Data Trading in GAIA-X

A presentation by **Hannes Rollin**,
Architect at T-Systems International

Data Trading in GAIA-X: Agenda

1. Purpose of Data Delivery Contracts

2. Anatomy of a Data Delivery Contract

3. History of Data Delivery Contracts

4. Data Trading in GAIA-X

5. The GAIA-X Data Contract Service

6. Future of Data Trading

Purpose of Data Delivery Contracts 1/5

The Parties seek to implement a data processing agreement that complies with the requirements of the current legal framework in relation to data processing and with the Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

Making a data delivery to a client is a complicated endeavor. There are many aspects that must be carefully considered and planned for: de-identification, public use versus restricted access, documentation, ancillary files such as programs, formats, and so on, and methods of data transfer, among others.

A data contract is an agreement that specifies **data owner accountability** regarding data delivery acceptability levels...

Data Providers are responsible for data quality and legality of the data content itself, while Data Consumers remain responsible for lawful data usage according to the Data Contract.

Data trading…

…it's complex and complicated

Purpose of Data Delivery Contracts 3/5

But in essence, it's just these four things:

1. The **scope** of the delivery (data content, transfer mode, time, price)
2. The **commitments** of the data provider (quality, liability, warranty)
3. The **usage rights** of the data consumer (circulation, policies, restrictions)
4. The **monitoring** policy (logging, receipts, policy enforcement)

2. Commitments

1. Scope

3. Usage Rights

Data Provider

Data Consumer

4. Monitoring
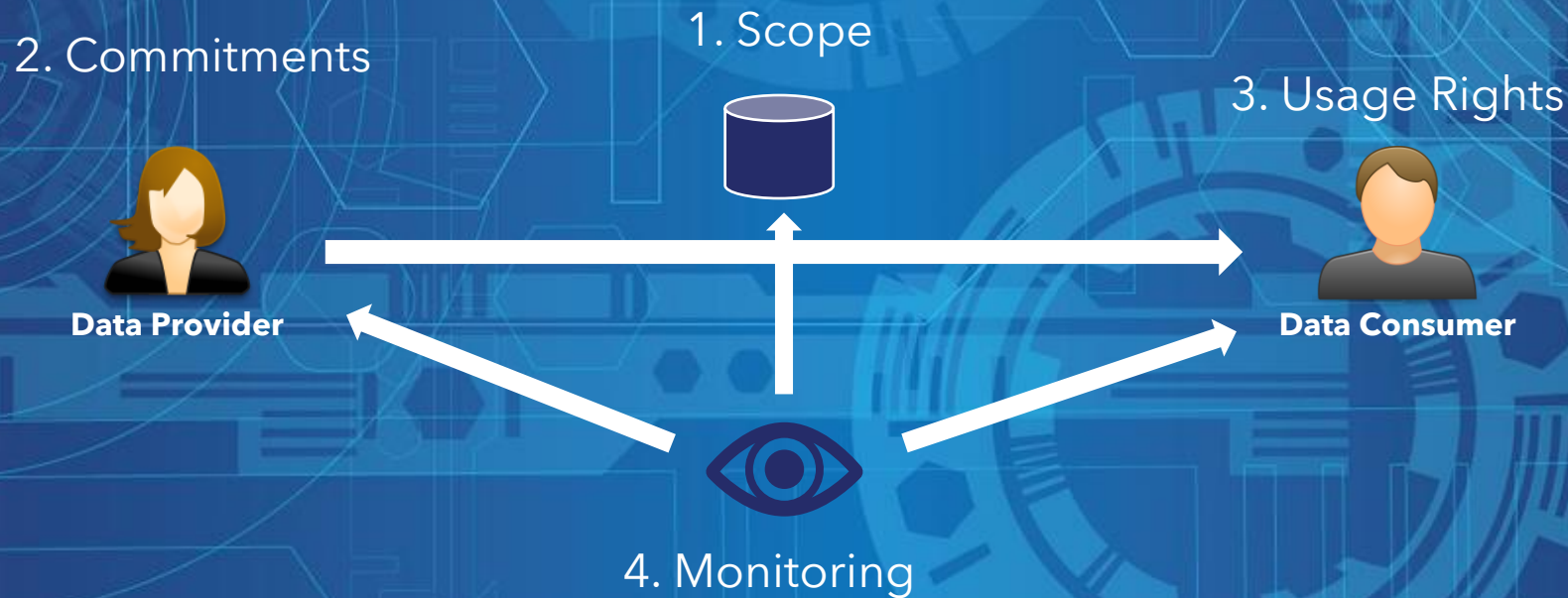
Are data delivery contracts always required?

No!

