Frictionless payments journeys in Switzerland

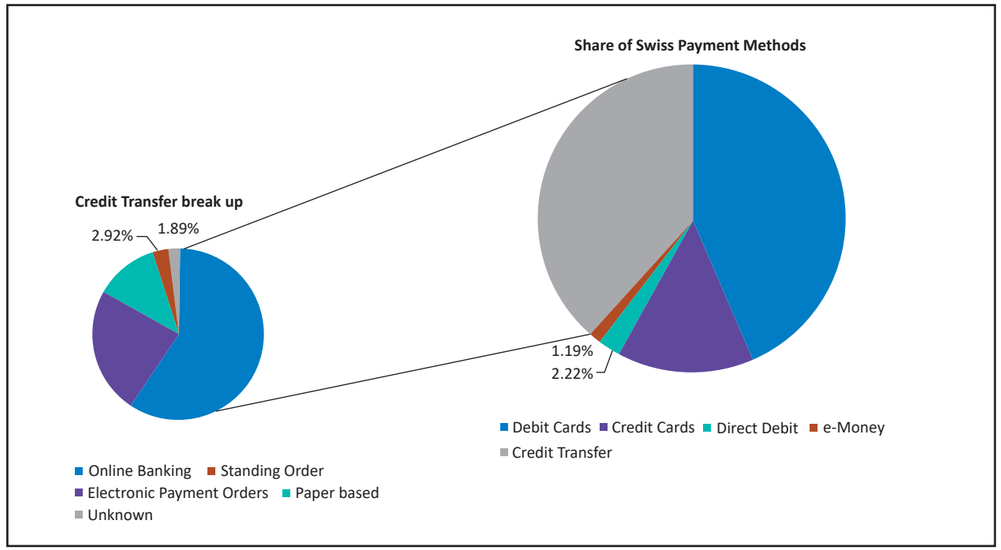
SWISS PAYMENT PROCESSING – EVOLUTION TO FRICTIONLESS PAYMENT JOURNEYS

Some history and background

The Swiss domestic payments ecosystem is dominated by two large players, SIX and PostFinance, and they each process payments differently. The last seven years have witnessed many evolutions in the domestic payments ecosystem in Switzerland – migrating legacy formats in payment initiation and interbank processing, ISO 20022, unifying domestic payment clearing in SIC RTGS (Real-Time Gross Settlement), interoperability with SEPA CT (Credit Transfer), and SEPA DT (Debit Transfer).

On top of these evolutions, legacy payments slips have been decommissioned and replaced by the new QR-Code slip, the so-called QR-Bill providing depth of payment based on ISO 20022 elements.

ISO 20022 standards have set up the base for frictionless payment processing across the country, which adds up to more than 3 BN per year, making Switzerland a leading player in the adoption of ISO 20022 based payments.



1) ISO format changes in the Swiss market

Challenge

SIX opted to support one version of the ISO 20022 message format in interbank message exchanges to help streamline domestic interbank processing.

The challenge for banks is to support previous and actual versions of ISO 20022 towards their customers for payment initiation (pain.xxx) as well account statements (camt.xxx) for both production as well as customer test environments. The response (pain.002) to customer credit or debit order initiation (pain.001/pain.008) needs to have the same version and related mapping. Also, large corporate customers with different applications for payment initiation or consumption of account statements need a period of coexistence of both formats to migrate all their systems to the new ISO version.

Resolution in TCS BaNCS

TCS BaNCS for Payments supports mappings to the corresponding standard release formats of supported schemes, e.g., SIC, SEPA, CBPR+. The interface layer maps the ISO message content to the product's internal processing model, decoupling the message content from the processing layer while supporting multiple ISO versions.

Previous formats of business functions are still available, and new capabilities target ISO versions implemented as per market standards or according to a bank's need.

For customer account statements, both previous and current versions of statements are created, and this co-existence will be supported until the migration to the new ISO version is completed. The supported and delivered account statement versions can be managed in the delivery instructions from the customer.

2) Swiss e-Bills

e-Bill is a SIX initiative that digitizes paper invoices. Billers can select from 18 providers to acquire their eBills, with eBill processing centralized in Paynet/eBill.ch. 2.7 MN payers presently use e-Bills, with 95% of banks in Switzerland supporting 400 MN of e-Bills efficiently processed in a year, with no reported fraud.

