

DECIDE

NEXT GENERATION FRONT OFFICE SOLUTION



Multi-Asset and Cross-Instrument Front Office Trading and Risk Management System

DECIDE is a world class front office cross asset trading platform built by pdv Financial Software GmbH from Germany for both listed and OTC securities trading. It supports high transaction volumes with low latency and real time interfaces to exchanges on a single, flexible and resilient platform. This makes it ideal for Financial Institutions wishing to expand their range of product offerings and international capabilities without needing to implement multiple systems.

DECIDE's functionality and features are comparable to the market leaders in each asset class even while integrated in one platform, and uses in-memory real time trading technology to support any of your future trading and monitoring needs.

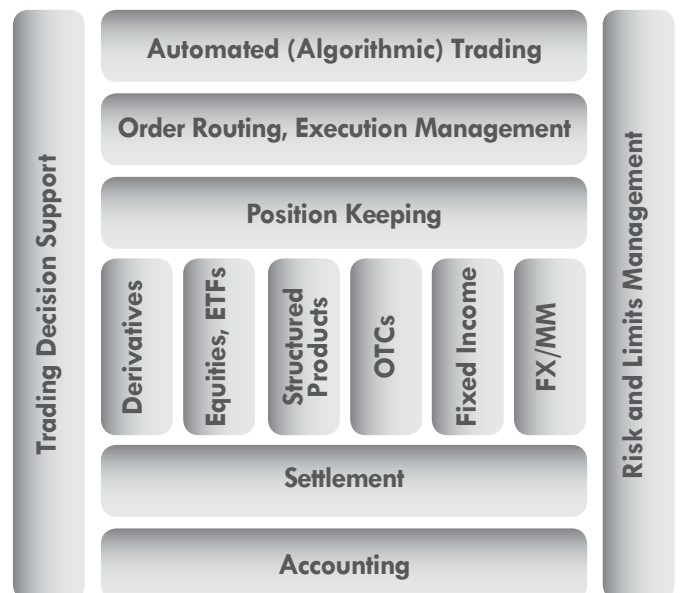
DECIDE covers three different areas: trading and position keeping, risk management and decision support. With a common user interface, the system supports trading via electronic trading platforms, ECNs and OTC trading.

DECIDE's OMS-EMS features one integrated "process world" for all order flows of the institution allowing the platform to become the heart of the organisation.

DECIDE has an integrated Trading Workbench which is an innovative real-time smart trading desktop for proprietary and sales trading.

DECIDE allows you to gain real time control of trading position risks, as well as your firm's capital through employing the most advanced mathematical risk calculations. DECIDE risk management functions provide accurate real time tracking of credit and market price limits. Use DECIDE's rules-based configurable dashboards to meet your firm's regulatory compliance requirements.

- Gain best in class trading and risk management features demanded by your sophisticated clients including low latency and algo trading
- Win first mover advantage when introducing new financial products
- Perform superior financial control and regulatory compliance with complete real time risk management
- Support immediate and future needs in trading, whatever the product or instrument
- Implement modules one by one alongside your current systems only when you need them



