



# Guidelines on Data Integration Mechanisms in Supply Chains, Version β (for Battery CFP/DD)

June 2024 Ministry of Economy, Trade and Industry Digital Architecture Design Center (DADC)







**Chapter 1: Introduction** 

**Chapter 2: Rules** 

**Chapter 3: Business requirements** 

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**Chapter 5: System specifications** 



### **Chapter 1: Introduction**

1.1 Background and purpose
1.2 Scope of this guidelines document
1.3 Glossary

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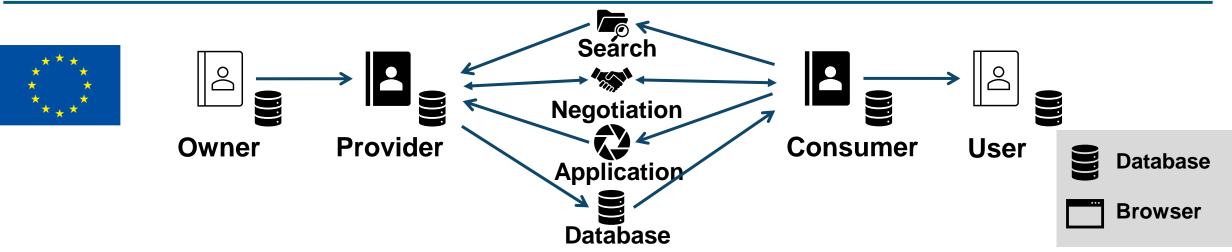
## **Initiatives for Data Integration and Utilization**



Interoperable Data System will be operated by a public-private collaboration digital platform based on consensus building between the Government (Industry Jurisdiction) and Industry Associations. A system will be established to facilitate participation by all stakeholders, including small and mid businesses, also takes into consideration industry practices.

### Domain-independent, fundamental building blocks and models for interoperability

- Data sovereignty in the data space through collaboration between providers and consumers in addition to data owners and users -



Establishment and operation of Public-Private Collaboration Digital Platform based on consensus building between the Government (Industry jurisdiction) and Industry Associations



## Main points of the supply chain Interoperable Data Infrastructure (1)

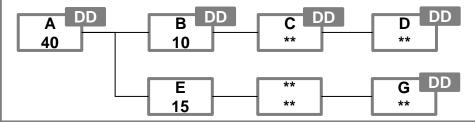
In order to share and use data on Supply chain and Value chain across the companies, <u>Ensure scalability and</u> <u>economic rationality while maintaining corporate trade secrets and ensuring data sovereignty, and also</u> <u>the mechanism of data integration is organized from operational and technical aspects in this guideline</u>

### **Operational Side: Concept of Trade Secret**

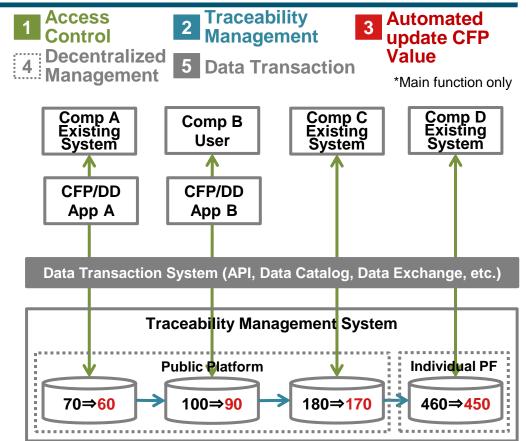
- Share data for the domestic and foreign legal compliance based on the appropriate contract to the minimum required contents and users.
- 2 <u>The scope of sharing data is required the agreement of</u> <u>Data Provider</u> based on the intention of Data User.
- 3 Share the data which will benefit for Individual Companies and Industries with the agreement of Data Provider.
- 4 The businesses who handles data as third party <u>operate an</u> organization, process, governance structure etc. ensure the fairness and equity for Data Provider and Data User.

The third party means other than Data User and Data Provider.

Image of accessing data by data collecting company.



