



COMMODITY HEDGING SOLUTIONS CREATE EFFICIENCIES IN A DYNAMIC AND DATA-DRIVEN WORLD

Cross Asset Trading and Risk | Commodity Risk Manager – Kiorex

CONTENTS

OPERATING IN A DYNAMIC AND DATA-DRIVEN ENVIRONMENT

Sharpen your environmental, social and corporate governance (ESG) credentials to remain competitive

Global markets and technologies are transforming in ways that mean both new opportunity and new complexity for commodity-intensive organizations.

Take, for example, the growing spotlight being placed on ESG criteria by investors. Businesses that meet or exceed expectations can attract favor in the stock market, while those that fall short run the risk of seeing investors walking away from them altogether. This presents a real opportunity to capture market interest, but the task of demonstrating or improving ESG credentials isn't always easy. Fortunately, new technologies are making the process more straightforward for the data savvy.

For instance, in the case of an organization looking to transition to a green supply chain as part of a wider ESG initiative, evidencing what has gone into a product from "field to fork" can be very difficult. Thanks to developments made by the salmon and oil-based lubricants industries to tackle counterfeiting, distributed ledger technologies (DLT) are available to help prove the provenance of input materials along the supply chain. When combined with quality data and quality data-management processes, these DLT solutions allow businesses to understand what is going on within their supply chains and report about that with confidence, turning ESG reporting into an opportunity instead of an obstacle.

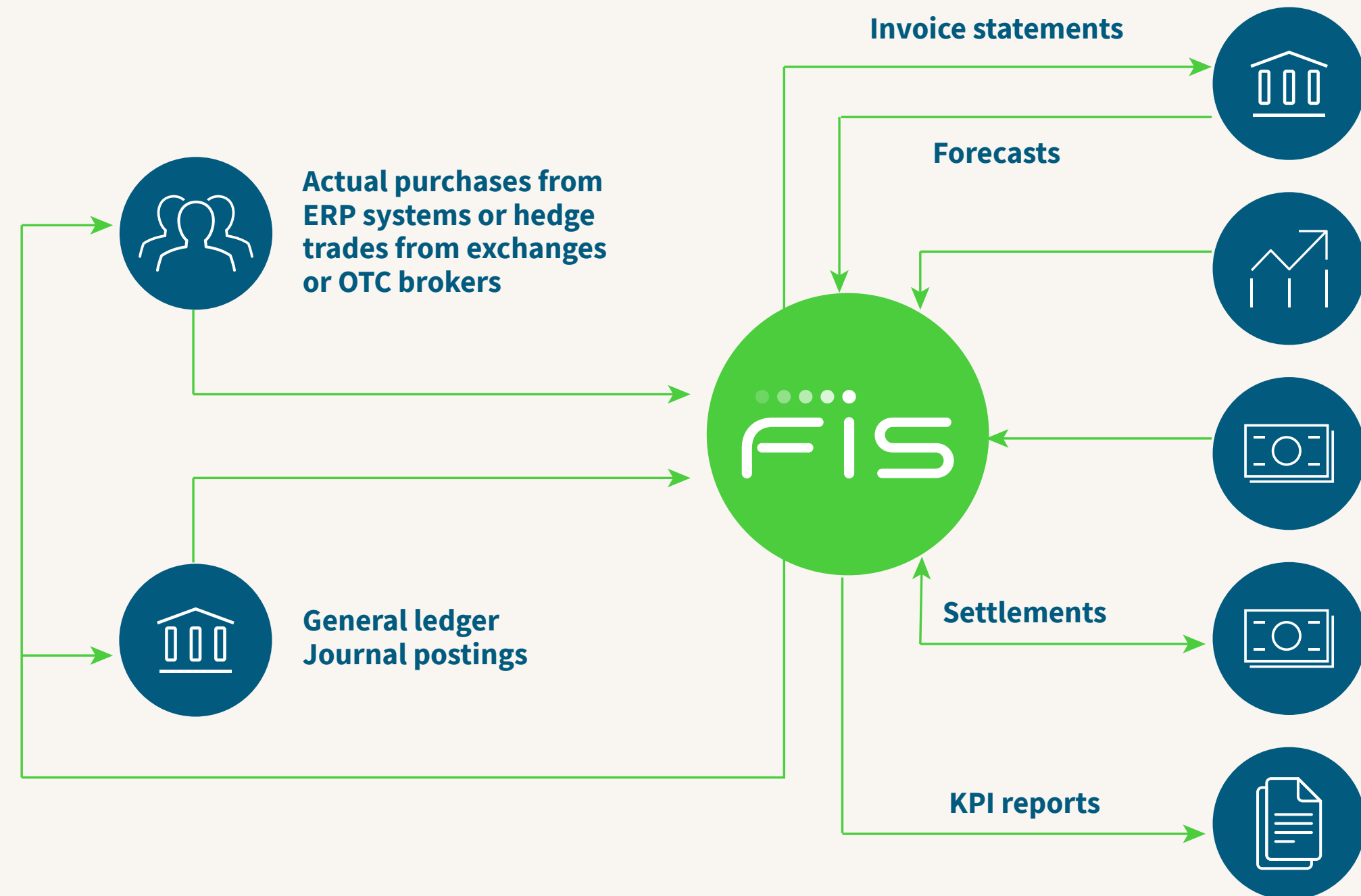


In today's business environment, the ability to leverage data is a key driver for operational success. Today's business leaders should consider data as an asset and realize that effectively managing it enables them to better run, connect and grow their businesses.

