DigiTie Instant Payment

An answer to 21st Century payment expectations

As smartphones and e-commerce become increasingly widespread, the digitalisation of the economy is resulting in a general acceleration of the payment process. Customers can make online purchases anywhere and at any time, even during evening classes and on weekends and public holidays - periods when most traditional electronic payment methods do not work. On the other hand, business and service providers expect a guarantee that they will receive the value of their goods or services.

The SCT Inst system meets these expectations by enabling pan-European transfers within ten seconds, so the amount transferred is immediately available on the beneficiary's account.

We recommend using the DigiTie software solution's SCT Inst Module (hereinafter: DigiTie SCT Inst) for connecting to the SCT Inst system (hereinafter: SCTI), as it can be easily integrated into the bank's IT architecture. In addition to connecting to the payment system, the module also supports additional optional services that are already available in tandem with instant payments in certain European countries, such as payment requests and the handling of secondary account identifiers. To ensure fast and seamless services, versions can be upgraded without any service interruptions.

The following provides a summary of the structure used by the SEPA Instant Credit Transfer, the system that has been developed to serve this connection, and the additional functions that can be added to such a system to ensure a higher level of customer service.

The objective and guidelines of the SCT Inst scheme

The groundwork for the SCT Inst system was laid by the EPC (European Payments Council). The EPC is a non-profit association whose role is to support and promote European payments integration and development, notably the SEPA (Single Euro Payments Area) as well as the SCT Inst scheme. It was established in 2002 as a result of a bank sector initiative and, although many of its goals are the same as those of the European Union, the EPC is not an EU institution. Its members are payment service providers or associations of such service providers.

SCT Inst targets:

- the development of a basic payment system that competes with cash payments in both speed and accessibility
- innovation
- the harmonisation of payment solutions and the prevention of conflicting payment solutions.

The ten most important advantages of SCT Inst[1]:

1. The entire payment process takes just a few seconds (10 seconds as a general rule).
2. Operation is continuous (24/7/365).
3. Annually reviewed central maximum transaction limit (€15,000).
4. Enables both national and cross-border payments.
5. A digital payment method that also supports the use of new technologies.
6. Helps company cash-flow management, as balances are available 24/7/365.
7. Due to its ease of use, it is suitable for replacing cash and checks in many cases.
8. Contributes to a single, harmonised euro payment environment and thus to the concept of a single European market.
9. Secure and compliant with consumer and data protection, fraud prevention, money laundering prevention, and sanctioning regulations.
10. Based on the long-running SEPA CT scheme, meaning implementation requires less effort than for an entirely new system.

An important task and goal of the DigiTie system's SCT Inst module is to ensure that the financial institutions using the services can maximise all the benefits of the scheme.

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[1] Source: https://www.europeanpaymentscouncil.eu/sites/default/files/kb/file/2018-11/EPC004-16%202019%20SCT%20Instant%20Rulebook%20v1.0.pdf