SIX and the Swiss banks are in discussions regarding a pilot in 2024 to transform Swiss domestic Direct Debit to eBills with mandate management and recall request by payers as a further evolution to streamline domestic processing.

eBill integration

Challenge

The existing eBill payers, once migrated to the new platform, receive new eBill participant identification. The next step is for the participating bank to map this eBill participant identification to the eBanking user ID of the payer. In the eBanking session, the customer can directly inquire about, approve, or reject the eBill. Within five seconds, the

approved eBill is visible as a pending payment order.

Paynet/eBill.ch acts as the initiating party and creates a payment order (pain.001) with dedicated mapping to payer bank. The bank needs to validate the payment and eBill participant identification to debtor account.

Resolution in TCS BaNCS

The existing order management for pain.001 based orders required the following enhancements, provided by TCS BaNCS:

- eBill payment order (pain.001) mapping used by the payment-initiating party Paynet/eBill.ch
- Additional validation of payer eBill participation, which requires integration of additional master data on debtor account.
- Streamlined and enhanced existing payment orders for express processing to provide turnaround time of five seconds for acquisition/validation, and additional notification on execution.
- Performance scaling to scope with the high volume of eBills.

3) Payment slip evolution to QR-Bill

As of September 2022, PostFinance, as owner of Swiss payment slips, in cooperation with SIX, mandated the switch from legacy payment slips to QR-Bills and their integration in e-Bills. The mandate was a bid to improve STP processing and improve references and acquisition usability with easy and error-free scanning that addresses the need for compliance like details of payer, beneficiary, ultimate debtor/creditor, structured address, and ISO 20022-based mapping.

The new QR-Bill is now the only domestic payment slip with structured and unstructured remittance information (EU compatible SCOR and domestic QRR) used in Switzerland. It simplifies payments acquisition and processing while also reducing errors.

QR-Bill (payment slips)

Challenge

The legacy payment slips (IS = payment with no structured remittance for beneficiary with bank or postal accounts/ISR = payment with structured remittance) and related domestic message formats and processes were decommissioned with QR-Bill, the QR code-based slip.

QR-Bill content is ISO 20022 based, supporting remittance with structured and unstructured references. To scope with the existing structured reference to domestic ISR (red and orange payment slips), the same semantic was taken forward as QRR (QR reference) in the new QR-Bill. For interoperability reasons with SEPA payments, the SCOR reference was supported as well. The slips can be used with pre-printed transfer amount or free transfer amount. The slips support unstructured and structured addresses based on the ISO 20022 postal address to enable frictionless (and truncated) processing in domestic and cross-border payments.

Additional information as free text or structured text, bilaterally agreed or based on the SWICO specification, can be exchanged to streamline follow up processing of the payment between biller and payer.

Resolution in TCS BaNCS

In our study of the QR-Bill specification and related use cases, we discovered that QR-Bill is not just a mapping of a new payment slip. TCS made the following recommendations to our bank customers when implementing QR-Bill:

- To prevent fraud, the customer bank must verify that the address held in the QR-code must be the same as in the plain text printed on payment slip on acquisition.
- If provided, the optional ultimate debtor needs to be manually captured during scanning or acquisition.
- The beneficiary IBAN has a different clearing number identification when structured reference QRR is used. IBAN for QRR is called QR-IBAN, through which clearing number identification is checked in SIC participant directory, providing additional opportunity for clearing IDs for a bank using QR-IBAN
- Bulk credit for corporates needs to be enhanced to support QR-Bill based payments.

SIC 5 platform and SIC IP (Instant Payment)

The SIC 5 platform uses ISO 20022 based message standards for domestic CHF and EUR customers and for FI2FI payments processing and clearing, enabling higher availability and instant payments.

SIC IP will be the first service implemented on the SIC 5 platform. SIC IP will be rolled out as a pilot in November 2023, and it will become mandatory for all SIC RTGS participants by end of 2026.

TCS BaNCS for Payments supports the recommended SWIFT CBPR+ conversion rules for all different address types, to prevent loss of or truncation of data.

The remaining SIC 4 services for RTGS in CHF/EUR will migrate in the next few years to SIC 5 platform.

Interoperability SIC – SEPA

Challenge

The bank must provide interoperability in domestic and SEPA payment processing.

In the 2022 standard release, SIC 4 RTGS moved to ISO 20022 v2019 for SEPA CT, leaving DT with the non-structured addresses of ISO 20022 v2009.