This is particularly true for commodity procurement teams who have a great opportunity to extract more value from their data than they are currently. Many procurement teams find themselves increasingly reliant on multiple information tools to get their jobs done. This has led to complex information technology (IT) landscapes characterized by disparate data sources, globally distributed user communities and a need for employees to switch between applications as they go about their daily tasks.

The lack of integration within these networks makes accessing accurate data a challenge. What's more, the scarcity of user access controls and shortage of automatic checks – common to such ecosystems – makes operational risk a real concern.

This situation presents several challenges for procurement teams, including providing their risk management colleagues with the information they need to hedge the company's commodity exposures and conduct rigorous analysis on global procurement activity to identify cost-saving opportunities and areas for improvement. Fortunately, as is the case for ESG reporting, technology is available to overcome these challenges.

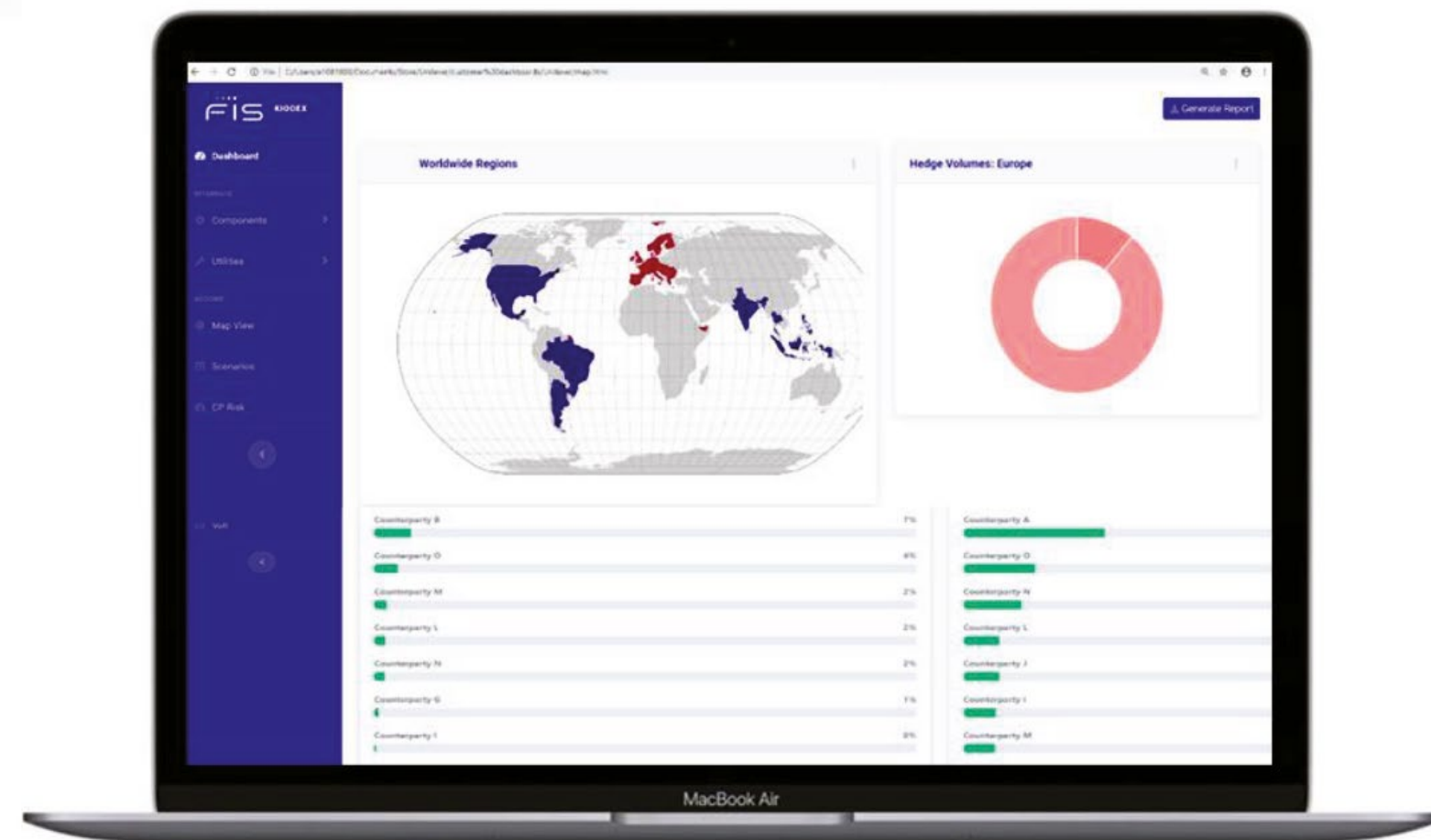


Managing and consolidating data securely

FIS' Kiodex, the commodity risk manager tool from FIS™, can sit at the heart of IT landscapes, replacing overstretched spreadsheet solutions and integrating with existing business-critical applications, such as enterprise resource planning (ERP) systems or treasury management systems. It gives procurement teams a powerful and interactive means of managing and consolidating their data in a controlled and secure fashion.

