SIX

eBill – Handbook for Network Partners

Introduction & Onboarding

Change History

Version	Date	Changes
0.1	31 Jan. 2018	First draft
0.2	30 Apr. 2018	Revision to beta version
0.3	20 Aug. 2018	Revision to beta version 2
1.0	25 Oct. 2018	Revision to Version 1.0
1.2	8 Feb. 2019	Revision to Version 1.2
1.3	31 May 2019	Revision to Version 1.3 (some content transferred to Rulebook and Operating Agreement)
1.4	30.08.2019	Revision to Version 1.4 (adjustments due to the eBill for Business feature)
1.5	10.01.2020	Revision to Version 1.5 (Added requirements for subscription forms and information about submission of invoices without amount)
1.6	28.01.2020	Domicile address: When registering business customers, a hyphen (-) should be used if the street and house number are not available.
2.0	02.03.2020	Added: eBill registration via biller portal

Information

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The document has been prepared with utmost care, but errors and inaccuracies cannot be completely ruled out. SIX cannot assume any legal responsibility or liability for errors or their consequences.

Should you encounter any errors in this document or have any suggestions for improvements, we would be grateful if you would e-mail your feedback to banking-support@six-group.com.

Target Group

The Handbook for Network Partners is aimed at providers of services relating to electronic invoicing that wish to make the eBill service available to their customers (invoice issuers) via the central eBill infrastructure.

Purpose

The Handbook for Network Partners provides an overview of the eBill service as well as the interaction between the participants in the ecosystem – network partners, financial institutions, invoice issuers and the eBill infrastructure. It also outlines the organizational onboarding process for network partners.

Limits

The Handbook for Network Partners describes only the functions and processes that concern the eBill service. The EDI eBill and Workflow eBill services are not included in the infrastructure services. The separate handbooks should be consulted for documentation regarding the direct debit service.

The Handbook for Network Partners provides an introduction to the topic and refers to other, more detailed documents.

Contents

Contents

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1. Introduction

The eBill service enables electronic invoicing, invoice receipt and invoice payment. More than a million users are already receiving their invoices digitally via online banking and paying them conveniently, reliably and on time in the same way. The eBill service encompasses all forms of electronic invoices, reminders, credits and notifications – known collectively as business cases – delivered to the eBill infrastructure by network partners and received online by invoice recipients. In eBill, network partners choose the most efficient type of invoicing and can thereby build up their ranges of digital services for their customers.

The benefits:

– eBill is the secure alternative to invoicing via e-mail

– Participating in eBill is easy

– Searching for and finding customers wishing to switch to eBill is easy

– Integrating eBill in ERP and e-commerce solutions is simple thanks to standardized interfaces and processes

Network partners are part of the eBill network and thus can enable their invoice issuers to send electronic invoices to online banking users. Network partners communicate with the eBill infrastructure via a simple interface. This makes it a central point of entry for delivering digital invoices to the banking channel.

eBill for Business
eBill for Business is an extension of eBill dedicated to business customers. eBill for Business should allow companies and corporate-like eBill users to authorize other corporate users to view, approve and reject invoices on behalf of the company. To identify business invoice recipients in case of logging them in/out, look-up and submission of business cases, the network partner should generally use the enterprise identification number (UID).

1.1 Documentation

File	Description
Framework Network Partner Agreement	Agreement between SIX and network partner on connection to eBill infrastructure for invoice issuer
Rulebook	Annex to the Agreement; governs the duties, rights and responsibilities of the network partner with the aim of offering an eBill service that functions consistently
Operating Agreement	Annex to the Agreement; governs the scope of the service provided by SIX to the network partner
Price List	Annex to the Agreement; governs invoicing of the eBill service to the network partners
Handbook for Network Partners – Introduction and Onboarding	This document; describes eBill functions and onboarding processes. Target group: product and IT management teams at network partners.
D0478_networkpartner-api-v1-doc.pdf	Detailed technical NWP API documentation. Target group: software architects and developers.
networkpartner-api-v1-swagger.yaml	OpenAPI specification for the NWP API [1]. Target group: software developers and code generators.
Network Partner Onboarding – Technical Instructions	Detailed technical network partner onboarding documentation. Target group: software architects and developers.
Testing manual for Network Partners	Detailed documentation for testing and acceptance

Table 1: List of documents for network partners

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[1] Note: the best way to view the OpenAPI specification is using an editor such as https://editor.swagger.io.

