Software Requirements Specification

for

Gaia-X Federation Services Integration & Portal Portal

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1 Introduction

To get general information regarding Gaia-X and the Gaia-X Federation Services please refer to [TAD] and [PRD].

Within the Gaia-X Federation Services Project (GXFS), a Minimal Viable Gaia-X (MVG) as a reference implementation should be designed, implemented, and deployed. The core functionalities offered by the MVG are presented as a portal with a web-based user interface. This will be the main touchpoint for everyone interested in using Gaia-X. To distinguish between different functional levels for the web user interface, there are several defined roles: visitor (VR), participant (PR), and federator (FR). There are two different roles for a PR, that of a consumer (PCR) using Gaia-X offerings and that of a provider (PPR) being able to also offer services and data.

The main functionalities of the Portal are searching, exploring, and displaying content of the Gaia-X Federated Catalogue. You can also register and onboard new PRs. The PR area allows for editing PR details and a special federator section enables the AISBL to access new Gaia-X member's onboarding information. Eventually, they can approve a registration request and issue verified credentials. A Gaia-X PR can also orchestrate services for instantiation through the portal. This will require PPRs to offer service instantiation templates as part of the service Self Descriptions (SDs) that are accessible through the Federated Catalogue (WP2¹).

Next to the requirements stated in this document, the requirements regarding the Technical Environment/ Development [TDR] must be also met where applicable.

Abbreviation, Title	Description	Link
[IDM.AO]	Gaia-X WP1 (2021), Architecture Overview	Please refer to annex "GX_IDM_AO"
[TAD]	Gaia-X European Association for Data and Cloud, AISBL (2021): Gaia-X Architecture Document	Please refer to annex "Gaia- X_Architecture_Document_2103"
[PRD]	Gaia-X European Association for Data and Cloud, AISBL (2021): Gaia-X Policy Rules Document	Please refer to annex "Gaia-X_Policy Rules_Document_2104"
[IP.ORC]	Gaia-X Federation Services Integration & Portal Orchestration	Please refer to annex "SRS_GXFS_IP_ORC"

1.1 References

¹ Please refer to appendix B for an overview and explanation of the Work Packages (WP).

[TDR]	Gaia-X Federation Services Technical Development Requirements	Please refer to annex "GXFS_Technical_Development_Requir ements"
[SPBD]	Gaia-X Federation Service Non-functional Requirements Security & Privacy by Design	Please refer to annex "GXFS_Nonfunctional_Requirements_S PBD"

1.2 User Classes and Characteristics

Roles	Description
Federator (FR)	Federators are legal entities who are entitled to manage a set of Federation Services for the specific Federation according to Gaia-X standards and principles controlled by the AISBL. The AISBL MAY a Federator. A Federator approves Participants requests for accreditation, manages Participants for its specific federation, sends notifications to Participants, assures QoS of the catalogue and can offer an API Gateway to expose publicly available Gaia-X APIs.
Consumer (PCR)	A role of a Gaia-X Participant with users & devices, searching/ordering services and maintaining a business relationship to Providers. A Consumer consumes Service Instances but can also provide them to their End-Users.
End-User	A natural person not being Principal, using Gaia-X Service Instances from a Consumer. End-Users own an identity within the Consumer context.
Participant (PR)	A Participant is a legal person/entity that can take on one or multiple of the following roles: Provider, Consumer
Principal	Either a natural person or a digital representation which acts on behalf of a Gaia-X Participant.
Principal@Provider	Principal of a Gaia-X Participant in the context of the Provider role.
Principal@Consumer	Principal of a Gaia-X Participant in the context of the Consumer role.
Provider (PPR)	A role of a Participant, responsible for making an Asset available to the Gaia-X ecosystem.
Visitor (VR)	Anonymous, non-registered entity (natural person, bot,) browsing a Gaia-X Catalogue.

Natural Person	A natural person can be part of Gaia-X as a VR or as a PR. To become a
(Customer)	participant the person has to be accredited either by a participating organization or by the AISBL as the federator that handles accreditation
	requests for natural persons that are not associated with any organization.
	requests for natural persons that are not associated with organization.

Table 1: User Classes and Characteristics

1.3 Abbreviations

г

DID	Distributed Identifier
FR	Federator
PCR	Consumer
PPR	Provider
PR	Participant
SD	Self Description
SSI	Self Sovereign Identity
VC	Verifiable Credential
VR	Visitor

1.4 User personas

Personas were designed to identify characteristics of user groups that are relevant for the specification to the user interface. The results of the persona descriptions are based on assumptions, not on research data.

The users are classified into three groups: VRs, PCRs, and PPRs:

- VRs are not registered in the system and therefore browse the portal unlogged.
- PCRs are registered users who book offers from the catalogue.
- PPRs are also registered users who, in addition to being able to book offers, supply services, or data themselves.

Persona 1: Marion Schwertner (VR)

Name	Marion Schwertner
Age	46
Language	German
Location	Darmstadt, Germany
Archetype	Details oriented, meticulous

Job domain	Health
Job title	Purchasing manager technology &
	infrastructure
User group	VR
User story	As a VR, I want to browse through the Gaia-X
	Service Catalogue, compare three Services,
	and decide to book one.
Tech-savvy	Middle
Goals/ Motivation	The security in handling our patient data is of central importance. That's why my top priority is a secure and trustworthy data infrastructure.
Why does the persona register?	As a buyer for technology and infrastructure, the Gaia-X platform provides a selection of trusted cloud offers.
Why does the persona use the product?	I quickly get an overview of trusted PPRs who have a solution to my problem at hand. I can rely on the information at Gaia-X. That will save me a lot of headaches afterward.
Needs/ Disabilities	I wear glasses. The font size must fit the detailed technical information. At Gaia-X, information from different PPRs is all listed in the same fashion.
Frustrations/ Pain Points	I expect clear user guidance and well- structured forms. When text fields have no labels or easy to understand symbols, I just don't get it.

Table 2: Persona 1: Marion Schwertner (VR)

Persona 2: Dario Perez (PCR)

Name	Dario Perez
Age	56
Language	Spanish
Location	Sevilla, Spain
Archetype	Needs convincing

Job domain	Industry 4.0
Job title	Assistant Production Line Manager
User group	PCR
User story	As a PCR, I would like to find all the provided services of the sector "Industry 4.0". I would like to be able to filter them according to certain criteria and also save them for my further searches.
Tech-savvy	High
Goals/ Motivation	I need to have a fast and cost-effective deployment of services in my processes - without the effort & time to build it ourselves, and with strong security guarantees/aspects and the imminent flexibility in the choice of PPRs /easy of switching PPRs.
Why does the persona register?	Interest to find and potentially leverage services around analytics, IoT, AI that can help optimize production process - in a secure and trustworthy manner, so my company's competitive advantage (being the pride of the company) is not exposed by the use of such cloud-based services and the corresponding sharing of some company data by using this cloud service (with competing peer organizations in the same industry subsegment).
Why does the persona use the product?	I believe and expect that Gaia-X can support me in my pursuit of (a) innovative solutions, that can help my company to further strengthen our competitive leadership, combined with (b) our need for a more self- determined approach for the use and sharing of data and services (digital sovereignty) in our industry ecosystem.
Needs/ Disabilities	While I have a solid technical background, I expect a clear organization and representation of the services and functionalities offered in the UI - in my domain-specific language, as this provides a convincing understanding of my industry context. Focus on a business need, for which supporting underlying capabilities are shown (a "business need pull" view of technology) and not a wide collection of technical capabilities without the direct mapping to the business need (a "technology push" view or "solution in search of a problem" view).

Frustrations/ Pain Points	I expect explicit and domain-relevant
	information, no generics, or high abstraction
	level info only. An immediate and obvious
	value add to my particular interest is key for
	my acceptance of the Gaia-X UI. Being
	impatient by nature, I'll lose interest and
	won't come back if I experience a simple
	forward linking to generic supplier websites.

Table 3: Persona 2: Dario Perez (PCR)

Persona 3: Luc Michaux (PPR)

Name	Luc Michaux
Age	35
Language	French
Location	Paris, France
Archetype	Quick comprehension
Job domain	Smart Living
Job title	Software Developer
User group	PPR
User story	As a PPR, I want to register my services quickly and easily and receive feedback if I have made a mistake.
Tech-savvy	High
Goals/ Motivation	Gaia-X finally allows me and my company to offer our services transparently and securely in Europe.
Why does the persona register?	I register to Gaia-X to provide our services in single data infrastructure.
Why does the persona use the product?	I have been waiting for a long time for a European alternative to the American hyperscalers.
Needs/ Disabilities	I expect the Gaia-X system to give me direct feedback on my actions. Being a software developer myself, I pay special attention to this. I want the content in the portal to load quickly so that I don't lose time to reach my goal. Since I want to offer all our services via the portal, I expect a clear presentation and management.

Frustrations/ Pain Points	I get annoyed when input errors are not described correctly, let alone not even listed	

Table 4: Persona 3: Luc Michaux (PPR)

Derived requirements

The following requirements can be derived from the persona-description of Marion Schwertner:

- The offers shall have a visual feature that indicates their certification and security.
- The font size shall be at least 14 pixels.
- The font and background color shall have high contrast.
- The presentation of information details shall be consistent for services, data sets, and PPRs.
- Forms shall be structured.
- Text fields shall always contain placeholder text
- Text fields shall have a label that is visible at least when the mouse focuses the input.
- Icons and icon buttons shall have a descriptive tooltip.

The following requirements can be derived from the persona-description of Dario Perez:

- The deployment of services or data sets should be done in two ways: automatically by the PPR or manually by the PCR.
- It shall be marked if a PPR change of services and or data set is allowed.
- The information on the offers shall not be generic.

The following requirements can be derived from the persona-description of Lux Michaux:

- The system shall provide asynchronous and synchronous feedback on user actions.
- The system shall provide asynchronous feedback by sending email notifications.
- The system shall provide synchronous feedback by using dialogs and input helper texts.

Other requirements:

- To guarantee the accessibility of the portal, the development of the interface shall be done according to WCAG 2.1 standard².
- The portal shall be accessible in different languages and support UTF-16. Therefore, an easy-to-handle translation process shall be implemented. The default language is English.

1.5 Structure tree

The Gaia-X Portal includes the following core functions:

- Registration process
- Login process
- User account
- Discovery
- Solution packaging
- Self-Description
- Dashboard

² https://www.w3.org/TR/WCAG21/

The structure tree is used to create an overview of all pages, subpages, and sections relevant to the portal. At the navigation level, the pages are divided into header and side navigation. Based on the

Structure tree



Figure 1: UX Flow Structure Tree

1.6 Enterprise Architecture Model

The Enterprise Architectural Model is a schematic depiction of the portal components and their relationship to each other. The workflow engine³ serves as a central orchestration mechanism to mediate between the service functions and to manage the sequence of necessary steps to handle a specific task.

Each functional service consists of a microservice that provides the actual programming logic to process a request. This microservice is interacting with a user interface on a screen via an API. The user can access and interact with the service using this screen-based interface. There are a varying number of service functions that a specific service provides, like uploading, editing, sorting, or searching. The sum of these functions and their graphical representation on the screen make up the portal.

The Architectural Model consists of these services:

³ The Workflow Engine will be developed separately

- The Workflow Engine Service as an overall orchestrator.
- The Discovery service to search for services, providers, and datasets.
- The Dashboard service to manage and monitor service usage.
- The Solution Packaging Service to create and edit service solutions consisting of services that work together to provide a more comprehensive solution.
- The User Account Service to manage PR profiles.
- The Onboarding Service to manage participant registration and accreditation.
- The SD Service to enter and edit SD of all assets in Gaia-X.
- The Compliance Service to handle the notary service process for AISBL based Verifiable Credential (VC) assignment (based on the Self Sovereign Identity (SSI) process).



Figure 2: Enterprise Architectural Model

2 User Interfaces

The user interfaces are described based on the core functions. This section includes a description of the use case, the goal, input and output, the main scenario, pre-conditions, steps, and post-conditions. Also, a UX flow and wireframes with the corresponding API input and outputs are presented for better illustration.

2.1 Home

The portal's home page offers VRs to start a search query or explore new assets or topics related to Gaia-X.