Our commodity derivatives functionality allows procurement and commodity risk management teams to harmonize workflows and data. This ensures they have the detailed and accurate information needed to support executives with their decision making, monitor and control their teams' activities, and stay congruent with the controlled environment that treasurers and procurement managers expect.

FIS provides a modular, web-based software as a service (SaaS) system that enhances procurement analytics capabilities to deliver crucial insights into trends, inventory surpluses and shortages. With Kiodex, procurement teams can automatically calculate weighted average prices and provide cost breakdowns (transport, insurance, hedging, etc.) while providing a commodity derivatives workbench for valuing positions such as futures or complex OTC options. The tool also allows teams to assess their risk exposure, with the ability to determine VaR, CVA and DVA. It also lets them perform scenario analysis, stress testing and limits monitoring.



This ebook focuses on how Kiodex can be used by procurement teams, providing use cases that explore the **features and benefits** of Kiodex for a global drinks manufacturer and a global confectionery business.





Mike Lockwood

Partner, The Metals Risk Team



The Metals Risk team on the pitfalls of managing commodity price risk in spreadsheets

“ Compromise on systems is a frequent cause of price risk management performance problems at client companies. Pinning down commodity price exposure and risk management effectiveness in an active business is no easy task, as the function sits at the end of ongoing commercial and production processes. Untimely and incomplete data capture, compounded by incomplete and inflexible reporting, leads to dangerous levels of financial volatility that can cost millions of dollars.

Unintegrated operations systems, lacking a risk-management focus, create the problem and are common in many businesses. They typically lead to a manual-entry, multiple-spreadsheet workaround and inevitably create a risk management process without sufficient functionality, capability, visibility and security. We often recommend that clients consider Kiorex as the solution to bridge these deficiencies. The ability to capture data from incongruent sources and rely on user-driven dynamic analysis offer a huge step forward. The up-to-date visibility that it delivers can allow frontline staff to react when needed and give management peace of mind in seeing the process is achieving its goals.

Further, its capabilities can enable the price risk management function to move beyond risk mitigation and into profit-enhancing business control. A well-structured process with good system support can locate production and commercial-based sources of unwanted financial variance and determine their size and frequency. Identifying, prioritizing and eliminating these problems provides additional payback, which can give a business in the highly competitive metals industry the edge it needs. ”

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USE CASE 1

KIODEX AT A GLOBAL DRINKS MANUFACTURER

CONTENTS

- About the company
- What they were doing
- The challenges they were facing
- Solving the problem

ABOUT THE COMPANY

A European drinks manufacturer operating in over 25 European and African countries is turning over in excess of €5 billion while managing an extensive product portfolio made up of over 6,000 unique stock-keeping units (SKUs).

The procurement team is responsible for managing the group's global procurement needs. It is tasked with cost-effective and timely purchasing, and delivery of input materials required by the operating plants to satisfy the group's order book.

Procurement operates a centralized control model with regional procurement managers. It purchases raw and unfinished goods, including sugar, aluminum cans, glass bottles, resin and bottle tops on a floating-price basis.

Price risk is mitigated through the group's commodity hedging program, that involves the treasury department hedging the underlying commodities which make up the raw goods purchased by the procurement team. For example, aluminum derivatives contracts are used to hedge the aluminum exposures associated with the cans they buy.





WHAT THEY WERE DOING

Sales | Regional Procurement Manager | Central Procurement Team | Treasury

The manufacturer's procurement process was representative of many of its peers, involving:

1. The **regional procurement managers** using spreadsheets to prepare forecasts, based on sales orders received and seasonally adjusted historical demand profiles.
2. The distribution of forecasts to the **central procurement team**, who aggregated forecasts and purchase input materials, as well as coordinated delivery of those materials to bottling plants using their ERP system to record purchase orders.
3. Future floating-price purchases (in SKUs) are communicated to the **treasury**. The treasury then determines the underlying commodities of the SKUs before hedging the resulting commodity exposures – using a variety of commodity-derivative contracts including OTC options and exchange traded futures. The cost of hedging is sent back to the purchasing team to allow it to calculate the weighted average price of its purchases (made up of transport costs + insurance costs + finance costs + inflation rates + duties, and so on.)
4. Ongoing reporting, monitoring and control activities – such as comparisons between actual costs versus budgeted costs and how they change over time – to assess the performance of the procurement team and determine causes of discrepancy, for example changing FX rates or deviations in actual versus forecasted demand.

THE CHALLENGES THEY WERE FACING

While simple in theory, the combination of multiple dispersed teams, disparate data, complex pricing formulas and inadequate software tools (e.g., multiple spreadsheets workbooks and obscure VBA scripts) meant the company's procurement process was error-prone, labor-intensive and ultimately prevented the procurement teams from performing at the level they wanted to.

There were three key challenges:



MAINTAINING DATA INTEGRITY

The team used disconnected data sets which did not automatically update when data was added or changed. This was exacerbated by the frequent introduction of new customer products, that had to be set up in all the tools as new SKUs, a manual process that led to inconsistencies including forecast consumption figures and physical contracts in the ERP system that didn't match actual physical positions on the ground, or the exposures listed in the treasury's database. These errors could lead to over or under-hedging of physical exposures, shortages of goods needed and worse: fluctuations in the group's profit and loss account.



