Driving Organisation and Technology Transformation for T2S Adaptation

Forging integration and overcoming harmonisation barriers across the European settlement landscape have been the driving forces behind the Target2 Securities (T2S) initiative. With the prospect of increasing competition post T2S, Central Securities Depositories (CSDs), custodians, Central Counterparties (CCPs) are being forced to revisit their business strategies, reshape business models and undergo enterprise wide changes. The efficient management and re-integration of such a large transformational program will require a well-thought out framework that covers the critical elements of the company's business strategy, operations and technology infrastructure. We believe that institutions should look at leveraging industry best practices around the transformation of their People, Process and Technology to ease the complexity of adaptation, develop a competitive edge for their business and rationalise their investments.

This paper highlights TCS’ point of view around the challenges and complexity faced by the institutions for T2S transformation and summarises the application of some industry proven best practices and frameworks for preparing the institution to embrace T2S.
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1. Introduction

The TARGET2 Securities (T2S) project has reached its half way mark as measured by the milestones achieved—87% of platform development has been completed, 23 CSDs have signed the Framework Agreement and detailed requirements documents have been published. T2S will soon be a reality forcing CSDs, custodians, National Central Banks, CCPs and investment firms to radically change the way in which they operate in Europe.

The major CSDs have published their plans for adaptation and their strategy takes into consideration the:
- Consolidation of assets by clients at a fewer number of CSDs/ custodians
- Attracting additional customers through value added services such as collateral management
- Offering attractive pricing that means a considerable dent on the margins

Some CSDs have mooted the idea of sharing the cost of investments with their clients. Custodians and CSDs are also viewing the T2S program as an opportunity to review their operations and revamp their IT infrastructure.

A recent poll conducted by industry association ISSA in June 2012 on regulatory compliance including T2S, provides a different perspective of market infrastructure providers and intermediaries. Some of the key opinions collated include:
- There will be consolidation amongst the financial intermediaries and market infrastructure providers
- There will be a decrease in profitability at least to the extent of 10%
- The full costs cannot be passed on to the customers
- Inability to predict if regulatory changes will drive more than 30% of IT budgets

Adaptation to T2S involves implementing a transformation program along strategy, operations and technology dimensions.

<table>
<thead>
<tr>
<th>IMPACT DIMENSION</th>
<th>CSD</th>
<th>Custodian</th>
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| STRATEGY         | • Impact on CSD business strategy and future plans
• Optimal reshaping of business model for T2S adaptation
• Establish new CSD contractual links
• Securities Holding Account Structure in T2S
• Change from Interfaced to Integrated Settlement Model
| • Redefine strategy to adopt alternate business models
• Leverage single CSD as “Gateway to European capital markets”
• Increased competition as CSD may start offering value-added services |
| OPERATIONS       | • Customization of settlement procedures
• Synchronization with T2S settlement day schedules
• Maintenance of T2S reference data and business rules
• New procedures for data synchronization and reconciliation with T2S
• New procedures for asset servicing and tax processing of foreign instruments
| • Realign settlement operations to adapt to T2S processes
• Synchronization with T2S settlement day schedule
• Develop centralized liquidity management procedures
• New procedures for optimum collateral and overnight credit facility use
• Changes to collateral management procedures
• Reconciliation with agent banks, CSD and T2S
• Asset servicing of foreign securities |
| TECHNOLOGY       | • Customization of CSD legacy applications
• Build ISO 20022 compliant interfaces with T2S
• Establish connectivity to T2S
• Establish technical connectivity with Issuer CSDs for asset servicing
| • Build / customize settlement, cash and collateral systems
• Decommission redundant back-office interfaces with CSDs
• Reengineer applications to increase operational efficiency
• Establish direct connectivity to T2S
• Build ISO 20022 compliant interface with T2S |

Table 1 Three dimensional analysis of T2S Impact on CSDs and custodians
The T2S adaptation program of an organisation will be shaped largely by the business strategy and vision of the stakeholders. The business model is in turn influenced by the forces of competition, evolving market practices and regulatory changes. However once the adaptation road map is in place, technology is the key enabler that will ensure an efficient and effective transformation.

This paper outlines some best practices and strategies that CSDs and custodians can consider for T2S transformation.

2. Key Drivers Shaping the European Clearing and Settlement Domain
Consolidation, competition, regulations and harmonisation are the major themes at play in the clearing and settlement landscape in Europe.