Name

Home

Goal

The system shall allow VRs to search directly from the home page. The system shall allow VRs to get to know what's new in the Gaia-X Portal. The system shall allow VRs to learn more about Gaia-X in general.

Input

- Search
 - o Text field
 - Advanced button
 - o Clickable chips
- Links to new assets (services, data, PPRs)
- Links to articles

Output

- Search query is passed to the system.
- Links direct to the "about Gaia-X" pages.
- Links direct to external websites.

Main Scenario

A VR wants to search for a PPR located in a certain country.

Pre-condition

The VR must be connected to the system with a supported web browser.

Steps

- The VR enters the URL in his browser.
- The VR enters the portal through the home screen.
- The VR clicks on the advanced button next to the search field.
- The system displays chips that the VR can click on to compose a search query.
- The VR first clicks on "provider".
- "Provider" appears in the search field.
- The list of chips updates based on the chip selected.
- The VR clicks on "located in".
- "Located in" appears in the search field.
- The list of chips updates based on the chip selected.
- The VR clicks on "Country".

- "Country" appears in the search field.
- The VR submits the search query.

Post-condition

The VR is directed to the PPR page with a list of search results.

Exceptional Scenario

In case the VR has entered a search term that could not be found in the system, a corresponding message will be displayed.

UX Flow

The following figure shows the UX Flow of home. Each step is illustrated as a screen. The arrows display the connections between the screens.





Wireframes and API

The following wireframes show a schematic representation of the content required for the home screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

The layout of the portal is as follows:

The header is located on top. It contains three buttons: Register, login, and a help menu. If a PR is logged in, the registration and login buttons are hidden and replaced by the PRs avatar. The help menu contains the language picker, the support and about page.

The page navigation bar is positioned on the left. The following elements can be found in it: The Gaia-X logo, home, services, data, and PPR buttons. If the PR is logged in, provide and dashboard buttons are also displayed. If a FR is logged in, only the admin button is displayed. The content area of the home page has a maximum width of 960 pixels. All other pages have a

maximum width of 1280 pixels.

Home

The welcoming and the search field are located at the top left. The search field gets such a prominent position because searching is the main action of the home screen. Below one can find the "What's new" and the "What is Gaia-X" section.

O Logo				Register Sign In Hetp Menu
Home Services Data Provider	Welcome to GAIA-X A Federated Data Infrastructure for Euro Search	ope Q		
	What's new			
	Preview Image	Preview Image O Service Name Loge Provider URL	Preview Image O Lage Provider URL	
	Lorem in journ dolor sit amet, consectetuer adipiscing eilt.Aenean commodo ligula eget dolor. Details	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor: Details	Lorem ipsum dolor sit amet, consectetuer adipiscing etit. Aenean commodo ligula eget dolor. Details	
	What is GAIA-X?			1
	Preview Image	Preview Image	Preview Image	
	Headline Subline	Headline Subline	Headline Subline	
	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula enet folor	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula	

This search bar is intended to search for Gaia-X services.

Figure 4: Wireframe Home

API

• API input

o n/a

- API output
 - o "What's new" information (text, images, etc.)

Home – Advanced search

By clicking on the advanced button next to the search field, the chips area is displayed below the input.

Page	13
- 0 -	_

O Logo					Register Sign In Help Menu	
Home Services Data Provider	Welcome to GAIA-X A Federated Data Infrastructure fo	r Europ	ie			
	Search	RVICE	COMPUTE)			
	What's new					
	Preview Image		Preview Image	Preview Image		
	Service Name Provider URL Lorem lipsum dolor sit amet, consected adjuscing elit, Aenean commodo liguli eget dolor.	uer	O Service Name Provider URL Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor.	Service Name Provider URL Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor.		
	Deta	is	Details	Detaits		
	What is GAIA-X?					
	Preview Image		Preview Image	Preview Image		
	Headline		Headline	Headline		
	Subine Lorem ipsum dolor sit amet, consectet adipiscing elit. Aenean commodo ligula Lenet dolor	uer	Subune Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor	Subine Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor		

Figure 5: Wireframe Home Advanced Search

- API input
 - o n/a
- API output
 - category filter (for services)

Home – Error message

In case the VR enters a search term that could not be found in the database, an error message is displayed.

O Logo					Register Sign In Help Menu
Home Services Data Provider	V	Velcome to GAIA-X Federated Data Infrastructure for Europ	e		
		Search	Q Advanced		
	• •	h no! We couldn't find any results. Vhat's new			
		Preview Image	Preview Image	Preview Image	
	[O Service Name Provider URL	O Service Name Provider URL	O Service Name Provider URL	
		Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Details	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Details	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Details	
	 	Vhat is GAIA-X?			
		Preview Image	Preview Image	Preview Image	
	1	Headline	Headline	Headline	
		Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula cost delor.	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula	

Figure 6: Wireframe Home Error Message

- API input
 - o search term, filter list
- API output
 - (paginated) service list (with all information needed according to the wireframes) with service id per line.

The registration process includes the onboarding of an organization on the one hand and the onboarding of a natural person on the other. For detailed information please see the [IDM.AO].

2.2.1 Registration process of an organization

The registration process of an organization involves a person belonging to the organization and who is authorized acting on behalf of the organization.

There are two ways to register an organization:

- 1. In the first case, the person has no DID and therefore no VC. They must first have these created by an Identity Provider (IdP) or the FR. After acquiring both, the onboarding process can continue. The FR issues the PR credentials, when the compliance check was successful. The organization is then registered.
- In the second case, the authorized person has already a DID for which VC have been entered. In this so-called express registration, the onboarding request must only be recognized by the FR.

Name

Registration Process: Participant (organization)

Goal

The system shall allow authorized persons, belonging to an organization, register their organizations.

Input

- Wizard steps
- PPR radio button
- Customer radio button
- Submit button
- Upload button
- Organization text field
- Email address text field
- Registration via DID button
- QR code for proof of onboarding authorization
- I don't have a DID button
- List of Identity Providers

Output

- If the organization has to request VC first, the output by the FR would be VC.
- If the organization has a valid DID and entered VC, the FR issues PR credentials for the organization, after accepting the onboarding request.

Main scenario

An organization wants to register to act as a PPR.

Pre-condition

The VR must be connected to the system with a supported web browser. He must have valid documents of his organization (e.g. commercial register excerpt, certifications).

Steps

Process 1 – Request of VC and DID creation

In this process the VR has to create VC at the FR and a DID.

- The VR has access to the registration on every screen of the system.
- The VR clicks on the register button.
- The VR is shown the registration screen.
- The VR selects "provider" as his future role within Gaia-X.
- The VR submits.
- The VR uploads his organization details (e.g. commercial register excerpt, certifications)
- The VR enters his organization's name and email address.
- The VR submits.
- The VR gets an email with a confirmation link.
- The VR confirms his email address.
- The system informs him that the FR will issue a DID with VC.
- The FR gets the request of DID and VC.
- The FR checks the organization's details within the Notary Service.
- The FR accepts the notarization.
- The FR issues organization VC's and a DID.
- The FR sends the onboarding status via email.
- The VR clicks on the link provided in the email.
- The VR gets to the "Proof of onboarding authorization".
- The VR scans the QR code.
- The system checks if the organization has VC.
- The VR is shown the VC.
- The VR submits.
- The system informs him about the pending compliance check by the FR.
- The VR enters his email address to receive status updates of his onboarding.
- The FR gets the onboarding request.
- The FR accepts the request.
- The FR issues PR credentials on the organization's DID.
- The FR sends the onboarding status via email.

Process 2 – Registration via DID

In this process the VR has VC and a DID.

• The VR has access to the registration on every screen of the system.

- The VR clicks on the register button.
- The VR is shown the registration screen.
- The VR selects "provider" as his future role within Gaia-X.
- The VR submits.
- The VR clicks on "Registration via DID"
- The VR is shown a QR code, which he has to scan to prove that he is an authorized person acting on behalf of his organization.
- The system checks if the organization has VC.
- The VR is shown the VC.
- The VR submits.
- The system informs him about the pending compliance check by the FR.
- The VR enters his email address to receive status updates of his onboarding.
- The FR gets the onboarding request.
- The FR accepts the request.
- The FR issues PR credentials on the organization's DID.
- The FR sends the onboarding status via email.

Post-condition

The organization is registered. The VR is now a PPR.

UX Flow

The following figure shows the UX flow of the registration process of an organization. Each step is illustrated as a screen. The arrows display the connections between the screens.



Figure 7: UX Flow Registration Process Organization

Wireframes and API

The following wireframes show a schematic representation of the content required for the registration process screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

The registration process is presented within a dialog. It is divided into two areas:

On the left are the Gaia-X logo and a welcome message for brand recognition. Underneath, space is provided for descriptions of each step. The steps are placed directly to the right. Thus, they contribute to the visual separation of the two areas.

In the right area, all elements required for the current registration step are positioned. Each step starts with a headline that informs the user what to do to move forward in the registration process. To do this, at least one button to continue is provided at the bottom right of the dialog.

Registration Process – Step 1 – Select registration type

The VR is requested to select the registration type: PPR or Customer.



Figure 8: Wireframe Register Organization Step 1

Registration Process – Step 2 – Supply organization details

The VR wants to become a PPR. For this, the VR must upload details of his organization, specify the organization name and a valid email address. On submit the notary service of the FR will be triggered.



Figure 9: Wireframe Register Organization Step 2

- API input
 - SD (file upload)
 - o organization name
 - o Email address
 - o "apply for AISBL membership"-flag
- API output
 - o "success" or error codes (e.g. in case of validation errors)

Registration Process – Step 3 – Confirmation link

After the VR has successfully uploaded and entered the data, the VR gets an email with a confirmation link, on which he has to click.



Figure 10: Wireframe Register Organization Step 3 Email-link

Registration Process – Step 3

After confirming the email address, the system informs the VR that the FR will check the uploaded documents to issue VC and a DID. When the FR has issued both, the VR will receive a confirmation email with a link that redirects him to the proof of onboarding authorization.



Figure 11: Wireframe Register Organization Step 3 Submit

- API input
 - o unique ID (from the link in the mail)
- API output
 - o "success" or error codes (e.g. in case the unique ID is invalid or expired)
 - In the success case the API has to start the backend onboarding process.

Registration Process – Step 2 – Proof of onboarding authorization

If the VR clicks on the link in the email or on the "Registration via DID" button (Step 2 – Supply organization details, page 21), he will be asked to scan a QR code. Here the onboarding Procura credentials are requested.



Figure 12: Wireframe Register Organization Step2 Proof of Onboarding Authorization

- API input
 - o n/a
- API output
 - o QR-Code
 - link for browser-based DID wallet
 - o Poll URL or Session to check status of QR-Code Flow

Registration Process – Step 2 – Credentials are missing

If no Procura credentials are available, the system displays a dialog with the message below.



Figure 13: Wireframe Register Organization Step2 Credentials are missing

- API input
 - o session information
- API output
 - o info whether sufficient VCs are available

Registration Process – Step 2 – No DID

If the VR does not have a DID and clicks on the "I don't have a DID" button, he will be provided with a list of IdP. Once he has selected an IdP, he should follow the instructions on the external website.



Figure 14: Wireframe Register Organization Step 2 No DID

API

• API input

o n/a

- API output
 - DID service PPR list containing name, logo and link

Registration Process – Step 3 – Display organization's details

If the VR has a DID on which VC are issued, his VC are displayed in the next step.



Figure 15: Wireframe Register Organization Step 3 Display VC

- API input
 - o session information
- API output
 - o organization details from VCs

Registration Process – Step 3 – Message regarding compliance check

The VR has to fill in his email address to receive status updates. His onboarding request will be checked by the FR. After clicking on the finish button, the VR gets directed to the home page.



Figure 16: Wireframe Register Organization Step 3 Compliance Check.

- API input
 - o Email address
 - DID or session information
- API output
 - o n/a

The VR gets this message, if he has already triggered the compliance check.



Figure 17: Wireframe Register Organization Registration Status

- API input
 - o DID
- API output
 - registration status

2.2.2 Registration process of a natural person (customer)

As part of the registration process of a natural person (customer), VRs who do not belong to any organization can also register.