1.2 Roles involved in the invoicing process

The following overview shows the roles involved in the invoicing process. For context, it also shows roles and other persons outside the sphere of influence of eBill.
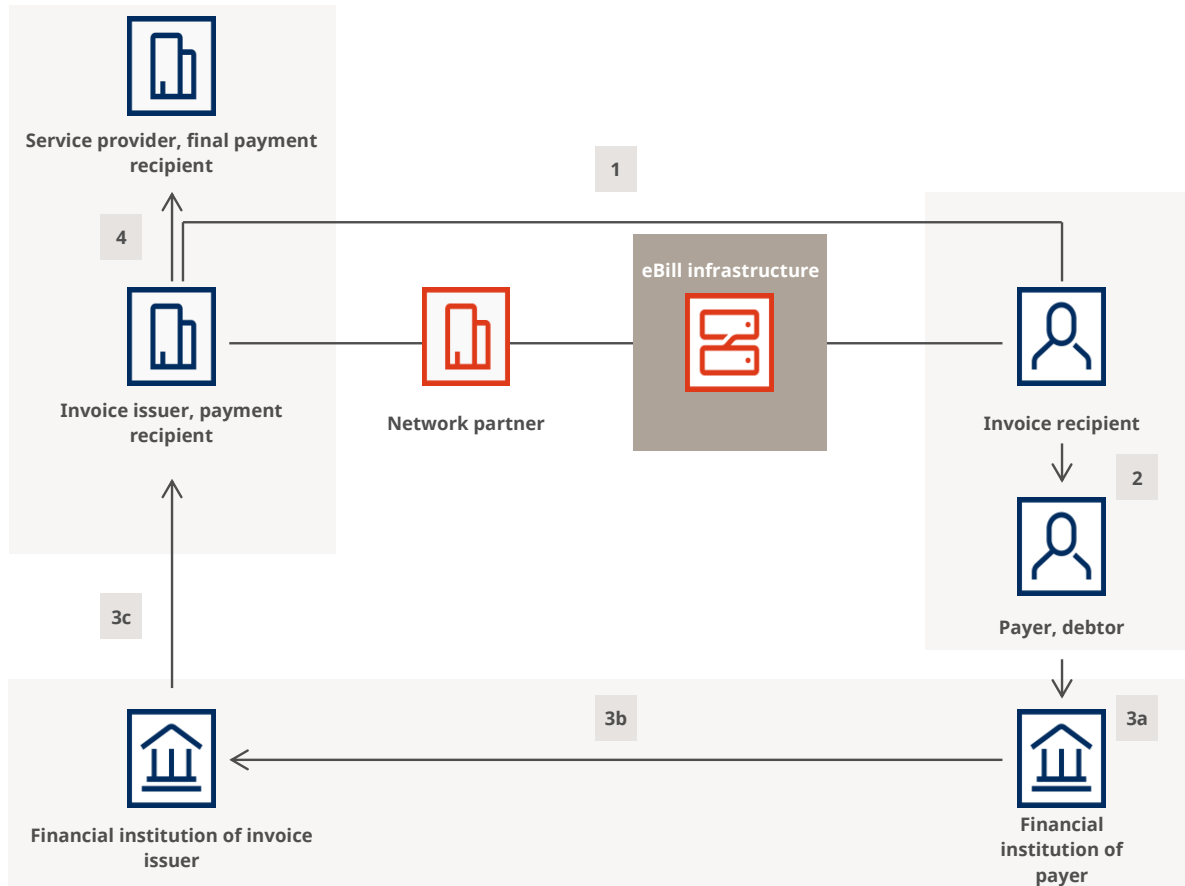

Figure 1: Parties involved

It is possible for the parties listed within an area of the same color to be identical. For example, the invoice recipient and the person who ultimately pays the invoice are often one and the same.

1. The invoice issuer sends invoices to his recipients via their network partners.

2. The invoice recipient approves the invoice and payment information is forwarded to the invoice recipient's financial institution. The invoice recipient is generally the same person as the payer.

3. Outside the sphere of influence of eBill, the payer submits payment to the invoice issuer via his financial institution and the invoice issuer's financial institution.

   a) A financial institution charges the account of the payer.
   b) The financial institution of the payer carries out the transfer to the financial institution of the invoice issuer.
   c) The financial institution of the invoice issuer sends a credit advice to the invoice issuer.

4. Outside the sphere of influence of eBill, the invoice issuer informs the ultimate creditor that payment has been received.

1.3 Participants in the eBill ecosystem

The chain of eBill services comprises five types of system participant. These are shown in Figure 2.

The invoice issuer (creditor) and invoice recipient (debtor) are parties to the applicable Agreement and require electronic invoice exchange or participation in electronic payment transactions.

For this purpose, the network partner offers the invoice issuer the eBill service, which allows the invoice issuer to deliver invoices to the invoice recipients.

The invoice recipients receive access to the delivered invoices via the online banking application from their financial institution.

