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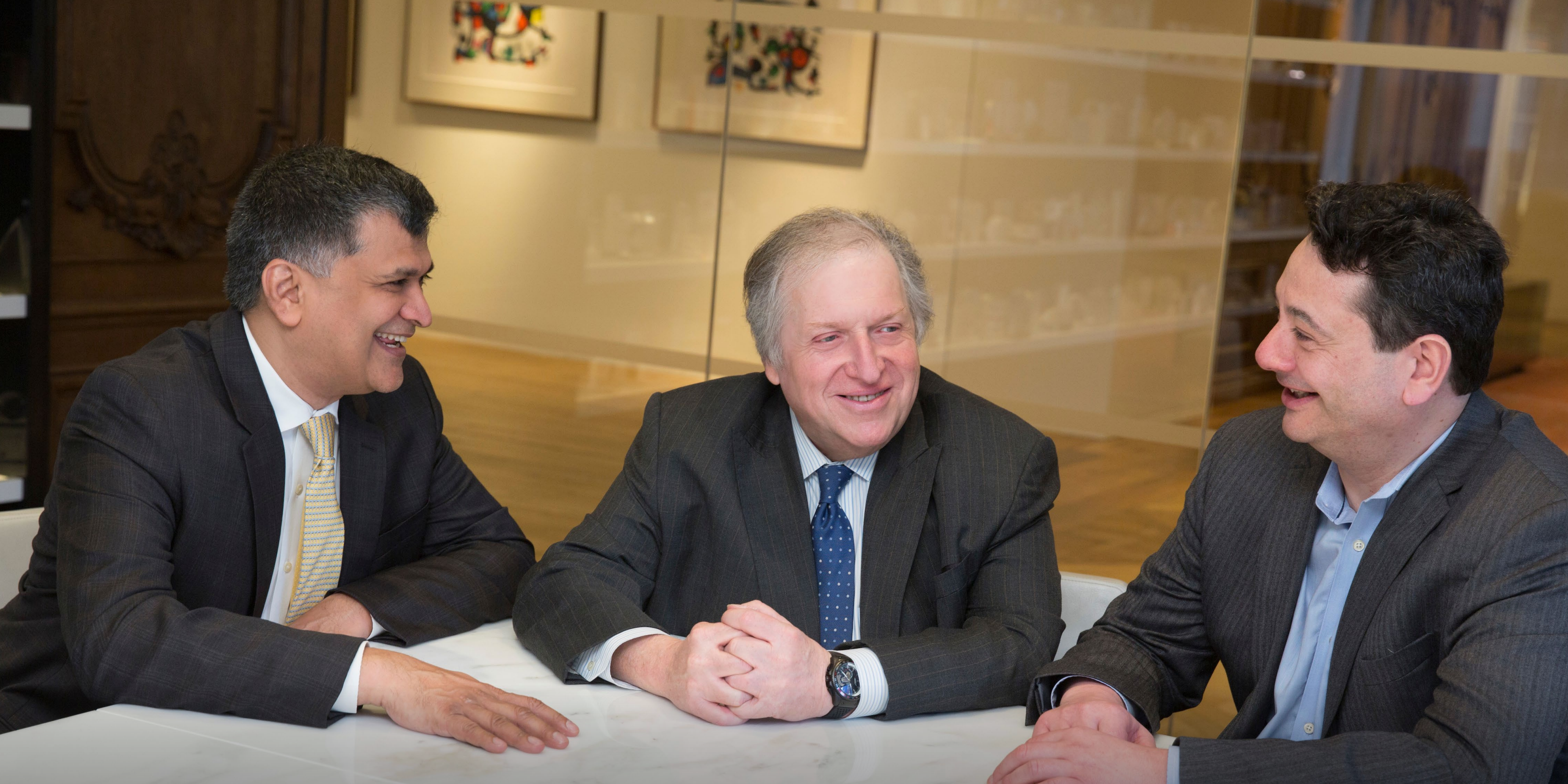
Societe Generale & Imagine Software

Implementing state-of-the-art real-time risk management for FCMs and clearing firms

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A few years ago, Societe Generale Prime Services (Societe Generale) started to hunt for a new risk system because “we put risk at the forefront of our policy and wanted to gold plate regulatory requirements. We did this by extending our scope from a product and a client perspective,” explains Didier Livio, Global Head of Prime Services Risk, who sits in New York.

