Achieving spend visibility: benefits, barriers, and best practices





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Executive summary

The benefits of spend visibility are numerous. Organizations with good visibility can better identify savings opportunities, better enforce contract compliance, and help facilitate compliance with regulatory and financial reporting requirements with a comprehensive auditable record of their spend. From a spend management perspective, these benefits can often translate into significant savings that could equate to hundreds of millions of dollars for a large enterprise. The barriers to achieving spend visibility are significant. Spend data is dispersed across multiple, incompatible systems. Data quality is poor or coded for financial reporting, without the information needed to drive procurement decisions. Further, data is often incomplete, lacking specific part or item attributes necessary to identify many savings opportunities.

To overcome these barriers, enterprises need a set of practices and tools that take a holistic approach to aggregating the data into a single view, categorize the data accurately and granularly by employing multiple enrichment techniques, present the findings in a useful way to drive decision-making, and follow a repeatable process. Applied collectively, these best practices empower enterprises with the information they need to drive even better business decisions and realize the many benefits of greater spend visibility.



Figure 1: Benefits and best practices for greater spend visibility

This white paper explores the business benefits of and barriers to achieving spend visibility and then identifies best practices an organization should look for in a solution to improve its spend visibility.

What are the benefits of greater spend visibility?

As companies look for new ways to lower costs and improve business results, the procurement organization is increasingly taking a more strategic role in the business. Savings targets are high, and companies are under a great deal of pressure to reach and exceed them as quickly as possible. Leading-edge procurement organizations are looking toward greater spend visibility as an essential driver of improved results. The benefits are three-fold:

- *Identify the next wave of saving opportunities.* With a clearer view into their spend information, large enterprises can take a more strategic approach to sourcing and focus their efforts on the most valuable opportunities. This can reduce costs by a substantial amount. These opportunities can include:
 - Un-leveraged spend. Where no contracts are in place, companies can begin sourcing to help ensure competitive pricing.
 - Purchasing leverage. Gaining visibility into and aggregating demand across commodities, business units, regions, and plant locations, for example, can give companies greater leverage in supplier negotiations.
 - Supplier consolidation. In commodities where companies use many suppliers, there can be benefits to consolidating with fewer key suppliers. As the spend with each supplier increases, the company can typically negotiate better terms and prices across the board.
 - Part rationalization. Duplicate parts are often sourced across plants, product lines, and geographies and opportunities for substitute parts are not identified. With detailed spend visibility at the part level, companies can identify these overlaps enterprise-wide and consolidate supply.

- *Enforce contract compliance*. With a detailed view into who is buying what from which suppliers, enterprises can better enforce contract compliance. Armed with this information, organizations can often cut off-contract spending substantially. Overall benefits can include:
 - Maverick-spend reduction. In many cases, despite having good negotiated rates in place, enterprises find that many employees are not buying from approved suppliers. Identifying these cases and moving spend to approved vendors can result in quicker savings.
 - Budget compliance. Once savings are identified, budgets need to be adjusted to preserve the cost reductions. Spend visibility enables enterprise-wide comparisons between budgeted and actual spend, enabling companies to better facilitate compliance with the revised budgets.
 - Price rationalization. Inconsistencies can arise in the price that companies pay for a particular item. This can occur as a result of a supplier charging different plants different prices, or it might be the result of buying similar items from too many suppliers. The right visibility can help companies ensure that virtually everyone is always paying the lowest available price.

- *Create an auditable record of enterprise spend.* With a single "source of truth" for the enterprise and a single record of purchasing activity, enterprises can better meet Sarbanes-Oxley and other regulatory and financial reporting requirements.
 - Management oversight. Companies cannot manage what they do not measure and without enterprise-wide spend visibility, it is difficult for managers and executives to oversee spending properly. Armed with the right information, they can be confident that procurement procedures and policies are adhered to by both buyers and suppliers.
 - Process compliance. In an environment where process compliance is being scrutinized, too often purchase orders are not completed properly, spending is conducted off-contract, and purchases are not processed through the proper systems with the right controls. Spend visibility provides insight into what processes are used to manage the procurement of goods and services from suppliers.