The infrastructure acts as a central hub offering its partners (network partners and financial institutions) basic services that enable services for ends to be provided.
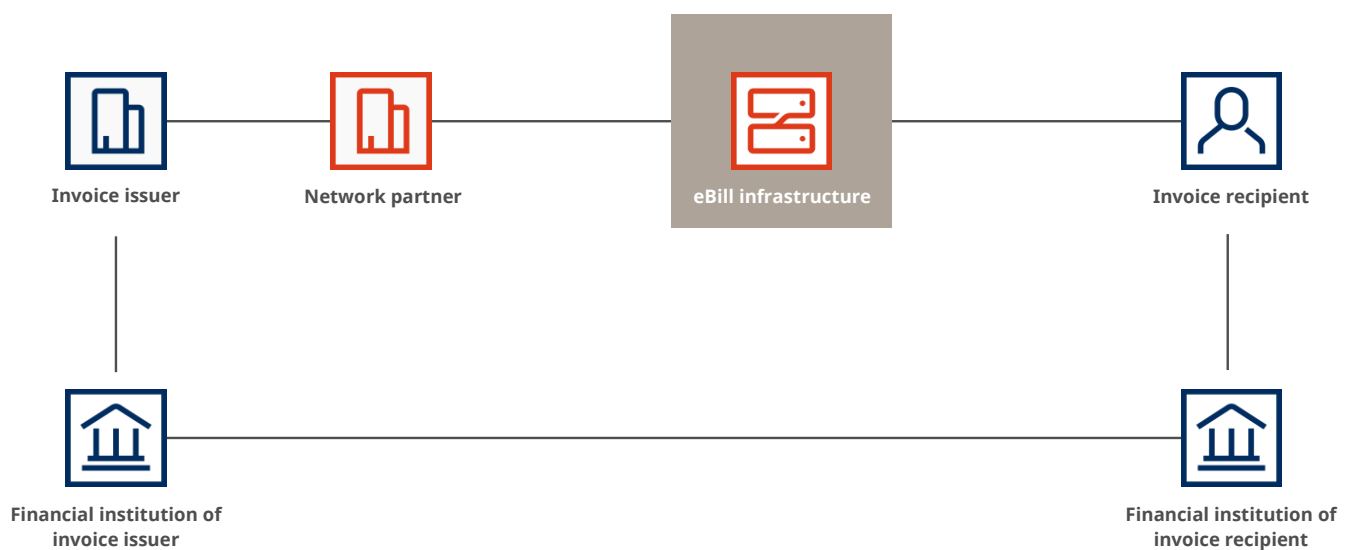

Figure 2:   System participants

1.3.1 SIX/eBill infrastructure

SIX is the operator of the eBill infrastructure. SIX develops, maintains and monitors the infrastructure. The eBill infrastructure is the system platform for operating the eBill service. Its primary purpose is to manage system participants and process business cases, and encompasses all components required to operate the service, such as hardware, software, operating system.

1.3.2 Network partners

Network partners are parties to an agreement with SIX linked technically and contractually to the eBill infrastructure and, at the same time, parties to an agreement with the invoice issuer. They convert invoice issuer business cases to the standard eBill format and deliver them to the eBill infrastructure on behalf of the invoice issuer.

1.3.3 Invoice recipients

Invoice recipients are natural or legal persons that receive, check and approve for payment any business cases occurring in the context of their customer relationships with financial service providers via the SIX eBill portal or the online banking systems of their financial institutions, or the relevant systems of other financial service providers.

1.3.4   Invoice issuers

Invoice issuers are legal persons that transmit business cases to network partners in any form (e.g. physical, electronic) for delivery to the eBill infrastructure.

1.3.5   Financial service providers of invoice recipients

Financial service providers of invoice recipients grant invoice recipients access to the eBill infrastructure so that they can view and edit business cases. Financial service providers present invoices, issue approvals or rejections and create payment orders on behalf of their customers and invoice recipients, or initiate the settlement of invoices or reminders.

1.3.6   Financial service providers of invoice issuers

Financial institutions of invoice issuers process and settle the payment orders initiated by the invoice recipients' financial institutions and present the invoice issuers with credits or debits as applicable. Financial service providers of invoice issuers have no direct involvement with the eBill infrastructure.

