



> **Industry**
Finance

> **Application**
Financial Market
Analysis

> **Product**
PV-WAVE®

Société Générale is the sixth largest bank in the Euro zone, the third French company for its 2001 net income, and employs 86,500 people around the world, including 43% outside France. Its business mix is structured around three core businesses: retail banking, asset management and private banking, corporate and investment banking.

> High Finance Utilizes PV-WAVE

Pretty pictures are useless without mathematical and statistical analysis and interpretation. Chartix integrates a host of utility programs developed using PV-WAVE that allow the trader to realize the highest possible financial return.

| QUICK FACTS |

Société Générale uses Visual Numerics' PV-WAVE to support their Chartix® software, which allows traders to grasp the full complexity of the markets, including energy, currencies, raw materials, and bonds. Powered by PV-WAVE, Chartix allows traders to view statistical and mathematical operations, which gives them insight regarding the market data.

| THE PROBLEM |

Quick reflexes and intuition are just two of the qualities of “front-office” exchange traders — they also need the right software. Selected for the quality of its graphics and for the statistical functions it contains, PV-WAVE is making its entrance into this ruthless financial environment, providing support to the Chartix® software developed by Société Générale's computing teams.

On the financial markets a vast range of “instruments” are bought and sold — energy, currencies, raw materials and bonds, to name but a few. Traders need to “stick” to the market extremely closely so that they can buy and sell to the best effect. All prices, trends and rates need to be represented as easily interpreted, high-quality curves, and this must be done reliably and quickly. A poorly designed application would lead to huge losses for the company.

Developed for Société Générale's OTC and OTA divisions, which account for around 2,500 people spread throughout the financial capitals of the world (New York, Tokyo, London, Paris and Singapore), Chartix is the only software that allows operators to grasp the full complexity of the markets.



> **PV-WAVE**
Key Benefits

- Able to digitally filter, reformat and analyze volumetric data
- Sophisticated theoretical calculations
- Built in functionality and flexibility
- Superior handling of very large datasets
- Powerful visualization routines
- Includes IMSL routines

| THE SOLUTION |

Société Générale wanted to standardize on a working tool suited to its requirements and at less cost than off-the-shelf software. This was the task given to Eric Weinstock. The project was wide-ranging, required more than two years of development (for the sake of reliability) and involved constant dialogue with the end users. Weinstock selected PV-WAVE for its 2D and 3D data visual display functions and the statistical capabilities that best suited his needs. Working under SunOS® on SUN SPARC® stations, Chartix has already been adopted by the Paris trading desks and is being progressively installed in New York and Tokyo.



Chartix continuously queries a central database, which feeds back Reuters or Telerate data in real time. It then integrates all the available financial data on the Stock Exchange, including volumes of transactions, buying and selling offers, opening prices, out-of-hours volumes, indices and share prices. Traders can work with “intraday” (real-time) or “extraday” (historic) data to examine the state of the market over the past days, weeks or months. Selecting a particular financial graph type such as histogram, curve, bar chart or historic volatility diagram, the trader can view up to 5,000 values in real time.

Pretty pictures are useless without mathematical and statistical analysis and interpretation. Chartix integrates a host of utility programs developed using PV-WAVE that allow the trader to realize the highest possible financial return. On the basis of their experience, traders use movement of the markets to determine whether to buy, sell or stick. Chartix gives them insight regarding the market by allowing them to view statistical and mathematical operations carried out on the market data as curves superimposed onto the original graph.

| RETURN ON INVESTMENT |

Chartix provides:

Variation Tunnels - displaying more or less symmetrical trend reversals, limited trends and variations, allowing the trader to immediately act upon any changes.

Current and average values and statistical functions such as standard deviations.

Mathematical functions allowing the trader to input formulae for immediate comparison and analysis.



Indicators (i.e., mathematical functions) giving signals to buy and sell when two curves intersect.

In addition to this, Chartix has set specific utility programs designed to meet the specific requirements of Société Générale's traders — including the creation of composite bonds, evolving models from past data and other invaluable analysis of the market.

With Chartix, Société Générale has a powerful and reliable tool that gives them a real competitive edge.

I WORLD CLASS PRODUCTS, SERVICES, AND SUPPORT I

For over 30 years, Visual Numerics, with its PV-WAVE and IMSL product families, has provided trusted visualization and numerical analysis tools to thousands of technical professionals in a broad range of industries around the world. Scientists, researchers, educators, engineers, developers, Intranet managers, testers and analysts use Visual Numerics' development tools to solve problems, identify trends and share results.

The PV-WAVE Family has all of the functionality you need in one tool, including an open software environment allowing for integration with new technologies, and the use of the IMSL Libraries which have been trusted by developers for over three decades for its accurate and reliable mathematical and statistical algorithms, creating the most powerful data analysis software available.

The PV-WAVE Family provides a broad range of easy to use, high performance solutions for any type of data challenge, while delivering significant return on investment through maximum productivity.

Visual Numerics partners with its customers to provide world-class products, services and support. We have unparalleled technical support that can answer the hard questions fast, and responsive consultants that can provide in-depth expertise and timely delivery of time-critical solutions.