REPORTING

The combination of bringing together disparate, often unreliable and incomplete data with multiple manual corrections, mapping, transformation, calculation and presentation steps made it impossible to create the 30+ detailed and summary-level reports on time.

Not only did this leave the teams with a feeling that they were sometimes flying blind, it also severely restricted their capacity to conduct more rigorous analysis into how they could reduce cost and improve procurement effectiveness.

They were also forced to rely on spreadsheets instead of their ERP to calculate cost breakdowns for purchase orders or determine the volumes of underlying commodity in purchasing orders.



OPERATIONAL RISK MANAGEMENT

Spreadsheets are flexible but limited. They do not allow for implementation of user-access controls like read or write access and segregation of duties. They also don't maintain audit, approval workflows or advanced disaster-recovery mechanisms.

SOLVING THE PROBLEM

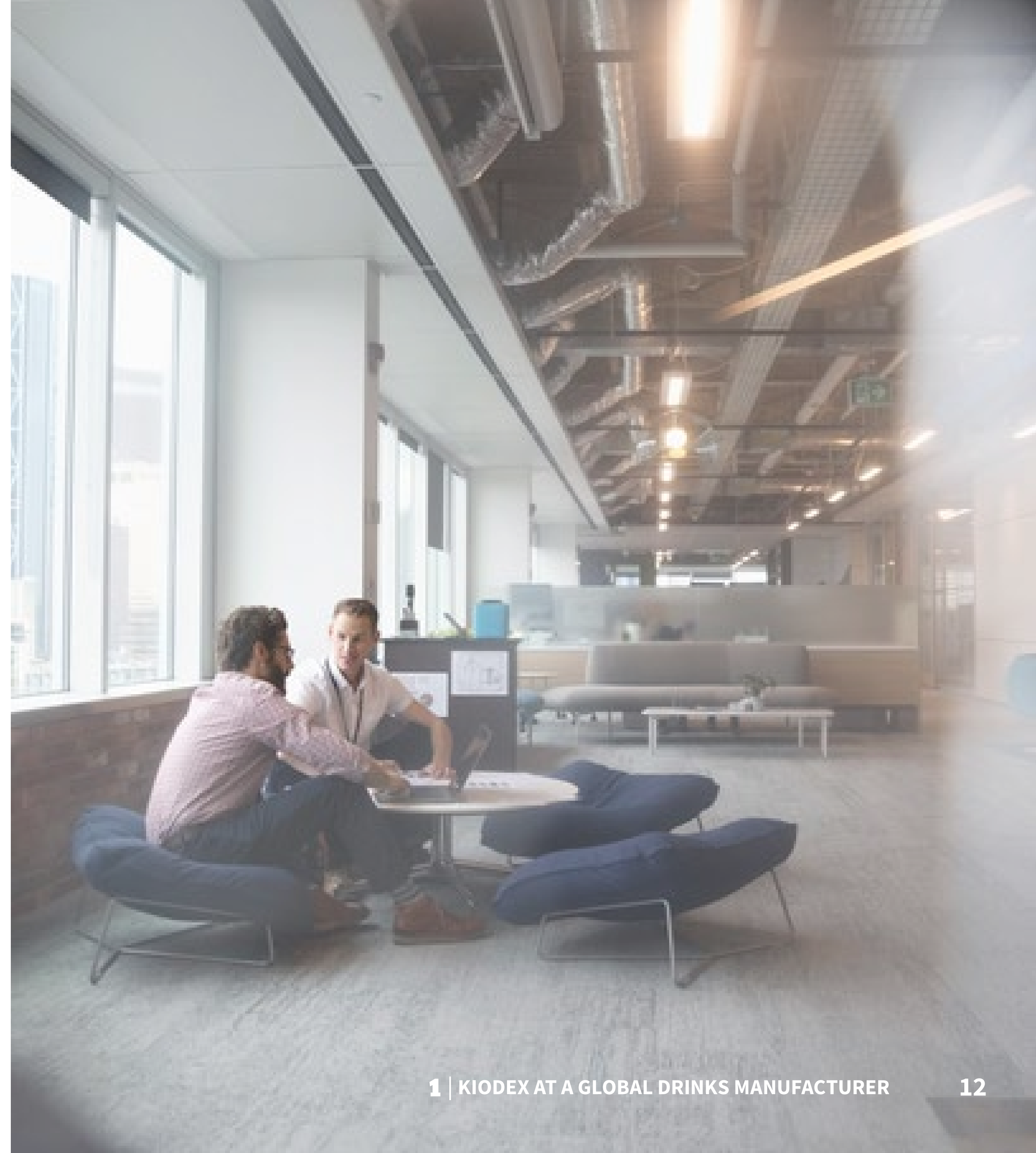
Coincidentally, many of the challenges faced by the procurement team were also felt by the treasury division, which began to explore options for replacing the spreadsheets-based reports in 2018. They initiated a formal review process which involved contacting several software vendors, including FIS, as well as evaluating their capabilities for developing an in-house solution.

Initially, the scope remained centered on the treasury department's workflow. As the buying team worked with FIS to gather requirements, conduct workshops and hold onsite or virtual demos, it was able to identify the most appropriate solution from the FIS product and service portfolio. It soon became clear that the FIS solution being reviewed by the treasury would be able to address the procurement team's issues as well.

