



PERCIVAL

**Malta Stock Exchange (MSE):
a T2S Success Story**

CASE STUDY



The Business Challenge for MSE

From time to time management must purchase or develop software solutions that should integrate with existing software especially in view of changes that will inevitably take place in business requirements. Two of the most recent changes to business requirements are T2S for the CSDs of EU countries, and the CSD Regulations (CSDR) introduced in 2014.

With increasing downward pressure on profit margins, all sizes of stock exchange are concerned about the Total Cost of Ownership (TCO) of their IT infrastructure; all other things being equal, having the same or better level of services with the same or lower TCO will give a better return on investment and allow an increased margin without having to raise prices. Many exchanges have therefore purchased a more cost-effective CSD coupled with an Enterprise Service Bus (ESB) to integrate existing and new CSD services with other legacy systems. As an integrated capital market infrastructure,

such an architecture is of strategic importance for the Malta Stock Exchange (MSE). Besides operating as a trading venue, the MSE is also a regulated CSD, operates a recognised Securities Settlement System and is also the National Numbering Agency.

The requirements introduced by needing to settle securities transactions through T2S requires the integration of different IT systems. At the very least, the CSD system must be directly integrated with T2S and this in turn reflects on changes in many of the business processes related to trade capture and the settlement of securities transactions. T2S uses a subset of the newer ISO 20022 message formats and requires that the CSD and its participants adapt to the new standards and processes. These changes, coupled with the expectation that the near future might hold even more changes to settlement services, makes the ability to integrate a key property of any solution being considered.

Upgrade To DEPEND

In 2013, MSE decided to upgrade their core product from Depository 2000 to DEPEND. Although more than satisfied with Percival's Depository 2000, MSE were aware that there was considerable pressure for change in the industry, driven by an increasing load of regulations and improvements in standards, both of which impacted directly on capital markets and more specifically on central securities depositories.

Although Depository 2000 was handling the operational load adequately, Malta had already joined the Eurozone and MSE were in the process of formulating plans to link their business to T2S. Consequently, MSE set about modernising their IT infrastructure, starting with the stock exchange itself, by upgrading their trading platform. This project was followed by a similar upgrade to their CSD system.

After a full review of DEPEND's capabilities and features, it became clear that upgrading to DEPEND would allow MSE to replace their existing infrastructure with minimum impact to features; this benefit was due to the fact that Percival, true to their standard practice, provided a clear migration path to all users of their previous generation product.

It was also clear that DEPEND would allow MSE to extend their existing services to market stakeholders, and form the base for a much more flexible business model and allow interconnectivity with other systems including their online portal for issuers and investors.

The fact that DEPEND already embodied many of the improved standards and

features that were impacting on their business was a clear indicator that allowed a green light to be given to the project.

Percival provided a full service to MSE, which included: assistance with migration of business rules; migration of data from Depository 2000 to DEPEND; configuration of the new features; integration with Deutsche Börse Group's new trading platform and other internal systems at MSE; full re-training of staff in the new product; and general advisory and consulting services to make the transition as smooth as possible.

After the completion of acceptance testing followed by market-wide testing, MSE started live operations with DEPEND in September, 2013.

Joining T2S

MSE signed the MOU in the early stages of planning for the T2S project, and decided to join in the first wave.

Although this was after the organisation had already upgraded their systems from Depository 2000 to DEPEND, some changes and additions were still needed in order to achieve their goal in a timely fashion.

There were two main tasks: a few additional features needed to be added to DEPEND in order to meet the general requirements of T2S in addition to local specific requirements of MSE; and the message interactions between MSE and T2S in ISO 20022 messages had to be properly planned and configured.

As part of Percival's standard annual maintenance and support service to MSE, the necessary additional functionality required for full T2S integration was already being dealt with by Percival's programme of active

updates and improvements that they make to all of their products. MSE received the T2S-ready upgrade in one of Percival's standard annual product releases.

For the local requirements, Percival also provided advisory and consulting services to MSE, their staff working with MSE over a number of visits to define the exact requirements and agree the customisations to DEPEND that needed to be carried out. The precise operational model and layering model to be deployed with T2S was thoroughly investigated and worked through before finally implementing the required changes.

In addition, Percival also completed development of their message hub product called HUBBLE, effectively an ESB, which is a highly configurable messaging layer that handles and orchestrates all of the interactions between the DEPEND's business and other connected systems, including

T2S. Among other things, HUBBLE handles the translation of information from ISO 20022 format to the XML documents that correspond to the parameters for DEPEND API calls, and vice versa. Apart from format translation, HUBBLE allows configuration of all elements of each message flow including calling one or more business operations as well as sending acknowledgements or other responses to the relevant parties.

Thanks to excellent cooperation between MSE and Percival, the project was a tremendous success, allowing MSE to link successfully with T2S in the first wave as originally planned.

Active links were established on Friday, 19th June, 2015 followed by settlement of transactions that were migrated from the existing settlement solution. By Tuesday, 23rd June, 2015, the first transactions were settled as part of T+2 rolling settlement that were dealt with from trade to settlement completely within T2S.