1.4   Interfaces with the eBill infrastructure

Participants in the eBill service can access the eBill infrastructure via a range of interfaces. The most significant are shown in Figure 3 and explained in brief below.
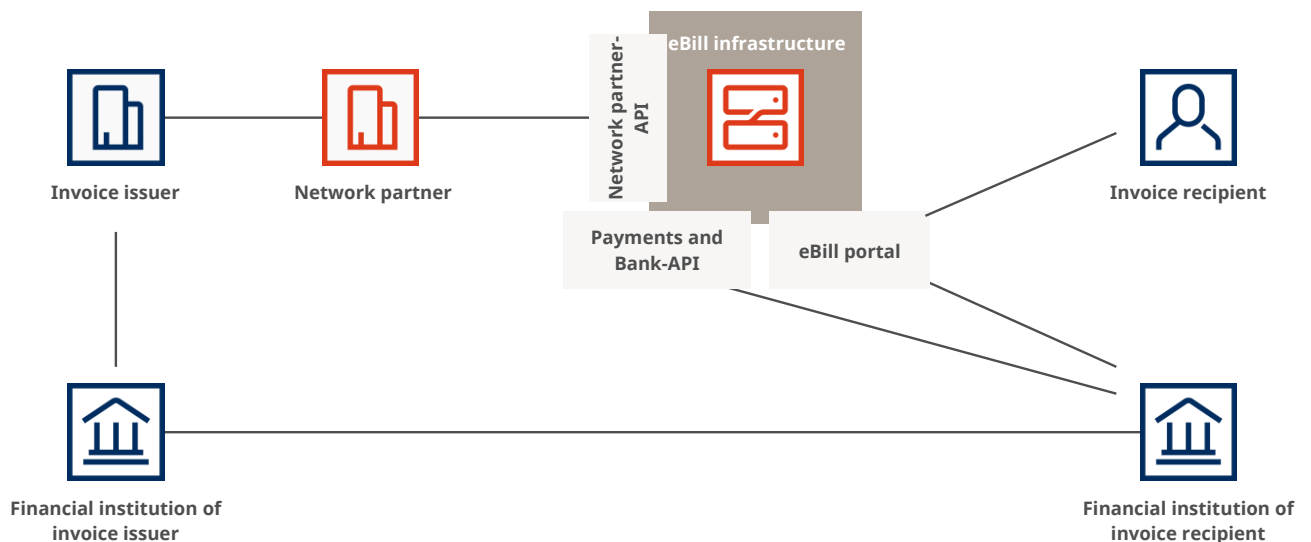

Figure 3: Interfaces with the eBill infrastructure

1.4.1   Network partner API

Network partners are connected to their customers via the network partner API (NWP API). All reports are exchanged with these participants via this interface (business cases, status reports, registrations, etc.).

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1.4.2 Bank API

The bank API is a web service interface for the invoice recipient's financial institutions enabling them to link their online banking systems to the eBill infrastructure.

1.4.3 Payment transaction interface

The financial institution of the invoice recipient receives payment information from the eBill infrastructure via the payments interface on the basis of approved business cases.

1.4.4 eBill portal

The eBill portal is a central web application for invoice recipients that can be used by all participating financial institutions. It enables invoice recipients to use eBill functions over the Internet. The eBill portal is always accessed from the online banking system of the invoice recipient financial institution via the eBill function.

1.4.5 Note on customer portal (not shown)

A network partner can use a customer portal for the invoice issuer to offer functions enabling the invoice issuer to manage its own master data and execute actions in connection with business cases. Whether a customer portal is offered and the extent of its functions depends on the services offered by the network partner.

The eBill infrastructure itself does not offer a customer portal to invoice issuers.

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2.   Invoicing processes with eBill

This section describes the three most important processes involved in invoicing with eBill for the network partner. These are registering an invoice issuer with the network partner and in the eBill infrastructure, logging an invoice recipient in to the invoice issuer's system and delivering business cases.

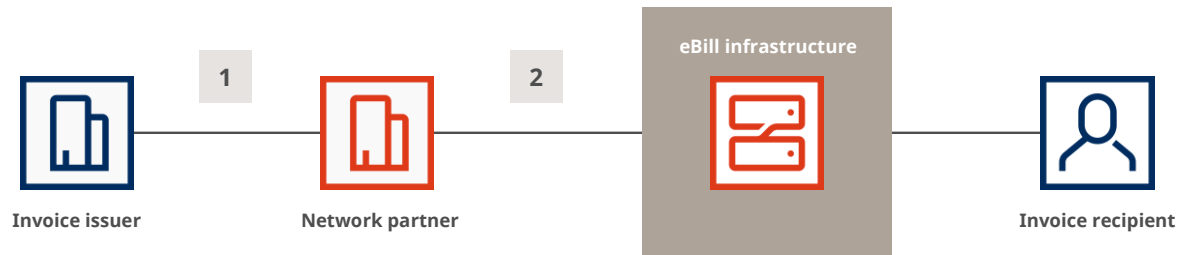### 2.1   Registering an invoice issuer with the network partner

Figure 4: Invoicing process

Depending on what the network partner offers and the situation regarding its agreement with the invoice issuer, the process of registering an invoice issuer may take the following form:

1.   The invoice issuer learns about the offer and registers with the network partner for a service that includes eBill.
2.   Once the invoice issuer has passed an identity check, the network partner forwards the invoice issuer's data to the infrastructure and receives a new invoice issuer identification.

   a)   Once the invoice issuer has been assigned its identification, it can start using the eBill service right away.

   b)   The smooth interaction between the processes enables invoice issuer activation to be completed within a few minutes, and the invoice issuer can then send its customers electronic invoices.