But some issues make them favorable:

1. Large price tag

2. Copyright

3. Personal data

4. Valuable data

Not every transaction needs an explicit sales contract – **you don't sign a contract when you buy a newspaper**

5. Large quantities

6. Guaranteed quality

See also http://opendatacommons.org/

7. Usage restrictions

8. …

Anatomy of a Data Delivery Contract

A data delivery contract contains:

1. The subject matter of the contract

A brief description summarizing the contract and referencing the following paragraphs in a general way

Anatomy of a Data Delivery Contract

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning

Lists the rights and duties of Provider and Consumer in a general way, including logging and monitoring of the transaction

Anatomy of a Data Delivery Contract 3/9

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning
3. Usage Rights

Mentions qualitative usage rights like non-exclusivity, non-transferability, the right to store and process, prohibition to alter the Data Asset, etc., referencing the formal usage policies.

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning
3. Usage Rights
4. Warranty

Guarantees the the right of the Provider to sell the Data Asset, legality of the Data Asset itself, and the promised data quality.

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning
3. Usage Rights
4. Warranty
5. Liability

Details when the Provider is liable for damages resulting from the Data Asset, e.g., breach of warranty, product liability, fraud, willful intent, and gross negligence.

Anatomy of a Data Delivery Contract 6/9

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning
3. Usage Rights
4. Warranty
5. Liability
6. Prohibition of Identification

Insofar the Data Asset contains anonymized data that could be analyzed to infer identity features of persons, such analyses should be explicitly prohibited

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning
3. Usage Rights
4. Warranty
5. Liability
6. Prohibition of Identification
7. Confidentiality

Mentions the confidentiality of the data contract, data transactions, and the Data Asset itself

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning
3. Usage Rights
4. Warranty
5. Liability
6. Prohibition of Identification
7. Confidentiality
8. Contract Lifespan

Mentions when the contract begins, how it can end, and that the Consumer is required to delete the Data Asset if and when required

A data delivery contract contains:

1. The subject matter of the contract
2. Provisioning
3. Usage Rights
4. Warranty
5. Liability
6. Prohibition of Identification
7. Confidentiality
8. Contract Lifespan
9. Final Clause

Mentions general terms of use, immutability of the contract, and the famous severability clause

How did data delivery contracts evolve?

Individual Contract

- Specifically tailored for each data asset, customer, and delivery mode
- Makes only sense for expensive data assets and singular trades

Pro: Perfectly customized

Con: Expensive, inefficient

Individual DDC

- Specifically tailored for each data asset, customer, and delivery mode
- Makes only sense for huge, expensive data assets

Pro: Perfectly customized

Con: Expensive, inefficient

Generic DDC

- Proprietary contract, designed for reuse
- Restricted to known modalities (contents, formats, transfers, …)

Pro: More efficient than individual DDC

Con: Not tailored to fit

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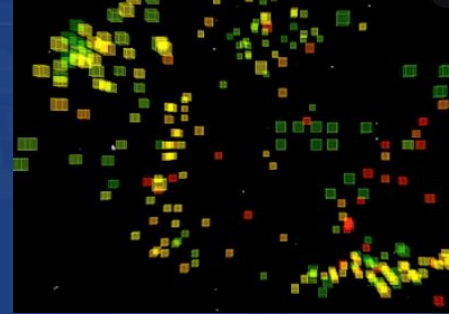- Restricted to known modalities (contents, formats, transfers, …)

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Con: Not tailored to fit

Dataspace DDC

- Single contract for all trades within a dataspace
- Easily customizable
- Semiautomatic trades possible

Pro: Enables semiautomatic trades

Con: Restricted to one dataspace and its members

History of Data Delivery Contracts 5/5

Individual DDC

- Specifically tailored for each data asset, customer, and delivery mode
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Dataspace DDC

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Pro: Enables semiautomatic trades

Con: Restricted to one dataspace and its members

DDC as Metadata

- Data asset contains DDC
- Structure and mandatory content is predefined
- Transcends dataspace boundaries

Pro: Enables automatic trades

Con: Requires data asset onboarding

GAIA-X DDC: What Is It?