Currently, the horizontal and vertical models of the securities transaction chain co-exist in Europe. Germany, Italy, Spain, Portugal and Hungary are some countries where the trading, clearing and settlement organisations are under one umbrella. Belgium, Netherlands, France, UK, Finland and Sweden have adopted the horizontal model where trading, clearing and settlement functions are with different entities.

The vertical model appears to be in limelight again. The proposed takeover of LCH.Clearnet by London Stock Exchange (LSE) is a move towards the vertical model though LCH.Clearnet may continue to provide services to other trading venues.

From a T2S adaptation perspective, consolidation across either the vertical or horizontal model provides the CSDs and clearing organisations the necessary staying power and a greater ability to diversify revenues and increase market share. Deutsche Boerse/ Clearstream, LSE/ Monte Titoli and Euroclear are examples.

There are other changes across the securities transaction value chain that will also impact the role of different players. With a proliferation of alternate trading avenues and CCP interoperability the clearing area is witnessing intense competition. The traditional competition between CSDs and custodians will intensify with the introduction of T2S as settlement will become commoditised.
CSDs, CCPs and custodians are exploring avenues to provide value added services that will provide the necessary competitive edge and also strengthen the revenue base. The services / products facet of the business model is bound to change. Mergers and acquisitions will be another phenomena to reckon with.

CSD Regulation, Securities Law Directive, EMIR and MiFID II are regulations from the EU as part of the Financial Services Action Plan that will have a significant impact on the CSDs, custodians and CCPs, and they need to factor in all these changes while designing the IT strategy and business processes for T2S adaptation.

Some of the key regulations are:

- **CSD Regulation**: Segregated model for banking services, T+2 settlement cycle, break down of monopoly of CSDs for primary issuance, emphasis of book entry form of securities holdings and unbundling of services.
- **EMIR**: Shift of OTC derivatives transactions to trading platforms and CCPs; this will broaden the revenue stream of CCPs / trading venues while adding to the complexity of risk management functions. IT adaptation cost and increased capital requirements will also need to be addressed.
- **MiFID II**: Non discriminatory access to clearing and settlement infrastructure across EU member states to investment firms and Multilateral Trading Facilities (MTFs). This would increase the competition amongst CSDs to retain and grow their customer base.

The Dodd Frank Act, CPSS IOSCO Principles for Financial Market Infrastructures, and Basel III are the other global regulations / guidelines that will influence the post trade infrastructure. Cost of compliance is expected to increase for CSDs and CCPs in terms of compliance governance, IT adaptation costs and higher provision for capital and liquidity requirements.

The initiative to harmonise market practices in Europe will get a major fillip as part of the T2S program. The key areas being addressed by T2S program are settlement efficiency including a smooth cross border settlement model, corporate actions processing and ironing out challenges in the legal and regulatory aspects of settlement. T2S is also expected to ease the liquidity requirements of banks as well as other T2S participants, through its Auto Collateralisation initiatives.

### 3. TARGET2 Securities Adaptation – Complex Transformation Program

The complexity in adapting to T2S emanates from the transformation elements involved, namely the program scope and the adaptation of business and technology.

**Program Scope**

The challenge presented by T2S is to build a standard and lean solution at a pan-European level. However, this does not necessarily translate into the “one size fits all” theme. As each institution prepares to adapt to ‘Lean T2S’, market specificities within each domicile pose hurdles in the adoption of T2S. This has resulted in the renaissance of post trade harmonisation initiatives across Europe for the standardisation of legal, regulatory and market practices. The scope of T2S initiative encompasses the following dimensions:

- Geographical reach (i.e., euro and non-euro markets);
- Capital market players (such as CSDs, NCBs, CCPs, custodians, brokerage firms, issuers, issuing and paying agents and fund managers);
- Spectrum of financial instruments.
Multiple currencies  
Diversified legal and regulatory jurisdictions and market specificities silos  
Institutions with distinct business models  
New interoperability protocols amongst the T2S community

All above dimensions constitute the foundation blocks of the T2S product and contribute to the complex nature of the adaptation program.

Adaptation for Business
As a result of outsourcing of securities settlement services to T2S, CSDs will have to analyse their product portfolios and business offerings to stay competitive vis-a-vis other CSDs. The portfolio analysis must evaluate the proposition of offering new asset based services as well as enhancing the service levels of existing offerings to the market participants. This will in turn have a cascading effect on custodians who will have to share their market and revenues with the CSDs. As far as custodial business is concerned, the local custodian may experience a decline in revenues if the global custodians adopt the model of direct settlement in T2S and prefer regional custodians than local custodians for provision of custody services. As every organisation revisits its strategy and potentially revamps its business model to adapt to the market dynamics driven by T2S, the organisation’s business processes and operational procedures related to securities settlement as well as asset based services are bound to be impacted.

