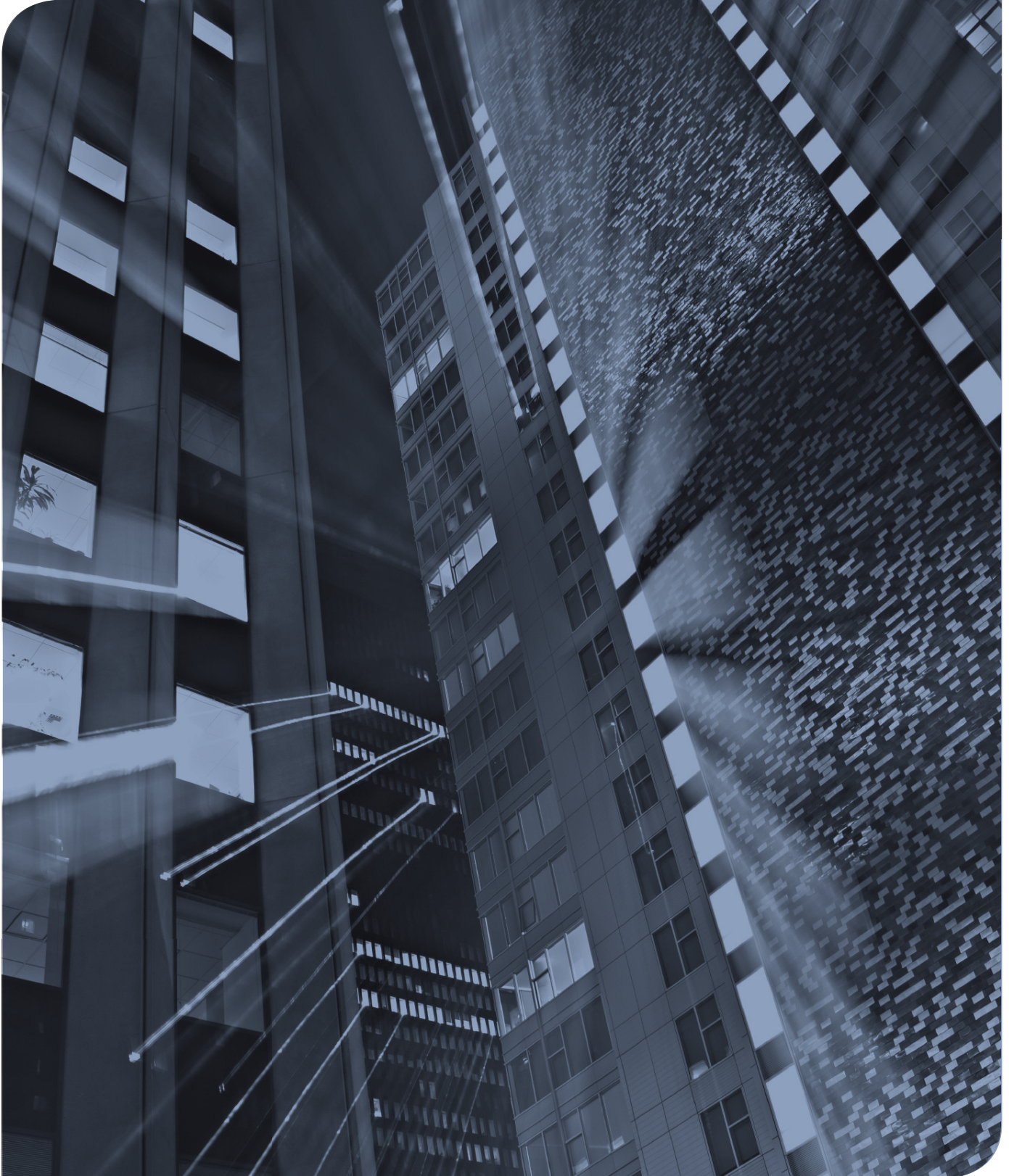


## Operations Departments: Processes and Challenges



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## Introduction

When clients instruct their broker to buy or sell equities, or bonds, or to trade in exotic financial instruments, a thought needs to be spared for the operations departments which will process the transactions. In order to illustrate issues arising in the execution of trades, and to address the realisation of best practice, this paper examines aspects of the life cycle of a trade from inception to settlement, and proposes that constant monitoring and automation are adopted.