Societe Generale had been using three systems: two external – one for intra-day risk and one for end-of-day risk – as well as another internal system for margin calculations. The bank had to coordinate managing and transferring data between three different systems, which

became more demanding as Societe Generale’s clients are increasingly trading across asset classes, globally, and round the clock. “We wanted consistency between intraday and end of day P&L and risk metrics and across asset classes,” said Pascal Marciano, COO of Prime Services Risk.

The full acquisition and integration of Newedge into Societe Generale in 2014 created a multi-asset-class platform for execution, trading, security lending, collateral management and financing, listed derivatives, OTC clearing, and FCM services. Risk systems need to match the scale and scope of the new structure and must also meet regulatory needs for real time (T+0) margining, reconciliations, margin calls, and collateral sweeps.

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Implementing state-of-the-art real-time risk management for FCMs and clearing firms

By HAMLIN LOVELL

(L-R): A] Desai, Director, Prime Services Global Head of Risk Model, Societe Generale; Scott Sherman, Co-Founder and Global Head of Business Development & Sales, Imagine Software; Didier Livio, Managing Director, Global Head of Prime Services Risk, Societe Generale

“We needed a fully-global system (24/6) and increased capacity from an IT perspective,” says Livio.

Societe Generale conducted a beauty parade of about 10 potential providers and Imagine was selected as the most comprehensive and flexible solution, with the ability to support an agile operating model serving clients with demanding needs. In addition, Imagine’s centralized security master and market data management presented a strategic advantage for the Societe Generale operations. Livio said: “Real-time risk management is a must-have for Societe Generale and Imagine really is real time and integrates calculations across all asset classes. Every time futures are cleared, or equities or portfolio swaps are traded, they feed immediately into Imagine, which instantly updates the VaR, Greeks, threshold alerts, etc.,” explains Livio. Notably, Imagine Software has regularly received *The Hedge Fund Journal*’s award for “Best Real-Time Portfolio, Risk and Regulatory Solutions.”

Phase One: Innovation, scale and integration

Imagine also consistently wins awards for innovation, garnered by the firm’s unique ability to customise products and solutions to meet each client’s needs. “The prerequisites of our clients’ needs – now and in the future – require exacting levels of performance and scalability,” said Scott Sherman, Imagine co-founder and Global Head of Business Development & Sales. Societe Generale is one of the largest FCMs and prime brokers globally. Creating the right product for firms operating high-speed and high-volume businesses, such as Societe Generale, required Imagine to deliver a fully scalable solution. Imagine’s client-centric framework has helped Societe Generale redesign its workflows to yield very significant gains in terms of the margin processing now conducted by Imagine’s farms of servers, scalable infrastructure, and efficient prioritization rules aligned to business priorities.

Imagine has managed and created risk systems for financial services firms since the four founding partners established the firm 25 years ago. “Our clients know that flexibility is part of our ethos, and that we will dedicate the resources needed to customize our technology for their needs, including the consulting team, quantitative resources, as well as the hardware and data centres,” said Sherman.

Societe Generale has grown its presence in commodity broking, both organically and through the acquisition of units from Jefferies, as other banks have exited the space. Exotic FX, fixed income and equity had also been added to further strengthen the bank’s cross asset prime brokerage offer.



Left: Alexandre Manguer, Global Head of Prime Risk & Margin Systems, Societe Generale

By contrast, Imagine was already a good fit for Societe Generale’s breadth of market and venue coverage, offering ‘out-of-the-box’ coverage of products that previously it had been unable to handle. “Improvements are mostly on the credit and fixed income side – for example, we needed to expand our product offering to include convertible bonds,” says Livio. Imagine also quickly built out additional features and data support for the few remaining gaps. The result is one, fully integrated, system that supports both end-of-day and intraday needs and supplies all the risk data required to calculate client margin on tighter timelines than were previously possible.

Imagine also offers Societe Generale the best of both worlds for daily processing. Their flexible and accessible hosted solution does all the heavy lifting for a wide range of clients, while also offering firms like Societe Generale full control over their operational workflow and tight integration with upstream and downstream systems.

Martin Packham, Imagine’s Director of Consulting, said: “The integration of position and trade workflows was a key milestone for the project, and within the first year the full volume of positions, trades, risk results and reporting were flowing between the systems on both sides.” Added Livio: “All Societe Generale clients have been deployed on Imagine for over a year, and more in some cases.”

Phase Two: Model validation and transparency

While the technical teams were working on the integration between Imagine and Societe Generale, quants on both sides were taking a deep dive into the Imagine pricing and risk models.