Adaptation for Technology
Successful adaptation to T2S will require significant changes to an institution’s technical architecture and potentially impact three critical components of a typical system architecture: Business Layer, Data Layer and Interface Layer.

Implementation of the T2S adapted operational procedures and business processes will require changes to the business logic of IT applications supporting both core settlement and value added services such as corporate actions, issuance, collateral management and tax servicing. The institutions adopting T2S will need to build an IT strategy and design their T2S adapted settlement platforms to minimize the impact on the client community and rationalise the scope of their current settlement application by eliminating functionalities redundant with T2S platform such as instruction validation services and matching services by leveraging T2S toolkit. Such an approach will aid in the selection of an optimal IT application portfolio that achieves dual objective of implementing T2S adaptation strategy and IT infrastructure cost rationalisation.

From a data management perspective, while the CSDs and NCBs would maintain their T2S reference data via the T2S A2A1 and U2A2 toolkit, a copy of the data also needs to be stored in the CSD and NCB own systems (e.g., account structures, roles and privileges, positions and balances, etc). This also holds good for CSD participants planning to be directly connected to T2S. CSDs and custodians need to assess the frequency and volume of data required for their internal post-settlement processes, supporting asset based services and reporting to clients and regulatory bodies. The fact-finding and analysis exercise may result in substantial changes to the infrastructure configuration and introduction of new processes for data replication and data consistency.

The communication layer of the system architecture will undergo a shift of standards from ISO 15022 messaging interface to ISO 20022 “T2S-compliant protocol”. The ISO 15022 standard may continue to exist for institutions not planning to build direct connectivity solutions with T2S and relying on their respective CSDs (or other institutions

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1 A2A – Application to Application  
2 U2A – User to Application
offering message routing services). The institution’s preferred option needs to be in alignment with its future operating model. While the selection of SWIFT as one of the value added network provider has alleviated the worries of most of the institutions using SWIFT currently, the SIA COLT as the other VAN provider and use of dedicated lines to T2S are also viable options that may be explored to seek cost savings.

All these elements showcase that T2S presents challenges revolving around the traditional themes of business model sustenance, revenue and margins pressure and managing stakeholder expectations, thereby translating the T2S adaptation process into a complex transformational exercise.

4. Enterprise Transformation for T2S Adaptation

Every market entity potentially impacted by T2S will need to assess their internal strength and weakness, external opportunities and threats and model the target state of their organisation and enabling technologies such that the benefits of T2S opportunity are maximised. The opportunities and threats stemming from T2S will force the institutions to adopt a strategy oriented approach such as expanding the geographical reach across Europe and enhancing their value proposition via new product and service offerings. The pursuit of such strategies for T2S adaptation is a trans-disciplinary endeavour requiring changes to the organisation and technical architecture of an enterprise.

5.1 Organisational Changes - Managing People and Process

Organisational change is one key dimension of the T2S adaptation program of CSDs, CCPs and Custodian. The main objective would be to galvanise people and adapt the processes to the new evolving business model. A good approach would be to apply a business process and change management framework encompassing different aspects pertaining to people and processes.

- Leadership alignment and buy-in will be important to set the overall strategy for T2S adaptation and will provide the necessary direction to various divisions of the organisation.
- Modifications to organisational design in terms of roles and responsibilities to take care of new services (such as collateral management, securities lending and borrowing) and changes in the business model would serve as a strong foundation. T2S adaptation will be an opportunity to ‘right size’ in the context of settlement operations moving to T2S. Competency development for new services envisaged would also be part of this design exercise.
- Business process adaptation for new products and services and alignment of existing processes in tune with the T2S settlement model are an important element of the target operating model for T2S adaptation.
- Strengthening of in-house regulatory & compliance divisions to cater to increased multi-geography operations
- Improvement opportunity assessment will enable CSDs, CCPs and custodians to enhance operational efficiency and garner additional benefits.
- Stakeholder management through a well designed communication approach is essential for putting into operation the T2S adaptation program.
- Training of different stakeholders – employees, clients and end users- will be a major activity that has to planned for the three waves of migration.