Name

Registration process: Natural person (Customer)

Goal

The system shall allow VRs to register themselves as natural persons (customers).

Input

- Wizard steps
- PPR radio button
- Customer radio button
- Submit button
- First name text field
- Last name text field
- Email address text field
- Address text field
- Phone number text field
- Registration via DID button
- QR code
- I don't have a DID button
- List of IdP

Output

- If the natural person (customer) has to request VC, the output by the FR would be issued VC.
- If the natural person (customer) has already a DID with entered VC, the output would be a successful registration.

Main Scenario

A natural person wants to register as a customer.

Pre-condition

The natural person must be connected to the system with a supported web browser.

Steps

Process 1 – Request of VC and DID creation

In this process the VR has to create VC at the FR and a DID at a IdP.

• The VR has access to the registration on every screen of the system.

- The VR clicks on the register button.
- The VR is shown the registration screen.
- The VR selects "customer" as his future role within Gaia-X.
- The VR submits.
- The VR enters his account details.
- The VR submits.
- The system informs him that the FR will issue VC.
- The FR gets the request of VC.
- The FR checks the account details within the Notary Service.
- The FR accepts the notarization.
- The FR issues VC's.
- The FR sends the onboarding status via email.
- The VR clicks on the link provided in the email.
- The VR gets to the QR code.
- The VR clicks on the I don't have a DID button.
- The VR is shown a list of IdP.
- The VR selects one and creates VC externally.
- The VR returns to the QR code screen.
- The VR scans the QR code with his wallet app.
- The system shows the VC.
- The VR finishes the onboarding.

Process 2 – Registration via DID

In this process the VR has VC and a DID.

- The VR has access to the registration on every screen of the system.
- The VR clicks on the register button.
- The VR is shown the registration screen.
- The VR selects "customer" as his future role within Gaia-X.
- The VR submits.
- The VR clicks on "Registration via DID"
- The VR is shown a QR code.
- The VR scans the code with his wallet app.
- The system checks if he has VC.
- The VR is shown the VC.
- The VR finishes the onboarding.

Post-condition

The VR is successfully onboarded as a customer.

UX Flow

The following figure shows the UX flow of the registration process for a natural person. Each step is illustrated as a screen. The arrows display the connections between the screens.



Figure 18: UX Flow Registration Process Participant (Natural Person)
Wireframes and API

The following wireframes show a schematic representation of the content required for the registration process of a natural person screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

Registration Process – Step 1 – Select registration type

The VR is requested to select the registration type: PPR or Customer.



Figure 19: Wireframe Register Natural Person Step 1

Registration Process – Step 2 – Supply account details

The VR wants to become a customer. For this, the VR must enter its account details. On submit the system ends an email with a confirmation link.

Col, so you want to become a customer! To issue you Verified Credentials.	Please enter your account details or select express registration via DID. First name Last name Email address Phone number Street and number ZIP and country Registration via DID Send

Figure 20: Wireframe Register Natural Person Step 2

- API input
 - o first name
 - o last name
 - o Email address
 - Street and number
 - o ZIP and country
 - phone number
- API output
 - "success" or error codes (e.g. in case of validation errors)

Registration Process – Step 3 – Confirmation link

After the VR has successfully entered the data, he gets an email with a confirmation link, on which he has to click.



Figure 21: Wireframe Register Natural Person Step 3 Email Link

Registration Process – Step 3

After confirming the email address, the system informs the VR that the FR will check the uploaded documents to issue VC and a DID. When the FR has issued the VC and a DID, the VR will receive a confirmation email with a link that redirects him to the QR code scan.



Figure 22: Wireframe Register Natural Person Step 3 Submit

- API input
 - o unique ID (from the link in the mail)
- API output
 - o "success" or error codes (e.g. in case the unique ID is invalid or expired)
 - In the success case the API has to start the backend onboarding process.

Registration Process – Step 2 – QR code scan

If the VR clicks on the link in the email or on the registration via DID button (Step 2 – Supply account details, page 33), he will be asked to scan a QR code.



Figure 23: Wireframe Register Natural Person Step 2 QR-Code

- API input
 - o n/a
- API output
 - o QR-Code
 - link for browser-based DID wallet
 - Poll URL or session to check status of QR code flow

Registration Process – Step 2 – No DID

If the VR does not have a DID and clicks on the "I don't have a DID" button, he will be provided with a list of IdP. Once he has selected an IdP, he should follow the instructions on the external website.



Figure 24: Wireframe Register Natural Person Step 2 QR-Code No DID

- API input
 - o n/a
- API output
 - O DID service PPR list containing name, logo and link

Registration Process – Step 3 – Display account details

If the VR has a DID on which VC are issued, his VC are displayed in the next step.



Figure 25: Wireframe Register Natural Person Step 3 Display VC

- API input
 - o session information
- API output
 - o account details from VCs

Registration Process – Last step – Onboarding completed

In the last step, the system provides a "Onboarding completed" message. From there the customer can navigate to the login screen.

Upps Your onboarding is completed! Welcome to GAIA-X Onboarding completed	
Lign	

Figure 26: Wireframe Register Natural Person Step 3 Completed

2.3 Login Process

To book an offering, the PR must be logged in under the premise that he has a valid account.

To login, the PR can scan the provided QR code with his smartphone. His mobile wallet app opens and verifies his credentials.

The PR can alternatively click on a login button. If so, his browser wallet extension opens and verifies his credentials.

This process is implemented using SSI, which follows the Identity management from WP1⁴. After the system has verified the credentials successfully, the PR gets access to book the offers.

Name

Login

Goal

The system shall allow PRs and natural persons to login.

Input

- QR code
- Login button
- Register button
- FAQ & Support button

Output

The PR or natural person is either told that his login credentials are invalid or that his login has been successful.

Main Scenario

A PR wants to book a service. Before he can do so he has to login to the system.

Pre-condition

The PR must be connected to the system with a current web browser. The PR must also have a valid account.

Steps

- The PR has access to the login on every screen of the system.
- The PR clicks on login.
- The PR is shown the login screen.
- The PR either scans the QR code with his mobile device or clicks on the login button.
- The system checks the PRs VC.
- The PR is successfully logged in.

⁴ Please refer to appendix B for an overview and explanation of the Work Packages (WP).

Post-condition

The PR is granted access to the system.

Exceptional Scenario

In the case that the PR does not have a valid account, he will be denied access to the system. The error message will only specify that the PCR has no valid account.

UX Flow

The following figure shows the UX Flow of the login process. Each step is illustrated as a screen. The arrows display the connections between the screens.

1 Login Process



Visitor specific screens 📀 Provider specific screens 🔞 Consumer specific screens

Figure 27: UX Flow Login process Consumer

Wireframes and API

The following wireframes show a schematic representation of the content required for the login process screen. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

Login Process

In the center of the login screen is a dialog in which the elements required for the user login are placed. The Gaia-X logo and welcome greeting contribute to brand recognition. As a subheading, the PCR or PPR is asked to log in. Underneath, the PR finds a QR code which he can scan and a button to login. In case he has no valid account, he can navigate to the registration page by clicking on the provided register button.

Below the login dialog is a link to the FAQ & Support page.



Figure 28: Wireframe Login

API Step 1 (QR-Code)

- API input
 - o n/a
- API output
 - o QR-Code
 - o link for browser-based DID wallet

API Step 2 (Login successful)

- API input
 - o DID Auth Information
- API output
 - Session/token
 - o rights set of the authenticated user

Login Process – Login failed

When the PR clicks on the login button but has no wallet browser extension installed, the system provides the error message: "You need to install a wallet browser extension to login with your credentials."



Figure 29: Wireframe Login Failed

- API input
 - DID Auth Information
- API output
 - o error code

2.4 User account

The user account is separated into PPR account and account of a natural person (customer account).

2.4.1 Provider Account

A registered and logged in PPR has access to his account details. On the account page, he can view and edit his data. If the PPR changes his data, he needs to upload a new SD, which is released via an accreditation process by the FR.

Another feature is the login history. The PPR can view a detailed list, including date and time of past logins.

Furthermore, a PPR can manage his employee's rights.

Name

Provider Account

Goal

The system shall allow PPRs to view and edit their personal account, furthermore to upload a new SD.

Input

View mode:

• Edit button

Edit mode:

- Close button
- Save button
- Cancel button
- Upload SD button

Output

In case of a newly uploaded SD, the document is checked in the background using the accreditation procedure. The PPR is then informed about the correctness or incompleteness.

Main Scenario

A PPR wants to update his SD.

Pre-condition

The PPR must be connected to the system with a supported web browser. The PPR must also have a valid account. The PPR has filled out a valid SD.

Steps

- The PPR has access to his account on every screen of the system.
- The PPR clicks on his avatar in the header.
- A menu opens.
- The PPR clicks on "My Account".

- The PPR is shown the account screen.
- The PPR clicks on the edit button.
- The PPR clicks on the upload SD button.
- A dialog opens.
- The PPR chooses his SD from the file system.
- The PPR clicks on OK.
- The SD is sent to the FR.
- The FR checks the SD.
- The FR approves the SD.
- An email notification is sent to the PPR.
- The PPR sees his new SD in his account.

Post-condition

After the FR has approved the new SD, the PPR sees his new SD attributes in his account.

Exceptional scenario

If the FR declines the new SD, an email notification is sent to the PPR.

UX Flow

The following figure shows the UX Flow of the PPR account. Each step is illustrated as a screen. The arrows display the connections between the screens.



P Provider specific screens Not included in release 1

Figure 30: UX Flow Provider Account

Wireframes and API

The following wireframes show a schematic representation of the content required for the PPR account screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here. Also, the PPR account screen consists of a panel with three tabs.

Provider Account – Details – View mode

The first tab "Details" displays the account information. It contains a preview of the profile picture and all filled-in mandatory fields as well as optional fields that the PPR can still fill in. To enter the edit mode, the PPR must click on the edit button. It is located in the upper right corner of the panel.

O Logo			User Help Menu Menu
Home			
Services	My Account		
Data	Details Login History Credentials		
Provider		C Rotar	
Dash- board	Email Address	Email Address	
	Company Name	Company Name	
	Commercial Register	Commercial Register	
	Registred Address	Registred Address	
	Web Address	Web Address	
	Individual Contact	Individual Contact	
	Certifications	Certifications	
	Alias	Alias	
	Local Attestation	Local Attestation	
	Transparency Register	Transparency Register	
	D-U-N-S Number	D-U-N-S Number	
	Legal Entity Identifier	Legal Entity Identifier	
	Data Provider Officer	Data Provider Officer	

Figure 31: Wireframe Provider Account View Mode

API

•

- API input
 - o DID Auth Information
 - o DID
 - API output
 - Account data (Id, email, name, avatar, link, ...)

Provider Account – Details – Edit mode

When switching to the edit mode, the PPR can upload a new SD by clicking on the upload self-description button.

O Logo		User Help Menu Menu
Home		
Services	My Account	
Data	Details Login History Credentials	
Provider	Cancel	
Provide	Upload Self-Description	
Dash- board		
	Remove Account Cancel Save	

Figure 32: Wireframe Provider Account Edit Mode

- API input
 - o DID Auth Information
 - o DID
 - Account data (Email, name, avatar, link, ...)
- API output
 - Account data (Email, name, avatar, link, ...)

Provider Account – Details – Edit mode – Upload SD

A dialog opens where the PPR can choose his SD from his file system.

OLogo	User Heip Heru
Home	
Services	My Account
Data	Details Login History Credentials
Provider	Cancel
Provide	Uptionst Soft-Description
Dash- board	Please upload your new Self-Description
	Upond
	Cancel Save

Figure 33: Wireframe Provider Account Edit Mode Dialog Upload

Provider Account – Details – Edit mode – Upload SD

After the SD has been successfully uploaded, the PPR gets the message that the AISBL first has to approve the SD. After the approval, the SD will be added to the catalogue.