In the standard release in 2023, SEPA will be moving to the ISO 20022 v2019 format for both SEPA CT and DT.

Swiss customers may send payment orders (pain.001) in format v2009 or v2019, and co-existence with ISO v2009 for Swiss customers is allowed until November 2026.

Resolution in TCS BaNCS

TCS BaNCS for Payments uses ISO 20022 v2019, allowing both inbound and outward mapping for SEPA using either v2009 or v2019 formats. This allows structured addresses of internal models to be mapped to unstructured addresses for outward SEPA processing.

SIC 4 RTGS and SEPA messages use their own scheme-driven mappings, which are decoupled in TCS BaNCS integration layer towards payment processing. Processing follows the ISO 20022 baseline, which can be orchestrated to the banks' needs, following scheme-specific flavors.

Interoperability SIC - SWIFT

Challenge

SWIFT has set about its technical readiness journey with the first step of MT to MX migration, with the MT to MX co-existence phase planned to continue until November 2025.

The depth of information and referencing of transactions is considerably improved with MX formats. Structured addresses in MX have improved depth of data in comparison to legacy 'structured' addresses in MT format, which provides only the segregation of name, street and compound address line with postal code, town, and country.

During the co-existence phase, the bank can migrate stepwise from MT to MX, depending on their partner database in their core banking system. However, the depth of data from MT can impact the depth of information related to recall requests, return, cover payments in MX requests.

Banks using MT during the co-existence phase often have truncation issues (MT fields 70, 72 of customer and FI2FI payments). This topic was addressed by SWIFT PMPG, where a proposal was made for MT messages (MTx99) to forward, or claim, truncation and missing data. PMPG expects that less than 1% of SWIFT messages will be impacted by such truncation.

In interoperability of SIC – SWIFT corridor payments, the data truncation could block STP processing of intermediaries.

Resolution in TCS BaNCS

TCS BaNCS for Payments uses ISO 20022 for its internal operational model as well as for MT based payments. With the ISO 20022 database and enrichment of truncated MT fields out of MX, the information is sufficient for a smooth start with MX based exchange in the SWIFT network.

The data truncation of MT can be mitigated in two ways, which needs to be aligned with banks' requirements and their related cross-border businesses:

ISO 20022 standards have set up the base for frictionless payment processing across the country, which adds up to more than 3 BN per year, making Switzerland a leading player in the adoption of ISO 20022 based payments.

- Automatic enrichment of truncated MT fields out of MX message in SWIFT FINPlus in case of truncation in fields:
  - MT field 70: ultimate debtor/creditor, unstructured remittance information, previous instructing agent
  - MT field 72: previous instructing agent, instruction for creditor agent
- STP break of MT payments with truncated data. Enrichment of truncated MT fields out of MX message with MTx99 'data truncation' request to previous instructing agent to get full content of truncated data. The missing truncated data will be capture in the pending payment for further processing

TCS BaNCS for Payments supports the recommended SWIFT CBPR+ conversion rules for all different address types, to prevent loss of or truncation of data.

With TCS BaNCS for Payments, the ISO 20022 based operational model is a good anchor to support:

- Inward SWIFT MT or MX, mapped to ISO 20022 operational model,

https://joom.ag/QmNd

Structured ISO 20022	Structured SWIFT FIN	SWIFT structured address with qualifiers 1/,2/,3/,6/ Truncation sign '+' on truncation
Structured SWIFT FIN	Unstructured ISO 20022	Unstructured address with qualifiers 1/, 2/, 6/, truncation sign '+' on truncation. If available map LEI instead of 2nd line of name string 3/country/town/zip code/country name
Unstructured ISO 20022 with 2/…3/ qualifiers	Structured SWIFT FIN	SWIFT structured address with qualifiers 1/, 2/, 3/, 6/ unchanged
Unstructured ISO 20022 without 2/…3/qualifiers	Unstructured SWIFT FIN	No change 1:1 mapping of unstructured address
Unstructured SWIFT FIN	Unstructured ISO 20022	No change 1:1 mapping of unstructured address

further processed in SIC as interbank (pacs.00x, camt.0xx) message

- Inward SIC (pacs.00x, camt.0xx) message, mapped to ISO 20022 operational model, further processing in SWIFT as MT or MX message
- Outward SIC or SWIFT ISO 20022 messages based on TCS BaNCS operational model

Integration of SIC IP (Instant Payment)

Challenge

SIC IP is close to the SEPA Instant rulebook for happy flow payments promising a turnaround time of ten seconds, as well similar recall/return handling and status requests for payment/recall requests. SIX expects that participating banks' yearly downtime remain at 60 minutes outside the main traffic periods, which puts a heavy demand in terms of availability for the bank.