Willingness to prepare for future changes and adopt innovative operating models will be the definition of successful organisations in the T2S world
5.2 Technological Changes - Managing Systems

As organisations look forward to creating competitive advantage through superior customer experience, the rate of change in the business environment is forcing them to build an agile and adaptable IT estate to meet the business and market demands. Today, enterprises face complex technology challenges in terms of managing system integration, assurance and migration for T2S adaptation. Some fundamental questions that need to be addressed are:

- How to enhance the business value of IT portfolio (i.e. T2S adapted infrastructure)?
- How to minimise impact of legacy platform adaptation for T2S?
- How to shape the adaptation strategy to leverage existing settlement systems?
- How to maintain a heterogeneous application suite (i.e. combination of legacy platform and products / solutions) for supporting operations in multiple geographies?
- How to shape the adaptation strategy to leverage existing settlement systems?
- How to ensure the consistency and reliability of the T2S adapted solution?

Answers to the above questions lie within some of the industry best practices for managing the technology transformation.

Alignment / Re architect in line with Target State Architecture

In the context of T2S offering securities settlement, a service that has so far been the core competency of CSDs and custodians, it becomes imperative for the CSDs and custodians to restructure their IT application portfolio for alignment with the envisaged business offerings. Rather than focusing simply on legacy modernisation and cost containment of the future IT infrastructure running and maintenance costs, organisations should identify and evaluate opportunities for consolidation, retirement or integration of applications. Some opportunities for portfolio rationalisation may be:

- Retirement of validations and matching engine should be analysed in light of the work on harmonisation of settlement processing standards across Europe and the leverage of T2S market specific validations management framework
- Retirement of in-house settlement engine provided no settlement specificities exists for certain securities or type of clients. For the markets supporting end-investor holdings at the CSD, this decision depends upon the choice made between migrating all accounts to T2S vis-à-vis adopting a layered settlement model
- CSDs and custodians should consider consolidation of multiple communication engines across the enterprise for all T2S interactions. Business applications across the enterprise i.e., for all geographies and all lines of business (e.g. core settlement, custody, etc) should be serviced by a single communication hub with T2S
- Approach for integration of CSD’s systems with client applications should aim at minimising the client investments. This will be beneficial for CSD participants opting for indirect connectivity solutions to T2S. The option of providing message conversion routines (i.e. ISO 15022 to ISO 20022) should be evaluated allowing co-existence of old standards and new standards. While the clients may continue to interact using the existing ISO or proprietary communication standards, the message conversion routines would translate all the T2S intended communication received from the clients into T2S compliant communication standards (i.e. ISO 20022). This will ensure continuity of client’s business operations and minimise their IT expenditure for T2S adaptation.

Technology Agnostic Standards for System Integration

Migration to T2S platform will imply significant changes to the CSD’s settlement processes. It is also likely that during the period leading up to complete T2S adoption, the current cross border settlement practices will also co-exist. In such an environment, CSDs need to take a careful review of their systems and how they can facilitate the
T2S adoption. Customisation of the CSD’s core settlement system to meet the T2S needs is one approach, but success of this approach would be dependent on the ease of change and flexibility offered by current CSD systems, which usually are based on legacy platforms. Another approach would be to leverage add-on products for T2S specific needs such as ISO 20022 compliant interface engine, T2S reference data manager and T2S instruction enrichment manager, which would interoperate and co-exist with the CSD’s settlement systems (see Figure 2).

![Figure 2: Use of Add-on components for T2S Adaptation](image)

With ISO 20022 being adopted as the mainstay messaging standard for T2S, the CSDs can also take an approach of separating the messaging layer into a separate component while the core systems remain largely unaffected due to the introduction of new messaging standards. The T2S add-on components could potentially be on different technology compared to the CSD’s current settlement systems and hence also potentially reduce the TCO for the T2S adoption. With a wider adoption and success of enterprise bus technology amongst capital market players, the CSD settlement systems and the T2S add-on components can communicate using technology neutral standards like XML, thereby making integration between systems much easier and faster. Such products providing ready business connectivity to T2S along with the associated reference data mapping and message conversion routines as described above, may be an option worth considering since they may help take away much of the pain of in-house IT transformation, while also helping in containing in the overall IT cost for T2S adaptation.

In our view, a thorough cost-benefit analysis is required to guide the decision for choice between (a) customisation of core systems and (b) build of T2S add-ons to core system (c) replacement of core systems. It is likely that many T2S stakeholders could use T2S as change agent and also retire of their old systems, while others could use add-on components to their existing systems to facilitate T2S migration and also keep the costs of migration lower compared to customisation of core systems.

