ISO 20022 as An Enabler of Data Exchange

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The global context
FIs have traditionally operated like castles protecting their territory, with moats to dissuade outsiders.

As such, an open platform economy has not flourished in financial services – until now.
Regulators have seen the power of APIs to open up retail banking markets and spur competition.

Pioneered in the EU and UK, Open Banking regulations are now a global phenomenon.
Trends and market drivers

- Open & flexible
- Information rich
- Fast & easy
- 24-7
- Secure & Compliant

The future is …

… and about platforms & ecosystems
Challenge: how to standardise the APIs space
## API – Payload Specification with No Standard

### API Spec Flavor 1

<table>
<thead>
<tr>
<th>Category Purpose</th>
<th>Value Date</th>
<th>VS</th>
<th>Transaction Date Purpose</th>
<th>Transaction Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAI Transaction code</td>
<td>Structured Address</td>
<td>VS</td>
<td>Proprietary code</td>
<td>Unstructured Address</td>
</tr>
<tr>
<td>Max35Text Reference</td>
<td>2 Lines of Details</td>
<td>VS</td>
<td>Max12Text Reference</td>
<td>4 Lines of Details</td>
</tr>
</tbody>
</table>

### Challenges / Risks

- Semantics/meaning - Misinterpretation
- Data types – Translation / Conversion
- Format – Data loss / Truncation
Enduring challenges

- Fragmentation
  - Varying API capabilities across firms
  - Inconsistent business specs
  - Varying identity & security frameworks
  - No standard data model

While APIs promise much – the API environment in financial services remains highly fragmented.
ISO standardizes common data objects and groups them into ‘syntax-neutral’ data models. All institutions have their own sets of data objects which are then used to define APIs or other communication methods in a specific syntax. Guaranteed interoperability across implementations.

Messages (FIN, ISO 15022, FIX, XML) and APIs (JSON, other) are used along with Smart Contracts to ensure interoperability across implementations.
The three pillars of API

- **Modelling**
  - SWIFT Collaborative modeling tools and methodologies, powered by SwaggerHub

- **Publishing**
  - SWIFT Developer Portal with Sandboxes and SWIFT API Catalogue

- **Consumption**
  - SWIFT API Gateway, with SWIFT content APIs and Community content APIs, with consumption options
Guaranteed interoperability across implementations
Define the API request/responses based on the ISO 20022 Resources

- Pick and choose the elements from the Resources to compose your API calls

No need to reuse the entire structure of the Resource => No deep nesting like in message design

- Add technical elements where appropriate

Only use the elements you need for the API call => Custom made calls
Join us

We are collaborating with the community to harmonise API development in financial services.

DISCOVER OUR APIs

CREATE ACCOUNT
SWIFT API Gateway
All platforms are two-sided ecosystems

Service providers exploit the infrastructure and reach a wide pool of end-customers

End-customers use the platform as a single point to access a range of services
The platform economy

Use case: The Uber Model

Firms use APIs to connect to existing platforms and focus on their core offer.

They don’t need to develop and maintain all the infrastructure.

By connecting to other platforms via APIs, Uber focuses on their core business – connecting riders and drivers to deliver a seamless customer experience.
Why focus on non-competitive capabilities?

Consumer

Request Data

Deliver Data

API

Request Data

Deliver Data

Consumer

Request Data

Deliver Data

API

Request Data

Deliver Data

API

Providers

Security components
Identity Management & Authentication
Taxonomy definition
Data Encryption
Threat & Vulnerability management
Data Architecture
New services and client experience

API

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API

SWIFT APIs in securities services
Providers can focus on true competitive differentiators and revenue generators

SWIFT API Gateway

- Single Identification
- Normalised security components
- Trusted network & Reach
- Standardised API contracts
- Version routing - Branching
- Data: benchmarked, neutral view
- Connectivity footprint re-usability

APIs in securities services
Examples of API business use cases for Payments and Securities