Mergers and integrations are another area where spend visibility can provide significant value. The supplier rationalization process in a typical merger can be daunting. However, with cross-enterprise spend visibility, this task can be greatly simplified and the new organization can quickly begin to realize many of the benefits described above, particularly those from supplier consolidation and purchasing leverage. Companies armed with the spending visibility and control they need to make informed decisions find they can save money quickly and continuously. Purchasing professionals with the right tools can focus more of their time on strategic, value-added planning activities. As an example, if a procurement team is planning a strategic sourcing initiative, they might want to investigate opportunities in the commercial print spending area.

They will not know if this is a good area to target unless they are able to answer some key questions:

- · How much does the company spend on commercial print?
- How does commercial print spending compare to spend in other areas?
- How many suppliers are providing commercial printing services to the company?
- Who are they?
- Does the company have contracts with each of them?
- What other products and services does the company buy from them?
- How can the company better leverage its print spend?
- Which departments purchase commercial print?
- Which departments use approved suppliers and which do not?
- How has commercial print spending—corporate-wide, by department, and with specific suppliers—changed over time?
- Is this a good category for supplier consolidation?

In order to address these types of questions and to realize benefits that go directly to the bottom line and improve overall company performance, enterprises need visibility into company-wide spending. Without that, it is nearly impossible to make sound, informed decisions about which initiatives to pursue. Take another example: a Fortune 500 company that is able to achieve better spend visibility.

Here are just a few illustrative examples on how they might save:

Pre-Transformation	Finding	Action	Savings
Purchasing leverage	In a \$500 million MRO category, ten individual suppliers were providing parts to each of their plants.	Used the aggregated demand as leverage to negotiate better prices with vendors. Realized average 6 percent price reduction across suppliers.	\$30 million
Supplier consolidation	In a \$155 million indirect category, there were over 350 suppliers.	Consolidated the supply base to select, preferred suppliers. Leveraged the increased spending with these vendors to negotiate better terms and prices. Reduced supply base by 75 percent and realized a 4 percent savings across the category.	\$6 million
Part rationalization	Identified 15 duplicate parts representing \$385 million in spend, being sourced to support 3 different product lines across 20 plants.	Consolidated the supply around a single part, and negotiated an average 3 percent price reduction with the preferred supplier.	\$12 million
Maverick-spend reduction	65 percent of the \$120 million of contract labor spend by the data center was with non-approved vendors.	Shared findings with data center manager and reduced off-contract spending to 5 percent. Realized 7 percent savings on spend shifted to approved vendors.	\$5 million
Un-leveraged spend	An \$80 million indirect goods category had not previously been sourced.	Conducted sourcing events for the category to establish approved pricing and suppliers. Realized 18 percent savings across the category.	\$14 million
Maverick-spend reduction	65 percent of the \$120 million of contract labor spend by the data center was with non-approved vendors.	Shared findings with data center manager and reduced off-contract spending to 5 percent. Realized 7 percent savings on spend shifted to approved vendors.	\$5 million
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Total: \$67 million

That is just an illustrative example, but the point remains that the potential savings can be significant. Overall, when considering all the opportunities presented by better spend visibility, enterprises can typically save on multiple dimensions from taking a more strategic approach to sourcing, reducing inventory costs, and cutting off-contract spending, among others. For large enterprises, that can translate into hundreds of millions of dollars in savings that can free up cash for investment in Research and Development or additional marketing or contribute directly to the bottom line, boosting earnings per share and overall financial performance.

Why is spend visibility difficult to achieve?

In pursuit of company-wide spend visibility, enterprises are confronted with three key problems:

- The data available is poor and ill-suited to driving procurement decisions
- Enriching the quality of the available data has been challenging and costly
- · Business dynamics are constantly changing

Why is information quality typically poor?