The primary differences between SIC IP and SEPA are:

- SIC IP is using ISO 20022 v2019 messages based on Swiss implementation guidelines. SEPA Instant will move in SR2023 to v2019 format.
- Transfer amount of SIC IP is CHF 20'000; SEPA Instant with EUR 100'000.-. The participating banks on SIC IP can bilaterally define different limits (lower than maximal transfer amount of SIC IP scheme)
- In SEPA Instant scheme, recall of an IP can be done within 13 months. In SIC IP no restriction of timeline for recall request of IP is defined, following existing SIC4 RTGS rules. According to current understanding, an IP recall can be done for a payment processed up to 10 years back. This has an impact on unique reference of transaction ID by instructing agent, which must be unique over 10 years.
- SIC IP Service as CSM (Clearing and Settlement Mechanism) checks uniqueness of IP based on transaction ID, message ID of instruction agent and rejection of duplicate transactions. Besides the duplicate check on the level of CSM, the participating bank needs to establish a duplicate check to avoid double processing of IP due to operational issues on network or gateway connection.
- SIC IP settlement is not 7x24x365. It is following the SIC4 RTGS EOD processing and the SIC business calendar. On normal workdays, the day switch is around 18:20 h CET.
- SIC IP does not recommend any customer value dates. The expectation is that value date on the customer side is according to execution timestamp of IP, but interbank settlement is depending on the SIC IP settlement date, which is bound to SIC bank holiday calendar.
- SIC IP is a reliable real-time payment scheme but not yet embedded in a sound business case.

How will the Swiss market adapt to SIC IP?

Twint is already well introduced and established for P2P, C2B with no cost on retail customer side. Will there be a transfer amount limitation for Twint and/or cannibalization of Twint in favour of SIC IP?

Switzerland has not yet defined a Request-To-Pay scheme, which could unify POS, ecommerce adaption.

Corporates are interested in real-time payments, but the transfer amount limit is actually too low, and the ERP of corporates are mostly not ready for 7x24 processing.

Resolution in TCS BaNCS

TCS BaNCS framework for real-time payments can help banks integrate SIC IP. It has supported instant payment schemes with tighter turnaround times like SWISH with two seconds. The solution uses microservices with silent updates to cover the need for high availability.

- Message exchange and follow-up events like cash block, booking, investigation, return, reject can be configured including timeout of these events It is always a challenge for a bank in the first implementation of instant payments to evolve their ecosystem towards high availability and shorter turnaround time for processing, especially in areas related to fraud and AML checks.
- Maximal transfer amount of scheme can be configured. Bilateral agreed transfer amount or threshold can be additionally defined by the bank.
- The retention time of IP in TCS BaNCS for Payments can be configured. If required, retrieval of payments out of banks archival system can be covered implementation specific to process recalls after retention time.
- To avoid duplicate processing of IP due to operational issues, technical and functional check can be configured according to banks' requirements. This duplicate check works in addition to check done by SIC IP Service.
- The booking of SIC IP to customer account and SIC IP nostro for reconciliations is done based on settlement confirmation of SIC IP Service. Depending on banks' requirement' the customer value date can be based on timestamp of settlement execution, where SIC IP nostro is booked with settlement date as value date. The bank treasury needs to consider the discrepancy of customer value date and SIC IP nostro value date used for reconciliation.
- TCS BaNCS for Payments already supports some Request To Pay schemes, e.g., for SEPA Request to Pay, which could be adapted for the Swiss market. In Open Banking, real-time payments is a must for frictionless money flow in ecosystems. TCS BaNCS provides APIs to validate, execute and recall IP, which can be integrated in Open Banking.