**SWIFT Products**
- Payment tracking (Live)
- Cancel Payment (Live)
- KYC (Live)
- SWIFTRef (Live)
- Sanctions screening (Live)
- Beneficiary pre-validation (Development)
- Case Resolution (Development)

**Community APIs**
(Consumption over SWIFTNet)
- Trade status reporting (Development)
- Position/holdings status (Development)
- Net asset value (NAV) (Development)
- Corporate actions (Development)
- Syndicated loans (Development)
- Transaction initiation (Under consideration)
- Payment request (Under consideration)

**Community specification**
(Standards)
- Pay later (Development)
- Pre-authorisation (Development)
- Open Banking (EU, HK, …) (Development Support)
Our unique expertise

SWIFT is the leader in secure, compliant and standardised global financial communications

We are uniquely positioned to help the community overcome the challenges and seize the opportunity

Unparalleled reach
Extensive compliance expertise
Exceptional security & reliability
Unique expertise in data standards
SWIFT White Paper on API

Delivering a global platform for financial services API economy

- Avoid re-invent the wheel
- Needs a single, shared business standardisation methodology and governance strategy
- Re-use ISO20022 business definitions and data models
- Ensure end-to-end consistency in business processes (API & Legacy)
- Look beyond immediate need to comply with regulation or for tactical solution

- ISO20022 API shares the same business semantics and data dictionary as a related ISO20022 message.
- Greatly simplifies the task of integrating the API to existing financial systems and processes.

Two key aspects to ISO20022:
- A methodology: a “recipe” to standardise financial transactions.
- A machine-processible repository of content:
  - the definitions of messages,
  - business concepts,
  - processes and everything else required to describe those transactions

Current use cases
API Consumption in a two-sided API platform

Consumers
- Send Standardized requests
- One connectivity channel, one identity
- Corporates
- Asset managers
- Brokers
- Fund distributors
- Custodians

Initiating Bank
Ordering Customer

SWIFT API Gateway

Providers
- Identity handled by SWIFT
- Standardized API responses
- Data over a secured network

Corporates
- Asset managers
- Brokers
- Fund distributors
- Custodians
Use case 1: pre-validation of accounts

- Verify beneficiary account existence prior to sending a payment instruction
- Standardized beneficiary account verification API
- Beneficiary bank to check account exists/can receive funds
- Depending on the jurisdiction, perform name matching
- Standardized API status response

Consumers:
- Initiating Bank
- Ordering Customer
- Corporates
- Asset managers
- Brokers
- Fund distributors
- Custodians

Providers:
- Beneficiary Bank

SWIFT API Gateway
Use case 2: On demand and real-time status of settlement instructions

Almost RT capability to access status data

Messaging RT interpretation capability is already in place for back-office systems

“GetStatus for all failing transactions where settlement date is today”

“GetStatus for all pending transactions where reason code is lack of cash”

APIs in securities services
Use case 3: Ad-hoc access to NAV information across fund accountants

Credit providers
Hedge funds, mutual & pension funds

GetNAV
NAV data

GetNAV
NAV data

GetNAV
NAV data

GetNAV
NAV data

Cash Management
& Capital markets operations

API Gateway

3rd Parties
Sub-custody network

Asset Managers

Custodians
& Fund Accountants

APIs in securities services
Use case 4: request securities positions held across custodians and depositories

Custodians
Asset Managers
& Brokers

GetAcct API calls

Position Data
Responses

SWIFT
API Gateway

GetAcct API calls

Position data

Custodians &
Depositories

APIs in securities services
Use case 6: DLT-based e-voting solution leveraging APIs

DBS issuer

DBS Depository Agent

Issuer/Depository Agent VM

API

Web

Node

DB Depository Agent VM

Node

API

Web

SC Depository Agent VM

Node

API

Web

HSBC Depository Agent/Citibank Depository Agent VM

Node

API

Web

Issuer/CSD/Direct Clients VM

API

Web

Node

Issuer channel

Issuer/Depository Agent VM

API

Web

Node

SGX Issuer

SGX CSD

Direct Clients

SWIFT Certification authority

API + API/Message converter

Other participants