Both Imagine and Societe Generale had specialised teams working in parallel on specific parts of the process: model validation, technical integration, and sharing of datasets between Imagine and Societe Generale, as well as tailoring interfaces to user requirements. “The model validation, replication and transparency objectives are driven by Societe Generale’s regulatory needs,” says Alex Manguer, Societe Generale’s Global Head of Risk and Margin Systems. He added that: “This has entailed daily dialogue between Societe Generale and Imagine, which has been a true partnership.”

Societe Generale required complete transparency, an unprecedented level of accuracy, and documentation of every calculation and process used to drive the risk results to calculate margin for their clients or monitor exposures intraday.

This included much more than just the pricing model itself, encompassing the entire risk system and all its

“We put risk at the forefront of our policy and wanted to gold plate regulatory requirements.”

— **DIDIER LIVIO**

steps. The process starts with obtaining market data from multiple sources and proceeds through the calculation of derived data (correlations, volatility surfaces, etc.), integration of flexible fall-back rules for OTC and sparse/illiquid data, model calculations, and risk factor shocks over multiple time steps within the Monte Carlo engine. The last step takes the Monte Carlo results for each security and applies them to an n-level hierarchy of portfolios to calculate various VaR measures for each client entity, and also to generate reports.

For every step of the workflow and every model invoked, Imagine produced both a complete replication of the results (usually to 12 decimal places or better), as well as detailed, regulator-ready documentation of the behaviour of the system. One of the biggest challenges has been the level of detail for risk validation, which were orders of magnitude more than Imagine had ever done for any client.

Societe Generale now has the comfort and confidence to know that whatever question is asked by a client or a regulator, they can explain and prove every result to an extraordinary level of precision. Imagine has enabled Societe Generale to comply with key regulatory initiatives, such as BCBS 239 in Europe governing risk reporting guidelines, as well as the MRM SR-11 7 US rules.

Phase Three: Intraday monitoring and client portal

Imagine's Real-Time Risk and Compliance (RRC) product is designed to enable not just end-of-day risk runs and reporting, but true intraday, real-time monitoring of clients' positions, limits, risk exposures, cash balances and VaR through every trade and market tick.

Societe Generale's users have created their own customized views of their important client data. They have also built out flexible rules for real-time threshold monitoring on any analytic or combination of analytics, monitoring that generates visual alerts, and even emails to specific distribution lists based on the nature of the breach and whether it's a soft or hard threshold. Such breaches are archived and available to view through a power search tool, a significant benefit for audit and compliance controls.

In addition to placing powerful tools in the hands of the Societe Generale users and improving their monitoring capabilities, RRC also provides a risk portal for each Societe Generale client. This means client and risk managers can view and discuss

the same numbers seen at the same time and understand any position or risk issues much more quickly and easily, without email back and forth or cumbersome spreadsheets.

Phase Four: Regulatory stress testing

Societe Generale is already leveraging other Imagine products to solve more of their business needs. Regulatory stress tests involving shocks on any of dozens of risk factor types (share/commodities prices, dividend projections, interest rates, FX rates, volatilities of all kinds, correlations and many others).

Imagine enables clients to build hundreds of complex multi-factor shocks, customized by many different categories (shift prices in industry X, down by amount Y, while moving volatilities up and moving other industries by other amounts) to simulate any potential market event. Imagine then shifts all the factors as required by each scenario and reprices every client portfolio, with complete flexibility on what data is presented in the results (P&L, Greeks, custom analytics, etc.) and in the desired format.

Peace of mind – data security and business continuity

Throughout the implementation process, data security has been paramount. Long before GDPR took effect in the EU, the issue of how to store and secure data, including personal information and client information, has always been a key issue for Imagine, which has some of the most comprehensive and detailed policies and best security certificates in the industry, including the ISO 27001 and an SOC 1 from two different auditors.

Imagine's platform contains features to protect client identities, while still providing data that users need. Societe Generale does not send any account numbers, client names or other identifiable information, such as internal client references, to Imagine. They can use anonymised data, while Societe Generale retains their own identifiers.

Imagine's turnkey solutions also provide a complete business continuity and disaster recovery setup via multiple data center locations which use distinct electricity grids, market data backbones etc.

"Imagine was great to work with, and we ended up with a system that does all that we were promised it would do," said Manguer. "And best of all, due to the flexibility and extensibility of the system, our in-house IT and risk departments can now build sophisticated, customized add-ons to the system. This was a true win-win scenario." **THFJ**

"The prerequisites of our clients' needs – now and in the future – require exacting levels of performance and scalability."

— SCOTT SHERMAN
