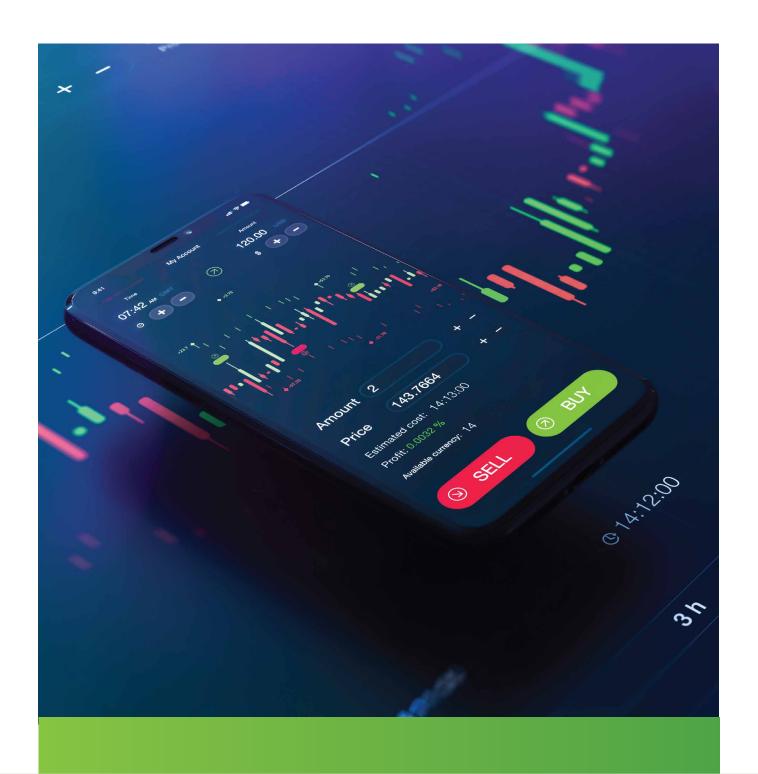




TCS BaNCS for Market Infrastructure



The business landscape is being increasingly influenced by the dominant forces of technology and innovations like Blockchain and Al. Against this backdrop, financial market infrastructure institutions are at the crossroads of change. While on one end, there is rising competition with new market models being created by new entrants and niche players, on the other end of the spectrum, organizations need to deal with disparate customer segments with varied needs. Timely investment in technology holds the key to enabling organizations stay at the forefront of change, adapt quickly, and ensure service excellence to their customers.

The Market Infrastructure solution from TCS BaNCS is designed and continuously enhanced to help achieve these objectives.

Functional Richness, Componentization and Flexibility

TCS BaNCS for Market Infrastructure from Tata Consultancy Services is a solution that supports components and offerings for end-to-end trade and post-trade functions, including unified clearing, settlement along with integrated risk and collateral management. The solution also offers trade matching, surveillance, issuance, depository and registry functions across multiple asset classes in a single solution.

Bringing in the unique ability to support multiple markets and asset classes on the same platform, it has been continuously benchmarked to global regulatory standards such as G30, PFMI, SFTR, GDPR, SMPG, FATCA/CRS, EMIR and CSDR as well as messaging standards such as ISO 20022, ISO 15022, FIX, FIXML and FpML, in addition to standard APIs for integration.

The TCS BaNCS for Market Infrastructure solution can be deployed on a wide range of technology stacks and is also "Cloud ready" thereby providing an efficient way to manage TCO for our customers.

A Comprehensive suite for Depositories, CCPs, Exchanges, Central **Payment Infrastructures and Central Banks**

TCS BaNCS for Market Infrastructure encompasses the following:

Depository – The solution provides support for a comprehensive range of business functions to cater to the evolving business needs of CSDs. A sophisticated double entry system with support for both omnibus and end investor accounting is provided for a wide range of asset classes on a single platform. The solution supports multiple settlement models including a unique settlement optimization to help manage liquidity across both securities and cash. The solution provides comprehensive support for Corporate Actions for wide range of events with compliance to CAJWG / SMPG standards. The solution has been built with an inherent componentization and additional functions including cross-border settlement, pledge, collateral management, repo and securities lending and borrowing which can be enabled based on market needs.

The solution supports real-time interfaces with the market participants using a wide range of messaging standards. The solution provides full support for ISO 20022 standards for settlement, corporate actions and statements. The co-existence approach for supporting both ISO 15022 and 20022 enables a seamless and efficient transition to ISO 20022 across the market.

CCP Clearing – Designed for high performance using our unique HpTM (High Performance Transaction Management) framework, the solution provides 'Unified Clearing' across Cash and Derivatives markets. The solution supports trade management, position management, settlement and expiry management. The solution allows to launch newer asset classes and create Derivative contracts with ease. The hierarchical account structure provides support for client clearing and the ability to manage positions, margins and collateral at various levels of accounting hierarchy. The CCP services are integrated with risk and collateral management with real time / intraday margining capabilities and stress testing / back testing. The offering is architected to be deployed as a microservice in a container framework to provide scalability as the market expands.

Exchange – Designed for high performance and low latency on HpTM framework, the Exchange solution provides order management and matching across Cash, Derivatives markets and emerging digital assets. The solution provides comprehensive market data dissemination enabled through Blockchain. The solution also offers a modern Digital solution for brokers to manage the entire trading lifecycle along with AI enabled voice and mobile trading capabilities.