Order Routing and Execution Management

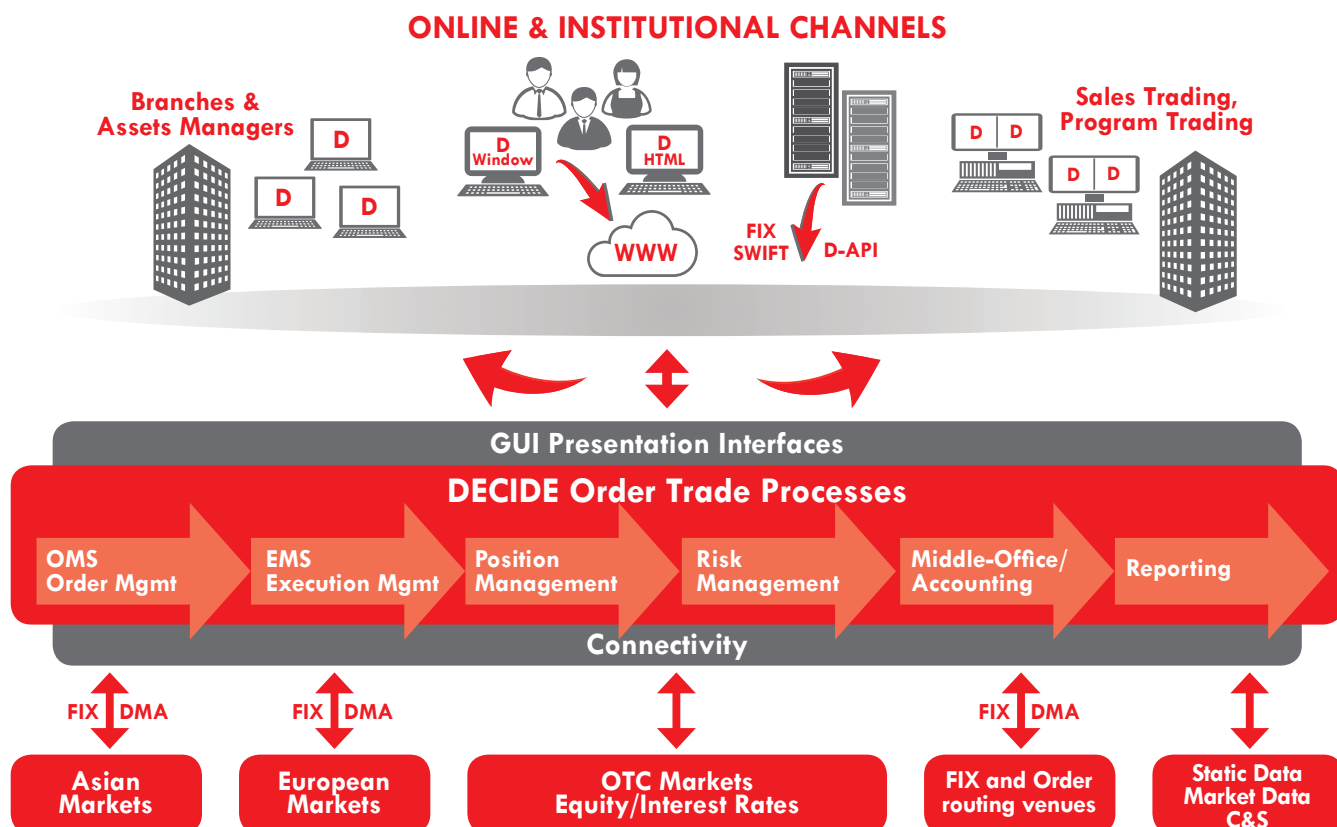
DECIDE's Order Routing and Execution Management System (OMS-EMS) is a functionally comprehensive, highly integrated order management, routing and execution hub offered as a central management solution for various order flow sources (institutional and/or retail order flows), from listed and otherwise standardised traded financial instruments coming from the multitude of order routing and execution destinations.

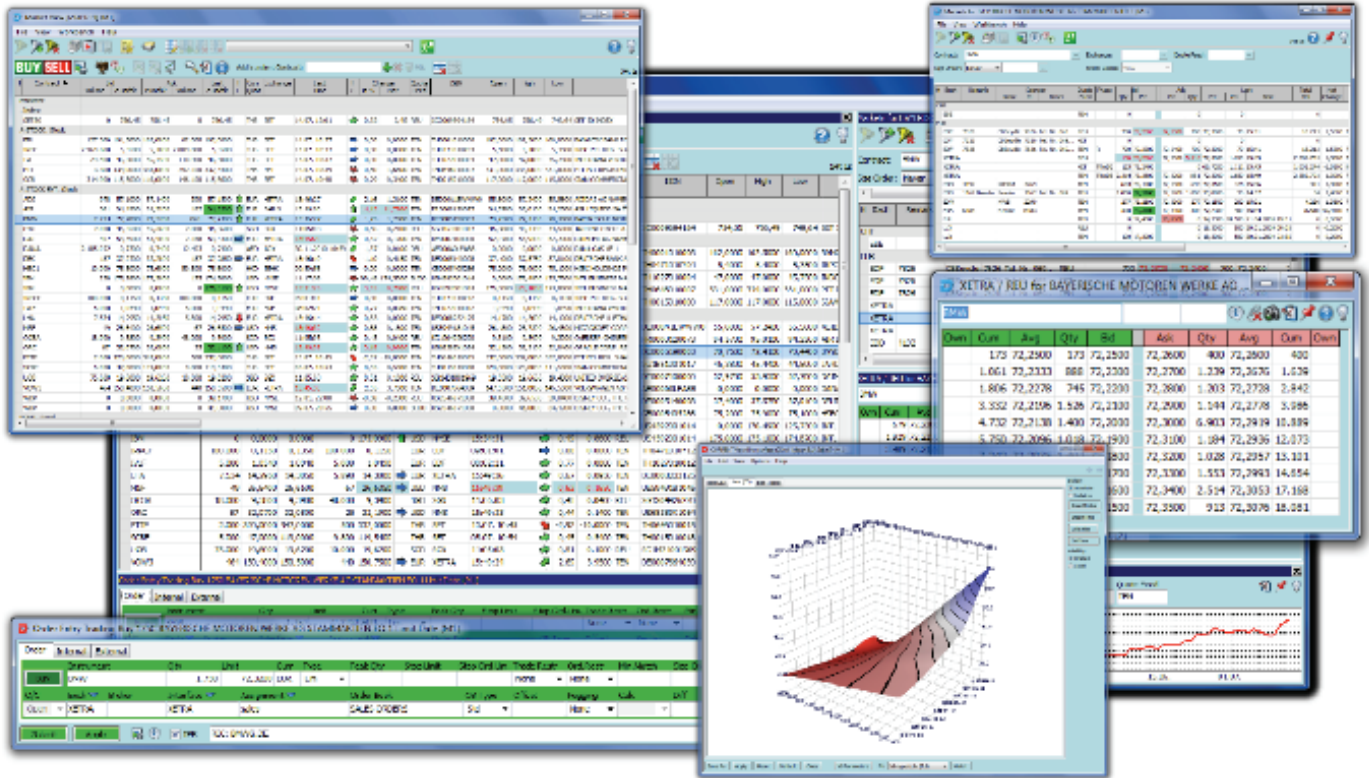
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With rich functionality for all segments of the order/trade, DECIDE supports the entire process chain in all process segments.