A presentation of the DigiTie banking system concept

We developed the DigiTie system with the aim of providing digital connection between the bank and the outside world. DigiTie is able to both serve only one specific electronic channel (e.g. PSD2) and to handle all electronic channels together. When implemented globally
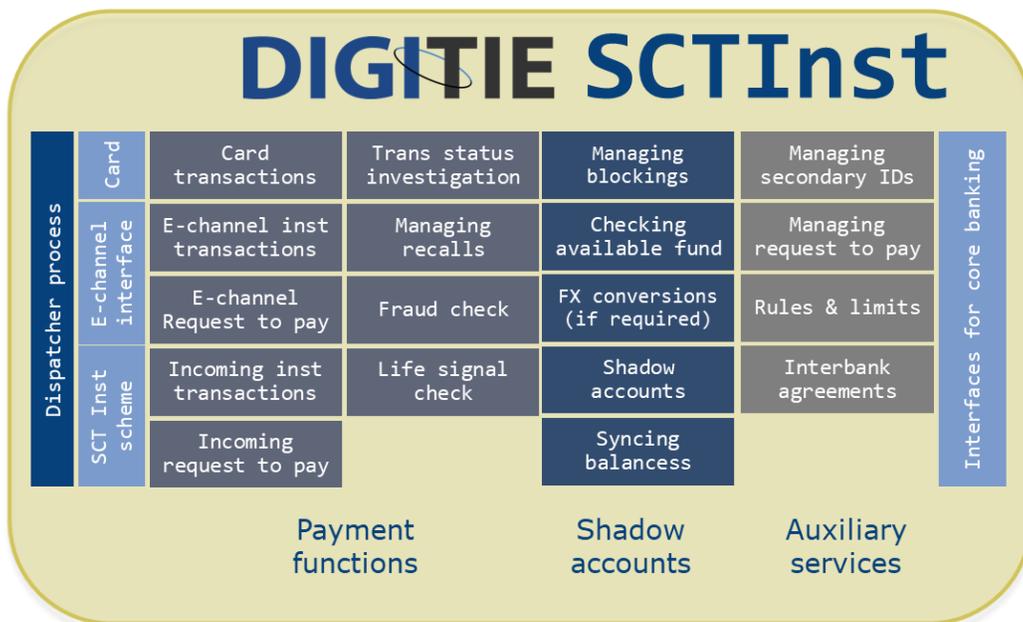
- this is the primary point of access for the bank's clients (called PSUs, or Payment Service Users in the figure) when