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Smart Contract
Transaction protocol which is intended to **automatically execute**, control, or document legally relevant events

1

Sales Contract
Written agreement between a buyer and seller, **setting forth the terms of the sale**, and specifying the rights and duties of the parties

5

Smart Legal Contract
A legally binding agreement that is digital and able to **connect its terms** and the performance of its obligations **to external systems**
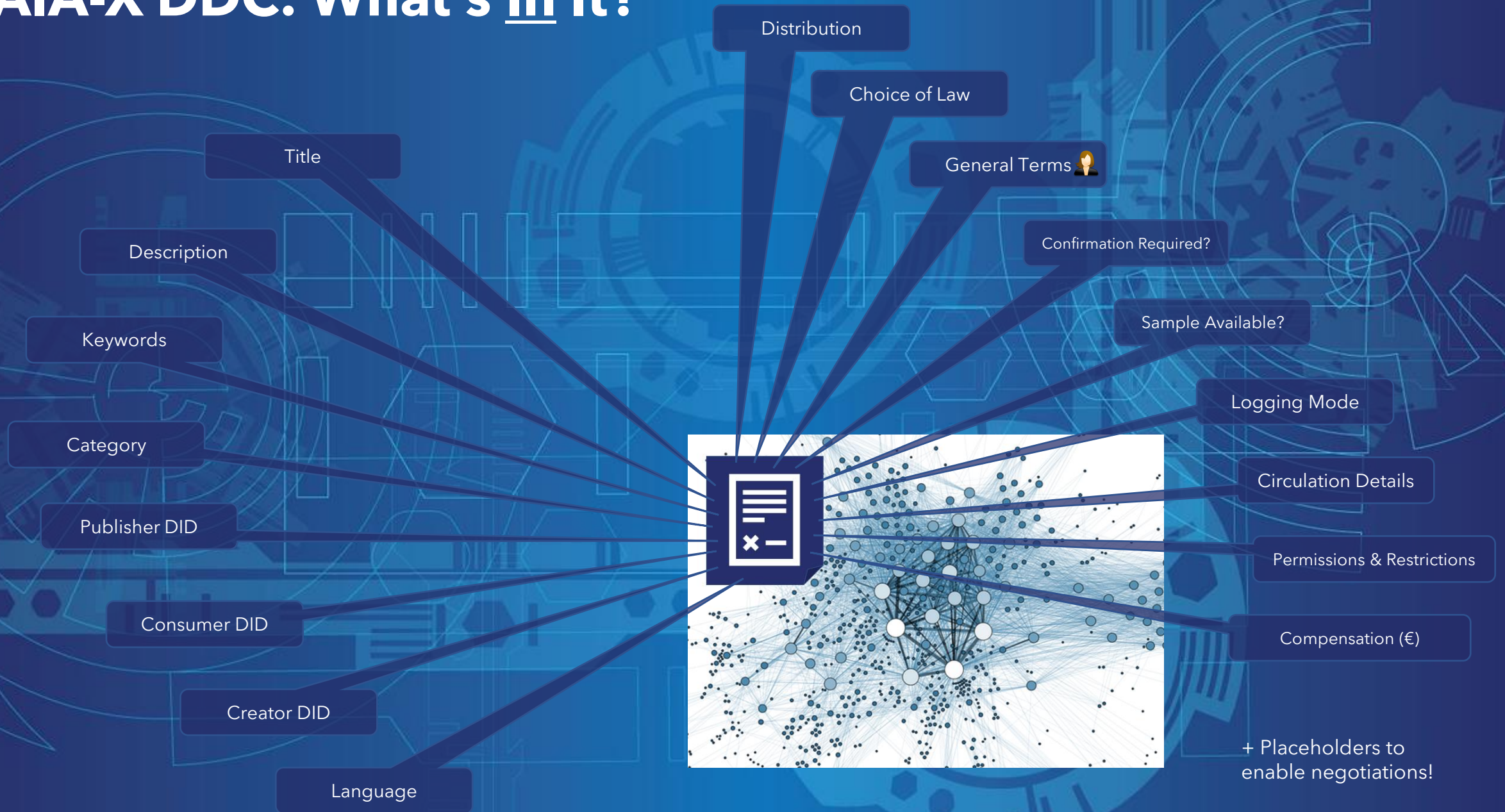
2