- Consolidate orders from different market sources and channels into one powerful engine, simplifying your IT architecture
- Achieve highly consistent latency regardless of trading volume peaks
- Process any order and trade through its full lifecycle identically, regardless of the source of the order and trade: from product origination, trading, position keeping, pricing arbitrage, and risk management





DECIDE OMS-EMS core functions provide rule-based procedures that allow users to control the routing and execution process in multiple steps. Rules may be defined via decision tables and/or scripts containing even more flexible execution rules and reflect the institution's individual execution policies.

DECIDE OMS-EMS also provides an advanced Smart Order Routing and Best Execution Engine. It is "MiFID" Compliant and MiFID II ready.

Trading Workbench

The Trading Workbench integrates both exchange traded and OTC traded instruments providing easy and fast access to order entry, positions, order and trade status enquiries, risk calculations and limit utilisations, 'what if' simulations of market scenarios and position changes.

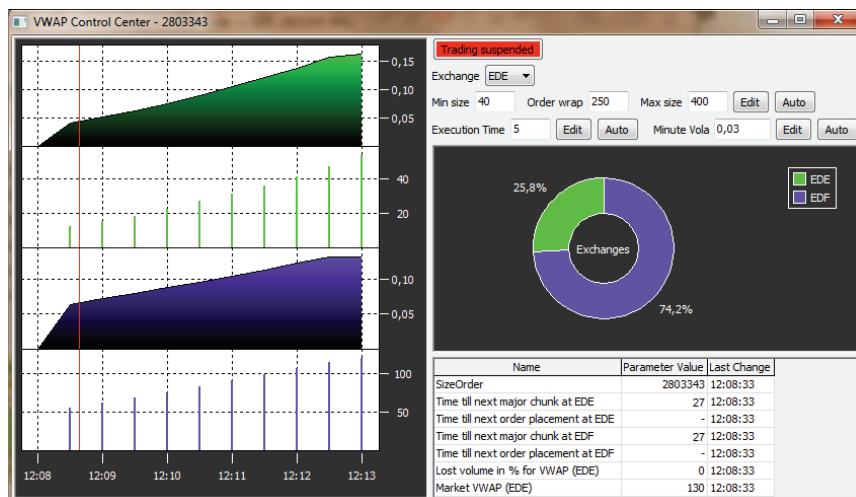
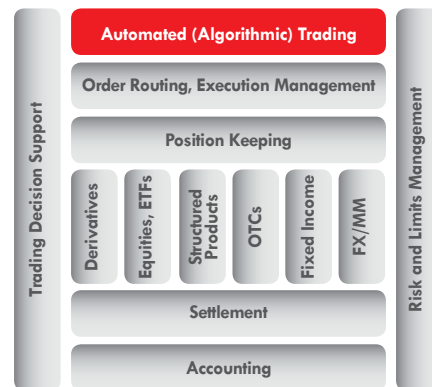
The Workbench offers a wide variety of trader friendly customisable windows that controls the trading process and display information precisely where and when it is needed. Functions, information, content and user design features are easily adjusted and aligned to fit personal requirements and preferences exactly.