O Logo		User Menu	Hetp Menu
Home			
Services	My Account		
Data	Details Login History Credentials		
Provider	Careel		
Provide			
Dash-			
board	Upload completed Careet Save		
	Your self-description will be verified by the AISBL. You will get a notification when it is		
	approved.		
	Cancel Save		

Figure 34: Wireframe Provider Account Edit Mode Dialog Upload Completed

- API input
 - o SD
 - o DID Auth Information
- API output
 - Upload and verification status

Provider Account – Details – Edit mode – Remove Account

To remove his account, the PPR must press the remove account button in edit mode. A dialog will be called, which he must confirm.

O Logo		User Menu	Hetp Menu
Home			
Services	My Account		
Data	Details Login History Credentials		
Provider	Canot		
Provide	Upland Self-Description		
Dash- board	Remove Account		
	Are you sure you want to remove your		
	GAIA-X account?		
	Cascel Remove		

Figure 35: Wireframe Provider Account Edit Mode Dialog Remove Account

- API input
 - o DID Auth Information
- API output
 - o removal status

Provider Account – Details – Login history

The second tab shows the login history in tabular form. The table consists of three columns: Date, time, and PPR name.

O Logo		User Menu Menu
Home		
Services	My Account	
Data	Details Login History Credentials	
Provider		
H	Date Time Name	
Provide	14.12.2020 10:41 am Provider Name	
Dash- board	14.12.2020 10:41 am Provider Name	
	14.12.2020 10:41 am Provider Name	
	14.12.2020 10:41 am Provider Name	
	14.12.2020 10:41 am Provider Name	
	14.12.2020 10:41 am Provider Name	
	14.12.2020 10:41 am Provider Name	
	14.12.2020 10:41 am Provider Name	
	14.12.2020 10:41 am Provider Name	
	14.12.2020 10.41 am Privider Name	
	14.12.2020 10.41 am Privider Name	

Figure 36: Wireframe Provider Account Login History

- API input
 - o DID Auth Information
- API output
 - Login history (List of (Id, date, time, name) triples ordered by time)

Provider Account – Credentials – Default view

In the credentials tab, the PPR can manage the users who should have access to the Gaia-X system and act on behalf of the registered organization. A table with the users already entered is displayed.

O Logo		User Menu	Help Menu
Home			
Services	My Account		
Data	Details Login History Credentials		
Provider	Add user		
Provide	User name User role 🗸		
Dash- board	User name User role V		

Figure 37: Wireframe Provider Account Credentials

- API input
 - o DID Auth Information
- API output
 - List of all users belonging to the PPR account (Name, role)

Provider Account – Credentials – View mode

If the PPR clicks on the chevron at the end of the line, the entry is expanded and further details such as the first name, last name, email address, and role are displayed.

O Logo		User Help Menu Menu
Lop Hone Services Data Provider Dath Dath	My Account Details Login History Credentials Name Role User name User role User name User role First name Last name Email address Role	User Menu Menu Menu

Figure 38: Wireframe Provider Account Credentials Expanded View Mode

- API input
 - o DID Auth Information
- API output
 - List of all users belonging to the PPR account (Name, role)

Provider Account – Credentials – Edit mode

To edit an entry, the PPR must click on the edit button at the bottom right. The read-only text fields will change to editable text fields. The PPR can save his changes, cancel them, or delete the entry permanently.

O Logo		User Menu Help
Home		
Services	My Account	
Data	Details Login History Credentials	
Provider	Name Role	
Provide	User name User role V	
Dash- board	User name User role	
	Remove Cancel Save	

Figure 39: Wireframe Provider Account Credentials Expanded Edit Mode

API Step 1 (load)

- API input
 - o DID Auth Information
 - o User Id
- API output
 - List of roles
 - User data (Id, first name, last name, email, role)

API Step 2 (save)

- API input
 - o DID Auth Information
 - Changed user data (Id, first name, last name, email, role)
- API output
 - Save status

Provider Account - Credentials - Edit mode - Remove user

When removing a user, a dialog opens which has to be confirmed.

O Logo		User Menu Menu
Home		
Services	My Account	
Data	Details Login History Credentials	
Provider	Add user	
Provide	User name User role V	
Dash- board	User note	
	First name L Remove User	
	Role Are you sure you want to remove the user XXX ? Remove Caucet Save	
	Cancel	

Figure 40: Wireframe Provider Account Credentials Expanded Edit Mode Remove User Dialog

Provider Account – Credentials – Add user

To create a new user, the PPR must click on the add button at the top right. A new row will be appended to the existing table at the bottom. The empty text fields must now be filled in and saved.

O Logo		User Help Menu Menu
Home	My Account	
Data	Details Login History Credentiats	
Provider	Name Role	
Dash-	User name User role V	
board	New user No role set First name Last name Role •	

Figure 41: Wireframe Provider Account Credentials Expanded Add User

- API input
 - o DID Auth Information
 - New user data (First name, last name, email, role)
- API output
 - Created user data

2.4.2 Customer Account (Account of a natural person)

A registered and logged in natural person has access to his account details. On the account page, he can only view his data. The customer can't edit his account details. If he wants to do that, he has to change his VC at his IdP.

Another feature is the login history. The customer can view a detailed list, including date and time of past logins.

Name

Customer Account

Goal

The system shall allow customers to view their personal account.

Input

• Read-only text fields of VC

Output

Main Scenario

A customer wants to see his account details.

Pre-condition

The customer must be connected to the system with a supported web browser. The customer must also have a valid account. And he has to be logged in.

Steps

- The customer has access to his account on every screen of the system.
- The customer clicks on his avatar in the header.
- A menu opens.
- The customer clicks on "My Account".
- The customer is shown the account screen.

Post-condition

The customer has seen his account data.

UX Flows

The following figure shows the UX Flow of the customer account. Each step is illustrated as a screen. The arrows display the connections between the screens.



Figure 42: UX Flow Customer account (Natural person)

Wireframes and API

The following wireframes show a schematic representation of the content required for the PCR account. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

Customer Account – Details

The first tab "Details" displays the account information. It contains an avatar with the first letter of the PCR's name and all attributes of its VC.

O Logo			User Menu Help
Home			
Services			
	My Account		
Data	Details Login History		
Provider Dash- board		XX	
	Email Address	Email Address	-
	First Name	First Name	
	Last Name	Last Name	
	Attribute of VC	Attribute of VC	
	Attribute of VC	Attribute of VC	
	Attribute of VC	Attribute of VC	

Figure 43: Wireframe Customer Account

- API input
 - o DID Auth Information
- API output
 - Account data (Id, email, name, avatar, link)

Customer Account – Login history

The second tab shows the login history in tabular form. The table consists of two columns: date and time.

O Logo		[User Menu	Help Menu
Home				
Constant .				
services	My Account			
Data	Details Login History			
Provider	Date Time			
Dash-	14.12.2020 10-41 am			
board	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			
	14.12.2020 10:41 am			

Figure 44: Wireframe Customer Account Login History

- API input
 - DID Auth Information
- API output
 - Login history (List of (ID, date, time, name) triples ordered by time)

2.5 Discovery

A PR can either enter a simple search term (e.g., "storage") as a search query or make a complex search query (e.g., "storage located in France") that is executed in the background using an ontology. The PR can compose a complex search query based on terms dynamically suggested by the ontology.

The search results can then be customized using various filter criteria. Filtering the search results narrows down the search result list.

Each search result contains information that should enable the PR to identify particular differentiators at a glance. To see all details of an offer, the search result can be expanded.

Name

Discovery

Goal

The system shall allow PRs to search for a service, data set, or PPR, select filters and view detailed information of its search result.

Input

- Search
 - Text field
 - Advanced button (not visible on the home screen)
 - o Clickable chips
- Filter categories that are dynamically loaded using the SD could be:
 - Location
 - o Industry
 - Price range
 - o Protocol
 - Regulation
 - Service / data provided by

The following attributes are shown in a basic service or data set search result:

- Service or data set name
- PPR logo
- PPR name
- PPR location
- Security
- Protocol
- API

The following attributes are shown in a PPR search result:

- PPR logo
- PPR name

- Location
- Sustainability
- Availability

The user can expand the search result to discover more. Each search result has different tabs that bundle information.

The search result of a basic service has the following tabs:

• Details

Detailed information from the SD is displayed, such as preview image,

description, features, tags, category, stack, security, location of the PPR, availability, sustainability, last updated, terms of use

• Price

The pricing model from the SD is displayed. The user can book the service. The presentation of the price description needs a detailed specified procurement model. Since this has not yet been elaborated, it is advisable to hide the price tab.

• Screenshots

Screenshots of the service or data set are displayed as a carousel.

• Contact

Contact information of the PPR such as technical email address and phone number and support email address and phone number are displayed.

The tabs of a composite service differ in the detail tab:

• Details

In addition to the data of a basic service, the services included in the solution package are listed. Furthermore, the user can navigate to the solution packaging (builder) in order to replace the included services.

The search result of a PPR has the following tabs:

• Details

Detailed information from the SD is displayed, description, certificates, location, last updated, member since, availability, sustainability

Services

All services supplied by the PPR are listed.

• Data

All data sets supplied by the PPR are listed.

• Contact

Contact information such as technical email address and phone number and support email address and phone number are displayed.

The search result of data set has the following tabs:

• Details

Detailed information from the SD is displayed, short description, description, tags, category, location of the PPR, data set source, frequency of updates, last updated, terms of use, cloud service

• Price

The pricing model from the SD is displayed. The user can book the data set. The presentation of the price description needs a detailed specified procurement model. Since this has not yet been elaborated, it is advisable to hide the price tab.

• Sample record

Samples of the data set is displayed.

• Contact

Contact information of the PPR such as technical email address and phone number and support email address and phone number are displayed.

Output

The search query is passed to the system and the corresponding results are displayed. The PR can refine the search results list using filters. Each selection of filters affects the appearance, the list is narrowed down accordingly.

Main Scenario

A VR wants to search for GDPR compliant AI services whose PPRs are located in a certain country.

Pre-condition

The VR must be connected to the system with a supported web browser.

Steps

- The VR accesses the home page of the portal.
- The VR enters the search query "AI service" in the search field.
- The VR presses the enter key on his keyboard.
- The system searches for the query.
- The system navigates to the services page.
- The search result list contains only elements that include an "AI" in their name or are tagged with the keyword "AI".
- The filter configuration indicates that "AI" is selected under "Categories".
- The VR selects "GDPR" under "Regulation" in the filter configuration.
- The system narrows down the search result list.
- The VR selects "Country" under "Location" in the filter configuration.
- The system narrows down the search result list.
- The VR expands a service to see its details.
- The VR clicks on the screenshots tab to view the screenshots of the service.

Post-condition

The VR has successfully searched for an AI service considering the selected filters.

Exceptional Scenario

The system gives feedback to the user if the term he is looking for could not be found.

UX Flow

The following figure shows the UX Flow of the discovery. Each step is illustrated as a screen. The arrows display the connections between the screens.



Wireframes and API

The following wireframes show a schematic representation of the content required for the discovery screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

Discovery – Home – Enter search query

The VR is initially on the home page. There he enters his search term into the search field.

O Logo					Register Sign In Help Menu
Home Services Data Provider	W AF	Welcome to GAIA-X A Federated Data Infrastructure for Europe			
	W	hat's new Preview Image	Preview Image	Preview Image	
	r Le es	Service Name Provider URL orem ipsum dolor sit amet, consectetuer dipscring etit. Aenean commodo ligula get dolor. Details	Open Service Name Provider URL Unterpresentation Lorem ipsum dolor sit amet, consecteluer adjuscing etit. Anno 1000 (1944) eget dolor. Details	Cape Service Name Provider URL Lorem ipsum dolar sit amet, consectetuer adipiscing sit. Aenean commode ligula eget dolar.	
	wi	What is GAIA-X?			
		Preview Image	Preview Image	Preview Image	
	Hi Su Lo ad	eadline ubline orem ipsum dolor sit amet, consectetuer fipiscing elit. Aenean commodo ligula	Headline Subline Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula	Headline Subline Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula	1

Figure 46: Wireframe Discovery Home Enter Search Query

API (1)

- API input
 - o n/a
- API output
 - o "What's new" information

API (2)

- API input
 - o n/a
- API output
 - o category filter (for services)
Discovery - Services

After confirming the search query with the enter key, the VR navigates to the services page. The services page consists of two areas. The left column contains the filter selection options. The filter criteria are summarized by category headings. The blocks can be expanded and collapsed individually. The filters are selected via the checkboxes. The number positioned on the right edge of the line shows the amount of available services.