Ricardian Contract
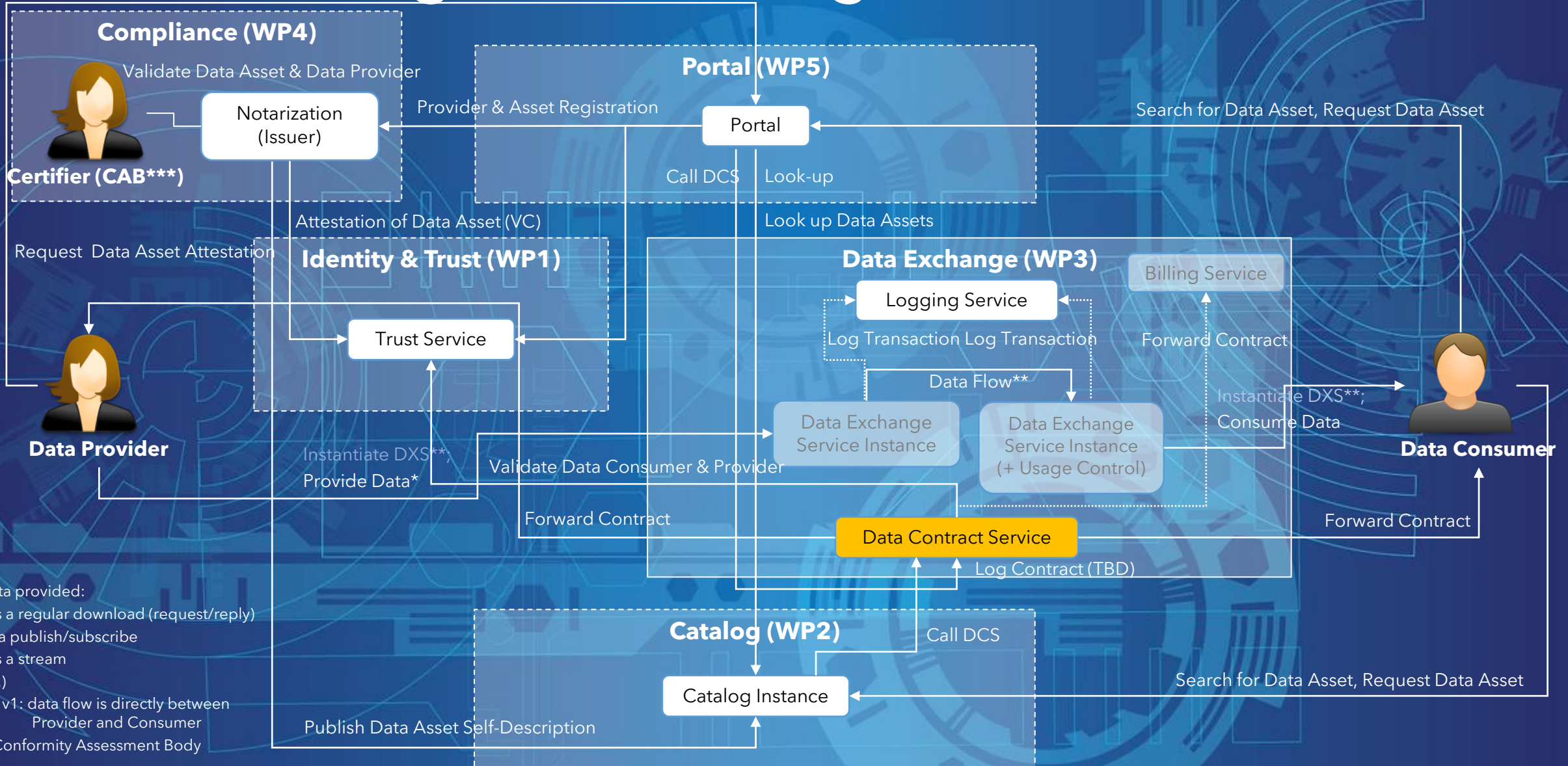**Machine-readable, digitally signed** contract, which is linked to issuance system, and uniquely identifiable

6

GX Self-Description
Describes properties and claims of the asset; tied to the DID of the respective asset and other involved entities

3

Verifiable Credential
Digitally signed claims about the data asset, its delivery, and its usage

GAIA-X DDC: What's <u>In</u> It?

Distribution

Choice of Law

General Terms 👩‍⚖️

Confirmation Required?

Sample Available?

Logging Mode

Title

Description

Keywords

Category

Publisher DID

Consumer DID

Creator DID

Language

Circulation Details

Permissions & Restrictions

Compensation (€)

+ Placeholders to enable negotiations!