Order and trade entry features include:

- Authorisation
- Pre-trade checking against client profiles, limits, cash accounts
- Assignment to order book
- Automatic allocations of block trades
- Execution routing and monitoring
- Stops, trailing stops, pegs, limit orders for synthetic order types
- Support for combination orders with multiple legs multi-leg orders.

- Provide customisable Trading Workbench desktop for your in-house trader with a functionally rich environment
- Add new order types easily, in accordance with regulations
- Extend connectivity effortlessly to any market or trading venue with full FIX compliance
- Provide clients with world class smart order routing "best execution" compliant with MiFID II regulations
- Expand your offer to retail clients with a real time trading environment adapted to the requirement of diverse retail market segment

Automated Trading



Example of VWAP Algo Tracking

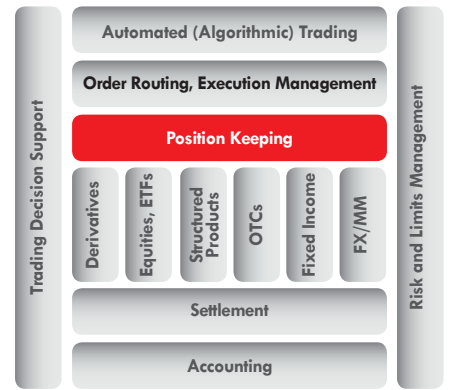
DECIDE's world class Algorithmic and High Frequency Trading Engine is fully integrated with DECIDE's Order Management System for lower latency when compared to external engines. Very large orders to be worked in the market can take advantage of DECIDE's precise automated tracking of, e.g. VWAP or TWAP across any trading venues, and if required, over consecutive days with retroactive activation.

Support for simple as well as complex strategies up to multi-market and multi-instrument trading strategies. The engine can be used for automating execution orders or for more complex strategy such as market making, auto hedging, arbitrage, pair trading, etc.

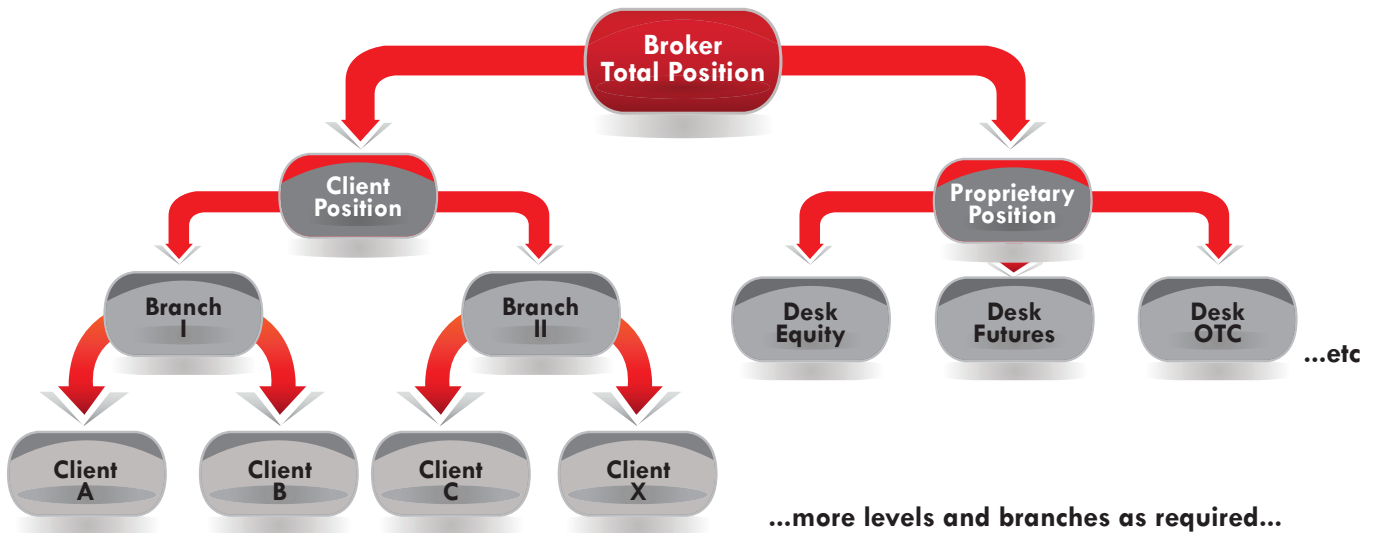
The module comprises:

- Strategy definition environment - via rules and scripting ('Lua').
- The development workbench is embedded in the platform
- Test suite / environment for back-testing of strategies with historical or generated time series of market prices
- Highly visible Emergency Stop controls
- Execution and strategy monitoring workbench is integrated into the trader's desktop
- Execution controls and restrictions for potentially 'run away' algos.

- **Execute with the lowest latency by the algo engine's tight integration with DECIDE's OMS**
- **Execute with the lowest latency by performing all processing possible co-located at each trading venue, while minimising any centrally located processing**
- **Automate your trading with algorithms that calculate using any DECIDE real-time data (in-memory or persisted) accessed directly and immediately including market data, positions, risk parameters, volatilities, yield curves, evaluation models for financial instruments**
- **Differentiate offerings by devising new and original complex multi-instrument algorithms**



Position Keeping



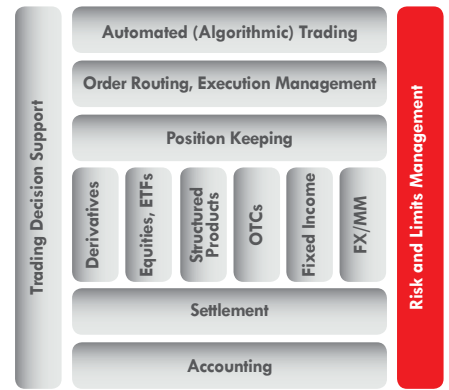
DECIDE integrates in real time positions across instrument types and across asset classes into trading books and portfolios in any tree structure to provide position overviews

DECIDE position-keeping engine can be customised for the specific needs of your trading floor, including adapting it to the respective trading processes and the specific organisation and hierarchy of trade ledgers.

Traders can:

- Choose between single view or aggregate views of multiple books
- Configure views of position details and sub-totals from 200+ columns e.g. valuations, P&L, risk, Greeks, fees, etc
- Use ultra-fast-screen switching to pre-filled order entry trading screens
- View the full breakdown of position exposures, limits, realised and unrealised profit and loss across all products and services regardless of the source IT system of the trade.

- **View clear, real time information for portfolios and desks**
- **Process real-time position keeping and management covering brokers' and clients' positions across asset classes and all types of financial instruments**
- **Configure screens and reports easily**
- **As Head of Trading, retain superior control of your team's positions**



Risk and Limit Management

DECIDE Risk and Limit Management is a sophisticated engine which serves as one integrated shared platform for the risk management department as well as for the trading room allowing different risk views with different parameter sets.

DECIDE's Risk and Limit Engine is unique as it is cross asset class and cross instrument, allowing firms to run a completely unified risk covering all its activities, whether cash equities, derivatives, fixed income, FX or structured products.