In the middle, the VR will find a search field. Below that, all services are listed vertically using tiles. In this use case, a search query has already been made, so the services found are shown accordingly. Each result tile contains the SD attributes defined under "Input". The details button expands the tiles. Composite services are distinguished from basic services by two vertical lines on the left side of the tile.

OLogo			Register Sign In Hetp Menu
Home		Al service Advanced	
Services	Filter	Services	
Data	Category	O Cervice name> Stack Security Location Details eProvider name> <stack> <security< td=""> <location> Details</location></security<></stack>	
	Filter item O Filter item Category	O Cervice name> Stack Security Location Details Provider name> -Stack+ -Security- -Location- Details	
	Filter item Filt	O cService name> Stack Security Location Details dypuider name> direct+ 	
	Filter item Calegory Control Calegory Control Calegory Control Calegory Control Con	O <service name=""> Stack Security Location Details dypuder name> <stack> <security< td=""> <locations< td=""> Details</locations<></security<></stack></service>	
	Filter item 0 Fi	O stack Security Location Details dynamic -dynamic -dstack+ -dsecurity- -d.coation- Details	
	Category -	O Security Location dppu/der name- Details	
	☐ Filter item	O security Location Details Approxider name: <stack< td=""> Security: <location:< td=""> Details</location:<></stack<>	
	Category Filter item Filter item	O cService name> Stack Security Location Denaits drovider name> <5sack> <5ecurity> <location> Denaits</location>	
	☐ Filter item ○ ☐ Filter item ○ ☐ Filter item ○ Category ▼	Open sector and provider name> Stack Security Location Denaits divorder name> <5scorrity> <location< td=""> Denaits</location<>	
	☐ Filter item	O <service name=""> Stack Security Location Details -Provider name> <stack> <security> <location< td=""> Details</location<></security></stack></service>	
	Filter item Category	O Stack Security Location Details dyputder name- Stack+ <security-< td=""> <location-< td=""> Details</location-<></security-<>	
	Filter item Filt	Open structure name> Stack Security Location Denaits dypuder name> <stack> <security> <location> Denaits</location></security></stack>	
	Filter item Ø	Open <service name=""> Stack Security Location Uppa <provider name=""> <stack> <security> <location></location></security></stack></provider></service>	

Figure 47: Wireframe Discovery Service

API (step 1, filter list)

• API input

o n/a

- API output
 - o category filter

API (step 2, service list)

- API input:
 - o search term, filter list

• API output:

• (paginated) service list (with all information needed according to the wireframes) with service id per line.

Discovery – Provider

If the VR searches for a PPR, he will be redirected to the PPR page. Here, the filter bar will also be visible on the left and the PPR search results list in the center. A PPR search result differs in that other relevant attributes appear, as illustrated here "Sustainability" and "Availability". Furthermore, only the PPR name is displayed, and no URL. The link to the PPR website is made via the logo.

O Logo			Register Sign In Hetp Menu
Home		Search Advanced	
Services	Filter	Provider	
Data	Category Filter item	C O Sustainability Availability Location Details	
Provider	E Filter item O Filter item O Filter item O	Contraction Contractic Con	
	Category - Filter item 0 Filter item 0 Filter item 0	Contraction Contractic Cont	
	□ Filter item	O Sustainability Availability Location Using Details	
	□ Filter item ○ □ Filter item ○ □ Filter item ○ □ Filter item ○	O Sustainability Availability Location Deats Deats	
	Filter item Category Filter item O	O Sustainability Availability Logo Deuts	
	□ Filter item 0 □ Filter item 0 □ Filter item 0 □ Filter item 0	O Sustainability Availability Location Details Details Details	
	Category - Filter Item O Filter Item O	O Sustainability Availability Location Desata Usgo Desata Desata	
	Filter item Filt	Control Contro Control Control Control Control Control Control Control Control Co	
	Category Filter item Filter i	Control Contro Control Control Control Control Control Control Control Control Co	
	□ Filter item	O Sustainability Availability Location Uses 	
	Filter item Filter Filter item Filter item Filter item Filte	O Sustainability Availability Location Desils Usage	
	Filter item	O Sustainability Availability Location Use <sustainability< td=""> <availability< td=""> <location></location></availability<></sustainability<>	
	Filer Item O Filer Item O Filer Item O Filer Item O Filer Item O	O O Cationability Availability Location Details O	

Figure 48: Wireframe Discovery Provider

API (step 1, filter list)

• API input

o n/a

- API output
 - o category filter

API (step 2, PPR list)

- API input
 - o search term, filter list
- API output

• (paginated) PPR list (with all information needed according to the wireframes) with PPR id per line.

Discovery	y – Data
-----------	----------

OLoge			Register Sign In Help Menu
Home		Search	
Services	Filter	Data	
Data	Category	O Data name Short Description Location -Provider name Lorem issum datar sit anet constitute -Location	
Provider	Filter item Filter item O Filter item O Filter item O	O Data name Short Description Location -Provider name Lerem issum dolar sit anet constitute. -Location	
	Category	O Data name Short Description Location -Provider name Lerem (psum data sit areat constitute) -Location Details	
	□ Filter item	O Data name Short Description Location Details -Provider name Larem (psum datar sit anet constitute) -Locations Details	
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	Filter item Category Filter item O	O Data name Short Description Location -Provider name Lorem (spum data sit anet constitut) -Location Details	
	□ Filter item	Data name Short Description Location Details upprovider name Lerem issum dolar sit amet constitutur. -Location+ Details	
	Category - Filter item O Filter item O	O Data name Short Description Location Details -Provider name Lerem (sound sizer sit anet constitute) -Location Details	
	Filter item Filt	O Data name Short Description Location -Provider name Larem ipsum dolar sit amet constitut. -Location Details	
	□ Filter item	O Data name Short Description Location -Provider name Lerem issum datar sit amet constitutur. -Locations	
	□ Filter item ○ □ Filter item ○ Category ▼	O Data name Short Description Location Lege -Provider name. Lorem ipsum dolar sit anet constitute. -Location.	
	□ Filter item ○ □ Filter item ○ □ Filter item ○ □ Filter item ○	O Data name Short Description Location -Provider name Lerem ipsum dolar sit anet constitute -Location	
	Filter item O	O Data name Short Description Location -Provider name Larem ipsum datar sit amet constitute: -Location	

Figure 49: Wireframe Discovery Data

API (step 1, filter list)

- API input
 - o n/a
- API output
 - o category filter

API (step 2, data list)

- API input
 - o search term, filter list
- API output
 - (paginated) data list (with all information needed according to the wireframes) with data id per line.

Discovery – Basic service – Details – expanded

If the VR expands a basic service, he first sees the details tab. Available SD attributes are displayed here (see "Inputs").

O Loge			Register Sign In Help Menu
Home		Al service Advanced	
Services	Filter	Services	
Data Provider	Category • - Filter team 0 - Filter team 0 - Filter team 0	Control C	
	☐ Filter item Ø ☐ Filter item Ø	Construction of the static security Location Construction of the static security Location Construction of the static security	
	Category Filter Item Filter	Control Contro	
	□ Fitter item 0 □ Fitter item 0 Category ▼	O <service name=""> Stack Security Location Details Loga -Provider name> -Stacks -Securitys -Locations Details</service>	
	Filter item 0 Catacory	One Service name Stack Security Location Details Details Price Screenshots Contact	
	Filter Itam 0	Description Lorma pianu diori at amet, constituir sadipscing elitr; sed diam nonumy erimod tempor inviduint ut labore et dolare magna adaguan erat, sed diam voluptua. Al veno sos et accusam et justo dio dolores et ea nebum. Stet citta kand gobergren, no sea takimata sanctus est Lorem ipsum dolar sit amet. Stack	
	Category • Filter item 0	Preview Image Security Location Security Imag Location Last Updated Terms of Use	
	Category Filter item	Tags Category Tag, Tag, Tag. Tag Category	
	Catagory •	O «Service name» Stack Security Location -Provider name» «Stack» «Security» «Location» Details	
	□ Filter item 0 □ Filter item 0 □ Filter item 0 □ Filter item 0	Control Contro	
	□ Filter item •	O <service name=""> Stack Security Location Loge -Provider name> <stack> <security> <location></location></security></stack></service>	

Figure 50: Wireframe-Discovery-Service-Basic-Expanded-Details

- API input
 - o service id
- API output
 - o service details (including dependent services)

Discovery - Provider - Details - expanded

O Logo			Register Sign In Help Menu
Home		Search Advanced	
Services	Filter	Provider	
Data	Category 👻	C O Sustainability Availability Location Details	
Provider	☐ Filter item 0 ☐ Filter item 0 ☐ Filter item 0 ☐ Filter item 0	Control Contro Control Control Control Control Control Control Control Control Co	
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	□ Filter item ○ □ Filter item ○ Category ▼	C C Sustainability Availability Location Deals	
	□ Filter item 0 □ Filter item 0 □ Filter item 0 □ Filter item 0	O Sustainability Availability Location Uses <provider name=""> Sustainability> Details</provider>	
	Filter item O	O Sustainability Availability Location Deals Sustainability <kestainability< td=""> <kestainability< td=""></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<></kestainability<>	

Figure 51: Wireframes Discovery Provider Expanded Details

- API input
 - o PPR id
- API output
 - o PPR details

Discovery - Data - Details - expanded



Figure 52: Wireframe Discovery Data Expanded Details

- API input
 - data id
- API output
 - o data details

Discovery – Basic service – Price – expanded

In the price tab can be found price information. Furthermore, the book button is located here.

Coge		Register Sign In Help Menu
Hone	Al service Advanced	
Filter	Services	
Data Category Filter item Provider		
Filter item	Control Contro Control Control Control Control Control Control Control Control Co	
Category	G C Logo - Service name> Stack Security Location Details	
Filter item Filter item Category	Image Stack Security Location Details -throught -throught -throught -throught -throught -throught Details	
Filer item Filer item Filer item Filer item Filer item Filer item	Image: Details Service name Stack Security Location Details Details Price Screenshots Contact	
Category Filter Item Filter Item Filter Item Filter Item	Price 100 © / month	
Category Filter item Filter item		
Category Filter Item Filter Item Filter Item Filter Item Filter Item Filter Item	Book	
Filter item Category	Control Contro	
Fiber item Fiber item Fiber item Fiber item	Control Contro Control Control Control Control Control Control Control Control Co	
- Füeritem	Control Loga Stack Security Location Operation -Provider name+ <stack> <security-< td=""> Location-</security-<></stack>	

Figure 53: Wireframe Discovery Service Basic Expanded Price

- API input
 - o service id
- API output
 - service price information

Discovery - Provider - Services - expanded

OLogo			Register Sign In Help Menu
Home		Search Advanced	
Services	Filter	Provider	
Data	Category	O Sustainability Availability Location Desite	
Provider	□ Filteritem 0 □ Filteritem 0 □ Filteritem 0	C O Sustainability Availability Location Deals	
	Category Filter item Filter item	Contractionality Availability Location Contraction Contraction	
	Filter item O Filter item O Filter item O	Details Services Data sets Contact	
	Catagory - Filter item Filter	Preview Image Preview Image Service Name Service Name Provider URL Service Name Lorem ipsum dolor sit amet, consectetuer adjoiscing elit. Corrent ipsum dolor sit amet, consectetuer adjoiscing elit. Details Details	
	Fitura ritem O Fitura ritem O Fitura ritem O Category V	Control Contro Control Control Control Control Control Control Control Control Co	
	□ Filter item ○ □ Filter item ○ □ Filter item ○	Contraction Contracti	
	□ Filter item ○ □ Filter item ○ Category ▼	O Sustainability Availability Location Details Cation Details	
	□ Filter item 0 □ Filter item 0 □ Filter item 0 □ Filter item 0	O Sustainability Availability Location Details Details	
	Fitzer item O	O Sustainability Availability Location Compa Details	

Figure 54: Wireframe Discovery Provider Expanded Services

- API input
 - o PPR id
- API output
 - (paginated) servicelist (with all information needed according to the wireframes) of services from this PPR

Discovery – Data – Price – expanded

In the data asset SD is stored whether the participant is allowed to book the asset or to request it first. Depending on this, the button is adjusted.