**Multi-tenant Multi-entity enabled solution**

Custodians serving in multiple markets and running operations using multiple disparate systems may consider the option of building applications based on multi-tenant architecture. The multi-tenant applications may be considered for functional components such as common communication hub for interaction with T2S as well as a standard settlement engine for all geographies. The idea of single application instance supporting multiple clients will generate cost savings in addition to economies of scale, provide aggregate view of data across the enterprise and results in simplification of release management. However, institutions need to evaluate the country specific
legal, regulatory and compliance requirements for transactions and securities positions data security (e.g. storing data of each entity in separate partitions) vis-à-vis the technical feasibility of implementing such architecture. Implementation and maintenance costs and complexity of supporting a single application for diversified markets involving specific settlement processing conditions must be weighed against the benefits of maintaining single application. Additional considerations must be given to the progressive enhancement and testing of the single application iteratively for each market supported.

**Provision of Test Harness (i.e. Test Bed)**

For the T2S adaptation program to be successful, CSDs, NCBs and custodians will need to cooperate and synchronise their efforts for T2S adaptation. To ensure a level playing field for all its stakeholders, CSDs (NCBs/custodians) may consider offering an automated test harness (test bed) to its clients. The automated test harness will simulate T2S functionality, allowing the CSD's clients' to perform integration testing by providing access to set of standard business scenarios. The test harness can be designed to support key business scenarios for testing T2S adapted application,

The test harness will enable CSD's clients to optimise procedures for validation of standard T2S functionality. The provision of using a readily available package for solution assessment will benefit clients through reduced complexity and risk of designing and executing assurance activities for T2S adapted application and increased productivity due to automation. The CSD, NCB and custodians can use this tool for monitoring the testing activity progress by their respective clients and evaluate the market's readiness for migrating to T2S platform.

Since different market entities planning for participation in T2S may be at varying levels of readiness, CSDs should consider providing its stakeholders with dedicated test environments. The CSD can plan for a phased approach to ensure T2S product conformance of all its clients prior to the T2S user testing phase. The first phase should aim at achieving an interface between the CSD client and CSD. In the second phase, the CSD may open the testing environment for all participants even if T2S platform is unavailable and eventually upon availability of T2S platform, allow T2S community testing in the third phase. Such a phased approach to conformance of T2S product across the entire T2S community ensures reliability and integrity of the T2S adapted application as well as effective stakeholder management.

To facilitate the validation and assessment of T2S adapted solutions of their clients prior to the T2S user testing phase, CSDs should consider leveraging automated testing tools (e.g. T2S simulator) to simulate a T2S like environment. The T2S simulator can be designed to enable testing of basic T2S functionality during the non-availability of the T2S platform and ensure satisfactory degree of IT application stability before initiation of bilateral, multilateral and community testing with T2S platform.

**Parallel Test Strategy Approach**

With significant business process change being introduced with the new system, organisations need to consciously create a parallel run plan, where both the current and new system run together for a period of time and results measured. The scope of parallel test run should include both adapted and no-change business process. Specialised reconciliation tools are required to determine the success of the parallel run are to be built, especially when a business process change also accompanies the introduction of the new system. Organisations can also adopt a phased approach for introduction of the new system where in new components are progressively introduced to minimise the impact on external stakeholders. However, such an approach needs careful evaluation.
as this is bound to add significant overheads to the project and often results in compromising the overall objectives of the new system.

**Business Operations testing**

Introduction of single settlement day schedule across Europe by T2S (i.e. identical cut-off times for Investor and Issuer CSDs participating in T2S), will alleviate the cross border harmonisation concerns raised by Giovannini Barrier 7. The harmonised schedule may require the CSDs, NCBs and custodians to

- align their operations for adapting to new securities settlement and cash management activities,
- redefine settlement deadlines (e.g. reduction in the number of intermediaries for cross border settlements will result in increased settlement time for sending instructions to T2S),
- set-up new reconciliation procedures for ensuring consistency of securities holdings (cash balances) and transactions data in T2S versus in-house systems and
- incorporate changes to the existing SLAs for information exchange and settlement activity reporting with both internal and external stakeholders.

In light of these changes, it is imperative for all stakeholders to perform end-to-end business operations testing to ensure that operations as well as the IT infrastructure planned and designed for T2S adaptation sufficiently meets the predefined expectations.

