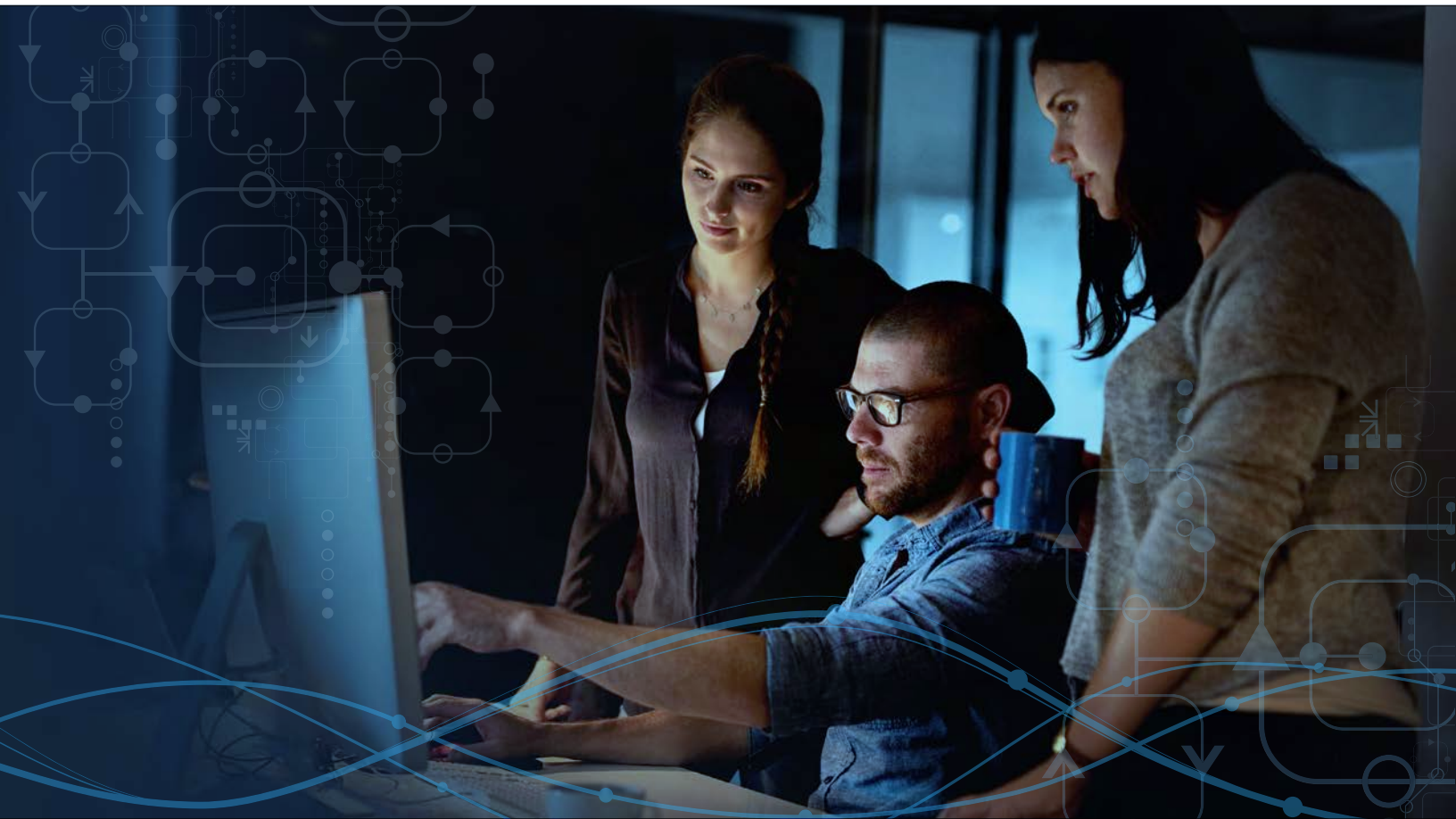


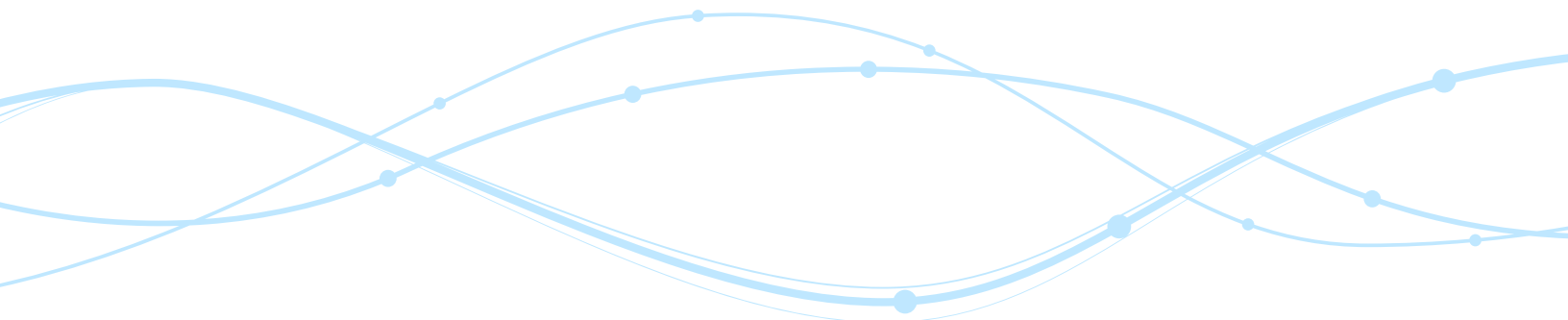
# Procurement integrity powered by continuous monitoring

Using predictive analytics to prevent fraud



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## Procurement fraud is pervasive – and incredibly costly

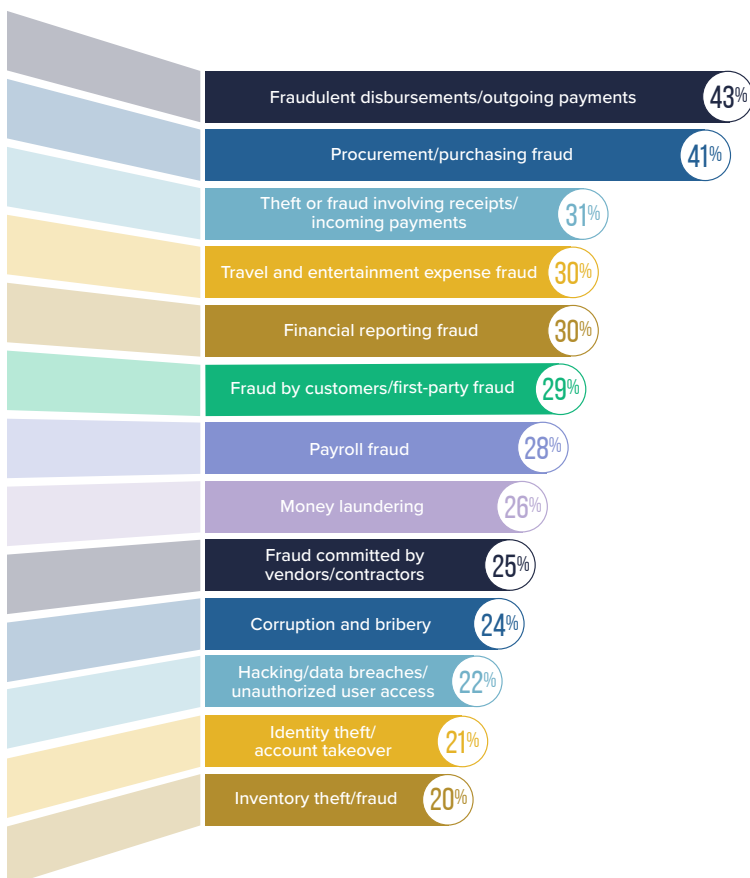
Did you know that procurement-related fraud is the second-most prevalent type of fraud in the marketplace? Key findings from the [ACFE's Occupational Fraud 2022 Report to the Nations](#) shows that organizations estimate losing 5% of their revenue annually to fraud. A typical fraud case lasts 12 months before detection – and causes a median loss of \$117,000 per case.

According to the [2022 Anti-Fraud Technology Benchmarking Report by the ACFE and SAS](#), the risk areas where organizations most commonly use data analytics to monitor for fraud are:

- Fraudulent disbursements and outgoing payments (43% of respondents).
- Procurement and purchasing fraud (41% of respondents).

“When deploying anti-fraud analytics, organizations often take a risk-based approach,” the report states. “That is, they tie their analytics initiatives to the areas of the organization where fraud risks are highest or where the evidence of potential fraud can be most effectively uncovered using data monitoring and analysis.”

“Nearly every organization has functions for making and paying for purchases, and there is an inherent risk that funds might be stolen as part of these processes, so it would stand to reason that these are among the most common risk areas for organizations to monitor using data analytics.”



The risk areas for which organizations say they use data analytics to monitor for fraud (ACFE).