Central Bank – Central Banks can manage both primary and secondary market operations for government securities, with comprehensive matching and settlement services for such markets. The solution also provides central bank repo and reverse repo, inter-bank repo and lien functions, multi-currency transaction management capabilities for a wide range of cash instructions along with an ability to integrate with other RTGS solutions.

Central Payments Infrastructure – Designed for high performance and low latency using the HpTM framework and deployed as microservices, the clearing and settlement solution enables real-time and deferred net settlement for retail and high value payments. The unique unified clearing approach provides for consolidation of the multiple payment rails in a single solution and yet provides the flexibility and configurability to cater to a differentiated payments infrastructure. The full ISO 20022 support enables standardization while the APIs enable easy integration with overlays, expanding the reach of the payments ecosystem.

Surveillance – Stock exchanges, CSDs, Self-Regulatory Organizations (SROs), and market regulators can seamlessly maintain integrity and transparency in their markets using this solution. The solution offers real-time monitoring of capital market transactions and detects manipulative trends. The AI and ML enabled monitoring ensures easier filtering of alerts to increase operational efficiencies.

The consolidation of multiple platforms onto a single standards-based solution has been Strate's business vision, and with the TCS BaNCS for Market Infrastructure Solution, we have been able to achieve our objectives with ease. Our long partnership with TCS, complemented by TCS BaNCS' successful track record for transformation program delivery, has assisted in the successful deployment and operationalization of the platform, supporting five exchanges in South Africa. The new solution has created common reference data and uniform messaging standards across all asset classes and business processes for all the markets we service, as well as enabling us to roll out newer services faster

André Nortjé, CEO, Strate, South Africa















Multi-Asset Class, Multi-Market Capability

Equities, Fixed Income, Commodities, Index, Currency Pairs, Interest rates, Energy, Carbon, Cash, Derivatives & OTC markets

Regulatory and Standards Compliance EMIR, PFMI, GDPR, CSDR, FATCA, CRS compliance G30, BIS settlement models and payment methods Compliance to messaging standards – ISO/FIX/XML Co-existence of ISO 15022, ISO 20022

Configurability, Flexibility, Ease of operations Componentized design and ease of enabling business services, Business parameter driven models, Rule engine support, configurable workflows, dashboards

Vision: "To provide best in class financial technology for Market Infrastructure Institutions, with unique multi-asset class, multi-market capability, enabling transformation and regulatory compliance".

Blockchain Ready

Organizations are working towards enabling truly connected ecosystems with real-time, efficient transaction processing, without the intervention from intermediaries. Blockchain, with its ability to synchronize data across participating entities, builds trust and encourages firms to collaborate in setting up such ecosystems. Quartz – The Smart Ledgers are targeted at helping organizations leverage blockchain meaningfully for their businesses.

The Market Infrastructure solution with Quartz plugin enables MI organizations demonstrates our ability to future proof customers by leveraging this technology for their businesses.

Our distinctive 'Co-existence approach' has been designed to enable customers roll out end to end business functions either on Blockchain or on traditional technologies, depending on the organization's strategic initiatives.

66 We are driven by customer demand for streamlined, standards-based, and cost-efficient services. With the EU's Central Securities Depositories Regulation (CSDR), the European Central Banks' TARGET2-Securities platform (T2S) and General Data Protection Regulation (GDPR) now driving the regulatory push, our need to modernize was unavoidable, but it also presented us an opportunity to take advantage of the harmonization of the European securities market. With Infinity powered by TCS BaNCS, we will now future proof our IT infrastructure and deliver high speed digital customer experience.

The TCS BaNCS Advantage

The TCS BaNCS Market Infrastructure solution's global footprint combined with TCS Business 4.0™ thought leadership framework can help your organization leverage new age technologies to create and extend your reach and capabilities to new ecosystems and marketplaces.



66 We want to provide capital efficiency for our participants wherever possible, and we are designing infrastructure to support that. To execute on that vision, we need not just state-of-the-art technology solutions for what we are doing today, but also an infrastructure capable of supporting changes to our operating environment on a more timely basis. In meeting with the senior team at TCS, we found that we have a shared vision of how we expect market infrastructures to evolve. This gave me great comfort that TCS, as a partner, could help us evolve our business.

> Glenn Goucher, Former President and Chief Clearing Officer, TMX Group

Hanna Vainio, Chief Executive Officer, **Euroclear Finland**



About TCS Financial Solutions

TCS Financial Solutions is a strategic business unit of Tata Consultancy Services. Dedicated to providing business solutions to financial institutions globally, TCS Financial Solutions has compiled a comprehensive product portfolio under the brand name of TCS BaNCS. The TCS BaNCS universal financial solution is designed to help financial services institutions enhance end customer experience, enabling them to embrace open and innovative technologies that embody true digital customer engagement. Deployed at more than 450 installations worldwide, it is the largest collection of components, enterprise and consumer apps for the financial industry made available through the cloud, helping firms become more agile and intelligent by leveraging the power of new and extended ecosystems.

To know more about TCS BaNCS, please visit: https://www.tcs.com/bancs or write to us at tcs.bancs@tcs.com

About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at www.tcs.com

IT Services Business Solutions Consulting

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