**Incremental Data Migration Approach**

Data migration for the new system also involves significant transformation of the data to work with the new system. Such transformation involves gleaning and cleansing of existing data. In CSD systems, where regulation mandates data being stored for multiple years, the migration by itself can be a significant project demanding specialised resources, skills and technology. Migrating large volume of data also takes computing resources and hence usually cannot be completed over the weekend, as has traditionally been done. Organisations need to take an approach of incremental data migration, where in changes to the main system are continuously moved to the new system (Figure 2 is a high level plan for data migration outlining the critical activities and tools and requires further customisation based on the market entity impacted by T2S).

**Figure 3: Planning for Data Migration**

While there are a multitude of proven industry best practices and techniques for customisation and migration of applications, the real challenge lies in the evaluation, selection and application of the right approach.
5. Transformation Framework for T2S Adaptation

Organisations planning to undertake the T2S adaptation program must consider putting in place a T2S Transformation Framework that ensures a structured and phased approach enabling the transformation. The framework must be designed to capture the current state, envision the future state and determine the activities for guiding and achieving transformation (Figure 4 depicts the core components of the T2S Transformation Framework). All the activities embedded within the framework components should be planned and executed in a coordinated manner to achieve smooth transition from strategy definition to solution implementation. The framework should progressively elaborate the business needs for T2S adaptation and ensure alignment to the drivers and objectives of the institution’s T2S program at all times of the adaptation program. To ensure a smooth adoption of the framework across all the organisation units impacted due to T2S, organisation may consider establishing a T2S program structure and a strong external stakeholder management structure.

Comprehensive adaptation framework encompassing critical elements along strategic, operational and technology dimensions

- Evaluate & build organization's strategy and business framework for T2S adaptation.
- Define solution perimeters and develop technology agnostic functions.
- Quality assurance, Migration and Implementation of T2S adapted IT system.
- Translate conceptual solution into IT system.

Framework accelerates T2S adaptation program and ensure compliance to T2S platform

Framework Components and Activities

- “Business Model & Strategy” component is the starting point for evaluating and building the organisation’s overall strategy and business framework for T2S adaptation and provides the guiding principles for prioritization and developing the conceptual solution. Key activities include assessment of T2S impact on the organisation’s service offerings, implications on the pricing structure and rationalisation of operating model with other business partners (Figure 5 depicts the broad phases for T2S transformation and key activities within each phase).
“Conceptualise Solution” component uses the T2S adaptation strategy as input for definition of the solution perimeters and technology agnostic high level process components. Key activities include definition of target account structures, reengineering and process improvements for settlement and value added services and synchronisation of operations with harmonised T2S settlement schedule.

“Define Solution” component translates the conceptual solution into an IT system. Key activities include impact assessment of IT and application architecture due to T2S driven business needs, identification of redundant applications and roadmap for their decommission, evaluation of build or buy options such as for example customisation of core settlement systems vis a vis leveraging T2S ready products for specific business components (as well as 20022 conversion routines), and customisation of impacted upstream and downstream systems.

“Assess and Implement Solution” component ensures the readiness and transition to the T2S adapted state and focuses on the quality assurance, migration and implementation of the T2S adapted IT system. Key activities include definition and execution of market specific scenarios for solution validation, migration strategy and planning in alignment to the ECB’s T2S migration work stream plan and post- implementation support.

Figure 5: Phases of T2S Transformation Framework

Progressive elaboration of business and IT needs ensuring smooth transition from strategy definition to solution implementation
The framework may be complemented with program accelerator toolkits such as T2S impact assessment framework, T2S adaptation checklist for ensuring readiness for T2S transformation and data migration tools and be further enriched with regular valuable inputs from industry research on cross border and domestic market settlement practices, recommendations for EU wide harmonisation and compliance to market specific legal and regulatory needs. The framework must also be in line with the principles and methodologies of organisation’s program management and change management practices.

6. Conclusion
Despite the complexity and diversified nature of challenges stemming from T2S adaptation program, the organisations should embrace T2S as an opportunity to streamline their business models and build a lean operations and IT infrastructure. In the process of meeting the challenges posed by T2S, members of the future T2S community will inevitably experience an organisational and technology transformation. The key to the successful implementation of such a complex transformation program lies in an effective adaptation strategy, granular program plan and the orchestration of efforts from the entire T2S community. To succeed in the T2S world, organisations will have to overcome the ‘Challenge of Change’.

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