

## Xenomorph Case Study

# Société Générale Securities Services (SGSS)

SGSS Strengthen Transparency of Structured Product Valuations.

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*“TimeScape is able to handle data related to complex data structures, such as volatility surfaces for any asset class or correlation matrixes on credit spreads. In the complex structured products area, Xenomorph have no competition”*

**Laurent Thuillier, Head of Pricing, Asset Servicing SGSS**

## EXECUTIVE SUMMARY

**Country/Region:** France

**Industry:** Asset Management

**Customer Profile:**

SGSS provides valuation services for 4,555\* funds representing assets under administration of EUR 459 billion\*.

**Situation:**

With increasing client, investor and regulatory pressure for more accurate and transparent valuations, SGSS required a data management infrastructure that could cope with the diverse data needs of structured products and complex derivatives.

**Solution:**

By using Xenomorph's TimeScape analytics and data management platform, SGSS have been able to scale up their structured product and derivatives operations and provide a higher quality of service to their clients.

\* Figures at end March 2010

## BENEFITS

- Greater transparency, detail and auditability of data.
- Higher quality data for more accurate valuation.
- Increased service capability and capacity through data validation and cleansing automation.
- One user-friendly system for the support of all reference, market and model related data.
- User-defined, controllable support for any new instrument type or complex data attribute.

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*"TimeScape supports complex derivatives data and structures with ease, and delivers a level of data transparency to our quant staff that allows them to ensure an extremely high level of data quality."*

**Philippe Rozental, Head of Asset Servicing at SGSS**

## INTRODUCTION

The Asset Servicing department at Société Générale Securities Services (SGSS) provides fund valuation services to major institutional clients across Europe, including the valuation of structured products and derivatives. In light of the recent financial crisis, investors and regulators alike have demanded more accuracy, detail and transparency in the valuation of these more complex financial products.

Wanting to move beyond desktop spreadsheet management of structured products found at many institutions, SGSS decided that they needed a system for the centralised management of high quality “Golden Copy” instrument, market and model-related data, without sacrificing the ability to support new derivative asset types and complex data structures with ease.

With these requirements in mind, SGSS chose Xenomorph’s TimeScope analytics and data management platform, enabling them to automate the capture, validation and cleansing of multiple sources of data and feed all downstream systems enabling higher quality services to be offered to more clients.

## SITUATION

The usage of structured products and derivatives in asset management has been driven by the desire to offer new products with enhanced yield or with specific investment objectives.

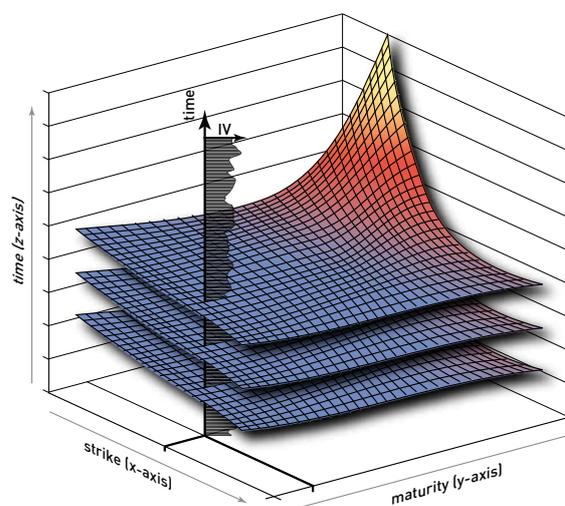
However, in light of the recent financial crisis, investors and regulators now require far greater data and model accuracy, detail and auditability in the valuation of complex products.

This is where the Asset Servicing department of SGSS sees a real opportunity to add value to their clients. SGSS offers a truly independent valuation service that helps to reassure regulators and investors that the valuations of even the most complex products are accurate and robust.

*“TimeScope enables experts in financial valuation to become experts in manipulating financial data”*

**Laurent Thuillier, Head of Pricing, Asset Servicing SGSS**

The valuation service provided by SGSS provides the full level of detail needed to support and justify each valuation, in stark contrast with the often criticised “black-box” valuations provided to asset managers by many third-party valuation services.



