



Intraday Liquidity Reporting Solutions



SWIFT Intraday Liquidity Reporting

— Solutions overview

In April 2013, the Basel Committee on Banking Supervision (BCBS) published a set of monitoring tools which focus on intraday liquidity monitoring and reporting. The BCBS Intraday Liquidity Monitoring Tools require all internationally active banks to start reporting on a number of key metrics that will depend from the scope of their business activity. Dependent upon the jurisdictions, reporting requirements must be implemented between January 2015 and January 2017.

To comply with the requirements defined by both their home and host regulators, banks will have to capture data on their entities' intraday liquidity flows from all their Nostro and Custodian correspondents and from the High Value Payments Systems (HVPS) to which they are connected.

In order to streamline the data collection process for the financial community, SWIFT has been working together with the Liquidity Implementation Task Force (LITF) to develop global market practice guidelines for intraday liquidity reporting messaging. These guidelines have been endorsed by the Payment Market Practice Group^{1 2}.

An end-to-end solution has also been developed to support banks at an individual level with their BCBS 248 project during the evaluation and the implementation phases.

The solution relies on a pragmatic four step approach that SWIFT can fully support:

- **Step 1 - Data sourcing:** using SWIFT Watch Analytics
- **Step 2 - Data assessment:** using BI Consulting services
- **Step 3 - Data collection and centralisation:** using FINInform
- **Step 4 - Data repository, intraday liquidity monitoring and reporting dashboards:** using SWIFT Scope for Intraday Liquidity Reporting

All four steps are performed in line with the global guidelines from the LITF and other best practices already defined at the level of the SWIFT Community.

The solution is also fully modular and tailored to each banks' requirements. It can be leveraged in full or in a modular fashion dependent upon the bank's requirements.

The SWIFT Scope for Intraday Liquidity Reporting solution is implemented at customer's premises. It provides accurate data sourcing in near real-time as data is captured as soon as the intraday liquidity reporting messages are received and/or sent by the bank. This enables the bank to be equipped with a local solution for liquidity monitoring and retrospective reporting.

The SWIFT Scope solution is very adaptable taking into account the specific requirements for the bank, including its:

- existing messaging infrastructure
- existing liquidity data formats and data flows including non-SWIFT related data
- requirements besides the regulatory reporting such as an internal management reporting, specific stress tests or additional analytics developed on a bespoke basis
- longer-term strategic objectives such as the implementation of real-time liquidity management or reconciliation

1. The PMPG provides a truly global forum to drive better market practices which, together with the correct use of standards, will help in achieving full STP and improved customer service. More information can be found on the page [PMPG mission](#).

2. Global Market Practice Guidelines for Intraday Liquidity Reporting Messaging can be found on [swift.com](#).

Step 1 - Data sourcing

The first priority for any bank is to understand its own liquidity flows at global entity and currency levels and to assess its current intraday liquidity reporting coverage.

The BCBS 248 monitoring tools require market transactions data with a settlement time stamp. SWIFT FIN messages received from correspondent banks and other banking providers are a logical source of such data, since in international markets SWIFT is the predominant messaging channel for both cash instructions and for settlement confirmations, including for securities transactions.

The concept of an intraday liquidity dashboard sourced with data from FIN messages will rely on a short set of messages. The same messages will be used to produce and monitor regulatory metrics such as the peaks and troughs in intraday liquidity usage (see figure 1).

With SWIFT Watch Value Analytics banks can develop analytics on their intraday liquidity flows.

These analytics provide different aggregated monthly views in terms of value and volume, and enable the user to identify data gaps at currency, country or correspondent level. These metrics are tailored to the bank's specific activity (see figure 2).

This phase helps define the scope of the project and identify the key gaps and priorities for the next steps of the project.