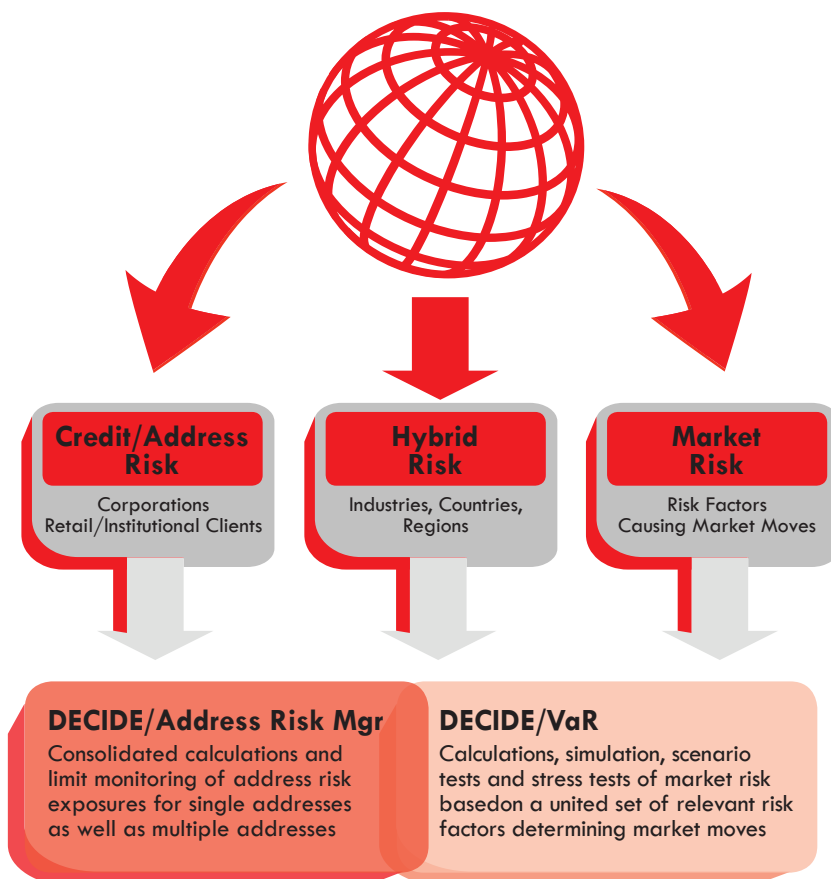
DECIDE's main operating principle is that it is rule based, and therefore providing the flexibility to be able to model firm's workflow and risk structure as it evolves due to changes in the market, regulations, or your firm's risk policies.

Credit risk limits can be applied to both retail and institutional clients. All credit/address risk calculations refer to a given legal entity – the address – may be detailed according to user defined time buckets and to risk measurement configurations. Legal entity and their relationship are defined via a tree construction. Credit mitigation can be factored into calculated limit utilisations on the lines defined in Basel II guidelines.

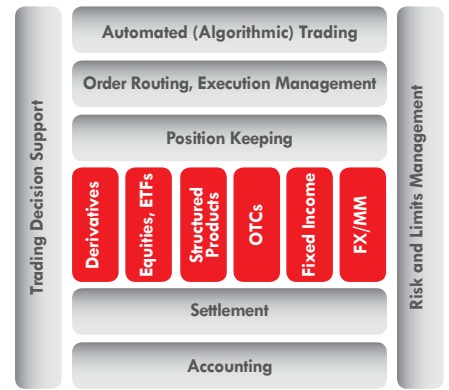
To capture market risk, DECIDE offers a wide choice of theoretical valuation methodologies which uses an extensive library of mathematics not limited to all standard derivatives models, finite difference pricing, Monte Carlo, etc.

- **View both market and credit risk limits and exposures for real-time risk management, reporting and analysis.**
- **Accurately control risk exposures: any combination of markets, instruments, traders, desks and clients, with advanced mathematics**
- **Understand breakdown of capital allocations and limit utilisations by any parameter (instrument, industry, etc.)**
- **Make in-house and clients' capital go further with easy cross-margining**
- **Report for real-time intra-day regulatory compliance any limit violations (acknowledged by electronic signature)**
- **Basel II compliant**

WORLD OF RISKS



Instruments



	Exchange Listed		OTC Defined by Parties	
	Cash	Derivative	Cash	Derivative
Equity	<ul style="list-style-type: none"> • Stock • Indexes • Mutual Funds • ET Fs • Unit Trust 	<ul style="list-style-type: none"> • Futures • Options • Warrants • Exotics • Compound 		<ul style="list-style-type: none"> • Forwards • Options • Exotics
Fixed Income	<ul style="list-style-type: none"> • Straight Bonds • Zero Cpn • Floaters • Reverse Floaters 	<ul style="list-style-type: none"> • Futures • Options • Exotics 		<ul style="list-style-type: none"> • Futures • Options • Exotics
FX & MM	<ul style="list-style-type: none"> • FX Spot 	<ul style="list-style-type: none"> • Futures • Options 	<ul style="list-style-type: none"> • FX Spot • Call Accounts • Deposits • Loans • CD • CP 	<ul style="list-style-type: none"> • Forwards • FX Swaps • Repo • Securities Lending
Commodity	<ul style="list-style-type: none"> • Spot 	<ul style="list-style-type: none"> • Futures • Options • Warrants • Exotics 		<ul style="list-style-type: none"> • Forwards • Options • Exotics
Hybrid	<ul style="list-style-type: none"> • Cross Asset Class Certificates created by DECIDE's Instrument Composer 		<ul style="list-style-type: none"> • Cross Asset Class OTC Structured Products with DECIDE's Instrument Composer 	