### Technology Side: Concept of Data Integration

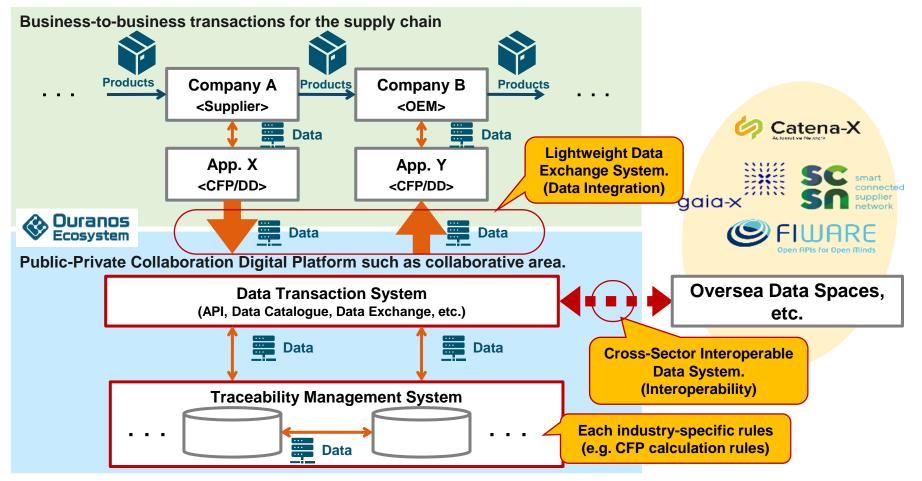


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## Main points of the supply chain Interoperable Data Infrastructure (2)

Data Transaction System within Ouranos Ecosystem shall be a lightweight data exchange system so that everyone can easily participate, and outside of Ouranos Ecosystem shall be ensured interoperability by simplifying and standardizing the protocols. It should be built systems on those versatility Data Transaction System with each industry-specific rules.



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### **Chapter 1: Introduction**

- **1.1 Background and purpose**
- 1.2 Scope of this guidelines document

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1.3 Glossary

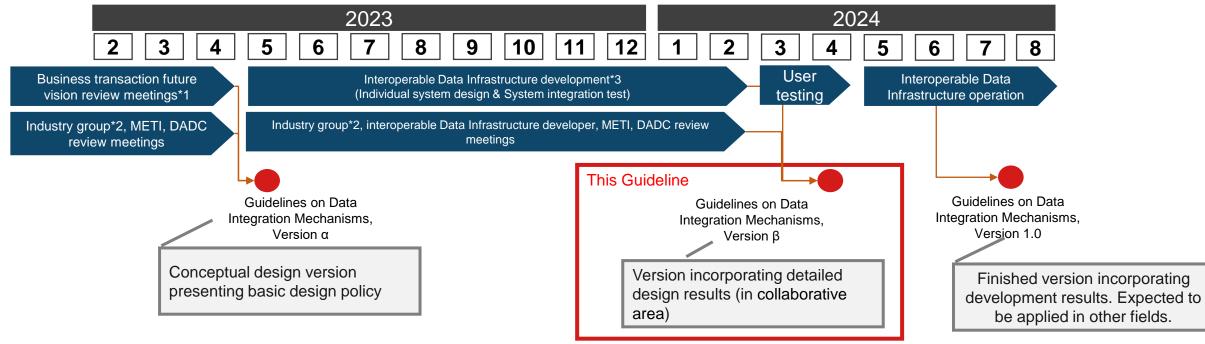
## **Scope of this guidelines document**



This guidelines document define the basic design requirements required for Interoperable Data Infrastructure, for the social implementation of Interoperable Data Infrastructure. Version  $\alpha$  provides the conceptual design, while Version  $\beta$  provides details on system functions and interfaces between systems. Guidelines for application in other fields is planned to be released as Version 1.0.

Tentative schedule

Note: Publication dates of guidelines subject to change



\*1: Business transaction future vision review meetings: Activities conducted by groups of experts from various fields to formulate a future vision that uses business transaction data to solve social issues and develop industries, and to draw up a mechanism (architecture) by which different and related information processing systems work together, within the Digital Agency, METI and DADC. Ensuring the traceability of automobile batteries was selected as a preceding use case during these activities, which resulted in the creation of this guidelines document.