The first barrier to good information quality is that spend data is dispersed. It is scattered across multiple, disconnected accounting systems (example, Accounts Payable (AP), Enterprise Resource Planning (ERP), corporate purchasing cards, eProcurement systems, and electronic funds transfers) and detailed product information exists across a variety of formats (example, XML, HTML, PDF, Microsoft® Word, text files, spreadsheets, databases). Typically, procurements teams can see data by spend system, be it ERP, eProcurement, AP, etc. However, with typically only a small percentage of total spend going through eProcurement and with ERP data scattered across multiple versions and instances, organizations cannot get a complete picture from any one source. They need to see aggregated spend data. However, even once the data is aggregated, the second barrier is that the data is often of poor quality: unstructured, incomplete, inaccurate, or not at the right level of detail. There are multiple drivers:

- *Data entry errors.* Spending data is often recorded inconsistently with errors, duplicates, and misspellings, leaving a large amount of unclassified, "other" spend.
- **Duplicate vendor codes.** Typically, vendor names are spelled various ways and there is no link between parent corporations and subsidiaries making it difficult to get a picture of total spend with any one vendor. Even in a single AP system, for example, individual suppliers might have more than one unique code assigned to them, making it difficult to compile total spending by supplier.

What companies see				\sim	What they need to see				
	System	Number of Transactions	Spend (Source Currency)			ĺ	Number of Transactions	Spend (Euros)	Spend (USD)
	SAP	183,874	US\$ 602,940,436				194,346	10,897,255,167	\$13,076,
	Oracle	9,187	€9,779,727,063						706,201
	Purchasing Card	853	US\$ 737,081,364			1			
	T & E System	432	US\$ 1011,925						
				_)	L			

Figure 2: Aggregated spend data

Contract management for healthcare: provider contracts

- *Nomenclature variability.* The usage of language, nomenclature, and terminology varies by different organizations and groups responsible for the data, making it difficult to achieve a consistent view.
- *Diversity of user needs and inputs.* In many large global operations, spend data originates from different people, in different organizations, in different locations, using different languages, and all with different requirements. Further, it is typically coded from a financial perspective.

While General Ledger (GL) and cost center are helpful for the finance organization, they do not provide the view needed to drive procurement decisions. For example, in an accounting system, an item might be classified as a three-year depreciable asset, but not as a laptop computer. This is not the most useful view for purchasing professionals. They need information that is organized—by commodity, by vendor, by business unit, by geography—to show spending patterns. They need to understand how the company purchases, not how the accounting department records expenses.



What companies see

Figure 3: The corporate view

Once organizations achieve spend visibility by vendor "family" and commodity, the data is sometimes not granular enough to provide business insight and drive informed decision-making. Detailed product information and attributes are trapped inside cryptic line item descriptions and need to be structured and mapped against a more granular commodity structure. The level of granularity required typically varies with the type of spend:

- *Indirect.* Indirect goods and services are used in running the enterprise, but are not involved directly in the manufacturing process. Typically, indirect spend data is of the lowest data quality in the organization and offers the largest opportunity for sourcing, often by aggregating and consolidating the indirect supply base. There are typically a low number of transactions (relative to the direct side)—this will of course vary by industry with service organizations having mostly indirect spend—and a low level of detail, such as GL data. Often, achieving granularity at the vendor "family" and commodity levels is sufficient to drive procurement decisions.
- Direct. Direct, on the other hand, is typically fairly well

What companies see

What they need to see



Figure 4: The corporate view

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sourced to begin with but often requires individual part details and attributes to drive procurement decisions. If it even exists, this information is typically buried within cryptic item descriptions. To capture additional benefits on the direct side, a deeper level of granularity at the part or line item level is required to:

- Identify duplicate or substitute parts to aggregate demand and consolidate supply
- Cut unnecessary or redundant part introduction
- Assess part price consistency with a single supplier across multiple plant locations
- Analyze part price consistency across multiple suppliers
- *MRO*. This type of spend covers the maintenance, repair, and operations (MRO) of equipment that supports the manufacturing process. MRO items tend to be high volume and include many small suppliers. In terms of data quality, it typically falls somewhere between indirect and direct, and therefore shares some challenges and opportunities with both.