If the invoice issuer has already registered with a different network partner, it will need to stipulate which is the primary network partner that is permitted to manage its master data on the eBill infrastructure. Detailed specifications can be found in the Rulebook for network partners.

2.2 Subscription of invoice recipients

For electronic invoices to be sent by an invoice issuer (II) to an invoice recipient (IR), it is necessary for a connection to be established between the two parties. This connection is referred to as a "delivery permit" and the process as "logging in." There are various ways of bringing about a subscription process:

1. Subscription initiated by IR

   – Subscription via eBill portal

   – Direct subscription from online banking

   – Registration via biller portal

2. Subscription initiated by II

   – Look-up

The goal of the selected architecture for IR-initiated subscriptions is not to change existing invoice issuer interfaces and to provide a process for new network partners that can be implemented with minimal effort.

The goal of II-initiated subscriptions is to increase conversion rates for eBills significantly due to the fact that subscriptions can also be initiated by the invoice issuer.

The invoice recipient's e-mail address acts as its unique identifier for the eBill service. To ensure that the invoice issuer can make full use of the ability to find invoice recipients, it is recommended that the invoice issuer collect the e-mail addresses of its customers in advance and declare then and there that this information may also be used for eBill.

The invoice recipient is uniquely identified with an e-mail address in case of eBill for private individuals and with the enterprise identification number (UID) in case of eBill for Business. To be able to fully use the finding of the invoice recipient, the invoice sender is recommended to collect the e-mail addresses or UIDs of their customers in advance and at the same time declare that this information may also be used for eBill.

Handiling of domicile addresses

In some cases, a financial institution may not have a street name for domicile addresses of companies or associations. The bank committee decided that in such a case a "-" can be used for the missing attribute.

Note: It is recommended that the terms of use for eBill be incorporated into the invoice issuer's terms and conditions. This saves the customer from having to accept separate terms of participation before logging in to eBill.

Details on subscription processes can be found in the technical interface description.

Requirements for subscription forms

For protection purposes, banks operate the "Validator Proxy" security component, which scans all customer data obtained via the e-banking system for harmful elements and, in the event of non-compliance with the defined rules and regulations, disconnects the connection between the invoice recipient and the financial institution. Subscription forms are also be checked in this context. The following requirements must be taken into account in order to ensure the conformity of subscription forms:

Criterion	Format
Document type	Only XHTML documents are permitted for subscription forms.
Graphic format	Only the following graphic formats may be integrated: • PNG (*.png) • GIF (*.gif)

	• JPG/JPEG (*.jpg, *.jpeg)
Active elements	The following active elements are prohibited: • Java Scripts (extension to HTML) • Java Applets • Objects ("Flash", "ActiveX Plug-in", etc.) • Events ("onclick", "onmousedown", "onmouseup", etc.)
Hyperlinks	The following types are permitted as hyperlinks • http • https • mailto

2.3   Delivering business cases

A standard format for electronic invoices has been defined for the delivery of business cases from a network partner to the eBill infrastructure. The eBill infrastructure processes only this format and will not convert from other formats. Transformations from other reporting formats to eBill format may be offered as services by the network partner.

The definition of this format involves consistently ensuring that only the attributes necessary for processing in the eBill infrastructure and the banking channel are requested.

QR-bills can easily be converted to eBill invoices. Please note that QR-bills with the amount "0.00" that are not intended for payment can only be transmitted to the eBill infrastructure as notifications. Invoices without an amount can be received by the eBill infrastructure with the introduction of the QR-bill. SIX recommends that network partners offer invoice issuers the option of delivering their QR-bills in a manner that involves the network partner carrying out the conversion to standard format and delivering the invoices to the eBill infrastructure.

3. Network partner onboarding & testing

3.1 Registering a network partner for the eBill service

A network partner wishes to provide the eBill service to its customers for the first time and, after signing the service agreement, is registered in the eBill infrastructure as a new network partner.

The connection type, i.e. the basic services for the connection to the eBill network and the procedure for activation, are defined at a briefing. The network partner develops its own interface for connecting its system to the eBill infrastructure (network partner API) and implements the entry point for the eBill service in its system.