Consequently, the scope was expanded to include procurement analytics reporting. This included performance benchmarking against management forecasts, calculation of cost breakdowns and deconstructing purchase orders into their underlying commodities. It also covered as hedge accounting under IFRS9 rules and automated generation and distribution of general ledger journal postings to the group's accounting system.

The other solutions providers included in the review were unable to fulfil both the treasury and procurement requirements. A compelling mix of support services, SaaS pricing and the experience FIS has working with similar organizations led to FIS' Kiodex commodity risk manager solution being selected.

Twelve months after initially contacting FIS, implementation of the solution began. A high-level breakdown of the solution is provided on the next page.



SOLUTION HIGHLIGHTS

What is FIS' Kiodex?

Kiodex gives teams the ability to capture forecasts and actual purchases as stock-keeping units (SKUs), determine the single weighted average price, or display the breakdown of individual price components and generate detailed performance reports on this information. The solution also allows automatic breakdown of those orders into the underlying commodities so they can be hedged in line with corporate policy.



SOLUTION FEATURES & BENEFITS

More value from data as procurement and treasury can create a shared data lake, incorporating a one-way feed from their ERP system in conjunction with direct feeds from their exchanges and brokers. This allowed regional procurement managers, the central procurement team and treasury to capture their forecasts, actual purchases and commodity derivative contracts in the same database. When combined with FIS' Java-based, web-enabled analytics capabilities, Kiodex gives both treasury and procurement a workbench for developing insights into their current and past performance as well as analyzing future exposures and determining how to handle them.

Efficiency gains allow the team to maintain a paperless audit trail for their activities and has removed the need for painstakingly gathering, cleansing and consolidating data as part of the reporting process. Kiodex has also accelerated data capture and back-office processes such as creation of general ledger journal postings.

An enhanced infrastructure with improved controls enables security features alongside our limit-definition and limit-monitoring functions. This lets the company implement preventative and detective controls such as regulating which data sets a user can access, enabling four-eyes checks and generating automatic limit alerts for near breaches or breaches for defined thresholds or guardrails.



SOLUTION DELIVERY

- The solution was co-implemented, whereby FIS worked alongside the procurement and treasury teams to implement the solution
- FIS owned delivery of the solution and was responsible for coordinating the associated project workstreams and activities, including training the new user community and assisting with other business-change activities such as providing user manuals
- Delivery followed a hybrid methodology, made up of the following core phases: design, build, test, deploy and handover



EXAMPLE REPORTS

Group exposure report combines forecasts, physical contracts and derivative hedges, and it can be separated by the underlying commodities, entity, location, product line or sector, and time profile.

Full breakdown of cost impact and variance compares current inventory and actual purchases against the original budgeted volumes, prices and FX rates, calculating the overall cash impact of deviation between current and budgeted figures and percentage variance. It also enables conversion to base currency and triggering of alerts on high variance figures by location, product and delivery.

Comparison of procurement against forecast collates forecasts and actuals from across all regions into a single global view, allowing users to highlight surplus, shortages and associated costs.

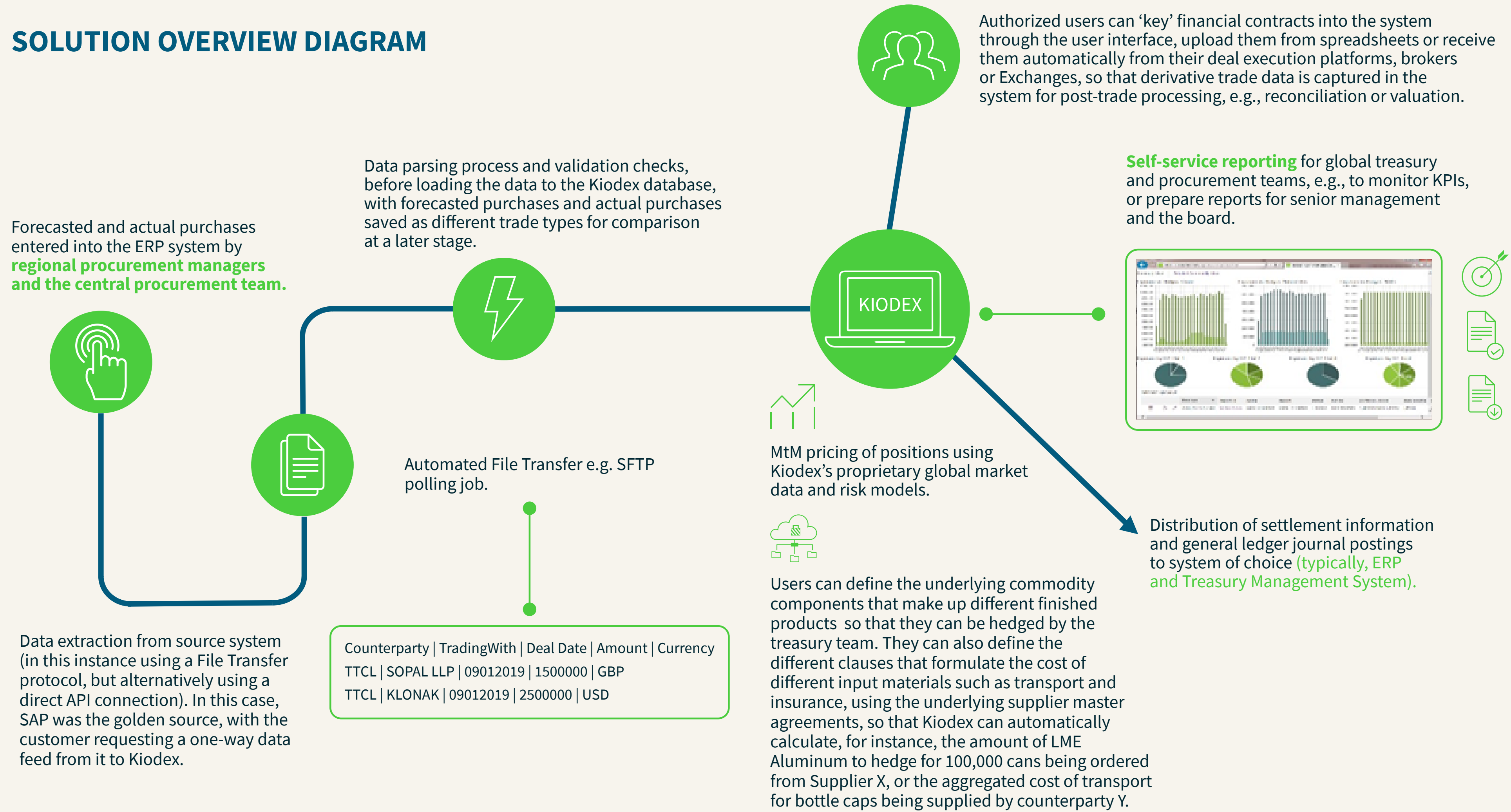
Buying scenarios allow different scenarios to be compared and impacts assessed, example the cash impact of changing supplier costs or order volumes.



