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RESEARCH

Tracing the History of the Procurement Software Market: From Tools to Value

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I've always been a fan and student of history (and in fact picked up a graduate degree in the subject before heading into consulting and later procurement). All too often, I think we fail to appreciate the lessons of the past. This is especially true when it comes to business, where memories are often the shortest of all.

This three-part series traces the evolution of the procurement software market with a focus not on modules and applications, but on the ways in which we actually use technology to generate value. I will explore how solutions have progressed over time, not only as technology has gotten more sophisticated but also as the procurement function has evolved and new expectations have been placed on it by the business and shareholders alike.

My hope is that in sharing at least a few lessons from the past, we can be more effective today in buying the right solutions and for the right business reasons.

Part 1: A Brief History of Procurement Software

The history of procurement software as we know it goes back longer (surprise!) than some of the millennials in the workforce today. In fact, the true first productivity tools for procurement started during the era of floppy disks and early hard drives, each of which had a fraction of the memory and storage of today's smartphones.

The Era of Spreadsheets and MRP/ERP

While we could debate the specifics of when the first procurement technology was put into the buying field (beyond calculators), the first procurement productivity application used by a previous generation of buyers was arguably the spreadsheet. As we've written about before on Spend Matters, this started with the introduction of spreadsheet applications like VisiCalc (1979), SuperCalc (1980), Lotus 1-2-3 (1981) and finally, Excel (1985).

Unfortunately, spreadsheets remain the core technology OS for procurement in far too many companies still today, which in part speaks to their success and ubiquity. From a procurement perspective, spreadsheets became a Swiss army knife of sorts to manage everything from tracking supplier bids to managing inventory to ensuring that submitted invoices were in line with contract terms and conditions.

Around the same time as the early spreadsheets, we also began to see the rise and ubiquity of early manufacturing resource planning systems (MRP) and the eventual combination of this set of technologies with enterprise resource planning (ERP) systems to track and manage core business accounting. Together, these solutions would create the source data, rules and mappings used by business functions; manage core transactions within an organization (e.g., inventory); and serve as a system of record for accounting for business activities. In effect, ERP and MRP systems served as the first automated tools for managing transactional data, controlling inventory and providing electronic inputs to manage both purchasing and accounts payable.

Taken together, the spreadsheet and ERP/MRP era represented a giant leap forward to enable procurement to fulfill its historic role more efficiently for the business, ensuring that the proverbial production line stayed open (i.e., supply assurance) and that organizations did not overpay for given SKUs or services (i.e., cost management).

The Applications Era

If we fast-forward our history lesson to the mid 1990s, we enter a new era of procurement software with technologies developed specifically for the function. This included:

- Early e-procurement applications, which in theory would let both procurement and business users buy more easily from approved suppliers and reduce maverick purchases
- Reverse auction and eRFX applications to negotiate more effectively with suppliers and control the sourcing process
- Contract management tools to enable the authoring and oversight of procurement and other corporate contracts
- Spend analytics to provide insight into spending and help target and prioritize savings opportunities

In short, the applications era, which is still playing out today, put increasingly targeted tools into procurement's hands, aimed at automating, managing and improving functional requirements.

In the past decade, the application era has given rise to the era of procurement technology suites, which combine elements of different modules, now spanning additional areas. These include supplier management, project management, procurement/supply (not just "spend") analytics, e-invoicing, supplier network/ connectivity, receivables/payables financing (including invoice discounting) and more.

In reality, the early suite era was really just "Version 2.0" of the applications era, an important step forward for orchestrating different activities together and, increasingly, taking advantage of the same underlying master data sets. But there are vast differences in how suites work (and don't work) together that we'll explore throughout this series.

Different Systems for Different Needs

A key element that came with the advent of specialized procurement solutions and later, procurement suites, was the ability to align a new set of procurement requirements and expectations with specific technologies. This then enables the procurement function to generate value beyond just supply assurance and achieve baseline savings targets and cost avoidance.

One way of looking at the alignment between new expectations and requirements put onto procurement and new technologies builds on top of earlier system of record notion, going back to

MRP/ERP – spreadsheets were never a true system of record, or at least they were never designed to be – is to explore different procurement "system" types.

Different systems include the following.