Activating a network partner is a complex process involving many technical interdependencies. Experience suggests that fully activating a network partner can take up to 12 weeks. Making contact early is therefore essential.
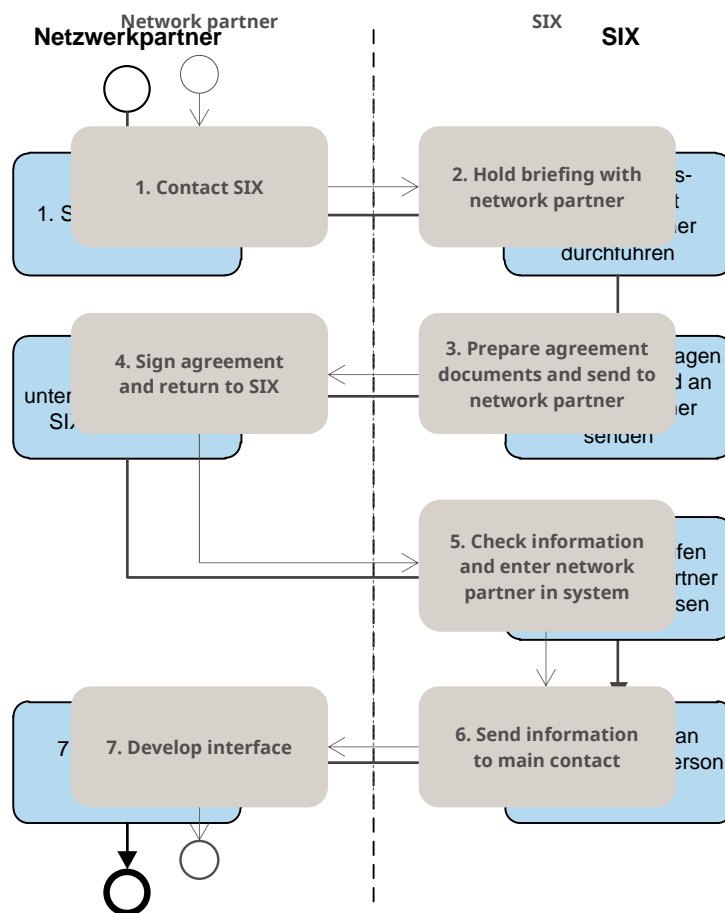

Figure 5: Business process for SIX registering a network partner

1. The network partner contacts SIX by telephone or e-mail.

2. SIX holds a briefing with the network partner.

3. SIX prepares the agreement documents and sends them to the network partner along with the Handbook for Network Partners and all other important documents for development and implementation.

4. The network partner checks the agreement documents, adds the required information to the agreement and returns it to SIX. The network partner also designates a main contact and a deputy.

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5. Having received the agreement, SIX checks it and – if there are no outstanding questions – enters the network partner in the eBill infrastructure.

6. SIX informs the designated main contact as soon as the network partner has been registered.

7. Once registration is complete, the network partner can begin developing the interface.

3.2   Developing and approving the interface

A network partner develops and tests the interface with the eBill infrastructure independently using the documents received from SIX. Once its tests have been completed successfully, the network partner works with SIX to conduct a verification test and activate productive operation. The network partner must be registered in the eBill infrastructure as an eBill participant and have received the documents for developing the interface. SIX alone decides whether the network partner is to be activated for productive operation.

The development and approval of the interface with the eBill infrastructure are split into two phases:

1. Integration test by the network partner

2. Collaborative verification test

In the first phase, the network partner independently validates and tests implementation using the test infrastructure provided by SIX (blue area in Figure 6).