- Trade a wide variety of instruments with a single platform
- Access rich functionalities, models and windows views for each asset class
- Differentiate your offerings by easily and quickly creating new and original complex multi- instrument structured products

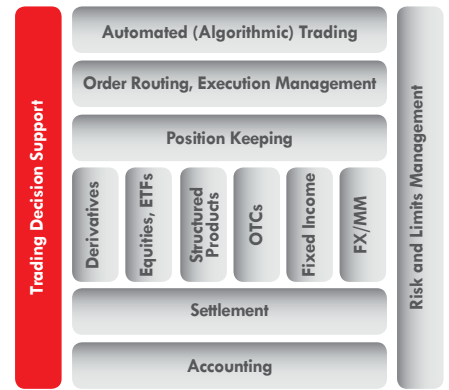
DECIDE is a fully integrated cross asset class – cross financial instrument platform covering electronic listed and OTC trading.

Because Germany's regulators never separated banking and securities trading firms, DECIDE supports a wide variety of standard tradable instruments, containing equity cash instruments and equity derivatives (including a set of exotics), interest rate cash instruments and interest rate derivatives such as swaps, swaptions, caps, floors or collars as well as more complex and innovative instruments such as swap notes or structured products:

Specific window views as well as behaviour and models are defined for each asset classes and instruments. For instance, the particularities of derivative trading are supported by:

- Special trading and information screens enable a quick, secure handling of futures and options contract trading and the associated positions
- Real-time margin functions allow the tracking of required collateral vs. pledged collateral volumes
- Current position valuations and sensitivity calculations based on the comprehensive mathematical library which includes Black & Scholes, binomial, HJM model family, Monte Carlo.

DECIDE also supports interest rate instruments and FX, allowing the powerful Structured Products Engine to generate structured products of any combination of instruments: equities, ETFs, FX options, OTC or any other exchange traded products. This provides the flexibility to meet the needs of institutional clients' needs.



Trading Decision Support

Position Simulation & Analysis

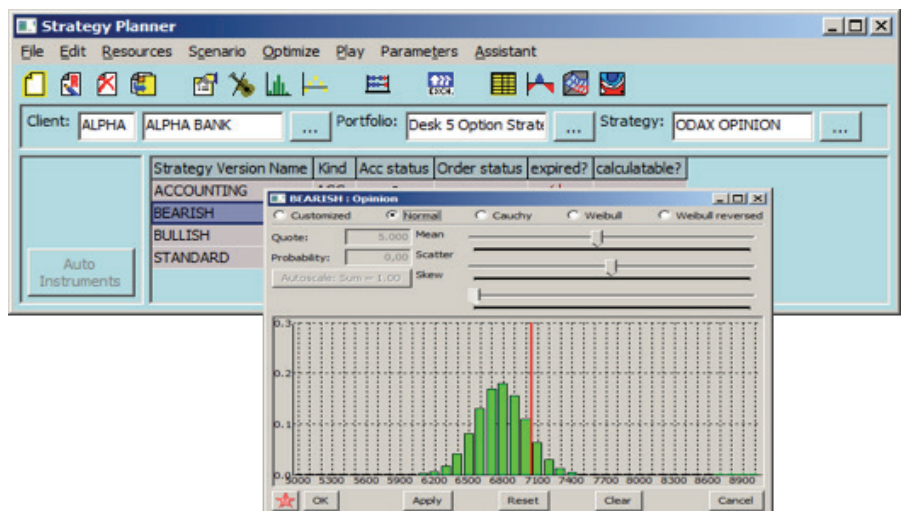
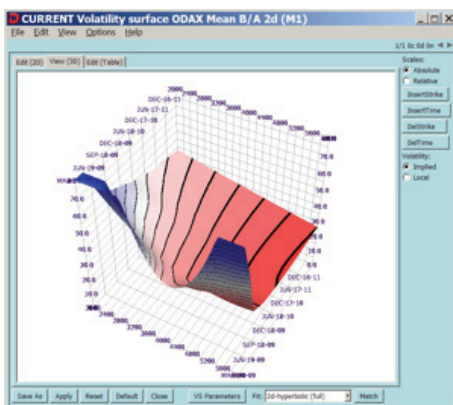
With its rich decision support capabilities, DECIDE has a powerful tool for trading departments to optimise their positions.