SUPPORT

Follow-the-sun support means 24-hour coverage from our global support network via a support team with considerable experience in commodity markets. Support works with the treasury and procurement teams to solve business issues as well as answer related questions.

SOLUTION OVERVIEW DIAGRAM



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USE CASE 2

KIODEX AT A GLOBAL CONFECTIONERY BUSINESS

CONTENTS

- About the company
- What they were doing
- The challenges they were facing
- Solving the problem

ABOUT THE COMPANY

An American multi-national confectionery, food and beverage company, operating in over 150 countries, produces products under its own name in addition to white-label products on behalf of others. The company has significant commodity exposures including power, natural gas, nuts, milk, butter, sugar and cocoa.

WHAT THEY WERE DOING

A disjointed application technology stack, that consisted of multiple ERP instances, in addition to multiple home-grown applications for procurement data storing, reporting and generation of documents, such as counterparty confirmations, resulted in separate systems being used by the hedging and procurement teams.





THE CHALLENGES

- **Concerns around managed operational risk:** The company was unable to control user-access requirements including who could read a data record, who could write information to the database and who could amend existing information. The result was an inability to implement approval workflows and segregate duties.
- **A lack of belief in the data:** The applications within the procurement and treasury technology ecosystem were not integrated, resulting in updates to source applications not being consistently reflected downstream. This significantly reduced data integrity. A lack of data-validation checks also led to an abundance of incomplete or incorrect data.
- **Missed opportunities:** Procurement did not have the analytics capabilities needed to identify weaknesses and drive improvement initiatives. It was insufficient detailed data to generate reports on time.
- **A feeling of wasted time:** Inefficient reporting processes coupled with repetitive, error-prone tasks such as reformatting data for upload or converting forecasts into commodities was distracting the team from higher-value analytical exercises.
- **A sense of missed strategic opportunities:** Not having a single system of record made it very difficult for the treasury to fully ascertain the risk exposures they needed to manage price risk and hedging strategies, especially in the face of regularly changing forecasted and actual purchased volumes.

SOLVING THE PROBLEM

SOLUTION OVERVIEW

Kiodex was used to replace several in-house applications to give the global treasury and procurement user community a common platform for recording, analyzing and reporting on their commodity procurement and hedging activities.

KEY PROCUREMENT FUNCTIONALITY

Trade management:

In addition to recording the treasury's derivatives contracts, procurement users can enter unfixed¹ and unallocated² contracts directly into the system using the intuitive web interface. Moreover, the Kiodex data model allows teams to record numerous bespoke details which cannot be captured in their ERP.

Integration with external systems:

A two-way data feed was implemented using an SFTP connection pathway to keep the two systems in sync. For example, the SAP→Kiodex data feed sends forecast/need-planning data to Kiodex, which can then be used to compare forecasts with purchased contracts. With this feed, clients gain visibility into the history of every SAP contract, for example how goods receipts were changing over time.

Report generation:

This includes the unfixed report, which allows the procurement team to compare unfixed contracted quantities with fixed and allocated quantities, and the consumption report which tracks how contracted quantities, good receipts and undelivered quantities of all contracts change over the reporting period.

Documentation generation:

The company can generate procurement PDF documentation such as business confirmations, price fixations and commission invoices.