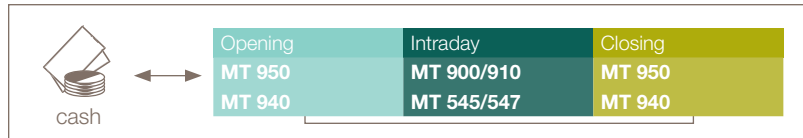
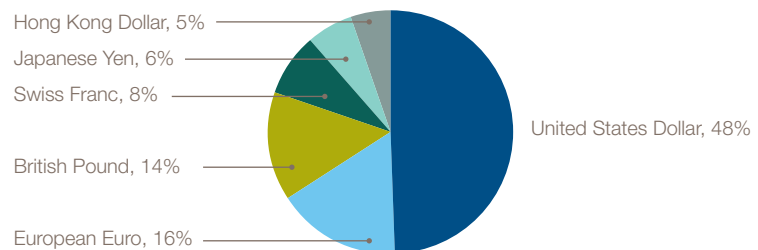


Figure 1 - Source: SWIFT Watch - (desensitised data)

Bank A payments by currency

Value of correspondent banking payments sent (Quarter 1, 2014)



Bank A Intraday reporting coverage

Value of correspondent banking payments sent covered with credit or debit confirmation, top currencies

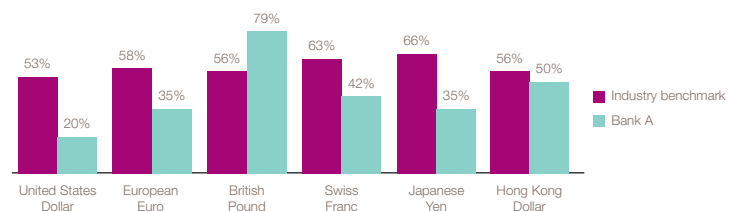


Figure 2 - Source: SWIFT Watch - (desensitised data)

Step 2 - Data assessment

Based on the results of this analysis SWIFT consultants will run an on-site detailed data assessment of a number of large and representative Nostro, Custodian and High Value Payments Systems accounts of the bank.

They will look at information at the transactional level and build the intraday liquidity usage curve for each of the selected accounts by re-using the liquidity dashboard concept explained in section 1.2 and calculate the bank's intraday position based on the confirmation messages received. The output of this assessment is a detailed report and dashboard by correspondent or large value payment system, documenting the issues related to intraday reporting and their importance. The report also identifies the root causes such as the types of transactions not reported on an intraday basis, missing data from the reporting, or data not yet integrated internally (see figure 3).

The detailed report from the SWIFT consultants will list the specific internal or external improvements necessary in order to reach a better intraday reporting coverage or to meet the regulatory reporting requirements. This includes a summary of issues (duplicate reporting, wrong references being used), a consolidated analysis of your correspondents' reporting with a concrete list of actions, and a best practice benchmarking overview (see figure 4).

In addition the data assessment will also cover the requirements related to regulatory metrics such as time specific obligations, positions of available eligible collateral or on any other unencumbered assets.