- Systems of analysis: for example, spend analysis solutions (and broader AP, procurement and supply analytics) fit well within this category
- Procurement systems of record: these include SKU-level information as well as transactional insight (e.g., line level invoice data) typically not available from ERP/MRP
- Systems of engagement: these include e-sourcing tools, contract management solutions and supplier management technologies to drive collaboration with internal stakeholders and suppliers
- Systems of agreement (internal): these include master data management (MDM) capabilities to create standardized views and records of supplier data across systems
- Systems of agreement (external): to drive transactional standards and connectivity, including the ability to enable straight through processing of PO, invoice, goods receipt, ship notification and other messages and outputs (e.g., invoice approval) between procurement and its suppliers

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Adding it Up: Tracing the Evolution of Procurement Technology To Date

We can sum up the evolution of these application and system types quite easily, including how they correspond with the value expectations put on procurement and the type of value procurement was actually able to generate at different stages of its history.

In short, early technologies helped us "hack data" initially to identify and implement new types of opportunities. And integration with ERP systems and specialized transactional solutions helped procurement improve control and financial linkages.

These types of solutions also helped manage and simplify complexity. They provided a common interface and map for procurement to the general ledger, entities and cost centers to control, map, record and manage buying and budgeting activities. And they provided single (and later integrated) process-oriented capability in such areas as sourcing, spend analysis and supplier management to support specific initiatives (e.g., driving cost reduction requirements or hitting supplier diversity goals).

The combination of these solutions would ultimately provide and enable what we can label as "E^3 + M." Or:

- Efficiency of process, systems and teams
- Enablement of the procurement function (linked to new business outcomes and expectations)
- Effectiveness (also tied to organizational productivity and efficiency)
- Measurement for reporting on the function and, ideally, driving continuous improvement

If we take the equation "E^3 + M = modern procurement foundations," we would not be telling the whole story of the evolution of the function and the nuances of even how procurement technology has continued to evolve. Next in this series we'll investigate how the definition of procurement has evolved and how even newer technology models are helping us reimagine what is possible for procurement today. Stay tuned!

Part 2: Applying Lessons From Procurement's Past to Today

The incredibly rapid evolution of procurement technology (which I explored in the first installment in this series) might seem too good to be true. And it was, especially for organizations that got caught up in technology limitations of first- and even second-generation solutions. Indeed, far too many implementations of procurement technology to date have:

- Been driven by functional vs. broader company organizational integration (i.e., procurement pursuing activities in silos)
- Emphasized too much customization of software for often low-value business purposes, which delayed implementations and sometimes ran counter to the outcomes they were trying to achieve
- Served "off the shelf" or generic needs versus targeted requirements by industry or by company despite the customization efforts referenced above (early Ariba implementers and consultants, you are guilty as charged!)

The procurement era we are operating in today is different and comes with a new set of expectations beyond just supply assurance and year-over-year cost reduction.

Procurement is now expected, for example, to engage the business and suppliers to drive innovation (and even top line revenue), identify and reduce business and supply chain risks, and effectively manage not just spend but also working capital and overall expenditure –– including influencing demand requirements at the source (as opposed to simply capturing them in a sourcing activity or requisition).

One way of looking at these new requirements is to divide them into three separate areas:

- Improving control and lowering risk
- Enabling agility and overall innovation
- Driving high adoption that guarantees outcomes

Let's bring each of these three areas alive with actual case examples:

Improving Control and Lowering Risk

- A mortgage finance company was able to bring 100% of purchase requisitions and purchase orders online by deploying a P2P solution across all users.
- A financial services firm as able to analyze 100% of total spend –– yes, 100%!
- A global information services provider was able to reduce supplier (invoice) overpayments to 0%, eliminating the need for invoice audit recovery activity and materially improving working capital.
- A global manufacturer was above to implement a supply risk management program within a toolset that actively tracks 2,000 suppliers.

Enabling Agility and Overall Innovation

- 26,000 employees at a European insurance firm and 10,000 suppliers made use of a P2P system within one year of deployment.
- A large insurance company managed 1,000+ procurement projects (not just sourcing events) online in a single year.

- A large automotive supplier managed 1,000 productivity action plans and tracked savings at all stages of its programs.
- A global metals producer managed 3,000 individual supplier evaluations and audits across 150 sites within a single solution.