GAIA-X: Sovereign Data Exchange in Context 1/5

GAIA-X: Sovereign Data Exchange in Context 2/5

Compliance (WP4)

Validate Data Asset & Data Provider

Certifier (CAB***)

Notarization (Issuer)

Register & Publish Data Asset

Request Data Asset Attestation

Attestation of Data Asset (VC)

Provider & Asset Registration

Portal (WP5)

Portal

Search for Data Asset, Request Data Asset

Call DCS   Look-up

Look up Data Assets

Identity & Trust (WP1)

Trust Service

Data Exchange (WP3)

Billing Service

Logging Service

Log Transaction Log Transaction

Forward Contract

Data Flow**

Instantiate DXS**;
Consume Data

Instantiate DXS**;
Provide Data*

Validate Data Consumer & Provider

Data Exchange Service Instance

Data Exchange Service Instance (+ Usage Control)

Data Consumer

Forward Contract

Data Contract Service
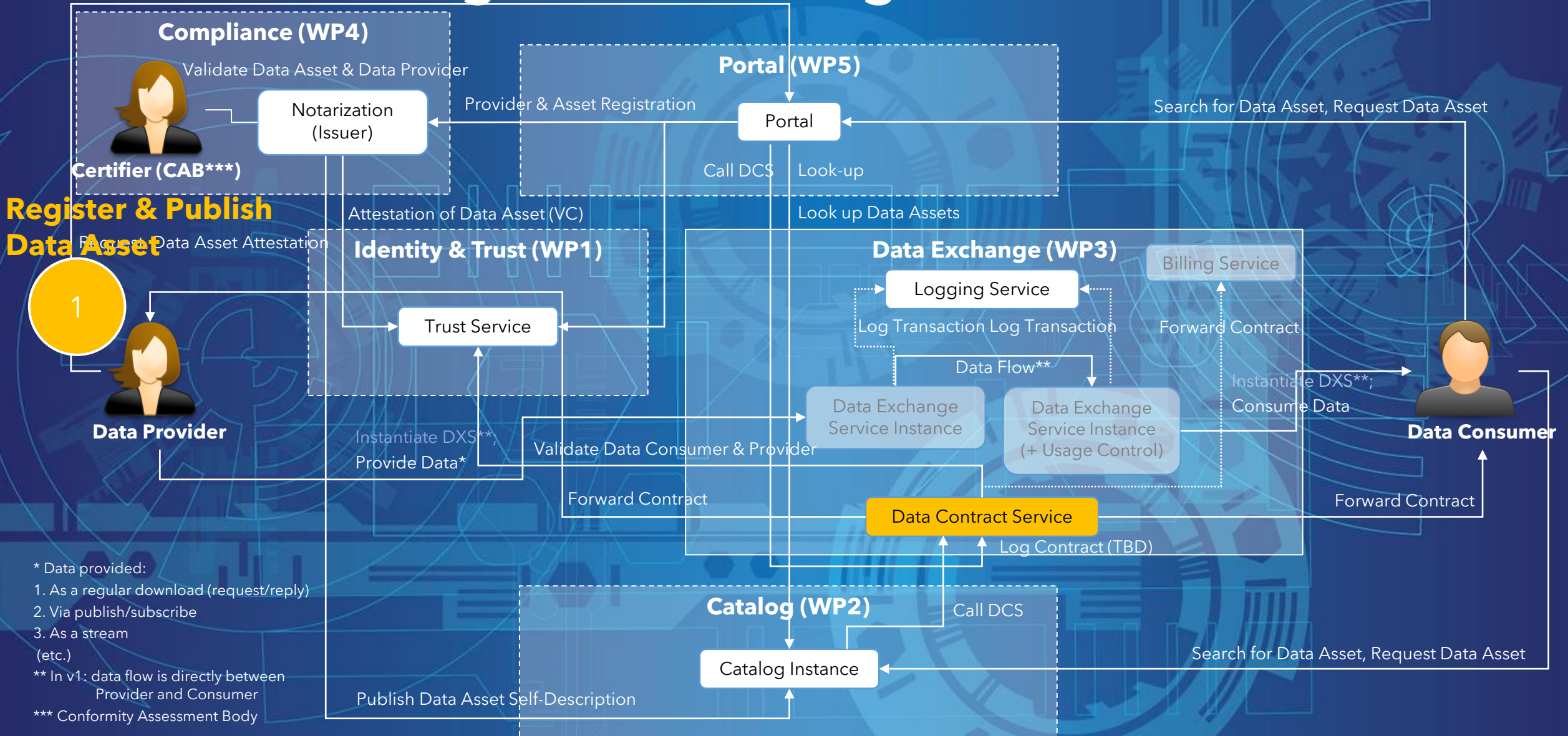
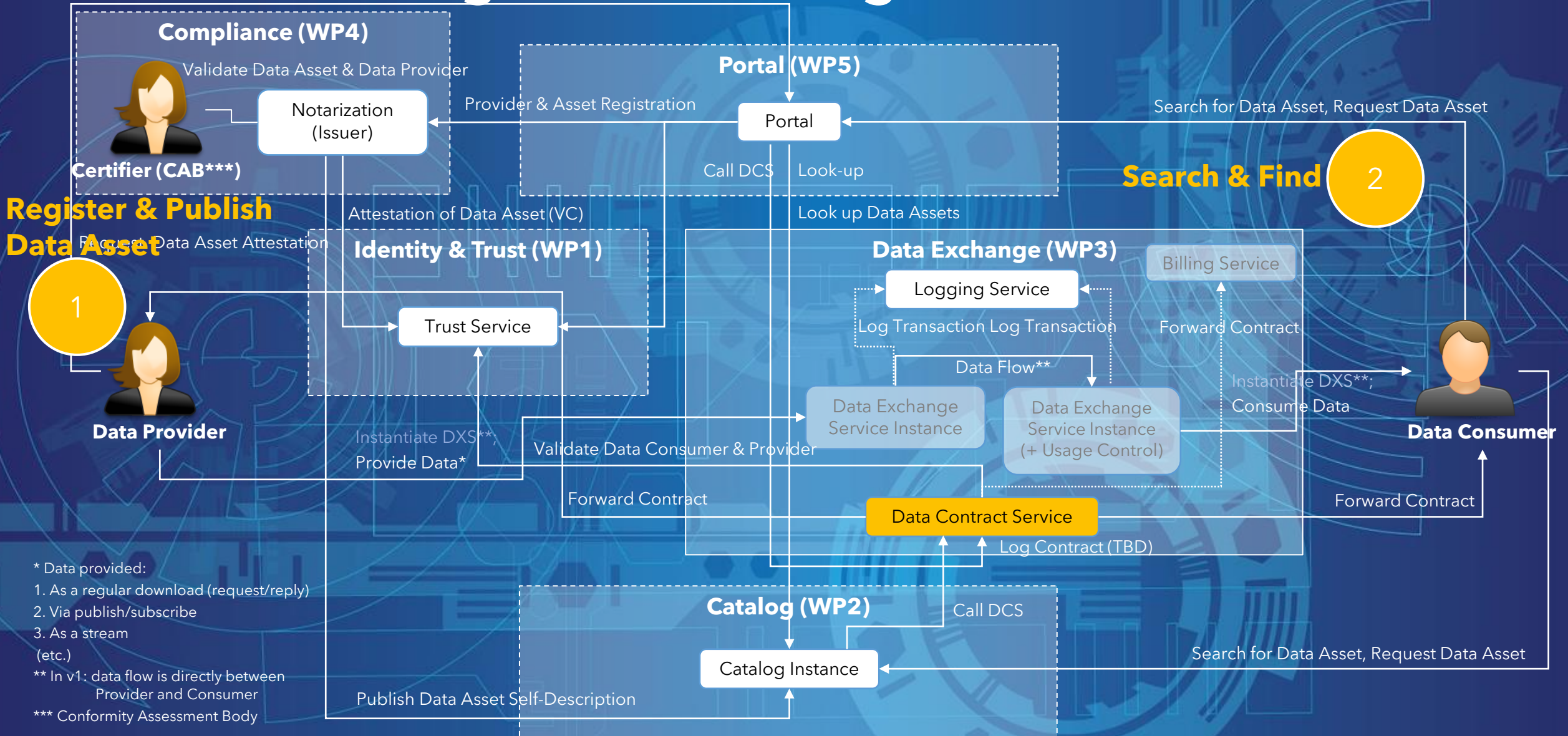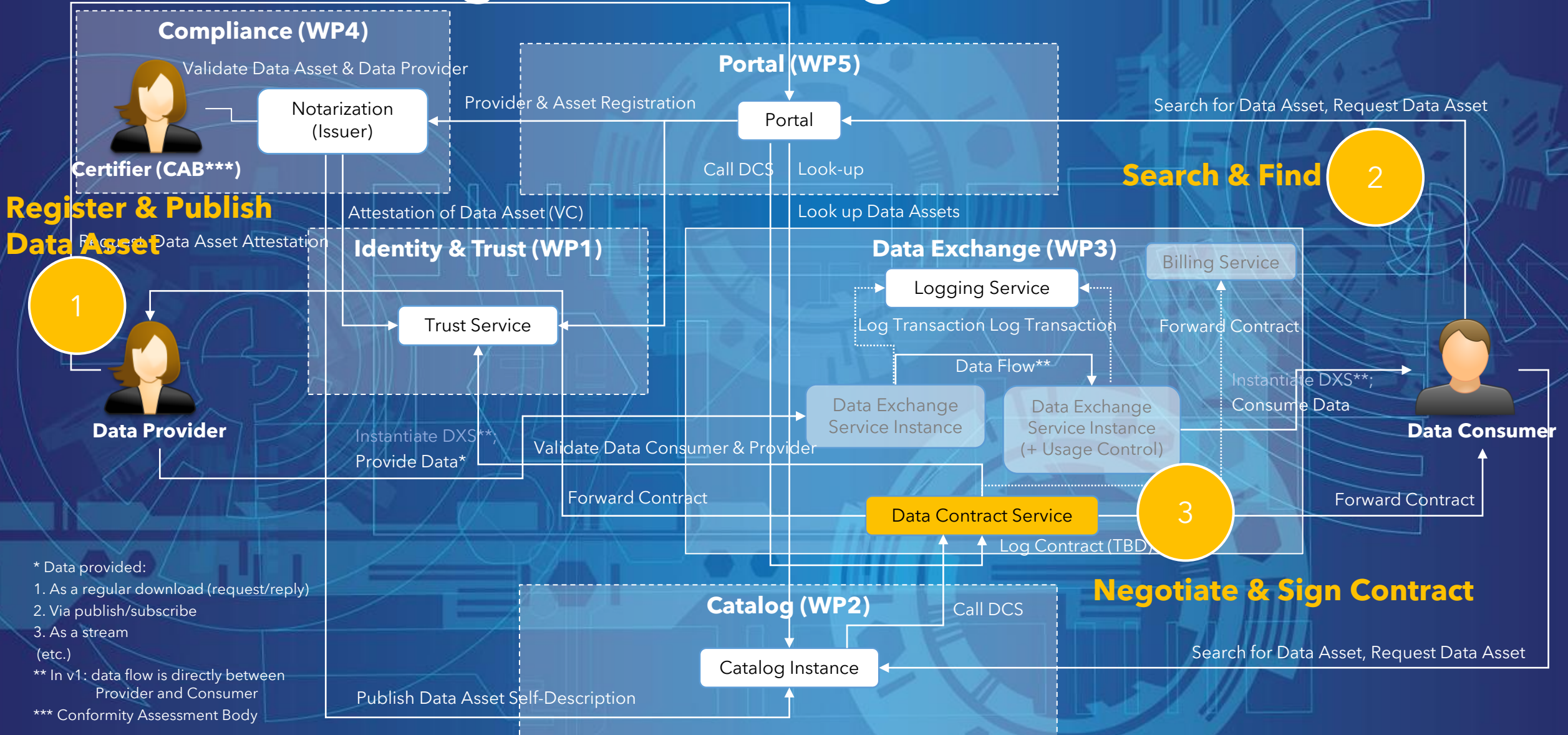Log Contract (TBD)

