various demand signals and identify areas for improvement (cost, resilience, carbon, etc.).
- Supply chains produce products, and broader value chains produce information and services, but they also produce CO2. AI is also helping the sustainability agenda by helping firms estimate their CO2 footprints for Scope 3 emissions reporting and reduction. For the vast majority of firms without deep n-tier supply network models, this estimation work requires heavy lifting, and this is where AI tools are helping to better estimate this carbon footprint using AI models that take inputs, such as spend category, supply network characteristics, product mass (and material composition), etc., and develop more fine-grained outputs that allow more realistic target setting and tracking.

All these areas are great news for CPOs who want their supply networks to support broader enterprise goals for ESG and supply chain resilience. Aspirationally, ESG is the top area that gets CPOs most excited about their profession, and operationally, these AI-enhanced analytics provide higher-fidelity data to feed into their sourcing processes — as evidenced by the fact that 83% of procurement top performers/"orchestrators" fully embed risk evaluation into the sourcing process (as compared to 30% for their peers).[1]

1 2023 Deloitte CPO Study (jointly developed with Spend Matters)

suggesting alternatives or preferred products or suppliers, (5) potentially feeding a tail spend sourcing event, (6) providing in-depth insights into tail spend data to reduce costs.

- Solutions also use AI to identify fraudulent activities such as double billing, fake invoices, inflated invoices, fraudulent internal billing, etc. AI plays a crucial role in this context by continuously monitoring transactions and alerting stakeholders to any irregularities that might signify fraudulent behavior. By leveraging historical data and machine learning, AI-powered solutions can even forecast potential fraud risks. This not only safeguards an organization's financial assets but also mitigates the likelihood of data breaches, thereby minimizing the associated costs, legal consequences and broader brand damage.
- AI is also used to facilitate n-way matching of invoices, reducing errors and accelerating the process. This technology can extract and interpret textual and numerical data from paper or scanned invoices.
- AI can also be applied in this context of Dynamic Discounting use cases. The aim is to forecast early payment offers that not only entice suppliers but also achieve a high adoption rate. This AI analysis considers supplier activities, demographics, financial profiles and their interactions across multiple buyers.
- AI can optimize Travel and Expenses (T&E) management by improving hotel receipt itemization, ensuring that expenses are transparently and accurately accounted for. AI can also play a role in increasing the accuracy of cost estimates for T&E by leveraging historical data and predictive analytics. This enhanced accuracy ensures that budgets are well-optimized, preventing budget overruns and unexpected expenses.

Implementation Considerations and Recommendations

Although GenAI holds the promise to offer leapfrog improvements in the areas of user engagement, as well as behind-the-scenes capabilities such as language translation and other deep learning abilities, traditional AI will continue to improve alongside GenAI and work in concert with it. Not only will new capabilities be added to solutions, but existing models will become more powerful, leading to increased accuracy and faster processing times. This increasing synergy is also critical to the challenging issues of transparency/explainability, IP protection, processing costs and flexibility/future-proofing. Based on our discussions with practitioners, tech providers and service providers, we'd like to offer the following considerations and recommendations:

Typical questions	Insights to consider
How to best source AI capabilities overall for S2P requirements	AI technology should be provided by core application suites and specialist applications (and the hyperscalers eager to provision it) for the types of areas covered in this report, but may certainly be being built out by more advanced organizations in strategic process areas. As they build out broader digital platform elements such as analytics, data management (e.g., data pipelines and data fabric), orchestration automation (workflow/BPM, RPA, process mining, integration, etc.) and UX-focused development (e.g., low-code/no-code), IT will be a key function for CPOs to stay aligned with.
How to consider and implement GenAI given the newness and uncertainty with the technology and market	Every firm should immediately consider application of the technology — even just to get employees familiar with its possibilities. IT should also be consulted to support sandbox activities including POCs that can be pursued solo, but also with tech/service vendors that are investing heavily and seeking early adopters. Large application vendors are making commitments to strategically partner (and invest in) major LLM providers to securely access their models via APIs with guardrails, data privacy options, cloud deployment options, partner access layers, and integration to the providers' evolving next-generation technology platforms (either as standard functionality or via an AI-enhanced version).
How to manage increasingly large, compute-intensive and expensive LLMs	Although there is a short-term window to access LLMs more cost effectively as providers seek market penetration, the bills will eventually come due. So, clearly understand the application vendors' commercial models, especially since they too are trying to understand the economics and technology adoption lessons. Players across the ecosystem are also testing out specialized, open-source models tuned for various purposes (such as code development) and app vendors are trying to tune these models and leverage them in more efficient (and ethical/risk-aware) ways. More broadly, although LLMs bring higher compute costs, they can also create a derived ROI in knowledge-centric services such as legal services, BPO/MSP, consulting, DevOps, application management and others. Smart CPOs, CIOs/CTOs, CFOs and shared service leaders are already seeking to reap supplier innovation expectations in the form of cost savings and other tangible business benefits.

In Conclusion

Whether GenAI, which is currently (largely) chatbot-centric, is just a fad and a "nice to have"	GenAI is a truly transformational technology, unlike, say, blockchain building better transaction ledgers. Although initial use cases are focused heavily on UX (allowing users to "talk to the apps" and conversationally drive system functionality), its real power lies in its ability to see deep data patterns and universally translate any "language" — unstructured text in documents or across the web, "legalese" dialects in contracts, even computer code (enabling next-gen no-code/low-code/pro-code environments). Yet, language alone doesn't provide deeper meaning, and the language models in LLMs need to speak the language of the data that sits within the massively complex data models of business apps. Case in point, SAP CEO recently stated that SAP's LLM-based chatbot Joule "will know what you mean, not just what you say." And SAP's head of product engineering also said that "we have more than 20,000 customers who gave us consent that we use that data for showing in an anonymized fashion, that we use that data to train models — and that's part of our contract. That's the reason we can build up this huge SAP foundational model — most probably 200,000 database tables." This is a telling description of the collective business-focused intelligence that will soon be on tap.
How language models can stop hallucinating and be able to improve explainability	LLMs can certainly be better focused using techniques such as fine-tuning, prompt engineering, RAG (which draws from an enterprise-specific data set to prompt an LLM) and other techniques. But, although the proverbial probabilistic "black box" can be made smaller, and explicit data inputs to the model made explicit to the user, companies should proceed with caution to use the outputs blindly. This is why an augmented intelligence of providing recommended/generated outputs to the user via a deterministic algorithm used within a business application (e.g., via an increasing set of formal APIs) is so attractive. This translation from a language model to a structured data model is also made easier by a semantic knowledge model powered by a [non-relational] graph database. We predict that graph databases will explode in popularity because of their ability to cross these two worlds.

Looking Forward

AI is clearly a massively complex area to understand and apply to procurement and the broader business. But given its ability to shape and disrupt supply markets and the spend/supply management processes that tap those markets, CPOs and other business executives need to "know what they don't know" and get savvy on how to understand and apply this emerging class of game-changing technology. It's also an opportunity to exhibit digital leadership and "lead by example" in applying this inherently data-focused technology to better integrate and infuse intelligence into the vast landscape of enterprise applications.

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