Driving High adoption to Guarantee Outcomes

- A financial services firm achieved 100% employee adoption across 8,000 employees (including 1,000 employees within two weeks of an initial "go live").
- A public sector nuclear power company has over 72,000 users of its source-to-pay system.
- A global automotive manufacturer on-boarded 95,000 suppliers.
- An engineering firm manages 18 million individual documents within its procurement systems.

Results like these are impressive. But they are also essential for procurement organizations faced with new requirements such as sustainable procurement cost reduction, continuous improvement and broader business enablement.

Technology Implications

To enable meeting new business expectations and requirements and to achieve these types of outcomes involves thinking through how technology will be used by everyone in the company –– and how procurement solutions have become, in effect, procurement's face to suppliers and others in the business. It also involves selecting technologies based on enablement and outcomes rather than simply on "check the box" functional requirements.

As important, it involves thinking through how technology can:

- Capture and support all goods/services and spend types (not just direct and indirect spend!)
- Support unique requirements by industry, geography, etc.
- Enable simplicity to drive high adoption by all types of users, including "casual" users in the business, requestors/approvers, tactical buyers, business unit spend owners, data analysts, configurator/ administrators and IT integrators (not just for requisitioners)
- Provide rapid access to data, visibility and analytics that spans suppliers, sourcing events/activities, contracts, P2P data (requests, POs, receipts, invoices, etc.), working capital, expense data and risk information
- Achieve as close to 100% supplier enablement as possible and capture tail spend (i.e., going beyond the "80/20" rule)

A few years ago, it would have been difficult to check the box on all of these requirements. But given the rate of innovation with procurement technology and the benefits brought on by cloud and network deployment models, just about anything is possible today with the right approach, patience, buy-in and budget.

But of course this begs the question: Where are we headed in the future? In the final installment in this series, we'll take out our looking glass and investigate.

Part 3: Exploring the Art of the Possible – and the Brushstrokes Necessary to Paint a New Procurement Picture

The building blocks for procurement technology are changing rapidly. One key element is the move that procurement organizations are making to adopt integrated suites, where the sum of the parts is significantly greater than the modules themselves. While there is no such thing today as a true single suite spanning all direct, commodity management, indirect, and services procurement (including contingent workforce, specialized categories, freelancers, freelance marketplaces, etc.) needs, despite what vendors may claim, we're getting closer all the time to this goal.

Today, procurement organizations have access to technology suite adoptions with integrated capabilities spanning a broad set of source-to-pay requirements. These include spend/supply/procurement/AP analytics (yes, all areas matter), supplier information management and master data management, supplier risk and performance management, working capital management and expense management.

But it's not just combined modules that matter; it's how they work together. For example, this includes using master data across a suite so that supplier profile and questionnaire information (e.g., corporate social responsibility and risk data) is kept current and shared and managed across sourcing activities and transactional buying. Harmonizing master data across procurement activities and tying together integrated processes is important for procurement to prove its worth to the rest of the business.

For example, a procurement suite with harmonized master data and integrated processes can enable:

- Finance/treasury/accounts payable teams to better manage payment terms and working capital
- Supply chain organizations to manage total cost, including inventory carrying cost and logistics cost
- Plant/shop floor users to deliver vendor managed inventory (VMI) and just-in-time programs (JIT) as part of lean initiatives
- Human resources to ensure regulatory and statutory compliance requirements for contractors
- IT organizations to provision new technologies and services to the business in an area of cloud computing
- IT and procurement to create a common system of record of all supplier data that is updated in all relevant systems (including ERP)
- Operations and R&D to bring products to market more quickly and to integrate supplier innovations into products on a consistent basis
- Enterprise risk management to reduce supply disruptions
- Regulatory compliance to introduce new products more rapidly in new geographies with specific requirements

A Checklist: New Technology Building Blocks

So far in this series, we've explored a history of procurement technology and the building blocks of new types of integrated suites, as well as the types of results they are capable of achieving. But to stay current, it's also important to think about new types of technology and technology approaches. While I can't explore them in the level of detail necessary due to space constraints, I hope that the following areas will cause you to want to read our additional posts and research to learn more:

- **Integration and platform-based models.** Basic API-based integration approaches are giving way to new platform-as-a-service (PaaS) based models that essentially externalize service-oriented architectures (SOA)

models and make it easier for procurement and third parties to configure new capabilities in the form of "apps" that sit on top of existing systems, yet are fully integrated without requiring extensive customization.