DECIDE can simulate the impact of different market scenarios on the current or future profitability and risk of positions by:

- Simulating trades, deals in different time frames
- Simulating market scenarios e.g.
 - o National indexes
 - o Selected financial instruments
 - o Benchmark yield curves & spreads
- Managing volatility surfaces
- Provide valuation dates and timeframes
- Employ alternative mathematical valuation models.

A variety of mathematical valuation models are available 'out of the box' in DECIDE. A good example of DECIDE's powerful decision support is the optimisation of 'Pay-Off' profiles and positions of equity options, futures and cash instruments including for example, option 'overlays' and stock baskets for hedge positions.

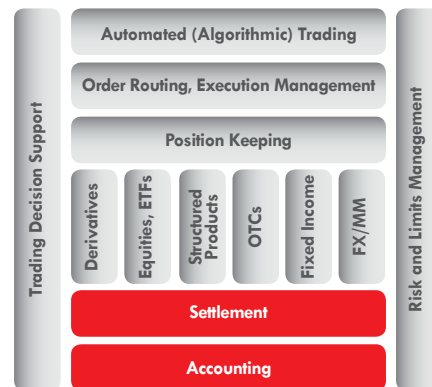
- Check possible trading impact by applying "what if" scenarios with a wide range of simulation variables
- Make more informed and accurate trading decisions
- Optimise positions easily within the pre-defined limits
- Understand the behaviour of complex derivatives under different market conditions



Settlement and Accounting

The DECIDE suite of modules includes a full sub-ledger to integrate with your general ledger. This features:

- Comprehensive multi-currency accounting functionality for financial instruments from cash to derivatives and structured products
- Flexible rule-based processes to accommodate any type of accounting structure/organisation of accounts
- Real-time calculations of account balances, realised and unrealised profit and loss
- Real-time processing and posting to accounts (average, LIFO, FIFO, etc)
- Easy account maintenance
- Flexible reporting
- Seamless straight through processing integration with trading functions
- Fully automated reconciliation algorithms at both the position and transaction level
- Separate user access rights from DECIDE's trading functions.



- **Support your needs for settlement and trading ledgers and regulatory compliance**
- **When introducing new local or foreign currency financial products, simply switch on DECIDE's related middle and back office support**
- **Integrate easily your existing general ledger**

Technical Architecture

DECIDE was designed from the ground up as a solution to address the increasing order flow due to the proliferation of electronic exchanges, ECNs and MTFs, global order routing networks and multiplicity of clients. The solution uses technology that scales linearly and cost effectively, in line with increasing volumes and performance demands. Services are placed dynamically on available hardware by an internal load scheduler.

Scalability and reliability

- The system architecture guarantees performance and robust, scalable operation based on proven technology
- The system is open, future-proof, and may be expanded flexibly
- DECIDE's modern service-oriented architecture and technical design deliver:
 - performance
 - free scalability using clusters
 - redundancy of components for system stability
 - high service levels
 - and application of proven industry standards.

Interoperability

DECIDE's philosophy is to be a neutral, core trading platform of an organisation, with ease and simplicity of integration on two levels:

- At the semantic level, the functionality of DECIDE can be configured and parameterised to integrate seamlessly with adjoining processes. DECIDE functions can also exchange data with surrounding systems in the course of processing an order. For instance to send or receive information necessary for order validation, information on available funds, or executions is exchanged
- At the technical communication level with surrounding systems, standard interfaces are available between DECIDE and local/global platforms and data providers.

Flexible Deployment

DECIDE's flexible design and strong distinction between private and public data allows various deployment methods:

- Full ASP
- Enterprise deployment
- A hybrid of ASP and Enterprise.

Supported client operating systems and devices:

- Microsoft Windows Workstation (any version)
- Linux with GTK
- Apple.

DECIDE runs with Java 1.6 on Linux, AIX, Sun Solaris Sparc, Solaris x86, HP-UX and supports Oracle, Informix or DB2 databases.

- **Implement DECIDE's modules individually, alongside existing systems, as needs grow**
- **Achieve lowest latency and high performance trading**
- **Increase trading volume simply by adding hardware**
- **Connect globally through standard FIX, FIX 4.4/5.0, FIX-FAST interfaces**
- **DECIDE is delivered with a set of standard interface libraries, including FIX, for most international markets.**



HEAD OFFICE:
Serisys Solutions Hong Kong

**Serisys Solutions
Bangkok**

**Serisys Solutions
London**

**Serisys Solutions
Shanghai**

**Serisys Solutions
Singapore**

**Serisys Solutions
Tokyo**