  - they connect directly to their bank as an access point for online or mobile banking, or
  - they connect indirectly via a TPP (a Third Party Provider providing access to banking services) in the interest of accessing the services.
- and payment/transfer channels such as the Instant Payment System, the card system, or, if required, other payment systems (Payment Hub) are also connected to DigiTie.
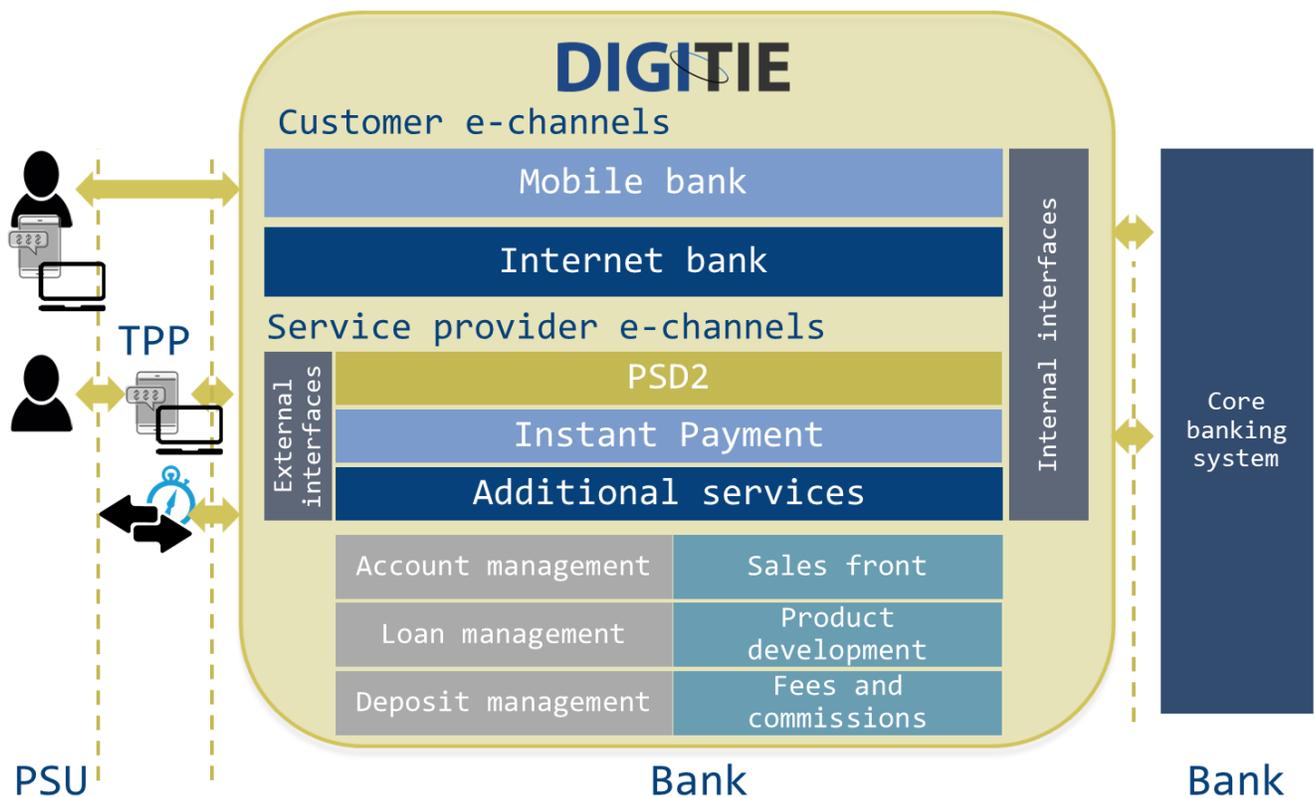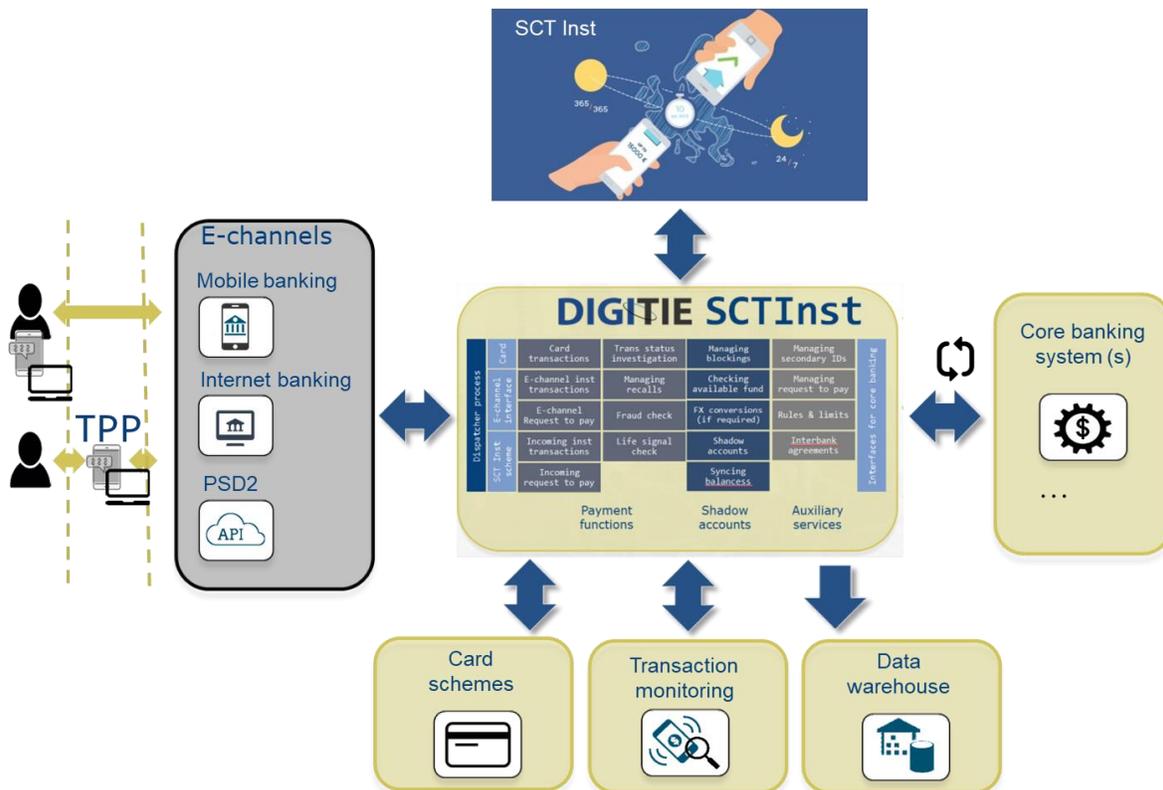