- **Cloud models are blurring.** This involves the ability to manage hybrid and customized capabilities, such as rolling out specific functionality and capabilities desired by an organization, managing data securely and in pocket/silos based on geography, permissions and other requirements, and enabling new secure forms of collaboration.
- As we've noted before, **spend analytics** is morphing into "supply" analytics, which incorporates working capital, supply chain and related data sets.
- **Configurability** (or even dynamic configurability, as some call it) is taking the concept of SaaS to whole new levels to provide customization without getting into code, enabling the ability to upgrade and change as business requirements evolve. And new workflow capability is increasingly supporting highly complex scenarios that are specific to targeted industries and organizational requirements.
- **Machine learning** and **artificial intelligence** are starting to provide new approaches to data classification, recommendations, forecasting and predictive outcomes –– and making entire systems and their users smarter, continuously, as they learn.
- **Ecosystems** and c**onnectivity** (not just static internal four-wall based architectures) are becoming as important as applications and modules themselves.
- **Apps are no longer "empty."** They are giving way to the expectation of best practices, templates, benchmarking, analytics and event contracts/pricing embedded in solutions.
- **Collaboration** is taking on social paradigms, including sharing threaded discussions and commentary across procurement, suppliers and the business.
- **Emerging architectures such as blockchain** are starting to bring new types of visibility, traceability, systems of agreement and systems of trust without a single intermediary or authority standing in the center of activity.

A Closing Thought: Purpose-Built Procurement Technology

In conclusion, it is worth noting that all of these technologies and advances are increasingly leading to a type of mass customization that takes advantage of economies of scale and standardized cloud deployment models, while at the same time enabling higher specific requirements by industry and even company.

So before you think about your next set of procurement technology investments, it is worth taking the time to understand how industry- and organizational-specific functionality (including pre-configured content, processes and workflow) can expand the value that your procurement organization can deliver.

Imagine a world, for example, where standardized procurement technology can enable manufacturers to source and manage the entire procurement lifecycle for bills of material, introduce new products and/or suppliers (e.g., NPI, PPAP) and drive performance improvement plans –– while managing standard indirect and services procurement purchases or "mundane" buys such as fasteners and MRO in the same environment.

Or consider a procurement universe where energy and process companies can manage complex field-level engineer and construction projects in the same procurement environment (including mobile enablement) as the rest of their purchases. Or turn to a new world where healthcare procurement teams can influence physician preference items with on-the-fly product substitutions, without having to restart an entire buying process (not to mention tracking complex pricing and SKU-level data and rebates from group purchasing organizations and internal asset utilization to maximize patient outcomes while reducing the cost to serve).

This is not just the future of technology. It's the world of today for procurement organizations that are willing to roll up their sleeves and architect solutions to the types of business problems that change not just technology paradigms but also the overall function and role of buying within organizations. ■

About the Author

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The closest thing to a household name in procurement and supply chain, Jason has led the charge as an advocate, futurist and evangelist since the 1990s. Initially at FreeMarkets and then an adviser to Ariba and other firms, Jason branched out on his own to establish the Spend Matters brand (parent company: Azul Partners), which emerged to become the largest news and information portal covering the sector. Over the years, Azul Partners has expanded this digital portfolio to 12 affiliated properties including leading titles such as Spend Matters UK/Europe, MetalMiner and Public Spend Forum, making it one of the largest independent B2B digital media and research firms. Jason divides his time between research, speaking, corporate finance advisory and mentoring dozens of firms and procurement organizations in the industry. Prior to Azul Partners and FreeMarkets, Jason worked in consulting and merchant banking. He holds undergraduate and graduate degrees from the University of Pennsylvania. Personal investment disclosures: Azul Partners, Inc., Public Spend Forum, LLC, RJSL Group LLC, Sigaria Ltd., Skiptimo Ltd., Spare to Share, LLC, Spendata LLC, SpendLead, Inc., Spend Matters Europe Ltd., Spend Matters Group, LLC.

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