TCS BaNCS Approach towards Market-related Changes

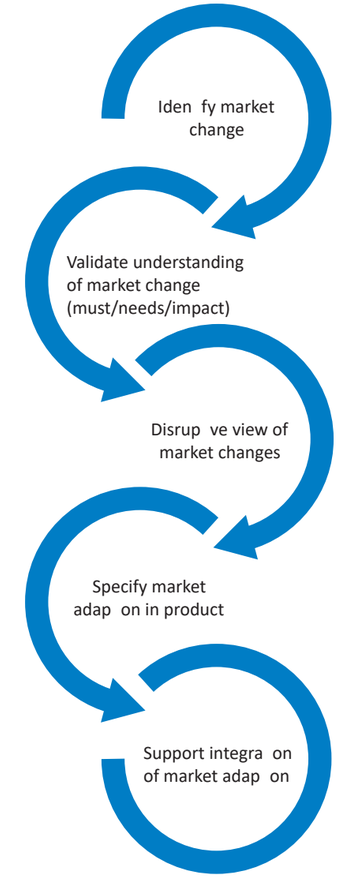
TCS BaNCS' Product Management follows a methodical approach to adapt and drive market innovation and regulatory changes. We are enhancing our product to cover market changes with added values like high STP with limited manual intervention, additional functionality required by the bank and support smooth integration in its ecosystem leveraging existing APIs.

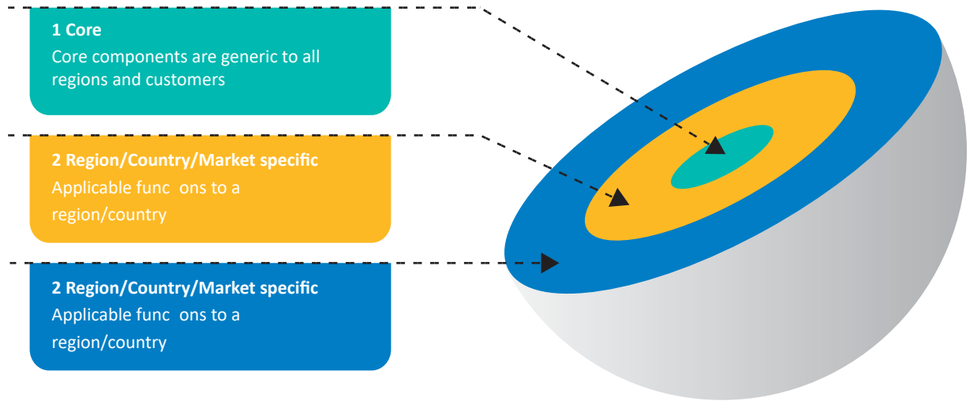
• Identify market changes

Regularly screen market innovation and regulatory changes. Publicly available or non-disclosed information of partner banks or standardization organization like SWIFT are used for such analyzes.

• Validate understanding of market changes

In dedicated banking working groups or with partner banks, TCS is validating their understanding of market changes and the associated impact in existing products offerings, STP processing (what needs to be adapted within TCS BaNCS), and related ecosystems (what needs to be adopted outside of TCS BaNCS).





• Disruptive view of market changes

Based on a deepened and verified understanding, a disruptive way of integration of market innovation, new offerings, and ways of processing, e.g., linking with ML/AI, lean processing is explored and discussed within TCS BaNCS' Working Groups or with partner banks.

For example, real-time processing and Request-to-Pay schemes are driving new ways of event processing. ML/AI and digitalization are expected to gain more traction to streamline STP processing.

• Adapting to market needs

With the defined product scope revisited with disruptive view and impact of integration, the design is defined with respect to the reusability of existing capabilities, open gaps, and the parameterization of the product and services.

• Support integration of market adoption

TCS leverages its experience of other market implementations and lessons learned with partner banks to support the integration and roll out of market specific changes at customer banks.

In previous chapters, we explained how the TCS BaNCS approach was applied.

Summary of resolutions in TCS BaNCS for frictionless payments journeys

Payment standards are evolving to be ISO 20022 based, and TCS BaNCS for Payments' internal processing models are already built on this standard. The product's software architecture and depth of functionalities, be it for credit or debit transfer, checks) with adaptation to a specific region/country (e.g. SEPA, SIC), is helping banks with the seamless processing of payments.

TCS BaNCS' service integration as an interface layer manages message exchanges used to process payments. It shields the different ISO versions and scheme related flavors towards payment processing. Different versions of ISO 20022 messages are only impacting payment processing, where business logic needs to be adapted. The existing integration in the bank's ecosystem could be further used or partially enhanced, where additional information of the new version of the message is required.

Evolution of payment processing in Switzerland is a good showcase for how payment journeys can be supported in a frictionless way with TCS BaNCS for Payments.

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