Benefits of T2S for MSE

Competition & Business

- Decrease of the average settlement transactions costs over the medium to long term
- Cross-border transactions settled for the same price as domestic transactions
- Reduction in IT infrastructure costs of CSDs.
- Introduction of incentives to diversify the financial portfolios of both private and institutional investors with a positive impact on profit
- Settlement on a single platform trading in different markets
- Fewer technical interfaces with settlement systems
- Adoption of harmonised standards and best practices
- Liquidity more efficiently managed through consolidating central bank cash through a single cash account for T2S markets
- By offering a centralised access point to T2S markets, MSE will provide to customers a consolidated view of their collateral positions across markets and product areas
- Customers will be able to utilise assets held in the local market and deploy these for collateralise exposures that they have in other locations

Safety From Use Of Central Bank Money

- Reduction in counterparty risk
- Reduction in risk for settlement agent

T2S Future Developments and MSE

MSE with Percival technology is positioning itself to:

- Benefit from new opportunities established by T2S, the CSD Regulation and the European Market Infrastructure Regulation (EMIR) as steps to creating a single pan-European market for financial services
- Maximise the potential benefits offered by an extension of the range of potential instruments that may be supported by the T2S platform and to widen the range of Euro and non-Euro participants (whether in Europe or beyond) that commit to the project
- Benefit from a centralised collateral management platform for the EU
- Benefit from the settlement of investment funds on T2S and this is likely to be forthcoming in markets (France, Germany) where CSDs support fund settlement
- Benefit from the larger the range of instruments settling on the platform, the greater the potential cash netting benefits that will be delivered to the customer via a single central bank cash account
- Benefit from improvements that are currently not covered directly by T2S and CSDR including, among others, the work on cross-border shareholder transparency, and pre-settlement procedures (e.g. trade confirmation, allocation, and time of matching)

Why Percival For T2S

In June 2015, the Malta CSD successfully linked with TARGET2-Securities in the first wave of participants along with three other CSDs.

According the Simon Zammit, CEO of the Malta Stock Exchange and who also was the MSE's Project Manager for the T2S Migration, the success of the T2S Project was never taken for granted by the Exchange.



Simon Zammit
CEO of the Malta
Stock Exchange

"We always knew that the MSE's strategic decisions to be in the first wave and to adopt the Layered Model in T2S were big challenges that we were facing. The choice of infrastructure and delivery time of the systems that needed to be implemented were going to be the key factors for the success of the project. Fortunately, Percival Software who have been long-time partners and suppliers of our CSD and registration software, were available to work with us on delivering a successful integration of the DEPEND system to T2S and the project was concluded successfully and on time. With the introduction of HUBBLE as a middle layer, we were not only able to integrate our settlement systems through ISO 20022 standards with T2S, but we also managed to harmonise our Corporate Action Standards to T2S requirements. Through the overall solution provided by Percival Software, we have managed to take full benefit of what T2S offers while still preserving our business model that caters for a hybrid structure of largely client based accounts and also institutional and nominee accounts. The benefits in transaction cost reduction from T2S are now beginning to materialise as more waves of CSDs join the platform and in particular with the accession of Clearstream with whom we have an interoperable link."

Percival's solutions are specifically designed to deliver flexibility and short 'time to market' for new products to a wide spectrum of CSDs of all sizes. We realize that these CSDs must pay close attention to implementation and operational costs. We believe passionately in our DEPEND product and its ability to address the requirements from a wide spectrum of CSDs by having an initially wide scope of functionality coupled with an extensive configuration capability.

In general, Percival's solutions are based on user empowerment, which results in lower operational costs. For example, business reporting requirements are always changing, and with this in view, Percival solutions are highly configurable by the user to make changes. Less flexible solutions by other vendors can cause a gridlock of change requests and restrict the CSD's ability to adapt their business to unforeseen changes in their needs.

The Percival team have been working together for over 20 years, which means our staff will have a better understanding of client's needs and issues. Larger vendors and service providers tend to have a higher staff turnover, which means it takes time for new staff to become familiar with client issues and problems.

Percival solutions transfer the latest software knowledge to IT staff and users. This enables client staff to grow with products.

Our solutions, especially HUBBLE and DEPEND provide much faster implementation compared to other suppliers; a good example being MSE going live with T2S in the first wave.

Furthermore, if and when there are further developments in T2S, Percival solutions can be adapted to the changes far more flexibly and quickly than competing products.

MSE T2S Success Leads To New Projects



Baltic CSDs

Percival signed an agreement on 19th October 2016 to deliver its DEPEND Q CSD solution to the three Baltic CSDs of Estonia, Latvia, and Lithuania.

The Baltic CSDs will leverage the Percival solution in order to minimize member impact and reduce complexity during the consolidation of the Baltic CSDs and implementations of CSDR and T2S.

The Estonian Central Securities Depository are already customers of Percival and implemented DEPEND at the start of 2011, which allowed them to become only the fifth CSD in Europe to fully meet the ESSF-ECSDA matching standards at the end of March 2012.



Iceland

Percival signed an agreement on 30th January 2017 to deliver their successful DEPEND Q CSD solution to the main Icelandic CSD. Building on the currently active project in the three Baltic countries, Percival will introduce their T2S ready and CSDR compliant DEPEND Q CSD solution to the Icelandic CSD.

The system is expected to go live in 2018.

Percival's flexible HUBBLE messaging layer will also be deployed to provide integration between internal services, as well as providing a common service to local Icelandic participants using ISO messaging.



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