Figure 55: Wireframe Discovery Data Expanded Price

API

- API input
 - o data id
- API output
 - o data price information

If the participant can book the data asset, the "Making a Contract API" is triggered. If the participant can only request, the "Contract Negotiation API" is triggered.

Discovery – Basic service – Screenshots – expanded

Service screenshots can be viewed in the third tab. The images are displayed based on a carousel.

O		Register Sign In Help Menu
Home	Al service Advanced	
Filter	Services	
Data Data Category Exiter item Filter item	♥ ♥	
Filter item Filter item Filter item Filter item	O	
Filter item	Image: Construction Operation Operation	
Filter item Filter item Category	O Image: Service name> Stack Security Location Image: Service name> stack> security Location Image: Service name> stack> security Location	
Filter item Filte	O Service name Stack Security Location Details O Lips	
Category Filter item Filter item Filter item Filter item Filter item	Defauls Price Screenshors Londact	
Category Filter item Filter item Filter item	Preview Image	
Filter item		
Category Filter Item Filter Item Filter Item	Preview Image Preview Image	
Filter item Filter item Category	O O Service name> Stack Security Location • O O O O O	
Filter item	O	
Fiter item	O	

Figure 56: Wireframe Discovery Service Basic Expanded Screenshots

- API input
 - o service id
- API output
 - o service screenshots

Discovery - Provider - Data - expanded



Figure 57: Wireframe Discovery Provider Expanded Data

- API input
 - o PPR id
- API output
 - (paginated) data-list (with all information needed according to the wireframes) of data from this PPR

Discovery – Data – Sample Records – expanded



Figure 58: Wireframe Discovery Data Expanded Sample Record

- API input
 - o data id
- API output
 - o data sample records

Discovery – Basic service – Contact – expanded

The last tab contains the contact information of the provider.

Coge		Register Sign In Help Menu
Hone Services Filter	Al service Services	Advanced
Data Developm Provider Provider Category Filter tem Fil	Control C	Details Details Details Details Details Details
 Fatur item 	Image: Service name stack security decation Service name stack security decation Image: Operation of the security security decation Operation of the security decation Image: Operation of the security decation Details Image: Operation of the security decation Price Image: Operation of the security decation Screenshots Image: Operation of the security decation Image: Operation of the security decation Image: Operation of the security decation Screenshots Image: Operation of the security decation	5 Dearts
☐ Filter item ☐ Filter item ☐ Filter item ☐ Filter item ☐ Filter item ☐ Filter item ☐ Filter item	Image: Stack security Location Image: Stack security security Location Image: Stack security securit	Details Details Details Details Details

Figure 59: Wireframe Discovery Service Basic Expanded Contact

- API input
 - service id
- API output
 - o service contact list

Discovery – Provider – Contact – expanded

OLogo			Register Sign In Help Menu
Home Services Data Previder	Filter Category Filter tem Filter	Search Advanced Provider	
	Category - Fitter item 0 Fitter item 0 Fitt	Technical phone number Technical email address XXX XXXX XXXX XXX XXXX XXXX Support phone number Support email address XXX XXXX XXXX XXX XXXX XXXX XXX XXXX XXXX XXX XXXX XXXX	
	Filter item Gategory Gategory Filter item Gategory Filter item Gategory Filter item Gategory Gategory Filter item	Image: Constrainability Availability Location Details Image: Constrainability Constrainability Availability Location Image: Constrainability Constrainability Constrainability Constrainability Image: Constrainability Constrainability Constrainability Constrainability	
	☐ Filter item ○ ☐ Filter item ○	O Sustainability Availability Location Details U O -Sustainability> -Availability> -Location Details	

Figure 60: Wireframe Discovery Provider Expanded Contact

- API input
 - o PPR id
- API output
 - PPR contact list

Discovery – Data – Contact – expanded



Figure 61: Wireframe Discovery Data Expanded Contact

- API input
 - o data id
- API output
 - o data contact list

Discovery - Composite service - Details - expanded

The details tab of a composite service differs from the basic service in that it shows the additional services that are included in the solution package. At the bottom right is the build button, which is used to navigate to the solution packaging tool.

O Loge			Register Sign In Help Menu
Home	Filter	Al service Advanced	
Data	Category • Fiture item 0 Fiture item 0 Fiture item 0 Fiture item 0 Category • Fiture item 0 Category • Category •	Image Construction name>//Provider name>//Stack Security Location Details Image Price Screenshots Contact Image Learn noum date ist anet, constitut radiocine sitility and dam nouny Location nouny	
	□ Filar Item 0 □ Filar Item	Preview Image Preview Image Last Updated Law Set	
	Fluction Filter tem Filter te	Preview Image Preview Image Service Name Service Name Provider URL Service Name Lorem ipsum dolor sit amet, consecteure adipiscing elit. Service Name Image Service Name Provider URL Lorem ipsum dolor sit amet, consecteure adipiscing elit. Image Service Name Image Service Name Provider URL Lorem ipsum dolor sit amet, consecteure adipiscing elit. Image Service name> Image Service name>	
		Leep oppositer names -Stacks -Securitys -Locations Default	

Figure 62: Wireframe Discovery Service Composite Expanded Details

- API input
 - o service id
- API output
 - o service details (including dependent services)

Discovery – Composite service – Price – expanded

In the price tab can be found price information. Furthermore, the book button is located here.

		Register Sign In Hetp Menu
Hone	Al service Advanced	
Filter	Services	
Data Catagory Distribution Filter tiam Fil	Service name> Stack Security Location Image:	
Category	Image: Service name> Stack Security Location Duals Image: Operation of the stack -Stack -Security Location Duals Image: Operation of the stack -Stack Security Location Duals Image: Operation of the stack -Stack Security Location Duals	

Figure 63: Wireframe Discovery Service Composite Expanded Price

- API input
 - o service id
- API output
 - o service price information

Discovery – Composite service – Screenshots – expanded

Service screenshots can be viewed in the third tab. The images are displayed based on a carousel.

O Logo			Register Sign In Help Menu
Home		Al service downced	
Services	Filter	Services	
Data Provider	Category • Filter item • Filter item • Filter item • Filter item •	Control Contro Control Control Control Control Control Control Control Control Co	
	□ Filter item Ø	Lege <u>Provider name</u> (Stack) (Location) Details	
	Category	C C Lege - Stack Security Location Details	
	Eriter item O Filter item O	Details Price Screenshots Contact	
	Calegory - Filter item 0 Filter item 0 Fil	Preview Image	
	Filter Item O Filter Item O Category V Filter Item O Filter Item O Filter Item O Filter Item O	Preview Image Preview Image Preview Image Control Preview Image Preview Image Preview Image Security Location Control Preview Image Security Inclusion Control Preview Image Security Inclusion Control Preview Image Preview Imag	
	Elter item	O Cservice name> Stack Security Location Details upps upprovder name> vSack> vSecurity vLocation Details	

Figure 64: Wireframe Discovery Service Composite Expanded Screenshots

- API input
 - o service id
- API output
 - o service screenshots

Discovery – Composite service – Contact – expanded

The last tab contains the contact information of the PPRs.

OLge		Register Sign In Help Menu
Lopp Kome Service Data Data Provider Plant item	Al service Advacced Services Image: Constraint of the service names of the service	Register Sign In Help
■ Fister itam ● ■ Fister itam ● <th>Details Price Screenshots Contact Technical phone number Technical email address xx xxxx xxxx Support phone number Support email address xx xxxx xxxx Support email address ymovider name> Stack Security Location ehrowider name> Stack stack Security ubrowider name></th> <th></th>	Details Price Screenshots Contact Technical phone number Technical email address xx xxxx xxxx Support phone number Support email address xx xxxx xxxx Support email address ymovider name> Stack Security Location ehrowider name> Stack stack Security ubrowider name>	

Figure 65: Wireframe Discovery Service Composite Expanded Contact

API

• API input

service id

- API output
 - service contact list

Discovery - No results found

In case the system couldn't find any results, a message is displayed. This also applies to the PPR and data page.

O Logo			Register Sign In Help Menu
Home		<search query=""> Advanced</search>	
Services	Filter	Services	
Services Data Previder	Filter Category Filteritem Filteritem	Services Oh no! We couldn't find any results.	
	■ Filter item ● □ Filter item ●		

Figure 66: Wireframe Discovery Service Error

API

API exists because of normal search flow.

2.6 Solution packaging

Solution packaging provides an interface with selection and combination functions for grouping services for the catalogue to address specific use cases. Requirements with regards to the portal can be found in Table 5. For further understanding of the packaging and orchestration process please refer to [IP.ORC].

ID	Description
P-CRUD-1	The Portal MUST be able to fetch logs, current state, and access information of the GX Service from the LCM Engine.
P-CRUD-2	The Portal MUST be able to communicate with the LCM Engine to request the creation of GX Services using the orchestration instructions provided by the PPR, if provided
P-CRUD-3	The Portal MUST be able to communicate with the LCM Engine to request the update of GX Services using the orchestration instructions provided by the PPR, if provided
P-CRUD-4	The Portal MUST be able to communicate with the LCM Engine to request the deletion of GX Services.
P-DT-1	Before booking a GX service, the Portal MUST suggest LCM Services which support the deployments technologies supported by the GX service.
P-DT-2	Before booking a solution packaging, the Portal MUST suggest LCM Services which support the deployments technologies supported by each one of the GX services inside the packaging.
P-DT-3	The PCR MUST be able to choose from this list his/her preferred LCM service for each different GX Service.
P-Man-1	The PCR MAY decide not to use an LCM Service for the management of the GX Service. In that case, the management of the GX Service is done manually by the PPR.
P-Form-1	For each GX service, the Portal MUST be able to prepare a form for the PCR to add or modify the default deployment configuration provided by the PPR in the Self- Description file for the GX Service.
P-Form-2	This form MUST validate each given input with the metadata read from the GX Service's Self-Description.

Table 5: Functional Requirements Portal - Orchestration

Name

Solution Packaging

Goal

The system shall allow VRs to manage services in existing solution packages.

The system shall allow PRs to manage services in existing solution packages, save and book them.

Input

- Used service slots
 - Each slot has a remove button
- Free service slots
 - Each slot has an add button
- Search text field
- Filter
- Service carousel
 - Each carousel has forward and back buttons
 - Each service in the carousel has a details button
 - Each service in the carousel has a select button
- Details dialog
 - o Close button
 - Select button
- Save button
- Book button
- Reset button
- Dialog for assigning solution package name
 - Name text input
 - Save button

Output

After compiling services, a new solution package is created and saved in the PRs dashboard.

Main Scenario

A PR wants to book a composite service. After seeing its details, he wants to add two services to the solution package.

Pre-condition

The PR must be connected to the system with a supported web browser. The PR must also have a valid account. And he has to be logged in.

Steps

- The PR accesses the home page of the portal.
- The PR navigates to the services page.
- The PR selects various filters.
- The PR expands a composite service to see its details.
- The PR sees the services that are included in the solution package.
- The PR clicks on the build button.
- The system navigates to the solution packaging screen.
- The PR clicks on the add button in the first slot.
- The "select your service" section appears.

- The carousel loads 6 new services.
- The PR selects "GDPR" under "regulation" in the filter configuration.
- The service carousel updates the items.
- The PR clicks on the details button of a service.
- A dialog opens with the detailed service description.
- The PR clicks on the select button.
- The dialog closes.
- The selected service appears in the second slot of the composite service.
- The PR clicks on the add button in the third slot.
- The carousel loads 8 new services.
- The PR enters "AI" in the search text field.
- The carousel updates its items.
- The PR selects an AI service.
- The selected service appears in the third slot of the composite service.
- The PR clicks on the save button.
- A dialog opens.
- The PR enters a name for his solution package.
- The PR clicks on the save button.
- The system saves the solution package in his dashboard.
- The PR is now able to book the saved solution package via his dashboard.

Post-condition

The PR has customized the composite service according to his wishes and can book it after successfully saving it.

Exceptional Scenario

If the executing user is a VR, he can customize the solution package but not save it.