Why has creating good, well-structured information been so hard?

To get to the point where they can realize the benefits of spend visibility, companies must overcome the deficiency in the available data. It must be cleansed, normalized, organized, and enriched to transform it into well-structured content that can support enterprise-wide spend visibility at an appropriate level of accuracy and granularity. This is not an easy process.

Some companies have used expensive outside consultants who spend months developing one-time analyses. These results are not repeatable and quickly become obsolete. Attempts to recreate the analyses are inconsistent, and changes in spending cannot be tracked reliably.

Others turn to a variety of tools to try to solve their spend information problem, including internal accounting systems and data warehouses. These systems provide limited, ad-hoc analysis using raw AP data to estimate spending by business unit. However, these systems neither aggregate the data properly nor correct poorly coded data. Additionally, these tools are inflexible in how they capture and display information. They are unable to create an accurate picture of all spending by commodity, supplier, or business unit. They are designed simply to collect accounting data, not to provide procurement intelligence. They do not identify savings opportunities or monitor cost-savings initiatives over time. Furthermore, like the consultants, the technology and data do not offer a repeatable process for collecting data, making it purchasing-relevant, and taking into account business changes.

How do changing business dynamics affect spend visibility?

Enterprise business strategy is in a constant state of flux, and, despite the best intentions and abilities of IT organizations, keeping up with them from a technological perspective is an ongoing challenge. As soon as one change is addressed, the next arises. The challenge of providing a single, integrated view of enterprise spend is complicated by this constant change and evolution.



Figure 5: Business events timeline

For example, enterprises realize many benefits from their ERP applications and often pursue strategies to standardize on a common platform or leverage a data warehouse. The nirvana is that virtually all enterprise data, in this case spend data, will flow through a single, integrated application. However, numerous business needs can derail those plans. Different ERP versions and installations might not be compatible, or it might be difficult to integrate information across them. An operating unit might require functionality (example, eCommerce) that requires a newer ERP version not yet used by the rest of the business. The procurement and other organizations may pursue new processes and systems (example, eProcurement) that keep some of the detailed spend information out of the ERP system. However, most significantly, companies are frequently undertaking mergers and integrations which typically introduce a whole new set of systems, from the acquired company, to the picture. Even the best-intentioned company likely cannot plan for or avoid this obstacle to standardizing on a common platform.

For at least the near future, constantly changing business requirements create an environment in which it is difficult to achieve enterprise-wide spend visibility via a single transactiondriven application.

What is needed to achieve better spend visibility?

When looking for a solution to achieve better spend visibility, an organization should evaluate potential solutions around key best practices that have developed from the successful application of spend visibility solutions for large enterprises over the past several years. These best practices fall into 4 main groups:

- Take a holistic approach
- · Categorize data accurately and granularly
- · Present results usefully to drive decision-making
- · Follow a repeatable process

Take a holistic approach

An approach that is holistic can address virtually all types of

spend—indirect, MRO, and direct—integrate data from all internal systems, and also tap into external data sources as needed. Companies should look for solutions that can integrate spend data from all of their business systems. For example, when the internal data is too incomplete or high-level to provide the right level of spend visibility, companies should look for ways to extend the data by integrating information from external sources, such as supplier web sites.

- ERP
- CRM
- Procure-to-pay
- e-Buy
- Purchasing cards
- Other accounts payable and purchase order feeds
 MRO feeds
- CODA
- HR benefits
- Wire transfers
- Travel expense feed

Categorize data accurately and granularly

Categorization is the process of mapping spend data to a supplier hierarchy, commodity taxomony, and other groupings needed by the organization. It is this categorization that ultimately drives new insights. To categorize at the level needed to drive business decisions, the available data must be enriched. While there are many different approaches to enrichment, there is no single best solution and best-of-breed approaches must combine many of them. At the highest level, there are three core approaches to data enrichment. Each taps into different aspects of the intrinsic value in the information available and within each there are various nuances and options that must be applied appropriately to help maximize spend visibility.