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- 1 Unfixed contracts are high-level contracts or trades entered without a price or counterparty
 - 2 Unallocated contracts are contracts or trades with a defined price, but without a counterparty

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USE CASE 3

LIQUID GOLD: THE VALUE OF DATA

CONTENTS

- Background
- About the company
- What they were doing
- The challenges they were facing
- Solving the problem
- Managing data with Kiodex and FAME

BACKGROUND

Corporate data generation continues to increase, largely driven by the confluence of digitization and Industry 4.0 as well as continued technological development¹. This presents challenge and opportunity²: leveraging analytics can help improve and streamline businesses.³ Managing and making sense of large, disparate data sets can prove difficult, especially in organizations operating complex and siloed architectures⁴. The potential to enhance a company's capabilities with big data presents significant growth opportunities, which has led to data management as a key focus in many strategic roadmaps.

To improve data management capabilities, leaders need to assess their business data throughout the entire life cycle, considering where it comes from, where it goes, who uses it, what it means, and its accuracy and completeness. This will allow them to identify and implement effective, secure data management and will provide the foundation for data-analytics platforms they need to develop accurate views of what's going on and take decisive data-driven actions.

Creating a high-quality data management platform capable of providing decision support needed by senior management requires effort at multiple levels. Read on to find out how commodity-intensive organizations can use FIS products to manage data and get value from it.

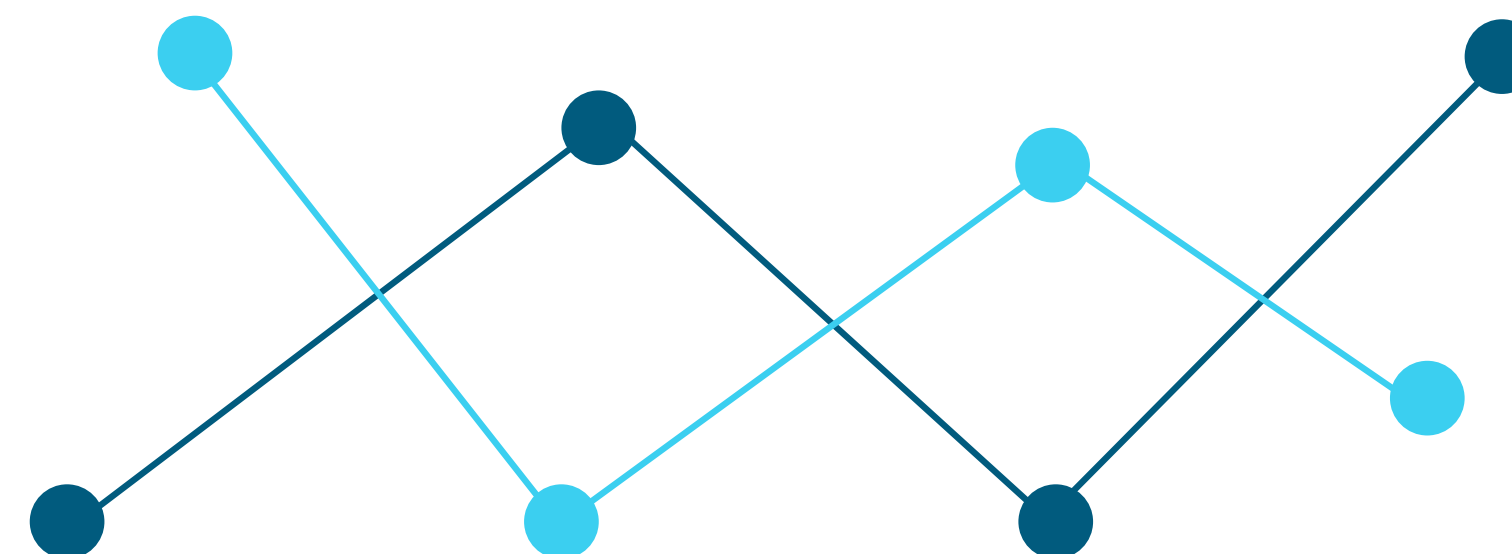
- 1 McKinsey & Company (2015). "Manufacturing's Next Act". Available at: <https://www.mckinsey.com/business-functions/operations/our-insights/manufacturings-next-act>
- 2 H. V. Jagadish et al. (2014). "Big Data and its Technical Challenges". ACM, vol. 57, no. 7, pp. 86-94.
- 3 Z. Lv, H. Song and P. Basanta-Val (2017). "Next-Generation Big Data Analytics: State of the Art, Challenges, and Future Research Topics". IEEE Transactions on Industrial Informatics, Vol. 13, Issue 4.
- 4 IBM Global Business Services in Collaboration with MIT Sloane Management Review (2017) "Analytics: The New Path to Value", IBM Institute for Business Value Executive Report



BIG DATA MANAGEMENT AT A GLOBAL ENERGY TRADER

ABOUT THE COMPANY

- A European energy and commodity trading company operating globally in over 50 countries
- The company is one of the largest participants in the global oil, gas and commodity markets with turnover in excess of €100 billion
- Accurate market insights are tremendously valuable to the group's traders, strategists and risk managers. Being ahead of the curve is considered crucial to positioning the company for success and safeguarding against risks



WHAT THEY WERE DOING

To help provide crucial insights, the company wanted to create a self-service data lake that could be accessed by traders and analysts for pulling time-series data on demand.