UX Flow

The following figure shows the UX Flow of the solution packaging. Each step is illustrated as a screen. The arrows display the connections between the screens.

Solution Packaging



Wireframes and API

The following wireframes show a schematic representation of the content required for the solution packaging screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

Solution Packaging – Builder – Step 1

The first screen shows the composite service in a detailed form. The SD attributes and the associated services are displayed with the available services in each case. The actions book, save and reset are located at the bottom right of the panel.



Figure 68: Wireframe Solution Packaging Step 1

- API input
 - o service id
- API output
 - o service details (with information about type of dependent services)
 - o number of available services per dependent service

Solution Packaging – Builder – Step 2

The entire area below the panel appears if the PR clicks on the add button of the second slot. When the PR clicks on the add button of the second slot, the entire area below the panel appears.

O Logo						User Menu Help	
Home	Solution Packaging						
Data Provider Provide Dash- board	Na Na Noter Note Note Note Note Note Preview Image Preview Image Preview Image Service Name Provider IRL Lorgi isundelin sit and		Composite Service Name> Description Unrem ispan wilegement; sed dam voluptua. A vere ese et acrouam et juste due delores et ca rebum. Set citat kard ubergren, ne as takimata sanctus est Lorem ispan delor at annet. Features Features Stack Location Img Location Location Img Locat				
	2 Available Services 3 Avail	ble Services (8 Available Servic	ses	Reset Save Book		
	Filter	Search					
		Preview In	nage me	Preview Image	Preview Image		
	☐ Filter item 0 ☐ Filter item 0	Provider URL Lorem ipsum dolor si consectetuer adipisci commodo ligula eget	t amet, ng elit. Aenean dolor. Is Select	Lorem ipsum dolor sit amet, consecteture adipiscing elit. Aenean commodo ligula eget dolor. Detaila Setect	Lorem ipsum dolor sit amet, consecteure adipiscing elit. Aenean commodo ligula eget dolor. Detaila Select		

Figure 69: Wireframe Solution Packaging Step 2

- No specific API required
- APIs for service search are reused

Solution Packaging – Builder – Step 2 – Details dialog

By clicking on the details button of a service, a dialog opens with its details. The PR can choose to either close the dialog or select the service for the slot.

O Logo								User Help Menu Menu
Home								
Services	Solution Pack	aging						
Data					rite Capilite Names			
Pravider				Description	site beivice iname#			
Provide		Serv	ice name Stack	Lorem ipsum dolor sit an Security	net, conseletur sadipscing elitr, see	l diam nonumy eirmod tempi tole	or invidunt ut laboro et ores et ea rebum. Stet clita	
Dash- board			der URL> «Staci	k» «Security»	<location></location>			
		Details	Price	Screenshots	Contact			
	Preview I Service Name Provider URL Lorem ipsom dol consecteture adj @ Available Service	Preview Ima rr sit amet, isscing elit. © Acai	age Description Features Stack Stack Stack Location Two Locat Date Deble Services) dolor sit amat, consetution ri midulin (ul labore et dol re nos et accuant et jubi re, no sea labinata sanch on ed Averiable Services	r sadipacing elitr, sed diam nonumy ore maps alloyam erit, sed diam diau loitoris et eliten. Sati cli es est Larem guan diler si anet.	a oe Solect Read	Jun Dak	
			Search					
	Filter		Select your Se	rvice			× .	
	Categor Filter item Filter item Filter item Filter item Category Filter item	• 00000 • 0	Preview I	Image ame	Preview Image O Service Name Prevides (IP)	Pre	eview Image vice Name	
	L Future tem Film tem Film tem Category Film tem Film tem	0000	Lorem ipsum dolor consectetura adipis commodo tigula ege	sit amet, cing elit. Aerean it dotor. ails Select	orem ipsum dolor sit amet, consecteura adipisising ait. A ommodo ligula eget dolor. Detaite 5	enean consecteture commodo lig	dolor sit amet, adipiscing elit. Aenean ula eget dolor. Detalis Select	

Figure 70: Wireframe Solution Packaging Step 2 Dialog Details

- No specific API required
- APIs for service search are reused

Solution Packaging – Builder – Step 3

After selecting the service, it appears in the second slot of the composite service. The number of available services to replace decreased from 6 to 5.

O Logo							User Menu	Help Menu
Home								
Jernees	Solution Packaging							
Data			O Logo <com< th=""><th>posite Service Name></th><th></th><th></th><th></th><th></th></com<>	posite Service Name>				
Provider			Description					
Provide				iit amet, consetetur sadipscing elitr, sed diam no am erat, sed diam voluptua. At vero eos et accus sea takimata sanctus est Lorem ipsum dolor sit a	umy eirmod tempor invidunt ut labore et m et justo duo dolores et ea rebum. Stet clita met.			
Dash-			Features					
board	Deview law		Features					
	Preview imag	Preview Image						
			Location					
			Location					
			Last Updated Date					
	Preview Image	Remove Preview Image						
	Service Name Ser	vice Name	Ad	d				
	Provider URL Prov	ider URL						
	Lorem ipsum dolor sit amet, consectetuer adipiscing elit.	m ipsum dolor sit amet, ectetuer adipiscing elit.						
	2 Available Services 5 A	ailable Services	Available Servi	ces				
					Reset Save Book			
		Search]		
	Filter	Select your Se	ervice		× >	1		
	Category]		
	□ Filter item ◎							
	Filter item O	Preview	Image	Preview Image	Preview Image			
	Filter item							
	Catagory					-		
	□ Filter item ◎	O Service M	lame	O Service Name	O Service Name			
	Elteritem O	Provider U	RL	Provider URL	Provider URL			
	□ Filter item ◎	Lorem ipsum dolor consectetuer adipis	sit amet, icing elit. Aenean	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean			
	L Filter item O	commodo ligula eg	et dolor.	commodo ligula eget dolor.	commodo ligula eget dolor.			
	Eilter item	De	tails Select	Details Select	Details Select			
	Filter item O							
	Eliteritem O							

Figure 71: Wireframe Solution Packaging Step 3

Solution Packaging – Builder – Step 4

The PR clicks on the add button of the third slot. The service carousel updates its items. He selects one of the services and it is displayed in the third slot.

O Logo						User Menu N	Help Menu
Home	Solution Packaging						
Data Provider Provide Dash- board	ata refer web ata ata bite Preview Image		Composite Service escription Loreni poum dolor al amet, conseteur dolore mayan alloyam erat, acd dian kard globergren, no sea takimata sancu Features Faatures Stack Stack Location Time Location Last Updated Date	r Name> sadpscing elitr, sed diam nor oluptua. At vers eos et accusa sest Lorem gsum dolor sit a	umy eirmod tempor invidunt uf labore et m et justo duo dolores et ea rebum. Stet clita met.		
	Preview Image Service Name Provider URL Lorem ipsum dotor sit amet, consectetuer adipiscing elit.	Service Name Provider URL Lorem ipsum dolor sit amet, consectetuer adipiscing elit.	Preview Image Service Name Provider URL Lorem ipsum dolor sit amet, consectetuer adipiscing elit.		Rest Save Book		
	Filter	Search	ervice				
	Category		/ Image Pre JRL Q Serv JRL Lorem issue scing eilt. Aenean get dolor. valis Setect	view Image fice Name der URL dolor sit amet, adipiscing diaget dolor. Detata Setect	Preview Image Preview Image Service Name Provider URL Lorem ipsum dolor sit amet, consectetuer adipiscing eit. Aenean commodo ligula eget dolor. Details Select		

Figure 72: Wireframe Solution Packaging Step 4

- No specific API required
- APIs for service search are reused

Solution Packaging – Builder – Step 4 – Save dialog

Whether booking or saving, a dialog opens first in which the PR must assign a name to the composite service. The system saves the composite service in the PRs dashboard.

Logo							User Hetp Menu Menu
Home							
Services	Soluti	ion Packaging					
Data				O Logo <com< th=""><th>posite Service Name></th><th></th><th></th></com<>	posite Service Name>		
Pravider				Description			
Provide				kasd gubergren, no si	a amer, conseteur saopscing eur, sea daam no am erat, sed diam voluptua. At vero eos et accusa ea takimata sanctus est Lorem ipsum dolor sit a	numy eermaa tempor moaunt ut abore et im et justo duo dolores et ea rebum. Stet clita met.	
Dash- board			Save solution	Features			
		Preview Ima	ge Please ente	r a name			
			Name				
				Ca	ncel Save		
		Preview Image	Preview Image	Preview	Image		
	Servi	ice Name Ser	vice Name	Service Name	-		
	Loren	n ipsum dolor sit amet, Low	vider URL em ipsum dolor sit amet,	Lorem ipsum do	olor sit amet,		
				consectetuer ad	ipiscing etit.		
	Ava	ailable Services (5) /	wailable Services	8 Available Servic	as		
						Reset Save Book	
			Search				
	Filter		Select your Se	ervice		× •]
	Category	/ ·					
	Filter Filter Filter	ritem O	Preview	Image	Preview Image	Preview Image	
	Fitter Fitter	ritem O					
	Category	r item O	O Service N	lame	O Service Name	O Service Name	
		ritem O	Lorem ipsum dolor	кц sit amet,	Lorem ipsum dolor sit amet,	Lorem ipsum dolor sit amet,	
	D Filter	r itom O	consectetuer adipis commodo ligula egi	cing elit. Aenean et dolor.	consectetuer adipiscing elit. Aenean commodo ligula eget dolor.	consectetuer adipiscing elit. Aenean commodo ligula eget dolor.	
	Filter	r item O	De	tails Select	Details Select	Details Select	J
	Filter Filter Filter	ritem O ritem O					
		ritem O					

Figure 73: Wireframe Solution Packaging Step 4 Dialog Name

- API input
 - name of solution package
 - o configuration of solution package (IDs of chosen services)
- API output
 - o n/a

2.7 Self-Description

Self-Description represents the management of SDs for all PPRs, nodes, services, and data assets in the system. The registration of SDs is done via a data upload which is accompanied by a plausibility check on the data field level.

Name

Self-Description

Goal

The system shall allow PPRs to offer services, nodes, and data assets.

Input

- Provide service button
- Provide data button
- Provide node button
- Upload SD button
- Wizard steps
- Back button
- Continue button
- Show mandatory only toggle
- Read-only text fields with filled in SD attributes
- Go to dashboard button

Output

After the approval by the FR, the service or node or data SD is available.

Main Scenario

A PPR wants to supply a service.

Pre-condition

The PPR must be connected to the system with a supported web browser. He must also have a valid account. And he needs to be logged in.

Steps

- The PPR accesses the Service registration by clicking on the provide button in the side navigation bar.
- The PPR clicks on provide service in the first step.
- The PPR clicks on the upload button to upload his service SD.
- The system displays all SD attributes in read-only text fields.
- The PPR clicks on the send button.
- The SD is sent to the admin area of the FR.
- The FR has to approve the SD.

• After the approval, the service SD is available via the catalogue and the PPR has access to it via his dashboard.

Post-condition

After the FR has approved the service SD, the service is available in the catalogue.

Exceptional Scenario 1

After uploading the service SD, the system displays all attributes in read-only text fields. The PPR can now toggle the view to all mandatory fields. If some mandatory fields were missed to fill in, the system provides visual feedback. The PPR can't send the SD. He has to upload an updated version if it's SD.

Exceptional Scenario 2

If the service registration is denied by the FR, the PPR will be informed via email.

Exceptional Scenario 3

If a PPR wants to edit SDs he has to navigate to his dashboard. All SDs are available there. When clicking on the edit button he gets directed to the provide page. There he is asked to upload a new SD.

UX Flow

The following figure shows the UX Flow of the self-description. Each step is illustrated as a screen. The arrows display the connections between the screens.



Figure 74: UX Flow Self-Description

Wireframes and API

The following wireframes show a schematic representation of the content required for the self-description screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

<u>Self-Description – Provide</u>

The PPR must click on "Provide" in the left navigation bar to register a service, node, or data set. The system will ask him what he wants to provide.