The structure of the DigiTie system concept

In line with the demands of the age, the system can operate 24/7, which means full functionality is available even during version upgrades. It thus meets or exceeds the availability requirements for online banking channels set by PSD2 and is also able to provide instant payment and other 24/7 online services without any downtime.

The structure of the DigiTie SCT Inst module

DIGITIE SCTInst

Dispatcher process		Payment functions		Shadow accounts	Auxiliary services	Interfaces for core banking
	Card	Card transactions	Trans status investigation	Managing blockings	Managing secondary IDs	
	E-channel interface	E-channel inst transactions	Managing recalls	Checking available fund	Managing request to pay	
		E-channel Request to pay	Fraud check	FX conversions (if required)	Rules & limits	
	SCT Inst scheme	Incoming inst transactions	Life signal check	Shadow accounts	Interbank agreements	
		Incoming request to pay		Syncing balancess		

The place of the module within the bank

The functions of the IT solution supporting the SCT Inst scheme

The DigiTie system's SCT Inst module supports or provides not only the connection to the scheme, but also the connected internal bank processes. Its main functions have been developed with the participation of our bank partners.

Payment transaction functions

- Sending and receiving instant payment transaction (cash flow and other) messages via a variety of protocols
- Management of instant payment service transaction lifecycles
- Control of instant payment service transactions (routing)
- Transaction duplication checks
- Management of recalls

Shadow balance functions

- Overcoming the downtime of account servicing systems which are not always available or are not at all available for instant payment transactions, such as
  - keeping basic account data and balances synchronised in line with the capabilities of the account servicing systems
  - quickly forwarding these data to other systems
- Providing account and balance data to the other systems
- Card authorisation (one bank, one account, one balance)
- Currency conversion (primarily for incoming transfers, as outbound transfers are usually received in the currency required by the scheme)

Additional functions

- Handles agreements and limits between banks (and countries)
- Supports the use of secondary account identifiers
  - Registration, record, and lifecycle management
  - Annual confirmation
  - Data processing statements
  - Allows other bank systems (e.g. Internet Bank, Mobile Bank, Core) to access the functions
- Supports payment requests
  - Allows requests to be launched from bank interfaces or via an API, as required
  - Forwards received requests to client interfaces
  - Received request management function and the management of instant payments launched on the basis of approved requests
- Manages anti-fraud and money laundering checks in regard to instant payments
- Interface to transaction monitoring and data warehouse systems

Communication with the instant payment system

The scheme uses communication based on instant messages to operate the payment process and the connected functions; the format of the messages is primarily based on the ISO 20022 standard. The use of both SOAP and REST-based HTTPS web services are common in such types of communication. Accordingly, DigiTie supports schemes implemented according to both, can operate both simultaneously, and can communicate synchronously and asynchronously through these.
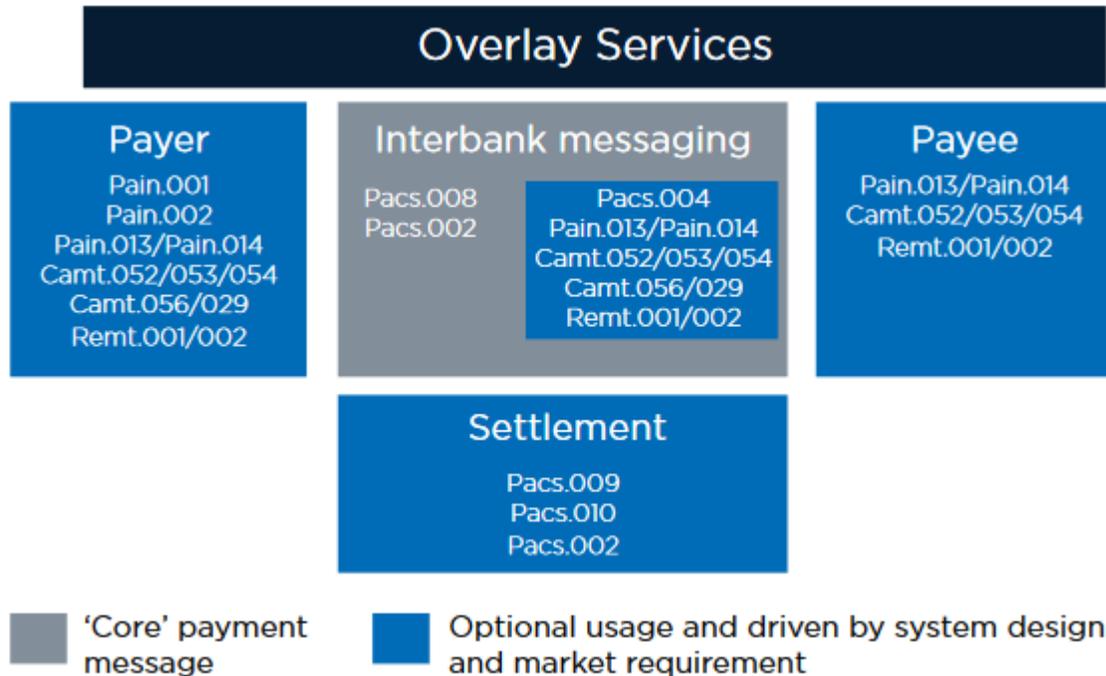
ISO 20022 message types in instant payment[2]

The above figure clearly illustrates that the message types under the ISO 20022 XML standard cover the entire spectrum necessary for instant payment and thus also provide the perfect basis for the SCT Inst scheme. A number of European, non-euro based payment systems are based on SCT Inst (e.g. Hungarian and Croatian systems), which use the same types with only slight differences and country-specific solutions.

In addition to defining the interbank area, an important element of the scheme is the provision of guidelines for the messages used for communication between banks and customers, helping to further the idea of a single European market.