Take a closer look at typical procurement processes and systems; the fact that procurement is linked to so many entry points for fraud is no surprise. Most companies have many employees authorized to make spending decisions without oversight - including who to buy from and what to pay. These transactions are often audited after the money has exchanged hands, so prevention is difficult at best.

Complicating matters is the fact that procurement fraud can involve employees you hired, colleagues you respect and vendors you trust. Successful fraud often involves collusion with someone in power - a procurement official, contract manager, business manager or executive, or even a vendor. Such connections mean that fraud discoveries affect corporate culture and teams even more. No one likes to assume such things about people they hire or work with.

Organizations that rely on basic analytics to uncover fraud typically use historical data, which can't prevent fraud - this approach only reveals fraud after payments have been made. And because companies discover the typical fraud case one year after it occurs, recovery of financial losses is challenging. In addition, analytical tools generate thousands of fraud alerts that are not prioritized or weighted. These alerts end up causing distractions rather than providing valuable insights.

Such realities illustrate why so many otherwise well-intentioned employees may feel tempted to commit fraud and end up being successful for so long. They start small - for example, by approving duplicate invoices - and no one notices. These successes lead them to commit larger and more frequent fraud over time. There simply aren't sufficient controls in place to detect and deter them.

The question is, how can you change this - and can you afford to wait? Business leaders and auditors are increasingly being held accountable for growing financial fraud losses, not to mention the reputational risk accompanying it.

## Fluvius: Ensuring reliable energy by eliminating risk

Fluvius is the independent grid operator for electricity and natural gas in all municipalities in Flanders. In many places, the company is also responsible for public lighting, cable television and wastewater management.



Fluvius recognized the value of having one view of all procurement efforts. Such a view can avoid risks that might otherwise go unquantified or undetected - in processes ranging from requisition to purchase order and invoice approval.

Using SAS®, Fluvius can screen its procurement systems, assess risk, and reduce fraud, waste and abuse. Top risks have been identified and investigated, and fraud detection and optimization are under control. Now Fluvius can invest its time in more strategic initiatives.

## The bigger the budget, the more you have at risk

Studies show that most procurement fraud is due to weak controls and detection measures. When controls aren't strong – especially at large organizations – fraudulent activity can get lost among thousands of transactions.

Generally, the bigger the organization, the easier it is for employees to get away with committing fraud.

Consider how lack of controls cost one large US government institution more than \$300 million in procurement fraud over several years. After a high-profile procurement fraud incident made national headlines, senior management wanted to know how it happened – and if it indicated a bigger problem. SAS consultants analyzed all procurement data – payments, invoices and orders – across the enterprise for the last three to four years, which involved data on 17,800 suppliers, 25,000 employees and 700,000 payments.

SAS' analytical tools revealed alarming findings:

- 2,500 employees had a financial interest in one or more of the 17,800 outside suppliers doing business with this government body. While not all were defrauding the government, these relationships represented a potential risk.
- There was employee collusion with one large supplier that had been paid more than \$300 million. Forensic analysis found multiple invoicing and split invoicing activity with this supplier that, if prevented, would have saved more than \$16 million.
- The analysis identified ghost employees who had never existed or were no longer employed. Yet they were continuing to be paid.
- It also uncovered payments for supplies or goods that were never received.

This story illustrates the enormous risks associated with traditional fraud detection methods like manual audits and periodic data analysis. As this SAS customer learned the hard way, using a wide range of analytical tools to continuously monitor all procurement-related data is the best way to prevent fraud.

## An integrity-based approach powered by continuous monitoring

An integrity-based approach to procurement fraud detects potential fraud early – before payments go out. This approach combines typical controls and processes with continuous monitoring of all procurement data so organizations can identify and act on issues as they occur – maintaining the integrity of the procurement process by avoiding mistakes or wrongdoings.

To deliver on this value, a procurement integrity solution should:

- Aggregate information from different systems, agencies and third-party data sources to augment knowledge about suppliers, people, products and contracts.
- Resolve entities by checking for a variety of issues, including name variations; use of common addresses, phone numbers or bank accounts; and via business ownership monitoring.

### Out-of-the-box capabilities

SAS has more than 80 prebuilt procurement models that identify anomalous behaviors and red flags, accelerating your time to value. These models provide data-driven risk indicators to identify noncompliant processes, unusual invoicing or payments and circumvention of controls. In turn, you can reduce risk, attain compliance and minimize financial losses.