**Figure 1 - Interpolating through a time-series of volatility surfaces**

### An Iceberg of Data

Even the most sophisticated of financial institutions have found recently that the assumptions underlying their own instrument valuations have proven suspect. Investors and regulators now expect much greater detail to allow them to see underneath the headline valuation numbers in order to validate and understand the pricing methodology, the full hierarchy of data used and the fundamental assumptions made.

## Data Complexity and Diversity

The list of data required to price a structured product would potentially include:

- Instrument identifiers
- Instrument terms and conditions
- Entity and counterparty identifiers
- Real-time, intraday and historic market data
- Historic volatilities and correlations
- Dividend forecasts
- Rates and zero curves
- Spread curves
- Ratings data
- Underlying(s) data
- Market-implied/derived data such as volatility surfaces/swaption cubes

## End-User Customisability with Control

Given the complexity of the products being priced, the systems involved in the investment process must be able to support more complex data structures (curves, spread curves, matrices, cubes, histories) that do not fit easily into many traditional systems. Additionally, the data model adopted cannot be fixed, as structured products and derivatives vary from client to client. Anything that is not designed for change will be out of date the day it is put into production usage, and clients should not have to depend upon vendors or expensive consultants to effect data model changes.

## Multiple Sources of Data

No one data vendor provides a complete set of the aforementioned supporting data for all types of assets, and so currently the best approach is to take data from a multitude of data vendors, playing to each one's specialisation in a particular asset class or data type. This presents issues with normalising, cleansing and mapping multi-sourced data of varying types and being able to represent it in a single system in an easily understandable way.

## Multiple Pricing Models and Model Risk

Having all the data in place is not enough; usually structured product or derivatives valuation involves a mathematical pricing model to which all of the input data must be mapped. These algorithms, based on approaches such as monte-carlo simulation, additionally have a range of model input parameters and assumptions that are only indirectly related to the economics defined in the term sheet of the deal. Given the instrument type, it is possible to obtain different valuations and sensitivities dependent upon which model is used and what type of assumptions are made. Given recent problems in "mark to market" valuations of derivative transactions, it is important to have multiple-model capability for pricing derivatives so that assumptions can be fully tested.

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*"SGSS lead the way in outsourced valuation of structured products, and we are very proud that TimeScape is able to assist them and their clients in this complex and demanding area"*

**Brian Sentance, CEO Xenomorph**

*“Xenomorph are a very responsive organisation to any needs we experience with TimeScape. In summary, their standard of customer service is very high”*

**Philippe Rozental**  
Head of Asset Servicing, SGSS

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### **The Spreadsheet Solution?**

Given all of the analytics and data management requirements above, it is unsurprising that the spreadsheet has become the primary approach in dealing with the management of derivative pricing. However, the operational and business risk of managing derivatives solely in spreadsheets is high:

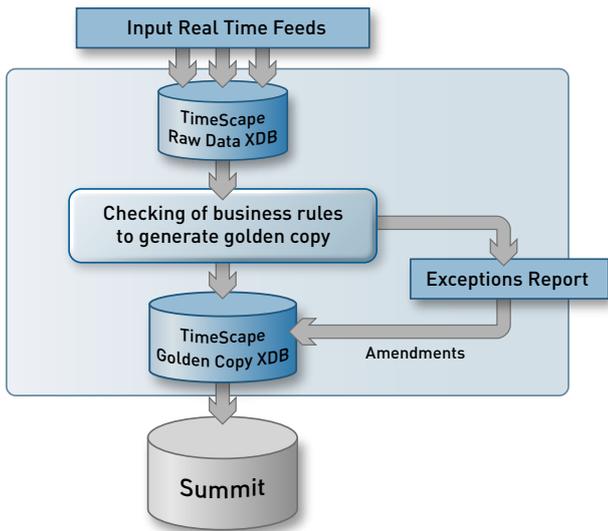
- Valuations and data lack transparency
- Data lacks consistency and is not centrally available to all
- It is difficult to validate and cleanse data before it is used
- As spreadsheets grow, they are more prone to human error
- It is difficult to use multiple sources of data for the same inputs
- It is difficult to use multiple pricing models to check valuations
- Regulatory approval is more difficult if data is not managed well

## **SOLUTION**

In considering all of the above issues, and knowing Xenomorph’s expertise in the management of both data and analytics, SGSS approached Xenomorph to see how best to meet these challenges. Following a targeted evaluation of Xenomorph’s TimeScape analytics and data management platform, SGSS requested that Xenomorph implement a unified “Golden Copy” repository of all of the data needed to support their structured product and derivatives valuations service.