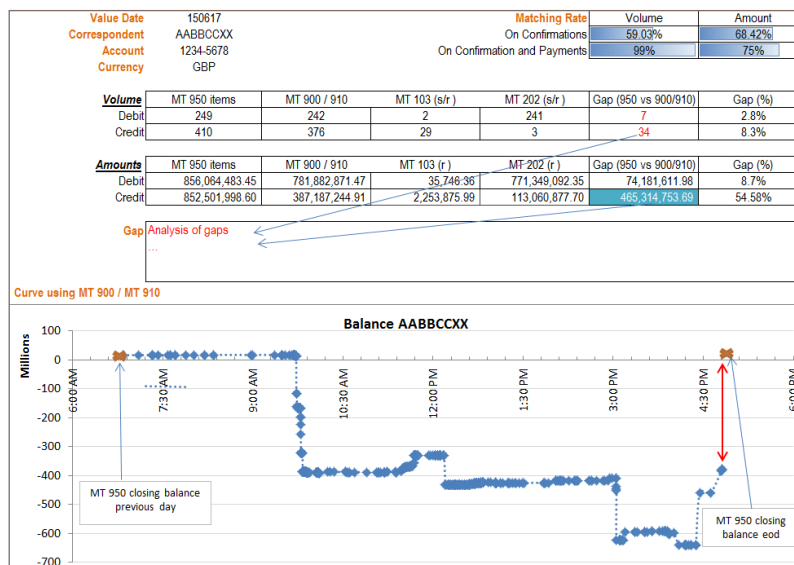


Figure 3 - Data assessment - liquidity usage curve

Best Practice	Bank1	Bank2	Your Bank
BP 1 - Reporting function and scope	→	↘	↗
BP 2 - Message usage	↗	↗	↓
BP 3 - Timeliness of the reporting	↓	↓	→
BP 4 - Finality of reporting	↘	→	→
BP 5 - Balance information	→	→	↗
BP 6 - Transaction time stamping information	↗	↗	↗
BP 7 - Mapping of the related reference	↓	→	↗
BP 8 - Information on parties	↗	↑	→
BP 9 - Account information	↓	↑	→

Figure 4

The assessment will provide a clear view of the level of customization required for the implementation of the end-to-end solution. Conclusions will also support discussions with correspondents to improve the quality of the reporting.

As these are established by a neutral party they can also support potential individual reviews with the regulators.

Step 3 - Data centralisation

Many larger institutions have not yet centralised the management of their Nostro accounts. Legal entities around the world may also use different messaging interfaces to receive their intraday confirmations. Not all treasury systems have been integrated across currencies and the internal clearing entities do not always provide the timed information required for reporting at central level.

All these issues can result in a large share of the group's intraday liquidity flows not being visible at the central headquarters level, which prevents the bank from building its BCBS report related to the Nostro flows.

FINInform, a feature of SWIFT's store-and-forward messaging service 'FIN', is a cost-effective alternative to an internal integration. With this service SWIFT sends a real-time copy of the intraday reporting messages received by the different entities from their different correspondents, to the Group Treasury BIC without any impact on their operations or on their counterparties (see figure 5).

The bank will have full flexibility on the filters that will activate the copy function. As an example the copy mechanism could be triggered based on message types and/or on specific currencies and on sending and/or receiving BICs.

And finally in order to be compliant with data privacy restrictions in specific jurisdictions one can filter out data that cannot be copied from a regulatory perspective.

FINInform can also be used for reporting as a direct participant

As a direct participant to various High Value Payments Systems (HVPS), many treasurers have typically been using the treasury workstation from the HVPS to monitor their position. A number of HVPS also don't provide any debit and credit confirmations.

BCBS reporting will require these banks to receive settlement confirmations messages, match these with the original payments transactions and automatically update the account position in an intraday liquidity dashboard.

FINInform can also be used as an alternative to an internal project for all High Value Payments Systems connected to SWIFT.

In that case the BIC of the Treasury department will receive a copy of the original payment instruction as soon as the RTGS system confirms the settlement to SWIFT and the payment is released to the counterparty. Only settled transactions will be copied.

An easy-to-use UTC time-stamp is added to the copy message (MT096) in which the payment message is wrapped (see figure 6).

FINInform will therefore eliminate the need for matching between the outgoing payment and the incoming settlement confirmation message.

Time to production is much shorter than an internal integration implementation timeline as the service set-up is done by SWIFT in only 3 to 6 weeks across all the different High Value Payments Systems to which the bank is connected. The impact on the bank's internal operations and resources will also be very limited as SWIFT can take care of the integration of this copy message as part of a SWIFT Scope implementation or as a stand-alone deliverable.

Finally the FINInform cost is also very limited. Apart from a one-time set-up fee, the messaging copy cost will decrease based on the daily number of copies and will be covered by the fixed fee where applicable.