### **As revenue centres where money is made, client-facing front offices**

benefit from constant and significant investment in electronic trading platforms, price feeds, advanced analytics, and in teams of quant specialists. Middle and back offices are, by contrast, viewed purely as cost centres where money is moved; consequently, they are challenged to keep the costs of those transactions down, whilst servicing clients whose requirements are ever-increasing in volume and complexity, from deal validation all the way through to settlement and reconciliation. For middle and back offices this work is often undertaken without the necessary investment in technology and human resources.

### **Securities markets are complex and involve the attentions of many players**

First, the market facilitators; namely brokers, dealers, investment banks, custodians, clearers, exchanges, and regulators. Then there are the market participants; the institutional investors, mutual funds, hedge funds, insurance companies, pension funds, charities, and private investors. Other participants involved include central matching services, Standing Settlement Instruction communication providers, registrars, data providers, and issuers (such as sovereign entities, government agencies and corporate institutions). If one then adds in the different places where trades are executed, namely on an Exchange (i.e. LSE or NYSE) or OTC (Over the Counter: off exchange, which trades are typically executed by phone and require manual intervention when updating prices) the scale of complexity involved can begin to be appreciated.

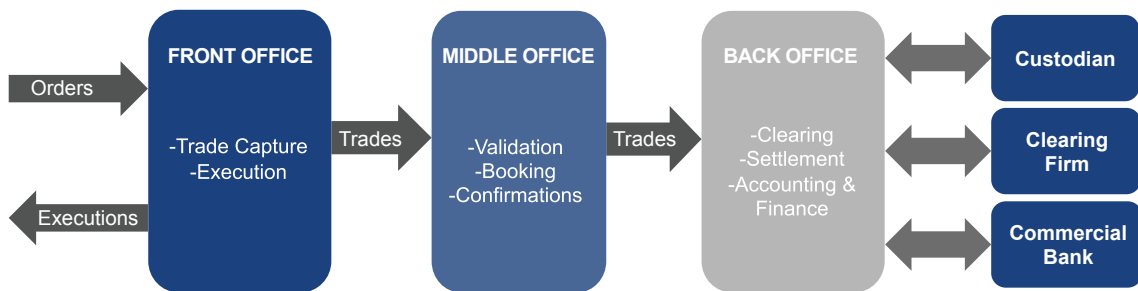
### **The challenge lies in the successful implementation of straight-through processing solutions**

In the management of each of the ecosystem relationships and dependencies; and in the ability to communicate core static data related to each trade (a 'golden record', with standard recognised protocols) efficiently, cost-effectively, and with minimum time delay – all at the lowest possible risk level. This White Paper addresses these issues, and concludes with some pertinent questions regarding best practice, in order that, in this field, the meeting of clients' needs, adherence to increasingly demanding regulatory requirements, and the promotion of company interests, can be achieved by operations departments – the engine room of any financial entity.

## Trade Life Cycle – from execution to settlement and beyond

### Online, real-time, computerised, automated trading and settlement systems

These types of systems have been around for years. As financial institutions focus their attention on their business, an industry in financial software applications has grown and thrived. Many financial institutions have embraced investments in STP by creating or engaging solutions that permit connection of each step in the life cycle of trade execution, as illustrated below.



Securities Trade Processing Flow

## Trade Capture

A major purpose of this White Paper is to raise the issue of trade pathways; is the choice of automated/ non-automated trade pathways just that, a choice, or are there more fundamental issues involved, such as accuracy, completion, risk control – and even profit and loss. The following outline details a trade life cycle, and illustrates some of the issues.

### *The path of an automated trade, incorporating best practice*

#### The trader enters the trade data at source

Creating a 'golden record', stored in a central database, available to middle and back office staff for lookup and later use in transaction reports. Anti-money laundering processes are run in the background, including 'Know Your Customer' checks, as later actions which are construed as fraudulent may have a severe impact on the trading entity.

#### Integrated systems check

Available cleared balances, buy/sell mandates, stock holdings, portfolio balancing requirements, bank account details, currency detail, and settlement instructions; and may also automatically send FIX orders to execute the trade with a designated broker. When handling block trades, or changing portfolio structures involving many parties with one share, it is vital to know the impact of the trade. Confirmations are received and matched internally automatically, indicating match, no match or mismatched items.