In the second phase, a collaborative verification test is performed to ensure that the interface can be approved for operations (grey area in Figure 6) SIX is in charge of this test.
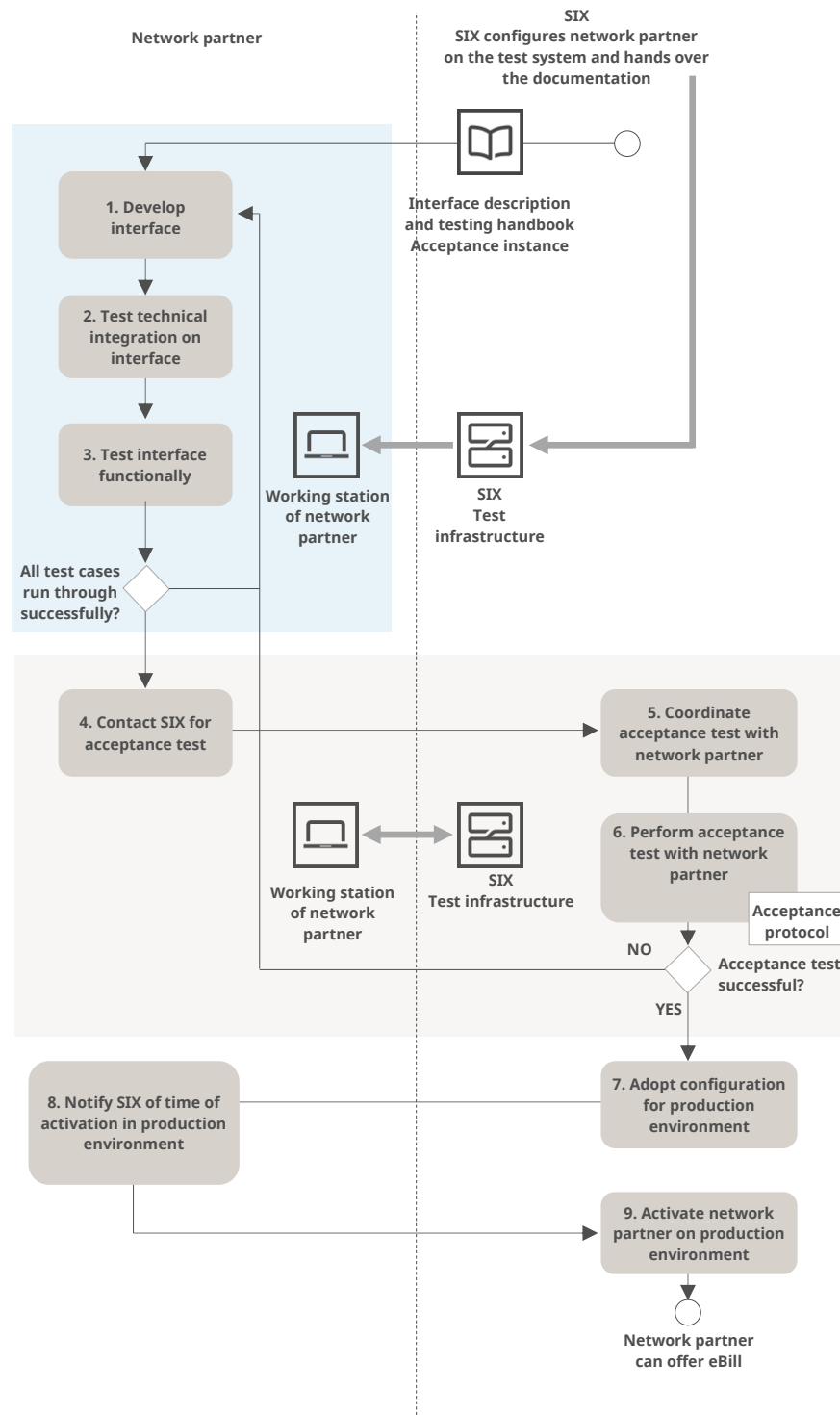
Figure 6: Testing and acceptance process for network partner implementation

1. The network partner develops the interface with the eBill infrastructure based on the documents provided.

2. The network partner conducts a technical integration test on the interface.

3. The network partner uses the test system to test the interface that it has developed.

4. Once all test cases have been run through and tested successfully, the network partner contacts SIX for the acceptance test.

5. SIX coordinates the acceptance test with the network partner.

6. The acceptance test is performed collaboratively under the direction of SIX. SIX draws up a acceptance log for the purpose.

7. SIX adopts the configuration from the test environment for the production environment.

8. The network partner stipulates the time for approval of the production environment and notifies SIX accordingly.

9. SIX activates the network partner for the production environment at the appointed time.

10. Once this process is complete, the network partner can offer its customers the eBill service (electronic invoices, reminders, credits and notifications).

3.2.1 Test infrastructure for integration testing

Implementation by the network partner is not monitored or supervised by SIX and is entirely the responsibility of the network partner in question.

The network partner is granted access to a comprehensive test infrastructure (test system) for support.

The following levels of the eBill infrastructure are usually available to the network partner:

Level	Description
XE	External acceptance/development stage. Contains the current development release stage of the eBill infrastructure. New features are provided every three weeks and can be used for integration work immediately.
XP	External acceptance/production stage. Contains the same release stage as the current production environment.
P	Production

The test environment corresponds to the "external acceptance" test level and comprises a largely complete eBill system environment. Accordingly, all necessary related systems are configured and available. However, limited availability applies to the test system relative to the production system. The test environment is available to all network partners, and user authorizations and access rights do not correspond to operational requirements.

With access to the test system, the network partner can verify the interfaces with the eBill infrastructure independently. This means that network partners can run their own end-to-end checks on business processes. The test system can also be used for backward compatibility tests. The basic test data and a set of test invoice recipients are provided by SIX. It is not allowed to use confidential data on the test system; in particular, testing with operational data sets is expressly forbidden. The test system is not designed for unannounced performance or stress tests. Appropriate test requirements must be coordinated with Support in advance and incorporated into planning. The network partner generates the invoice issuer and transaction data (reports) itself:

a) Invoice issuer via the application functions.

b) The network provider makes its invoice issuer test data available for creating transaction data. This can be used to import test results into the system in all defined and permissible forms via the network partner API.

3.2.2 Collaborative verification test

Once the network partner has successfully completed the independent integration tests, a collaborative acceptance test is performed (grey area in Figure 6) under the direction of SIX. The collaborative acceptance test checks the functional use cases, or the interfaces, with end-to-end tests between the network partner and SIX. Once acceptance is complete, the network partner is configured for productive operation and activated at the time agreed upon. SIX employees generally visit the premises of the network partner for the purpose of the collaborative acceptance test. However, to minimize costs, the network partner can also provide SIX employees with system access to enable remote verification of the results. Further information and requirements concerning onboarding can be found in the Technical Onboarding Specifications.