- *Rules-based*. Rules-based approaches are typically most appropriate for indirect goods, where a deep level of granularity is often not required to achieve good spend visibility. Rules-based engines mostly leverage GL, vendor, and invoice descriptions. They typically map the information against a content knowledge base to group each record by vendor "family" and commodity.
- *Machine learning*. Machine-learning approaches are typically most appropriate for direct material and MRO spend, where

there is a relatively large volume of transactions and where a deep level of granularity is often required to get to a level of spend visibility necessary to support decision making. With machine-learning, experts classify a small percentage of the overall transactions, and then in an automated fashion the "machine" improves or learns over time, leveraging intrinsic value found in the existing descriptions and populating category-specific properties to the extent the original description permits. Machine learning can be applied to and is also particularly effective at harvesting value from material group or master item data.

Third-party sources. Machine-learning (and rules-based) approaches can only go so far to enrich the data already available in a company's internal data. In some cases, particularly with direct goods, this information is not adequate to provide the right level of spend visibility. In these cases, companies should look for solutions that can match their data to richer, external sources of product information, such as supplier catalogs, to extend the spend data with a richer set of attributes to permit for more granular categorization. Certain supplier web sites host product catalogs that are rich in content. These database-driven web catalogs can be searched very effectively using intelligent web spiders, and, using such technology, additional information on parts can be obtained in an automated manner.

Spend analysis best practices

Effective spend analytic applications should have the following functional capabilities:

- · Holistic approach
 - Extract data from all accounting and payment systems across the company
 - Provide scalable technology that supports large volumes of data and complex, multi-dimensional analyses
 - Support enrichment of indirect, MRO, and direct spend
- Accurate and granular categorization
 - Cleanse and normalize a consolidated data set
 - Classify transactional data into a structure that meets the company's unique requirements, including

commodity taxonomies (example, proprietary United Nations Standard Products and Services Code[®] or UNSPSC), spending areas, business units, suppliers, GL codes, and geographies

- Organize information into a purchasing-relevant format, so procurement teams can plan and execute initiatives such as strategic sourcing, maverick-spend management, and rebate programs
- Integrate product attributes from external sources to support a high-level of granularity, when needed
- Employ multiple rules-based algorithms (example, Bayesian analysis, natural language parsing, nearest neighbors analysis) in the classification process and determine a degree of confidence for each rule's recommendation to apply the most appropriate algorithm for the data at hand
- Enable the company to modify the data structure over time to reflect organizational changes
- Integrate valuable supplier information such as performance ratings, credit risk, and Minority and Women Owned Business (MWOB) status
- Integrate user feedback to improve data quality over time and to drive user adoption
- Useful presentation
 - Offer a user-friendly interface through which multiple users can access and analyze data simultaneously
 - Display information to support decision-making and support ad-hoc queries
- Repeatable process
 - Permit a repeatable process with easy, consistent updates that add new and refreshed data into the system
 - Require minimal technical support

These approaches should be complimented with an automated closed-loop review and feedback process through which business users can identify virtually any changes that need to be made to the classified data. Feedback should be recorded and captured as rules so that it might be automatically applied to similar spend data in the future to improve spend visibility continuously. As shown in the following diagram, it is the integration of these various approaches that can enable companies to achieve comprehensive spend visibility across their indirect, MRO, and direct spend.

Of course, the 80/20 rule often applies, and some organizations find that they can achieve a high level of spend visibility after applying just one approach. The nuances of these results will depend on the quality of the underlying data and the level of accuracy and granularity required for the business. Therefore, while a robust solution will employ all 3 methods, it will do so flexibility and incrementally to balance the cost to benefit return of achieving greater spend visibility.

Present results usefully to drive decision-making

In order for the enriched spend information to be actionable, it needs to be presented in a useful way, and the business users need to be able to "slice and dice" it to get to the business insight needed to drive strategic business decisions. A solution should offer a user-friendly interface through which multiple users can access and analyze data simultaneously. It should enable users to flexibly drill-down on an ad-hoc, on-the-fly basis to permit each user to answer their specific questions without relying on outside or IT report writers to get the answers they need. Finally, the level of information required by different users (example, CPO, VP of sourcing, commodity manager, or buyer) can vary, and a solution should be flexible enough to adapt to the different informational needs of these users.