#### Remedial action

may be taken by the system through scripted actions, or individual operators are alerted to work on exceptions manually through comprehensive workflow routines.

#### **Records are updated in real-time**

The intelligent workflow checks settlement details, perhaps by interrogating an external SSI database (e.g.. Omgeo Alert), then sending information to the Back Office, only reporting back via alarms and reports if problems have occurred in the process.

#### **Payment instructions on behalf of the client**

Instructions are automatically formatted into MT103 messages, if connected via SWIFT, with advices to pay or receive funds sent to instruct counterparties with MT900/MT910 format messages.

#### **Incoming intra-day customer cash position reports**

MT940 may be integrated with internal ledger systems producing real-time Nostro reconciliation statements, indicating cleared funds, which may then be relayed to the front office to enable more trading with certainty of cash positions. Overnight MT950 records of counterparty account movements may be received and compared with an internal ledger to calculate and ensure that all debit and credit interest, commissions, charges, amount differences, date or reference fields are exact.

## **Automated Trade Pathway; Benefits and Reality**

#### **The real benefit of an automated trade pathway**

is the reduction in risk by having data captured once, and re-used across the life cycle, and costly error reduction by restricting duplicate inputs, as it securely traverses systems, processes, audit, recording, monitoring and management.

#### **The reality – no guarantees, certainty, or risk negation**

Not all organisations have the technical capability, budget or resources to fully automate operations, and not all are connected to SWIFT for financial messaging or Omgeo for Central Trade matching; consequently, potentially error prone staff need to be involved at multiple levels of operations.

## **Non-automated trade pathway**

#### **So what happens in firms without such technical capability, budget or resources?**

#### **The trader enters details of a trade into a daily blotter**

and manually passes a deal ticket (possibly a coloured PostIt note or even a fax), to the Middle Office, where details are re-entered manually into a trading system. Often this trading system is a spreadsheet of trades, maintained by an individual rather than a dedicated department, without the background information on client identity on a system restricted from middle office view.

#### **It is quite possible that there is no 'golden record'**

so multiple sets of data for the same transaction may exist in different places, unaudited. Also, the trade may require additional static data before validation, such as names of counterparties or specific mandate details.

#### **Instead of electronic deal instructions via FIX,**

phone calls and written instructions are still normal practice, with each step of a trade, confirmation problem and eventual agreement manually recorded.

## Confirmation and Matching

### Trade Confirmation

#### Trade Confirmation is a vital step

Required not only to ensure that the details are correct and the right trade goes through at the right price, but also to reduce the risk to the trader's P&L. Until the counterparty acknowledges the trade details the effect on the price or quantity of the trade is subject to change, impacting the trading book. Lack of a confirmation, ASAP, leaves a trader at risk to market changes.

#### Trade confirmations need to be sent to, and from, the counterparty

For matching of the details; however, in manual operations, electronic links are not standard, and details are not always input to a central matching facility, as they would be by providers such as Omgeo, TRAX, DTCC and LSE.

#### Organisations may be left blind as to the status of matched or unmatched trades

To prevent consistent loss of management control, firms will pre-select counterparties and only do business with those that can communicate and provide trade details to a central matching facility. Where both parties subscribe to matching and trade affirmation central hubs, information is fast and reliable, and proves positions without constant manual processing.

#### The longer a trade's detail remains unchecked after trade date

the greater the risk of price movement and P&L impact, as manual operations departments, without this facility, constantly find. Confirmation generation is a major client service consideration and in the fickle world of securities processing and client retention, customers very quickly switch companies to those where pro-active service and customer care are priority issues.