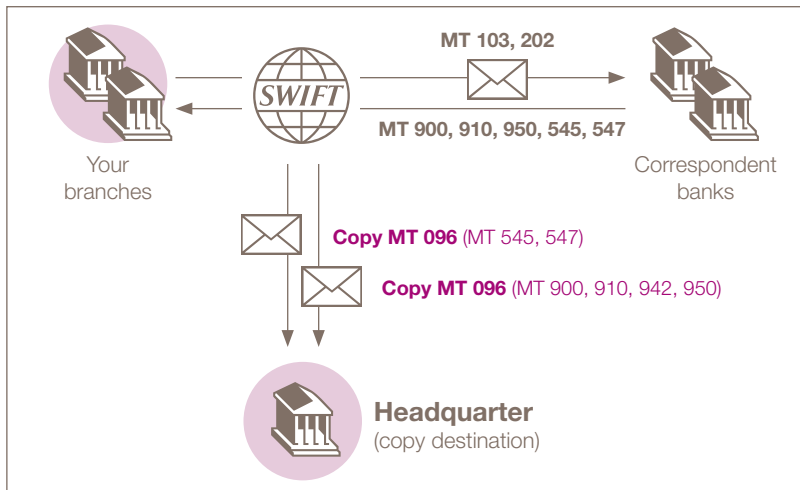


Figure 5

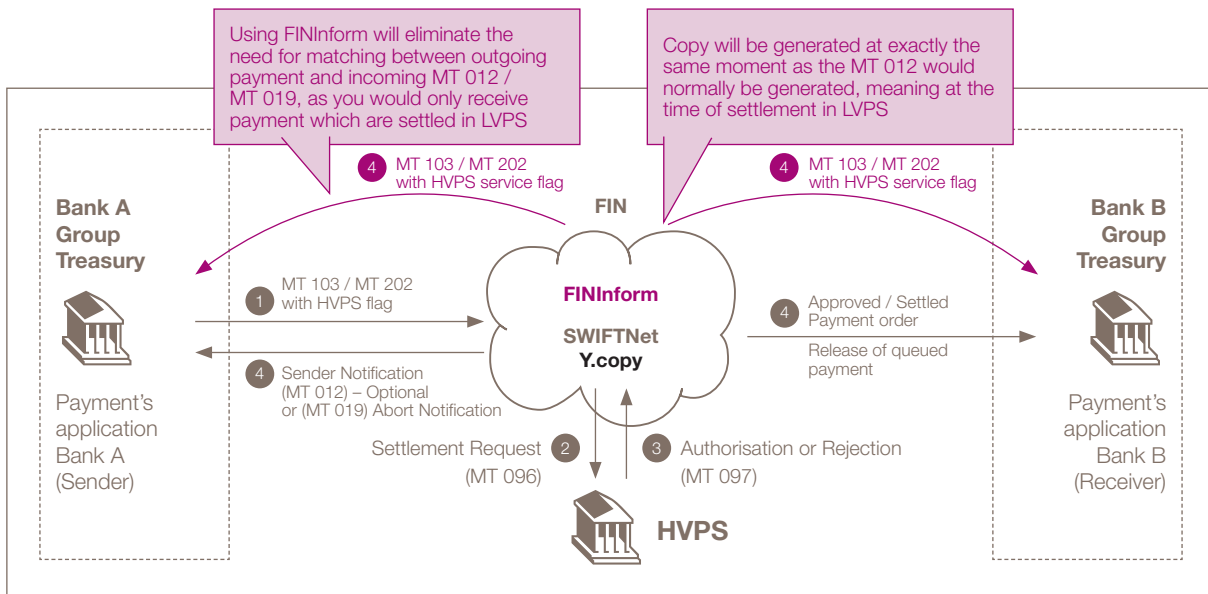


Figure 6

Step 4 - Data repository, intraday liquidity monitoring and reporting dashboards development

SWIFT Scope for Intraday Liquidity Reporting is an on-premises solution that provides an end-to-end implementation of the BCBS 248 metrics and intraday liquidity monitoring tools.

It covers the:

- > integration services including SWIFT messages parsing, data storage and the development of an enhanced data model
- > development of intraday liquidity position monitoring dashboards
- > development of intraday monitoring dashboards for BCBS 248 metrics
- > development of additional bespoke dashboards for stress testing or in support of internal reporting and business intelligence requirements

SWIFT consultants can perform an end-to-end implementation. Implementation is also fully modular and can potentially be implemented partially by the bank dependent upon its current messaging infrastructure, its back office applications as well as upon its internal resources and expertise.

Figure 7 provides a high level overview of the end-to-end SWIFT Scope for Intraday Liquidity Reporting solution.