- Detect fraud early using multiple analytical techniques like clustering, segmentation, pattern recognition, associations and business rules to determine or predict the overall risk posed by each payment, invoice, supplier or purchase order.
- Analyze pre-award stage content, looking at bids, communications, selection outcomes and relationships to stay ahead of corruption or fraudulent activity and mitigate risk before awarding the contract.
- Aggregate entity-level alerts to reduce false positives and prioritize large numbers of transactional-based alerts generated by analytics. This frees investigators to focus their time and effort on the most critical and high-value fraud activity.
- Improve investigative capabilities and decision-making support by integrating data from all financial and contractual systems into one environment and supporting a workflow that reflects organizational objectives. Reporting should provide dashboards or portals, mobile reporting and risk insights across the procurement environment to all key decision makers.

## How SAS operationalizes procurement integrity

Advanced analytics solutions from SAS automate procurement integrity processes using leading-edge techniques like artificial intelligence, natural language processing and machine learning. By continuously analyzing diverse data sets, SAS delivers deep insights into contracting, billing and payment processes - effectively identifying overpayments and potential fraud while meeting procurement mandates and compliance with internal controls.

Taking a proactive approach to procurement integrity shifts the focus from fraud detection to fraud prevention – while vastly reducing the potential for financial losses, reputational damage, operational disruption and legal action. This tactic also improves the bottom line by eliminating the need for the traditional “pay-and-chase methodology” that often results in recovering funds in less than half of the cases.



Organizations have poured money into analytics initiatives for years, but few have seen big payoffs - because their models don't make it into production. The analytics life cycle must be seamless to enable data-driven decisions at scale. By connecting all aspects of the analytics life cycle - DataOps, artificial intelligence and ModelOps - SAS helps turn your critical questions into trusted decisions and positions you to gain real value from your analytics investments.

## Delivering the right technical capabilities across the analytics life cycle

A procurement integrity solution from SAS delivers the right technical capabilities at every step of the analytics life cycle – from data orchestration to deployment.

By incorporating predefined risk indicators and behavioral detection for potential fraud, our solution gives auditors, risk managers, investigators and contracts executives critical, risk-related insights into an organization's existing processes and workflows. The interfaces are preconfigured yet modifiable, so you can seamlessly integrate them with existing processes to support your organization's unique decision-making cycle.

To help you accurately identify fraudulent behavior common in complex procurement networks, SAS provides predefined fraud scenarios that work in conjunction with advanced analytics. Our solution combines:

- Data management.
- Proven models and rules that drive risk scoring at the transaction, purchase order and supplier-based levels.
- A triage environment.



### Data quality and governance

Data quality from SAS standardizes, deduplicates and corrects data to ensure clean, accurate data for analytics. Data governance tools allow you to set and enforce overarching rules that control how your organization collects, manages and archives data. This helps you to import all types of data quickly, prepare it for analytics and resolve entities.



### Data orchestration

Seamlessly aggregate and cleanse internal and external data from all relevant sources with a single, integrated data analytics platform. Then rapidly transform and enrich multiple data types - including supplier data, ERP and other third-party data, employee data, invoices and unstructured data - to use in monitoring.

## Aggregating procurement data

To continuously analyze procurement-related data, you should rely on a common data model to aggregate data from disparate internal and external sources. SAS accomplishes this by layering in external data from different systems (such as HR systems), agencies and third parties, so you can augment knowledge about suppliers, people and products and then resolve entities. Our analytics examines all data relevant to procurement, including orders, invoices, payments, vendors and suppliers – even HR’s employee data (which it uses to detect collusion by identifying potential links between employees and suppliers).

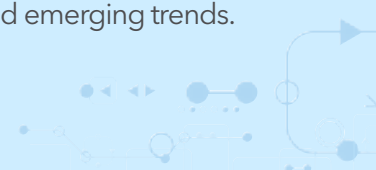
## Uncovering issues

By applying advanced analytics techniques to predefined and custom fraud scenarios, SAS surfaces issues – including data quality concerns – and improves data within the system of record. For example:

- **Text mining** identifies patterns in unstructured data, like reports and employee communications. For example, analysis of company emails might show that a procurement officer who makes \$65,000 a year has suddenly bought a 10,000-square-foot house and an 80-foot boat. This spending is not in line with his income and should be investigated.
- **Advanced analytics like predictive modeling** can help you build models that identify attributes or patterns highly correlated with known fraud – even complex and emerging patterns of fraud. Analytics answers questions that manual or ad hoc methods would miss. For example, does this pattern look like patterns of vendors known to be bid riggers or those known to deliver counterfeit or substandard parts? Does this series of invoices, stair-stepping up and down in dollar value, indicate a vendor trying to find the threshold of scrutiny?
- **Artificial intelligence and machine learning** identify variables of interest based on data-driven insights derived through deep learning or other computationally complex methods of sifting through data points. By allowing the data to drive analysis, you find additional insights that subject matter experts could overlook or may not have encountered previously.
- **Associative linking or link analysis** identifies relationships among entities based on static attributes in the data (like phone numbers, addresses or bank accounts) or transactional attributes (like business relationships and referrals).
- **Vendor/supplier scoring** runs various scenarios against the data to identify any networks in the data. This approach looks at vendors based on transaction volumes and total purchases, entity levels, and relationships with employees and suppliers.
- **Drill-down functionality** enables you to identify and investigate the root causes of problems. For example, this technique could uncover the need for more advanced controls, process changes or reporting standards to improve your purchasing process while reducing risk.
- **Geomapping** makes it easy to understand precisely where you have a problem in your procurement process.
- **Network scoring** identifies collusion with employees and other vendors in the procurement process.
- **Fraud rules** use weighting, resulting in a scored approach that ranks alerts, suppliers and employees – so investigators will know where to focus their efforts.

## Decades of forensic audit expertise

SAS solutions incorporate more than 40 years of experience from forensic auditors who have worked with all types of clients from around the world – coupled with advanced analytical methodologies that surface subtle anomalies to detect new and emerging trends.





Together, these capabilities empower procurement officials to triage payments before they go out the door. They also provide more accurate views of an organization's fiscal status and assist auditors in their ongoing duties. In addition, management and fraud teams always have full visibility into the actual status of their purchasing department.

### Enabling intelligent investigation and exploration

SAS streamlines and enhances investigative workflows, ensuring that investigations focus on the most significant threats. Powerful reporting tools provide decision makers with essential information through easy-to-understand dashboards, portals, and mobile or online analytics. These tools help auditors and investigators quickly review risk indicators and address weaknesses in their control systems so they'll be prepared to identify and address more fraud going forward. Automated data management, triage and workflows streamline operations, while analysts can use an intuitive investigative interface to make fast decisions.

With SAS, you can link cases by common factors, capture incidents reported to the fraud hotline, attach electronic case evidence, and provide integrated management dashboards and reports. Go beyond individual invoice or payment views to analyze all related activities and entity relationships at a network dimension. Once you've established linkages, you can factor them into risk-scoring models.

## Bolster your procurement process with an analytics-driven approach

A data analytics-driven approach to procurement integrity based on continuous monitoring is core to safeguarding the process of free and open competition. It also motivates employees to do the right thing – even when vendors try to induce participation through bid rigging, price fixing, change orders, product substitutions and inflated invoices.

With SAS, you can:

- Identify issues faster and earlier in the cycle, which is the most significant step you can take to reduce fraud losses.
- Use predictive analytics to implement proactive, preventative measures. Our software immediately generates an alert when something is going wrong, so you can detect fraud as soon as it starts.
- Focus investigations on the biggest potential threats to your business. No more randomly deciding which vendors and employees are risky or which alerts to investigate. Now you can use a scored, prioritized list to see which threats pose the most immediate risk.
- Reduce false positives that distract limited investigative resources. SAS keeps people focused on real problems, detecting fraud earlier and stopping it before money exchanges hands.

### Risk models customized for your needs

Every organization is different, even though purchasing processes are similar across industries. With SAS, you can customize risk models to suit your unique business needs and internal controls, supporting policy compliance and integrity across the organization.

## The SAS approach at work

Consider how a financial institution with a large procurement spending volume benefited by implementing SAS. Using SAS Analytics, the organization identified 21 employees with a direct financial interest in some of the company's vendors. For example, some had a spouse working for a vendor. Others had spouses who were stockholders or even managers working for that vendor. In some cases, these were high-ranking employees with procurement decision-making authority.

Further analysis of all procurement-related data revealed:

- A significant pattern of duplicate invoices. If addressed proactively using SAS Analytics, this would result in immediate, bottom-line savings.
- Supplier collusion and sharing information. This meant the business was potentially losing out on opportunities to negotiate better contract pricing.
- Waste and abuse. Some people in the organization circumvented controls for open and fair competition, which caused them to overpay for goods or services and wind up with lower-quality product substitutions.

In total, SAS identified more than 100 suppliers that needed further investigation.

Ready to find out how SAS can help you understand your procurement fraud risk and mitigate it? [Contact us to learn more.](#)



Learn more about the [SAS solution for procurement fraud](#).