**Above all, timely and accurate resolution of all confirmation exception reduces trade risk.**

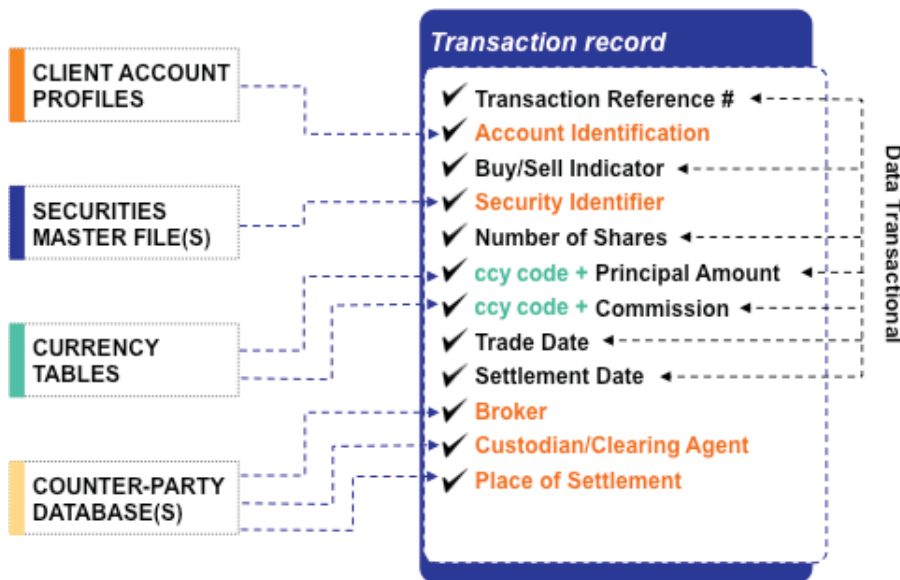
## Settlement Instructions and Trade Settlement

### Settlement Instructions communicate the movement of securities and cash to the custodian

whilst the Trade Agreement confirms the commercial details of the trade. They also indicate the location and account details for the cash and security movements. Each trade contains key pieces of information, and failure to ensure the availability, relevance, integrity and timeliness of this data can lead to immense cost issues.

#### Methods of settlement include:

Full Settlement, Partial Settlement, Securities Only, Cash Only, Cross Currency Settlement, Gross and Net Settlement; all of which, if wrongly applied, may affect Inventory Management, Cash Management, Settlement Risk, Cost Management – and, an often forgotten issue, the firm's reputation.



## Reconciliations – Where is the Cash?

When a trade has reached the stage of its life cycle where reconciliations must be performed, historically practice has been that spreadsheets and highlighter pens have dominated Back Office reconciliation departments.

From a cash management perspective, as cash statements arrive from correspondents (possibly foreign) indicating their understanding of account movements, comparison must be made with internal ledgers to identify any inconsistencies. This is just the first stage. Reconciliation is a challenging process.

### Reconciliation: Issues to consider

#### Low auto-match rates

The increase in data elements result in a decrease in auto match rates, so constant parameter review is needed to ensure improved match rates. Managing the gaps and exceptions in this process could escalate back-office costs.

#### Long exceptions turnaround time

Firms that do not rely on exception management solutions often depend on managers looking at multiple screens to determine whether a transaction was completed correctly or not.

#### Internal communications breakdown

Often the delay in turnaround time to manage exceptions lies in internal communications breakdown. Ultimately, automation in the hands of business users will potentially reduce Back Office headcount or allow for redeployment of personnel, which will have a beneficial impact on the bottom line.

#### Nostro Reconciliation Systems

In the same way that a securities reconciliation system checks the fields of messages, Nostro Reconciliation systems check for debit or credit, amount, value date and content of identified reference fields for each transaction.

### **The key to consistently accurate reconciliations is an automated process**

where, for example, an inbound MT950 Nostro statement is received, checked against the internal ledger, and a report of match, no-match and mismatched items is produced, with a workflow to alert the clerk as to which items to follow-up, or within tolerance and permission levels to manually match.

### **Defining parameters**

By applying tolerances and parameters to amounts (i.e. less than £5 difference per item, which is then posted to a suspense account for later clearance), or transposition of characters in reference fields (to pick up misspellings, spaces or specific characters in a certain position) automated matching may be performed in background, so that clerks work on an exception basis only.

### **Date differences**

Greater benefit comes in dealing with date differences, where by maintaining interest rates and commission information for each counterparty, it is possible to automatically calculate debit and credit interest. This is the amount it will cost NOT to reconcile that day, so from a prudent cash management perspective where a large amount is calculated in one party's favour, the query should be raised as soon as possible.

### **Automated query messages**

Communicating with the counterparty on queries may also be handled automatically, through SWIFT MT995 automated query messages, with incoming replies to queries initiating further matching, so that again, manual effort is kept to a minimum, and true departmental staffing cost efficiencies may be gained.