The proposed technical architecture of the SWIFT Scope for Intraday Liquidity Reporting solution is aimed at re-using the bank's existing SWIFT infrastructure (Alliance Access).

Apart from this, a very limited number of additional components will be required:

- Database & database server
- Hardware for the business intelligence reporting tool

For more information please refer to the [SWIFT Scope technical factsheet](#).

Recommendations on system requirements will be provided by SWIFT consultants on a project by project basis.

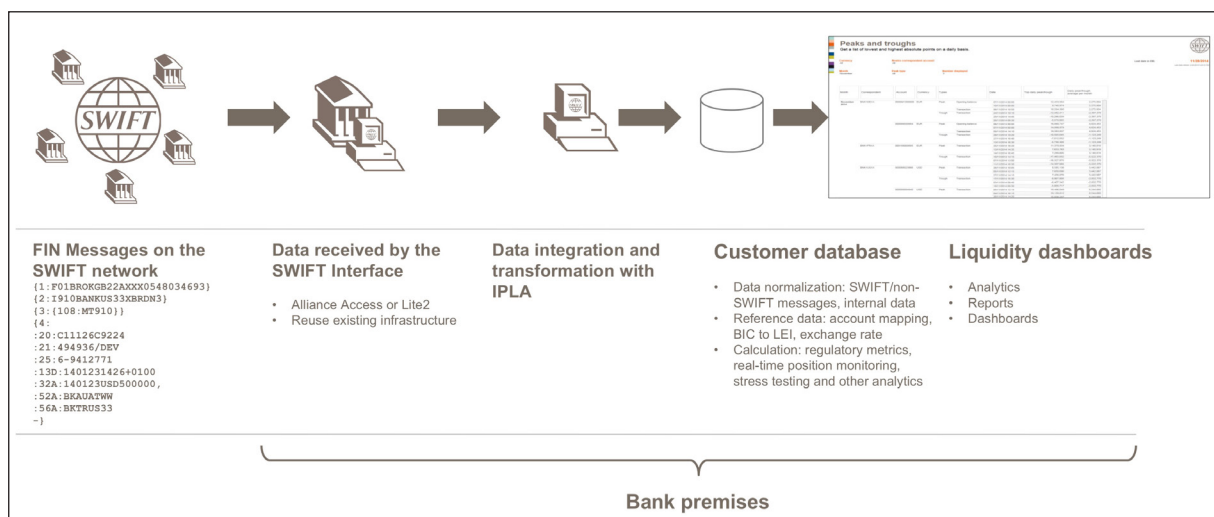


Figure 7 – SWIFT Scope for Intraday Liquidity Reporting solution

Data integration

Data integration services includes the extraction, parsing and storage of FIN messages potentially including those captured through FINInform into a database using SWIFT's middleware layer and the creation of a full enhanced data model including data normalization and the creation of reference data.

Parsing of the messages

SWIFT consultants will implement a parsing solution for all SWIFT message types. The bank's current SWIFT messaging platform Alliance Access or Alliance Lite 2 will be leveraged and its integration platform will be used. Information on SWIFT interface and integration layer server can be found in SWIFT Scope technical factsheet.

SWIFT integration consultants will:

- validate the functional and technical requirements for the parser that will retrieve the messaging data
- document the requirements
- develop and implement the parser
- test the integration platform the parser

Data storage

SWIFT consultants will develop and implement a data storage model. Data will typically include parsed data from SWIFT messages as well as data from internal applications such as collateral management application. If necessary, data could also be fed from other messaging channels.

The bank will need to provide a database, preferably installed on a separate server and will need to check whether an existing license for the database server can be leveraged.

The work done by the SWIFT consultant will include:

- requirements collection from analysis, reporting, technical and security perspective
- updating the routing on the SWIFT messaging infrastructure to ensure that messages are routed to the database
- set-up of the database structure
- set-up of the routing of messages from the SWIFT Messaging infrastructure to this database (and exporting rules)
- testing of the database

After the implementation the database will be managed and maintained by the bank.

Enhanced data model

The SWIFT Scope for Intraday Liquidity Reporting solution has a flexible data model to support the implementation of the BCBS 248 metrics and the monitoring of a bank's liquidity positions in close to real-time.