Forward Contract

Data Provider

* Data provided:
1. As a regular download (request/reply)
2. Via publish/subscribe
3. As a stream
 (etc.)
** In v1: data flow is directly between
 Provider and Consumer
*** Conformity Assessment Body

Catalog (WP2)

Catalog Instance

Call DCS

Search for Data Asset, Request Data Asset

Publish Data Asset Self-Description

Out of Scope in v1

GAIA-X: Sovereign Data Exchange in Context 3/5

GAIA-X: Sovereign Data Exchange in Context 4/5

GAIA-X: Sovereign Data Exchange in Context 5/5

Compliance (WP4)

Validate Data Asset & Data Provider

Certifier (CAB***)

Notarization (Issuer)

Provider & Asset Registration

Portal (WP5)

Portal

Search for Data Asset, Request Data Asset

Call DCS — Look-up

Search & Find (2)

Attestation of Data Asset (VC)

Look up Data Assets

Register & Publish Data Asset (1)

Request Data Asset Attestation

Identity & Trust (WP1)

Data Exchange (WP3)

Billing Service

Logging Service

Trust Service

Log Transaction Log Transaction

Forward Contract

Transfer & Logging (4)

Data Flow**

Instantiate DXS**; Consume Data

Data Provider

Instantiate DXS**; Provide Data*

Data Exchange Service Instance

Data Exchange Service Instance (+ Usage Control)

Data Consumer

Validate Data Consumer & Provider

Forward Contract

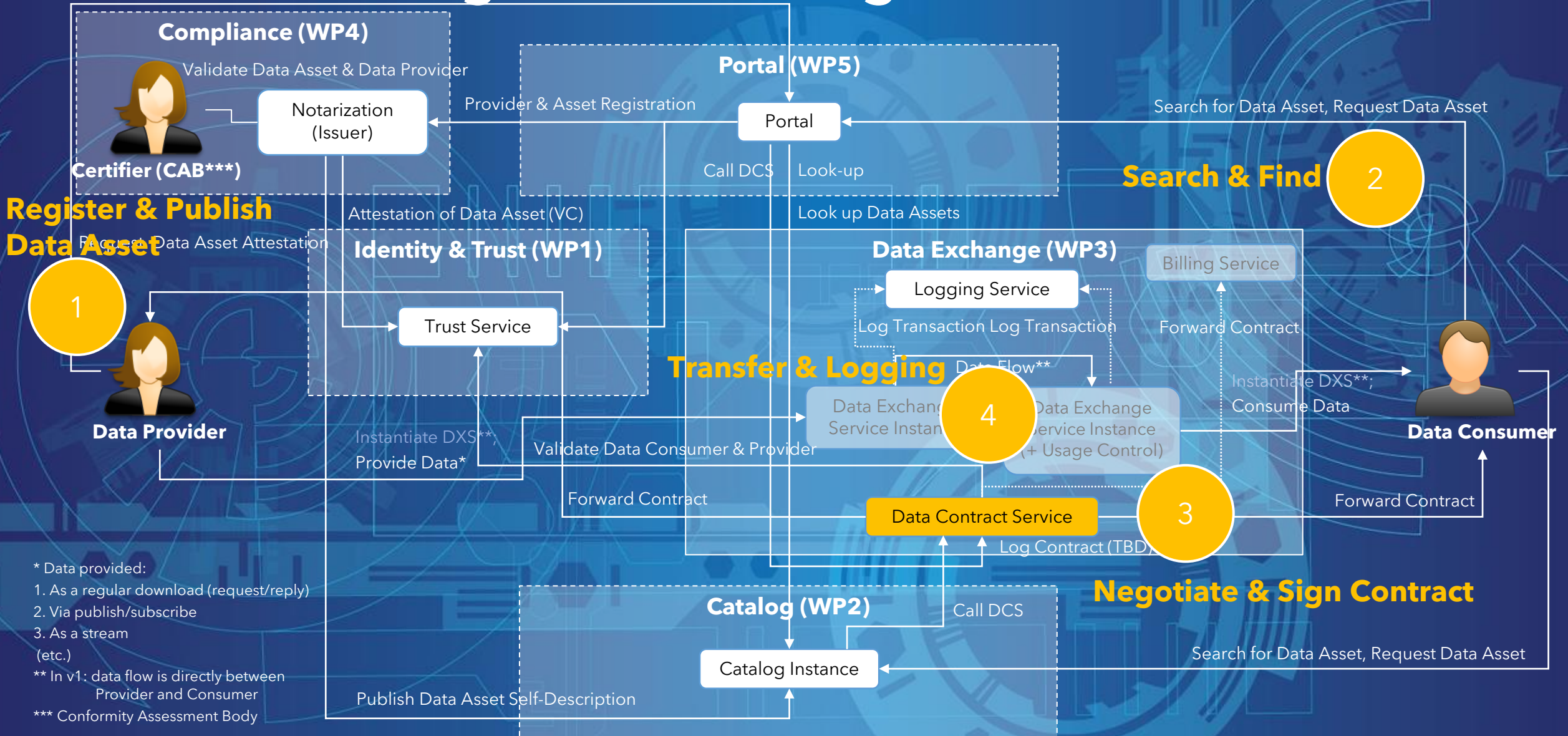Data Contract Service (3)

Forward Contract

Log Contract (TBD)

* Data provided:
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Negotiate & Sign Contract

Catalog (WP2)

Call DCS

Catalog Instance

Search for Data Asset, Request Data Asset

Publish Data Asset Self-Description

Out of Scope in v1

Thank you!

See gxfs.eu for more info