### **Cleared funds position**

Knowing their cleared funds position is vital to the traders, and intra-day automated reconciliation and follow-up provides the technical and business advantage that manual operations cannot provide.

## **Data Inconsistency and Process Inefficiency**

This White Paper has illustrated that the life cycle of a trade is more likely to initialise and then reach a successful conclusion if automated processes are used; there is too wide a field for error in manual processing. However, that does not mean that integrated automation is not without problems.

### **The challenges of fully automated processing**

In reality the move towards fully automated processing poses great challenges.

### **Changes in regulation, registration and market practice**

have led firms to buy rather than build complex applications, and where Tier 1 banks run large transaction processing environments in-house, with their own development, testing and release management, smaller companies may elect to buy integrated multi-modular applications, with a variety of delivery methods, (i.e. Client server or ASP).

### **Complexity of instruments with little standardisation**

The reconciliation of derivative products is substantially more complex than traditional investment vehicles, with little or no standardisation from deal to deal. Global OTC derivatives include interest rate contracts, foreign exchange contracts, credit derivatives, equity contracts, and commodity contracts, which include forwards and swaps. Processing these complex derivatives also mean having to process data relating to varying lock ups, notice periods and settlement schedules. Such 'non-vanilla' transactions (e.g. futures and options) require a greater number of sequential, nonstandard communications among multiple parties, thereby increasing the opportunity for errors and raising to potential risk.

### Multiple counterparties with multiple data formats

Sharing of data between counterparties is subject to a myriad of challenges due to the lack of standardisation in data formats; there are no industry standards for this purpose. Unique/proprietary security identifiers are the norm; consequently, there is not a common security identifier. Inconsistent reference data is an ongoing industry-wide problem that leads to time-consuming trade breaks and results in millions of dollars of unnecessary annual expenditure.

*However, whilst automation has its difficulties, manual intervention encompasses a much greater risk probability*

### Manual intervention – fraught with errors

Manual processes of collecting and entering the data cause not only a backlog in processing, but also are error-prone and full of risk. Research has shown that 90% of audited spreadsheets contain errors. Often, there is a lack of audit, which adds to the likelihood of increasing and compounding errors.

Again, without automated systems to detect and resolve failures as quickly as possible, clients may be disadvantaged due to non-use of funds, risk of financial losses increased and potentially the inability to respond to corporate actions leading to material losses.

### Cost of errors

50% of buy-side firms think that it is someone else's job to provide an STP/T+1 environment; it needs to be noted that:

- 59% of instructions need repair and query, costing £4 average for each repair
- 10% of transactions result in mismatches, costing £10 per mismatch
- 15-20% of transactions fail to settle on time, with common indications of £35+ cost of each settlement failure, not including human resource time and possible query.

(Figures: Reuters)

## How do operations departments handle these challenges?

### Managing Failures

Despite best intentions, automation, audit and control, trades can fail.

Settlement failure affects both sides of a trade, in that it renders both parties unable to fulfill a number of activities, e.g.:

- Use the cash to fund other security purchases.
- Lend on money markets and earn credit interest on cash.
- Pay off existing overdraft/debt.
- Use securities required for onward delivery, causing a break in the chain.
- Cope with market movement causing a change in securities value (mark to market)

### Late trade settlement fines

There is a growing issue of regulatory impact, where in some markets fines are imposed for late trade settlement. The best example is in the UK, where fines are imposed by CREST for a member's failure to achieve pre-defined settlement targets.

## Areas to Address with Operations Managers:

### Some initial areas for investigation

#### Settlement Instructions

- Quantity of securities received or delivered?
- Net settlement value paid or received?
- Who is sending us securities?
- Who do we pay or who is paying us?
- To whom and where are the securities being delivered?
- On which date to carry out these instructions?
- How are we instructing settlement?
  - Euroclear, DTCC, CREST, S.W.I.F.T., Clearstream, Agent Banks, Custodians or by Proprietary Messaging
  - Which is prime, do we need so many and if so, at what cost?
- Does the seller hold the securities at the correct custodian?
- Will securities settle at more than one location?
- Is there enough cash to make payment?
- Does the buyer aggregate balances over a number of accounts?
- Is there a credit agreement to cover cash shortfall when buying stock?
- Is there a collateral agreement to offset any non-return of funds?