3.2.3 Retesting network-relevant functions

Retesting is performed whenever a new network-relevant function is introduced or an existing one changed. The network partner tests the new functions or changes to network-relevant functions itself and then performs a acceptance test under the direction of SIX. The verification retest follows the same procedure as the acceptance test described in 4.2.2 for activating the network partner for productive operation (grey area in Figure 6).

4. Functions of the NWP API

This section describes the eBill functions of the NWP API. All details such as resources, technical operations, payload definitions, validation information, etc. can be found in the detailed technical OpenAPI specifications and the documentation of the content of the structured information from the eBill format.

Invoice recipients are registered for the eBill functions via the financial institutions and the registration process is therefore not explored in more detail in this document.

Overview of the functions of the NWP API (network-relevant functions are indicated by an * and must be implemented by the network partner):

Function	Description
Query system status	Requests information about the system status (can be used as a health check for the eBill infrastructure).
Query branches	Branches are valid across the system and are managed in the eBill infrastructure. The network partner assigns one or more branches to an invoice issuer during data entry.
Query invoice issuer	The network partner searches for an invoice issuer by sending invoice issuer search criteria to the eBill infrastructure. Invoice issuer data can be viewed in full only by the primary network partner. All other network partners can query a limited set of invoice issuer data (the invoice issuer's subscription and logout URLs are hidden; the primary network partner is not shown).
Register invoice issuer*	This use case is a central element of the services provided by SIX and enables invoice issuers to be onboarded for the eBill service. This function is network-relevant. The network partner is bound by contractual obligation to implement it.
Edit invoice issuer data*	This use case is a central element of the services provided by SIX and makes it possible to keep invoice issuer data up to date. This function is network-relevant. The network partner is bound by contractual obligation to implement it. Invoice issuer data can be managed in full only by the primary network partner.
Deregister invoice issuer*	This use case is a central element of the services provided by SIX and makes it possible to deregister an invoice issuer from the eBill service. Invoice issuer deregistrations can be performed only by the primary network partner. When an invoice issuer is deregistered, it is not deleted but set to "inactive" in the system. As a result, it can no longer deliver business cases or be found on the list of invoice issuers in the eBill portal. This function is network-relevant. The network partner is bound by contractual obligation to implement it.
Deliver supplementary II document	This use case is a supporting element of the services provided by SIX and enables the network partner to create supplementary invoice issuer documents that have to be attached to all business cases (e.g. price lists) with just one delivery.
Query supplementary II document	This use case is a supporting element of the services provided by SIX

	and enables the network partner to see which supplementary documents its invoice issuers have, e.g. to determine the validity period of a supplementary document.
Delete supplementary II document	This use case is a supporting element of the services provided by SIX and enables the network partner to delete supplementary invoice issuer documents.
Query invoice recipient*	This service is a central element of the services provided by SIX and supports a simplified process (initiated by the invoice issuer) for logging the invoice recipient into the invoice issuer's system for obtaining electronic invoices. This operation is also referred to as "invoice recipient look-up."
	Only invoice recipients that have consented to the look-up process or have an active relationship with the invoice issuer can be found.
	This function is network-relevant. The network partner is bound by contractual obligation to implement it.
Deliver business cases*	This use case is a core element of the services provided by SIX. It ensures that business cases are transported from the network partner to the eBill infrastructure.
	Business cases can be delivered via any network partner. Delivery results in business cases being placed in the data rooms of the network partners and invoice issuers involved.
	This function is network-relevant. The network partner is bound by contractual obligation to implement it.
Query business case data	This use case is a supporting element of the services provided by SIX and enables the network partner to request information concerning business cases that it has initiated.
Query business case processing events	This use case is a supporting element of the services provided by SIX and enables the network partner to request information concerning transaction processing events and forward this information to its invoice issuers.
Obtain subscription data*	When an invoice recipient logs in to an invoice issuer's system, the network partner can obtain detailed information from SIX. This can be used to inform the invoice issuer of the subscription directly (subscription events) or prepopulate subscription forms. Depending on the type of subscription, the subscription data also includes a payment order reference number and the credit account of the invoice issuer (direct subscription). This function is network-relevant. The network partner is bound by contractual obligation to implement it and to forward the subscription data to the invoice issuer. Subscription forms are used only for reasons of backward compatibility and are not recommended.
Query logout events	This use case is a supporting element of the services provided by SIX and enables the network partner to obtain events for the delivery permit created between the invoice recipient and invoice issuer and to forward the information to its invoice issuer. Processing these events enables validation errors to be avoided

during delivery.