This flexible model can be adapted to:

- comply with the specific reporting requirements published by National regulators to which the bank will need to report
- include specific bank's data flows or data formats
- support the development of specific stress testing
- support internal reporting dashboards

During the implementation phase, SWIFT consultants will also normalize and enrich data retrieved from the message through the development of mapping tables. This will ensure that data can be represented in a usable format for intraday liquidity monitoring and reporting for the key pre-defined attributes such as the accounts, the correspondents or the High Value Payments Systems.

The data format originating from the messaging might be adjusted to provide consistency across the analysis.

To this end SWIFT consultants will:

- validate received intraday and end of day reporting messages (including non-SWIFT messages and data fed from internal systems)
- establish normalization rules based on the data assessment to ensure data quality in the database
- build reference tables to support normalization rules and data enrichment (e.g. mapping safe keeping account identifiers with cash account identifiers)

The data model will be further enhanced with additional reference data aiming to support the data aggregation as required by the regulator (e.g. mapping BIC to LEI, sourcing correct exchange rate, etc.).

The enhanced data model will be tested end-to-end and documented by SWIFT consultants and shared with the customer.

Production of liquidity dashboards

SWIFT Scope for Intraday Liquidity Reporting includes:

- generation of all metrics and dashboards
- data access and permissions controls
- built-in user systems for user authentication and group membership definitions

All dashboards and metrics are accessible via Web browser and can also be accessed using tablets.

The development includes:

- the metrics calculation in support of the different selection criteria and data aggregation required by the regulators to which the bank needs to report and as defined by the bank for additional internal reporting, analysis or monitoring purposes
- the metrics visualisation
- data aggregation

Liquidity Reporting Dashboards

SWIFT Scope for Intraday Liquidity Reporting provides a dashboard by regulatory metric for all seven metrics defined by BCBS 248 and in accordance to the specific National regulatory requirements (figure 8).

The bank will have a number of interactive selection criteria it can choose from, to visualise the resulting metric value and potential related graphic or data.

Data calculation will be updated on a daily basis to enable the bank to track the evolution of the metrics in the course of the month, potentially search for route causes and take some corrective actions.

Export functionality of the calculated metrics in csv format is provided off the shelf. Other formats could also be provided on demand. This will enable the bank to further prepare its reporting to the regulatory authorities.

Dashboards can be tailored in line with the bank's requirements. They will be tested by the SWIFT consultants together with the bank.

Live and Historical Liquidity Monitoring Dashboards

Live intraday liquidity dashboards will also be provided to enable the bank to monitor its positions in near real-time since the reception of the last end of day statement of account.

The following default dashboards will be delivered:

- Liquidity usage by correspondent
- Liquidity usage by currency
- Liquidity usage by account

Additional dashboards (for example grouping by legal entity) can be provided on-demand.

Standard refresh set-up for Live Monitoring dashboards is 15-minute intervals. Another interval can be implemented, if required.

Dashboards can be tailored in line with the banks requirements. They will be tested by the SWIFT consultants together with the bank.

Stress Testing Dashboards

BCBS 248 provides four main scenarios for stress testing purposes. Banks can leverage the available data and calibrate the metrics relevant to them.

SWIFT can also provide on demand additional dashboards to enable the bank to automate some stress test scenarios such as counterparty stress testing scenarios based on the intraday data collected in the database.

Identification of non-confirmed transactions

Upon receipt of the end of day statement all reported intraday transactions will be matched with the transactions reported on the end of day statement.

Identified non confirmed transactions are being stored on a separate dashboard that provides further details on these transactions and will enable the bank to identify potential remaining intraday reporting issues for specific transactions and correspondents and agree on corrective actions. This can also serve as a basis for a potential review by the regulatory authority.

Data on demand

SWIFT Scope for Intraday Liquidity Reporting will also provide an advanced automated search tool for transactional details. When using a monitoring dashboard, banks will be able to point to and access to the transactional database in which more information will be provided.