#### Reconciliation

- How quickly can we pass balances and positions to front office?
- Is Nostro a revenue centre?
- Can we speed up identification of reclaim of interest to settle faster?
- How many items are incorrectly recorded?
- How much does this counterparty cost us by providing incorrect information?
- Can we find a cheaper counterparty – less error prone?
- How much operator time to repair mismatched items?
- How quickly do we resolve interest claims through date differences?
- Can we agree references to get better matches?
- Can we redeploy Nostro staff to other functions?

## Conclusions

### The Management perspective

Understanding, harnessing and exploiting the key business drivers in Operations, dictate that collaborative effort needs to be applied from CEO level to junior for common advantage.

There are significant challenges in the provision of excellent customer service. These range from integrating complex arrays of built and bought applications, striving for cost-effective global communications, monitoring risk and productive use of funds, upholding compliance and dealing with regulatory pressures.

Whilst the CEO goal is fundamentally different from the COO or CIO, it is vital that the operations department mechanics and importance of delivery is a common management theme, which are visible, communicated and managed.

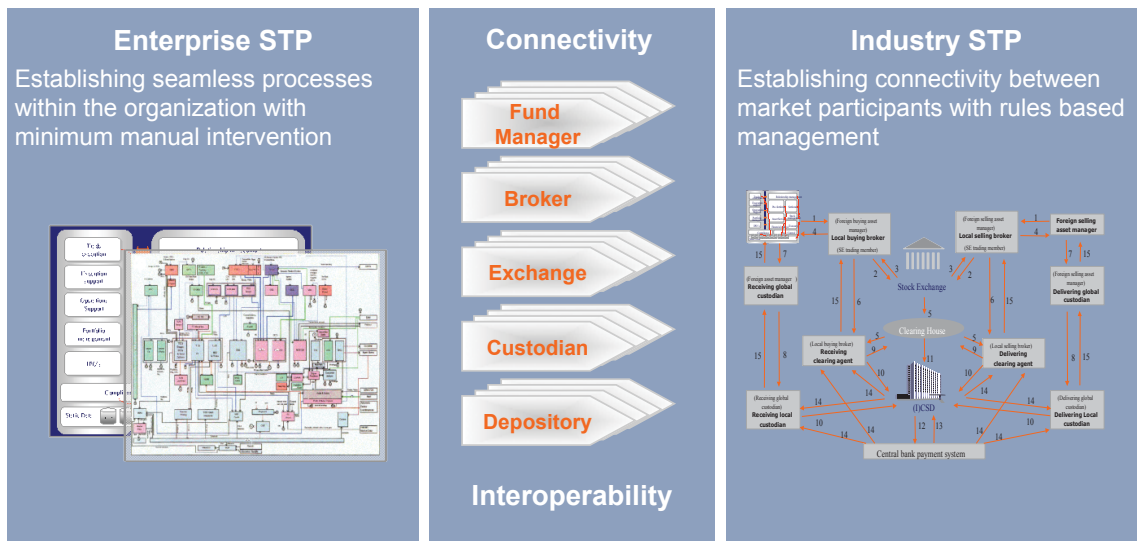
As the engine room of the organisation, the better Operations Departments run, the more solid the foundation to deliver increased trading volumes, higher incidence of settled trades and faster cash delivery; and, for the CEO, providing least-cost exceptional customer service and retention.

### The reality

Operations departments exhibit a heady mix of manual processes, inefficient resource usage, complex processes, multiple instruments, spreadsheets, demanding counterparties, diverse currencies, numerous settlement agents and methods, disconnected mission critical systems, legacy applications etc., all dependent on isolated knowledge bases, with high cost and even higher risk.

### The Vision

A seamless electronic process encompassing the entire life of a trade, end-to-end from execution to settlement and reconciliation across the whole financial markets value chain is a perfect scenario.



### Realisation:

- Objectives
  - Maximise internal efficiency, reduced processing cost and time
  - Reduce Operational Risk (avoid errors)
  - Improve and maintain customer service
  - Scalability of volume and same-day (T+0) settlement
- All processing based on exception handling
- Reduce Settlement Cycles
- Increase use of central Counterparties
- Increase use of 'Golden Record' static data increases trade STP
- Improve funding and active management of cash and collateral.

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