Implemented in six months, Xenomorph’s consultancy team worked closely with SGSS and their systems integration partner, CSC, to consolidate data from multiple data vendors including both mainstream and niche/specialist suppliers.

These various input data feeds are all captured within TimeScape’s data management architecture. TimeScape’s architecture includes a staging database for raw market data, which consolidates the data from each feed. Each night data cleansing and validation rules are applied to this database, and once any errors have been checked and corrected, this data is transferred to a golden copy database. This golden copy is then the single data source that supports the downstream systems, such as Summit, and the risk management and pricing spreadsheets for the most complex structured products, using Numerix pricing models.



**Figure 2 – TimeScape golden copy at SGSS**

The architecture implemented also took advantage of Xenomorph’s “spreadsheet in a database” technology SpreadSheetInside® to meet the most complex of reporting and analysis requirements. In this implementation, complex spreadsheet calculations and reporting functionality were embedded centrally in TimeScape databases, using SpreadSheetInside® thus avoiding their duplication in desktop-based solutions, and facilitating centralised update and roll out of new calculation functions and reporting.

## BENEFITS

Through the approach taken, SGSS have been able to deal with the valuation of over 1,500 structured products involving data for over 10,000 underlying/ related instruments, across equities, commodities, indices, FX and bond asset classes. The dependency on spreadsheets has been reduced and, for those spreadsheets that remain, their capability to handle more complex deals has been enhanced. Data quality has been improved across all asset classes, and increased data transparency among the quant team means that data and pricing issues can be resolved faster than ever before. TimeScape’s robust toolkit approach means that as SGSS’ business continues to change and develop at ever faster rates, so the data and models and information presentation can keep pace with that change.

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*“Xenomorph’s TimeScape simply enables us to offer a higher quality structured product valuation service to all of our clients”*

**Philippe Rozental**  
Head of Asset Servicing at SGSS

## ABOUT XENOMORPH

Xenomorph provides trusted data management solutions to many of the world's leading financial institutions. The company has more than two decades' experience managing large volumes of complex data and analytics. Over that time, we have consistently reinvested in our technology, culminating in our latest generation enterprise data management platform TimeScope EDM+.

Our software is built to be future-proof. With our rules-based single-stack architecture, flexible data model, easily configurable workflow engine and integrated feature updates, TimeScope EDM+ empowers you to address any future requirements. It can be operated by business users without any prior programming expertise, which means it offers a truly agile and cost effective solution to address evolving business, regulatory and technology trends. The platform also excels at managing and validating model-derived data, thereby enabling firms to address their model risk management challenges by making sure inputs and outputs of business critical models are always validated and kept in sync.

For more information on Xenomorph, our clients, services and solutions, please see [www.xenomorph.com](http://www.xenomorph.com).

## ABOUT SGSS

Established in 28 locations worldwide with around 4,500 employees, SGSS provides a full range of securities services that are adapted to the latest financial markets and regulatory evolution: clearing services, custody and trustee services, retail custody services, liquidity management, fund administration and asset servicing, fund distribution and global issuer services.

SGSS is the 6th largest worldwide global custodian and the 2nd largest in Europe with 3,246\* billion euros of assets under custody. SGSS provides custody & trustee services for 2,946\* funds and the valuation of 4,555\* funds, representing assets under administration of 459\* billion euros. SGSS manages and calculates the current value of 20,000\* "complex product" positions. SGSS also ranks among the European leaders in stock option management.

\* Figures at end March 2010