To create the global picture needed for rigorous analysis, data needed to be imported from over 1,000 public websites and multiple exchanges and brokers. The company also wanted this data to be made accessible in English even if the source data was non-English or used a non-Roman alphabet.

Data quality was viewed to be equally important. Therefore, controls would need to be implemented to maintain the data and correct historic data when errors were found. Finally, to encourage the various teams to use the data lake, having a user-friendly interface was considered essential.

THE CHALLENGES

Achieving such a vision would be no mean feat and the client knew that. Capturing such vast amounts of data from a variety of sources presented a considerable number of challenges, for instance:

- Websites change their formats, URLs and data models frequently and without notice
- Monitoring these websites in real time is expensive and time consuming, and the risk of not noticing an error could cost the company thousands of U.S. Dollars
- An aspiration to add 1,200 data feeds in a second phase and time to market was a key consideration
- Translating non-English data sources into English is expensive and requires specialist resources

SOLVING THE PROBLEM

FIS delivered the required data feeds in a phased approach, within FIS' hosted environment, utilizing the proprietary 4GL programming language in the FAME database.

The project started with a proof of concept (POC) to show how the download of data publicly available over the internet could be done, converting it into a format suitable for the consumption of the MarketMap Energy (MME) server, loading the data into FIS server, converting it into the client's format (Python) and providing the client with web services to access the data was the next step. The POC included the loading of the available history into the MME databases. During the six-week POC, the FIS data integrity team monitored the data for quality control.

On completion of the POC, FIS contracted to provide the initial 400 data feeds on a timely basis, with the option to add 800 feeds at the client's request. The data server resides in an FIS-hosted environment and includes all upgrades and managed application services as well as 24/7 data integrity monitoring. For non-English sources, a text file is provided to facilitate mapping to English.

The client now has 100 percent confidence in the quality and integrity of data and has rapidly moved into phase two of the data-feed acquisition. The main reason the client partnered with FIS is that FIS would handle the ongoing maintenance of the feeds as part of a data integrity service within their contract, giving them the assurance that they could focus on the analysis and have faith that the information being analyzed was correct.

DATA-PROCESSING CAPABILITIES IN FOCUS

FIS has the ability to:

- Process various complex price and non-price relevant trading data
- Source and store meter data from metering service providers
- Aggregate data from multiple sources, such as exchanges, brokers, TSOs and meter vendors, including prices, volumes, power loads, generation data, transmission capacities and flows, meteorological data, global economic data and indices
- Efficiently handle time zones, calendars, holidays and daylight-saving time
- Perform mathematical, logical and statistical calculations and processing using out-of-the-box functions or self-defined formulas
- Integrate with APIs for data transformation and workflow management
- Proprietary data-processing engine MAP/FAME: 700 percent faster than RDBMS in data retrieval

MANAGING DATA WITH FIS' COMMODITY RISK MANAGER – KIODEX AND FAME

FIS can help commodity procurement and commodity risk management teams manage their data in three key ways:

DATA CAPTURE

We provide an easy-to-use desktop for capturing treasury and procurement data in a single system across geographical locations and data types, ensuring teams capture the data at point of entry in ways that allow them to perform subsequent analysis or processes. The system uses mandatory flags and predefined values to ensure this is done right the first time. The process of applying description fields can be automated by using description defaults, allowing businesses to embed meta-data concepts into the fabric of their data.

By leveraging the system's APIs and other data exchange mechanisms, information can be sourced from and sent to other systems (for example your brokers or ERP) to enable teams to maintain a living picture of their business and be compliant with the group's data management policies.

DATA CONSOLIDATION

Many corporate IT landscapes comprise several applications, often functioning as both data source and sink. To make sense of the data lakes, these disparate sources of information, usually in different formats, need to be consolidated and standardized.

By using description fields within Kiodex data entries, teams can begin to harmonize data assets across systems by using common flags and target specific data sets for export or transformation as part of the consolidation process.

DATA ACCESS

To get the big picture, treasurers and procurement managers alike need ways of flexibly accessing and analyzing their business information. Our reporting functionality gives users several channels for accessing data and viewing features such as tables, graphs and dashboards. Users also have the ability to expose Kiodex data via data feeds and web APIs to present data in spreadsheets and business intelligence (BI) software.

Through these access routes, Kiodex allows both treasury and procurement departments to configure a tool which will allow them to pinpoint data sets of interest, disseminate that information and build reporting processes. This will automate reconciliation efforts, act as a regulatory spell checker and provide the insights to make the best of capital plans.

For those wishing to take data management even further, FAME enables organizations to create true business-wide data lakes, optimized for massive time-series analysis and storage of NoSQL data.

WANT TO ADVANCE YOUR PROCUREMENT TEAM?

Contact us for further information.
Email getinfo@fisglobal.com.

About FIS

FIS is a leading provider of technology solutions for merchants, banks and capital markets firms globally. Our more than 55,000 people are dedicated to advancing the way the world pays, banks and invests by applying our scale, deep expertise and data-driven insights. We help our clients use technology in innovative ways to solve business-critical challenges and deliver superior experiences for their customers. Headquartered in Jacksonville, Florida, FIS is a Fortune 500® company and is a member of Standard & Poor's 500® Index.

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