Follow a repeatable process

While each company has unique requirements and business challenges, there are typically 4 phases in an on-going process to achieve and constantly improve spend visibility.

- Step 1: Aggregate. The first step in achieving spend visibility is to collect and consolidate the spend data. This includes:
 - Aggregating and validating data
 - Standardizing data to a common format
 - Consolidating data into a single spend database
- Step 2: Enrich and categorize. This is a combination of applying algorithms and processes designed to conquer the data quality problem and get the data to the right level of granularity and accuracy. This includes:
 - Grouping vendors into "families"
 - Normalizing data elements
 - Grouping elements
 - Leveraging best-in-class third party content databases
 - Categorizing spend
 - Leveraging best-of-breed "rules" and "machine-learning" approaches
 - Achieving the highest granularity possible
 - Enabling quick and consistent refreshes using repeatable rules and machine-learning
 - Enriching with third party information, if necessary
 - Capturing additional attributes by leveraging automated technology to pull in information from external sources
- Step 3: Review. This is the point at which the business users start to interact with and review the enriched data. Initially, they should assess if the right level of accuracy and granularity has been achieved and, if necessary, pursue more granular enrichment. Upon final enrichment and approval, access is extended to a broader set of end users.
- Step 4: Analyze and improve. The end users begin to analyze and use the data to drive business decisions. Invariably, they will find some data elements that could be better classified. A good solution creates an automated closed feedback loop with them to capture their insight and enable continuous data improvement. This not only adds incremental quality and value to the data, but also helps to drive user adoption, as users begin to feel a greater sense of ownership of the data.

Where the data warehouse falls short

ERP systems are valuable applications for many companies. However, companies might find that relying exclusively on their ERP data warehouse to achieve spend visibility is an inadequate approach. While spend data coded within the system can be queried and analyzed, the data is often incomplete and not categorized to support procurement decision-making. The many pitfalls include:

- Enterprise-wide spend visibility cannot often be achieved due to challenges integrating data from different ERP versions and installations.
- No data cleansing or vendor categorizations is conducted, making it difficult to get a view of total spend with any one supplier. For example, spend with "IBM" and "Intl Business Machines" is seen as coming from two different suppliers.
- Data warehouse categorizations are driven by purchase order fields (example, GL code, supplier address, etc.) and might not be meaningful. GL coding is financially focused, not procurement focused. For example, all capital goods (from PCs to copiers to furniture) tend to be recorded under fixed assets.
- Mappings might be driven by UNSPSC—not necessarily how procurement looks at the world. For example, copiers, paper, and toner are all in different parts of the UNSPSC structure. Procurement typically views these as "office supplies."
- Categorizations do not take into account the totality of the data elements, such as item descriptions, that can be enriched to provide greater spend visibility. As such, only high-level, incomplete spend visibility is provided.
- The data, once entered into the warehouse, is static and errors cannot be corrected. This lowers confidence in the data and reduces the likelihood that it will or even can be used to drive business decisions.

Summary

Achieving spend visibility offers a myriad of benefits that can go right to the bottom line and improve overall corporate performance. The challenge is to overcome the barriers and identify a solution that is right for the enterprise. Many enterprises today are moving beyond costly, manual approaches and realizing that they cannot afford to wait for the nirvana of an integrated spend data warehouse that has the level of information they need. The potential savings are too great. These organizations are pursuing spend analysis solutions today. While each enterprise faces unique challenges, some common themes emerge to define robust solutions. These should take a repeatable, holistic approach to provide company-wide spend visibility that is accurate, granular, and can be used to drive business decisions. Armed with such a solution, enterprises can begin to realize the many benefits of having greater spend visibility.

If you have comments on this white paper or would like to discuss any of its points, please contact us at 781-993-9212 x 395 or at ibmemptorissales@us.ibm.com.



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