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[2] Source: https://www.iso20022.org/sites/default/files/documents/general/RealTimePaymentsandISO20022_v3.pdf

The main message types[3]:

Message type (data set)	Message purpose / content
pain.001 (DS-01)	Transfer/payment initiation (customer → bank)
pain.002 (based on DS-03)	Payment status report (bank → customer) Rejection, or negative or positive confirmation
pacs.008 (DS-02)	Transfer/payment initiation (bank → bank)
pacs.002 (DS-03)	Final status report (bank → bank) Positive (ACCP) or negative (RJCT) confirmation
camt.056 (DS-05 or DS-08)	Instant payment message recall initiation (bank → bank)
pain.004 (DS-06)	Positive answer to a recall (bank → bank)
camt.029 (DS-06)	Negative answer to a recall (bank → bank)
pacs.028 (DS-07)	Instant payment status investigation message (bank → bank) Request for status update on a request for recall (bank → bank)

Ensuring 24/7/365 operation

A critical requirement for instant payment systems is that they must ensure full operation with practically no downtime. This is expected by the banks that wish to use the channel for interbank transfers as well as by clients who expect the system to be available every day of the week, and even throughout the night, as the main competitors of instant payment, cash and cards, are both able to meet these demands.

DigiTie meets this requirement even when undergoing version upgrades by using the system running the old version for messaging until the new version has been fully installed. After installation is complete, messaging is redirected to the new version.

However, it should be noted that no matter how tolerant the software solution is, its running environment also has to be given special attention. In the course of implementation both on-premise and on a central server (private cloud/SaaS: should the European regulatory environment develop accordingly, even a public cloud), suitable preparations have to be made including sizing and DR plans, the designs for both of which are always included in our offer.

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[3] Sources:
- C2B: https://www.europeanpaymentscouncil.eu/document-library/implementation-guidelines/sepa-instant-credit-transfer-scheme-customer-bank-0
- Interbank: https://www.europeanpaymentscouncil.eu/document-library/implementation-guidelines/sepa-instant-credit-transfer-scheme-interbank-3

Possible deviations from the European SCT Inst scheme

The DigiTie SCT Inst module does not support only instant payment solutions under the SCT Inst scheme, but also supports individual, national solutions that have been implemented in line with local requirements and expectations. For example, an instant payment solution prepared for the Hungarian market contains exactly such deviations, which, among others, includes the following individual elements:

Character set	The use of Hungarian accented characters
Currency	The use of Hungarian forint (HUF)
Limit value	Not checked by the central system; defined by law and bilateral or multilateral agreements
Time limit for uniqueness	Under the scheme, unique identifiers have to remain unique for 7 calendar days
Error codes	The support of error codes different than those defined by ISO 20022
Recalls and answers	The rules of the scheme require 30 day time limits for initiating recalls and for providing answers
Accuracy of time measurement	The time stamp required to determine the execution time must be specified with millisecond accuracy; its time is either the time of client authentication or receipt by the payment service provider, whichever is later
Indication of secondary identifier	In the case of both transfers and payment requests, the use of a secondary identifier has to be indicated and included in the message
Linking the payment request and the connected payment	The EndToEndIdentification of the two transactions have to be identical, and the appropriate field must indicate that the payment is for the fulfilment of a payment request
Type of payment situation	The type of payment situation (e.g. physical purchase, online purchase, invoice payment, P2P transfer) can be indicated with the use of standard ISO 20022 or unique codes

Implemented solutions that differ from the SCT Inst scheme

If you are interested in the above, please contact us, and we will be happy to provide you with additional presentations.

About Online Business Technologies

We are an innovative IT development company specialized in banking technology since 1989.

We provide a wide spectrum of highly flexible solutions necessary for banks to go digital, including modules to join FinTech ecosystems (e.g. PSD2, open APIs, instant payments), e-channel solutions, and state-of-the-art core banking modules to support front- and back-office operations (including account management, credits, deposit, GL etc.)

Our modules can be combined freely, we are able to deliver a standalone solution for a specific task (e.g. PSD2), or a series of modules covering the complete value chain (e.g. credit processes).

Our operations in numbers:

- Nearly 2500 years of banking, financial software development experience
- Our solutions are used by more than 8000 users
- Our solutions are used in more than 1000 branches by our customers
- Our partners serve more than 3 million customers with our solutions

OUR VALUES

UNIQUE COMPETENCE Our experience and professional knowledge in the field of credit institutions and finance is unique among IT providers.

CUSTOMIZED SYSTEMS With the help of our unique development and version management technology, our modules can be customized and implemented rapidly. We also have extensive experience in realizing unique functionality.

HIGH QUALITY Owing to the quality control system covering all of our activities and to the controlled development processes, our systems are of high quality and reliability.

QUICK RETURN Fast launching of developments that save customer resources, increased efficiency in management, flexible response to market trends – these all result in our customers gaining advantage in the rapidly changing financial market.

For more information check out our website: www.online.hu and contact us!

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