Applicability	Monitoring tools
All reporting banks	<ol style="list-style-type: none"> 1. Daily maximum intraday liquidity usage 2. Available intraday liquidity at start of business day 3. Total payments 4. Time-specific obligations
Banks providing correspondent banking services	<ol style="list-style-type: none"> 5. Value of payments made on behalf of correspondent banking customers 6. Intraday credit lines extended to customers
Direct participants	<ol style="list-style-type: none"> 7. Intraday throughput

▲ Figure 8

SWIFT project management methodology

The key success factor for any implementation project is a close collaboration between SWIFT's project manager, delivery consultants and the bank's project team.

Project management

The implementation will be launched with a kick-off meeting during which the following matters will be clarified:

- detailed project scoping validation
- appointment of a project implementation team on the bank's side
- establishing an implementation timeline and road map, including all steps of the implementation
- intermediary reporting during the implementation to the appointed bank's project manager/ team

Implementation cycle will include the following main steps as illustrated in figure 9.

A full implementation plan of SWIFT Scope for Intraday Liquidity Reporting will be provided by the SWIFT project team. Figure 10 provides an example of a typical implementation plan.

Operational support

Operational support after the delivery of the solution will be provided to respond to questions and help the bank's team to resolve any potential issues. More information on the operational support package can be found in the SWIFT Scope technical factsheet.

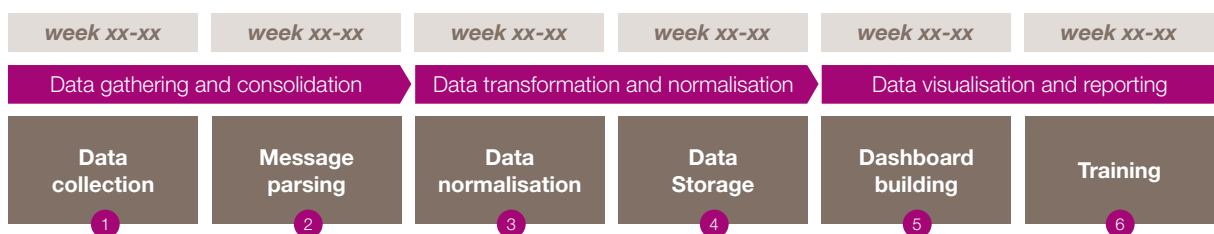
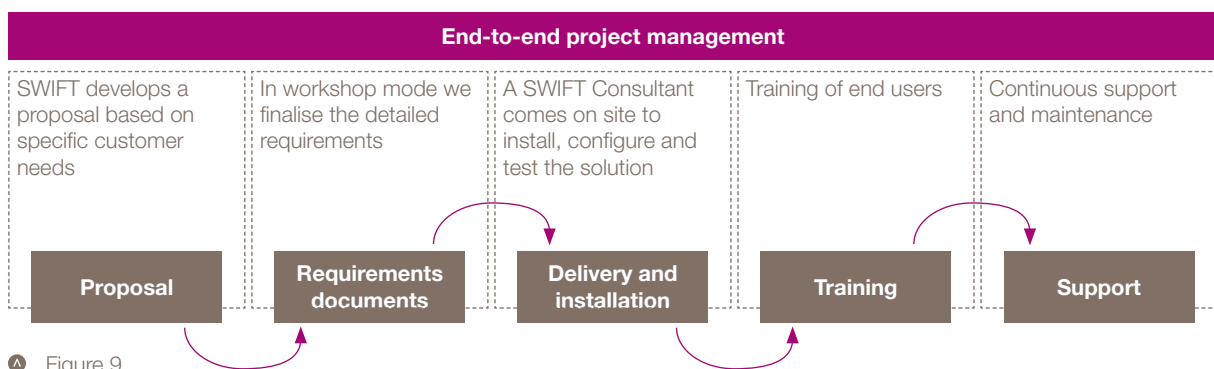
On-boarding of business users, training

SWIFT consultants will also take care of the business users on-boarding, training them to enable them to read the reports and manipulate the tool.

A user guide will also be provided.

Maintenance and software lifecycle process

More information on the maintenance and software lifecycle process can be found in the SWIFT Scope technical factsheet.





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