O Logo			User Help Menu Menu
Home	F	Provide	
Data Provider Provide Dash- board		What do you want to provide? Service Data Node Lorem issum dolor sit antle, consecteduer Lorem issum dolor sit adipiscing elit. Lorem issum dolor sit adipiscing elit. Provide Service Provide Data Previde Node	

Figure 75: Wireframe Self-Description Provide

- API input
 - o n/a
- API output
 - o n/a

<u>Self-Description – Provide – Step 1</u>

In the first step, the PPR is requested to upload his service, node, or data set SD.

O Logo		Jser Help Kenu Menu
Home		
Services	Provide Service / Data / Node	
Data		
Provider	Service / Data / Node registration	
Provide	Please upload your Service / Data / Node Self-Description.	
Dash-	Uptend	
board	Back Contrue	

Figure 76: Wireframe Self-Description Provide Template Step 1

- API input
 - PR id, self-description
- API output
 - o n/a

<u>Self-Description – Provide – Step 2</u>

After uploading the document, the text fields are filled in with the provided data from the SD. Since the attributes are divided into different categories, several steps are displayed in the wizard. It ensures clarity. On the last preview of the SD, the PPR must click on the send button.



Figure 77: Wireframe Self-Description Provide Template Step 2

API

- API input
 - PR id, self-description
- API output

o n/a

<u>Self-Description – Provide – Final step</u>

When all mandatory fields have been filled in, the SD is sent to the admin area of the FR, who has to approve it. After the approval the PPR finds his services, nodes, or data sets in the dashboard.

O Logo		User Help Menu Menu
Home	Provide Service / Data / Node	
Data Provider Provide	Almost done! 	
Dash- board	After that, you can find your Service / Data / Node in your Dashboard and in the catalogue.	

Figure 78: Wireframe Self-Description Provide Template Step Final

- API input
 - PR id, self-description
- API output
 - o n/a
2.8 Dashboard

The dashboard is a representation of all active and inactive offers that a PR accesses in the system. It contains a monitoring feature of his booked services, data sets, or solution packages. The PR is greeted with a welcome message to personalize the dashboard. The date and time are also displayed. Furthermore, there is an area where all his recent transactions are listed. The system provides news and the latest offers to emphasize the marketing aspect of the portal.

Name

Dashboard

Goal

The system shall allow PRs to get an overview of their booked offers and to retrieve monitoring data.

Input

If available the dashboards displays the following sections:

- My services
- My data sets
- My solution packages
- Reporting
- News
- My transactions
- Organization link: directs to the user account (if the logged in user is a natural person, the organization link is not displayed)
- Activate button
- Edit button (only visible for PPRs)
- Sort select input

Output

- Activation of asset
- If clicking on the edit button as a PPR, the system redirect to the provide page.
- Booking of saved solution package

Main Scenario

A PR wants to activate a service.

Pre-condition

The PR must be connected to the system with a supported web browser. He must also have a valid account with which he has already booked a service. And he needs to be logged in.

Steps

- The PR navigates to his dashboard by clicking on the dashboard button in the side navigation bar.
- The PR clicks on the activate button which is located in his booked service card.

Post-condition

The PR can access the offer after he has activated it.

UX Flow

The following figure shows the UX Flow of the dashboard. Each step is illustrated as a screen. The arrows display the connections between the screens.



Figure 79: UX Flow Dashboard

Wireframes and API

The following wireframes show a schematic representation of the content required for the dashboard. To display the content, a screen size of 1440 x 1024 pixels is assumed here.

<u>Dashboard</u>

The dashboard is divided into three sections:

On the left side, the PR will find personal data, such as his name, his last transactions, and the time and date.

In the middle, all his booked services, data sets, solution packages, and related statistics are displayed. On the right side, he will find news about the Gaia-X portal.

In this case, the PPR sees booked services/data sets and own services/datasets. Own assets are recognizable by the edit button at the bottom right of the asset card. Furthermore, the assets have no traffic light icon to show whether the asset is activated or not.



Figure 80: Wireframe Dashboard

2.9 Admin

The administration serves the FR to keep track of request for participation, approval of participation, managing PR interaction, assign/approve PR credentials and additionally track QoS of SD.

Name

Admin

Goal

The system shall allow FRs to see an overview of all Gaia-X PRs. The system shall allow FRs to accept onboarding requests, issue VCs and release SDs.

Input

- PRs button
- Management button
- Filter
 - PPR checkbox
 - o PCR checkbox
 - Natural person checkbox
 - PR credentials checkbox
 - VC checkbox
 - o SD checkbox
 - Checkboxes for all locations found in the database
- List items
 - Details button on list items
 - Approve button
 - Deny button
 - Attachment preview button
- Sort by select input

Output

After the FR issues PR credentials to the organizations, the organization's onboarding is completed. After the FR issues organizations VC, organizations can continue their registration process. After the FR has approved the SDs, they are published in the catalogue.

Main Scenario

A FR wants to issue PR credentials to an organization.

Pre-condition

The FR must be connected to the system with a supported web browser. The FR must also have a valid account.

Steps

- The FR accesses the admin area by clicking on the admin button in the side navigation on the left.
- The FR navigates to the management area by clicking on the management button.
- The FR selects "participant credentials" in the filter section.
- The FR expands a list entry from the request list.
- The FR reviews the provided organization data.
- The FR clicks on the approve button.

Post-condition

The FR has successfully issued PR credentials to the organization. The organization receives an email notification. The organization can now login.

UX Flow

The following figure shows the UX Flow of the admin user interface. Each step is illustrated as a screen. The arrows display the connections between the screens.

🖹 Admin



Figure 81: UX Flow Admin

Wireframes and API

The following wireframes show a schematic representation of the content required for the admin screens. To display the content, a screen size of 1440 x 1024 pixels is assumed here. The admin area is divided into two sections. On the left side, two buttons navigate to the list or the management. Below are filter options. In the middle, either the list or the management area is displayed.

Admin – List of PRs

The first screen of the admin area shows a list of all Gaia-X PRs. The FR can expand a list item to view more details about the PR.



Figure 82: Wireframe Admin Participants

API (step 1, load filters)

API input

.

- o n/a
- API output
 - o filter list

API (step 2, load PRs)

- API input
 - o filters
- API output
 - (paginated) PR list (with all information needed according to the wireframes)

<u>Admin – Management</u>

The second screen shows the management. It includes onboarding requests, the notary service and SD approval. All items can be filtered. Expanding an entry, allows the FR to either issue PR credentials, issue organization VC or approve SDs. The SD attributes and attachments depend on what the future participant has uploaded. The required uploads depend on the requirements defined by WP4⁵.

O Logo						User Hetp Menu Menu
Admin						
		Management			Sort by: A-Z	
	Participants Management	<participant name=""></participant>	Request type «Request type»	Location «Location»	Details	
	Request type • Participant credentalis • Self-Descriptions • Location • France • Italy •	<participant name=""></participant>	Request type <request type=""></request>	Location «Location»	Details	
		<participant name=""></participant>	Request type «Request type»	Location «Location»	Details	
		<participant name=""></participant>	Request type Participant credentials	Location «Location»	Details	
		Organization name Organization address Organization phone number <self-description attribute=""> Attachment 1 Attachment 2 Attachment 2 Attachment 2</self-description>	<self-description att<br=""><self-description att<br=""><self-description att<br=""><self-description att<br="">] Attachment 4</self-description></self-description></self-description></self-description>	tribute> tribute> tribute>	Deny Approve	
		<participant name=""></participant>	Request type «Request type»	Location «Location»	Details	
		<participant name=""></participant>	Request type <request type=""></request>	Location «Location»	Details	
		<participant name=""></participant>	Request type «Request type»	Location «Location»	Details	
		<participant name=""></participant>	Request type <request type=""></request>	Location <location></location>	Details	
		<participant name=""></participant>	Request type «Request type»	Location «Location»	Details	
		<participant name=""></participant>	Request type «Request type»	Location <location></location>	Details	

Figure 83: Wireframe Admin Management

API (step 1, load filters)

• API input

•

- o n/a
- API output
 - o filter list

API (step 2, load onboarding requests)

- API input
 - o filters
- API output
 - (paginated) onboarding requests list (with all information needed according to the wireframes)

⁵ Please refer to appendix B for an overview and explanation of the Work Packages (WP).

API (step 3, deny/approve onboarding requests)

- API input
 - onboarding request id, deny/approve
- API output
 - o n/a

3 API requirements & Documentation

There are some general requirements on the provided APIs to make them usable by the Portal.

3.1 Format

The APIs should be REST APIs accessible via http(s). The responses should be formatted as JSON.

In case of errors, the specific reason should be signaled by the appropriate HTTP status code. If applicable, an additional error code should be provided in the response body.

If an endpoint can potentially return more than one item, there should be a mechanism to paginate the requested items.

3.2 Latency

To provide a great user experience, the API calls have to return their results within a specific time. Unless otherwise stated, 98% of the requests issued to a specific endpoint should complete within 500ms.

3.3 Fairness

In case any measures regarding fairness have to be taken, this has to be done by the APIs. For example, this could mean randomizing the order of the result items.

3.4 Documentation

For every API endpoint, there should exist at least human-readable documentation. All supported query parameters and all possible response types (including all error codes) should be described.

Documentation MUST be provided for the usage of the Workflow Engine and the Business Process Management as well as for the deployment, configuration and operation of the same. It MUST allow users and developers to understand the mode of operation of the Workflow Engine and its configuration as well as the operation during runtime. Same for the business process management. It MUST be easily understandable to further develop add-ons, as well as integrate and connect into a wider systems landscape via APIs. It MUST also allow a business user to understand how to start and use the Workflow Engine and Business Process Management.

Documentation MUST be provided for each of the relevant components. It MUST also allow a user to understand how to develop a client or a server using the respective API specifications.

The documentation MUST follow best practices in the software engineering field, such as keeping language simple, using plain English, explaining technical terms and jargon if they must be used, and making sure that individual needs are catered.

Further requirements regarding the documentation can be found in [TDR].

4 General Security Requirements

The Portal MUST meet the requirements stated in the document "Specification of non-functional Requirements Security and Privacy by Design" [SPBD].

Appendix A: Glossary

The glossary is part of the Gaia-X Architecture Document [TAD].

Appendix B: Overview GXFS Work Packages

The project "Gaia-X Federation Services" (GXFS) is an initiative funded by the German Federal Ministry of Economic Affairs and Energy (BMWi) to develop the first set of Gaia-X Federation Services, which form the technical basis for the operational implementation of Gaia-X.

The project is structured in five Working Groups, focusing on different functional areas as follows:

Work Package 1 (WP1): Identity & Trust

Identity & Trust covers authentication and authorization, credential management, decentral Identity management as well as the verification of analogue credentials.

Work Package 2 (WP2): Federated Catalogue

The Federated Catalogue constitutes the central repository for Gaia-X Self-Descriptions to enable the discovery and selection of Providers and their Service Offerings. The Self-Description as expression of properties and Claims of Participants and Assets represents a key element for transparency and trust in Gaia-X.

Work Package 3 (WP3): Sovereign Data Exchange

Data Sovereignty Services enable the sovereign data exchange of Participants by providing a Data Agreement Service and a Data Logging Service to enable the enforcement of Policies. Further, usage constraints for data exchange can be expressed by Provider Policies as part of the Self-Description

Work Package 4 (WP4): Compliance

Compliance includes mechanisms to ensure a Participant's adherence to the Policy Rules in areas such as security, privacy transparency and interoperability during onboarding and service delivery.

Work Package 5 (WP5): Portal & Integration

Gaia-X Portals and API will support onboarding and Accreditation of Participants, demonstrate service discovery, orchestration and provisioning of sample services.

All together the deliverables of the first GXFS project phase are specifications for 17 lots, that are being awarded in EU-wide tenders:

Identity & Trust	Federated Catalogue	Sovereign Data Exchange	Compliance	Integration & Portal
 Authentication and Authorization Personal Credential Manager Organizational Credential Manager Trust Services 	 Core Catalogue Services User Management and Authentication Inter-Catalogue Synchronisation 	 Data Contract Service Data Exchange Logging Service 	 Continuous Automated Monitoring Onboarding & Accreditation Workflows Notarization 	 Portal Orchestration Workflow Engine / Business Management API Management Compliance Documentation Service

Further general information on the Federation Services can be found in [TAD].