\*2: Industry group: Groups involved in the preceding use case of automobile batteries (Battery Association for Supply Chain, Japan Automobile Manufacturers Association and Japan Auto Parts Industries Association)

#### \*3: Infrastructure developed by the following

New Energy and Industrial Technology Development Organization (NEDO): R&D on digital infrastructure development project and supply chain management infrastructure for industry DX Green Investment Promotion Organization (GIO): Demonstration and support projects for CASE, such as autonomous driving in fiscal 2023



### **Chapter 1: Introduction**

- **1.1** Background and purpose
- 1.2 Scope of this guidelines document

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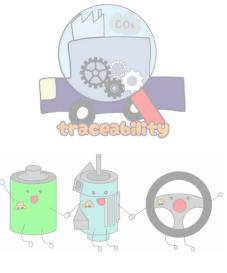
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1.3 Glossary

## Glossary



Refer to the separate document, "Glossary for Guidelines on Data Integration Mechanisms in Supply Chains, Version  $\beta$  (for Battery CFP/DD)"





### **Chapter 2: Rules**

### 2.1 **Overview of European Battery Rule/Regulation**

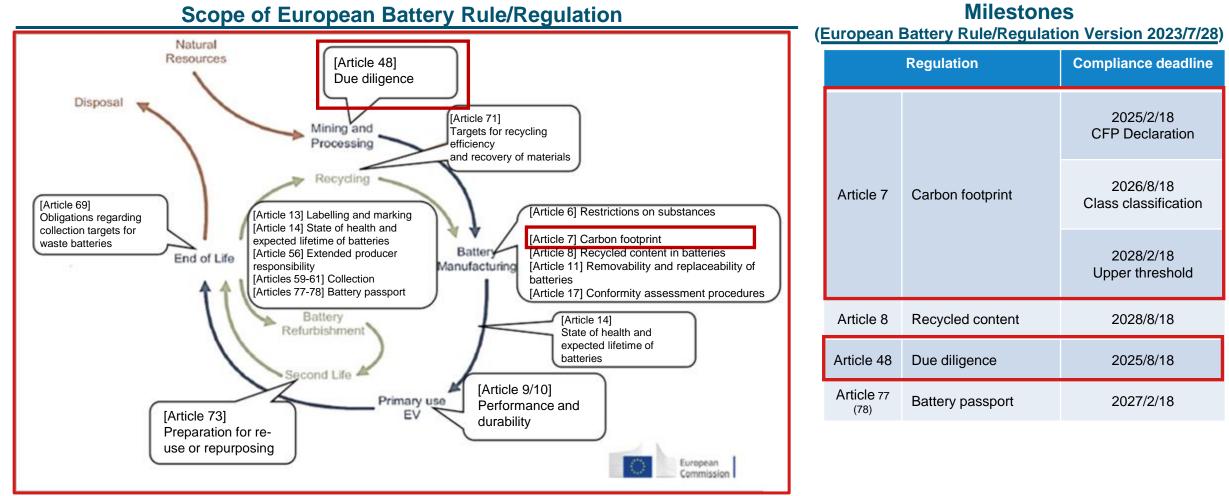
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## 2.2 Ensuring traceability

## **Scope of European Battery Rule/Regulation**



Of the articles of the European Battery Rule/Regulation that will likely require supply chain data distribution (Articles 7, 8, 48 and 77), there are two articles requiring an immediate response: Article 7 (Carbon footprint) and Article 48 (Supply chain due diligence) (including annexes and related clauses cited in each). The conditions of these two articles must be satisfied. Compliance with Articles 8 and 77 will also be required in the future. However, any amendments made to provisions related to the European Battery Rule/Regulation must be followed.



Source: Created by DADC, based on EC "European Battery Alliance Deliverable: Industrial Policy"

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## European Battery Rule/Regulation (Article 7:Carbon footprint of batteries)

### Must comply with carbon footprint information\*1 per battery pack from Article 7 (including annexes cited).

Draft European Battery Rule/Regulation, Article 7-1 (excerpt/summary)

For electric vehicle batteries, a carbon footprint declaration<sup>\*</sup>2 shall be drawn up for each battery model per manufacturing plant, in accordance with the delegated act adopted by the European Commission and containing, at least, the following information:

- (a) Administrative information about the manufacturer
- (b) Information about the battery model for which the declaration applies
- (c) Information about the geographic location of the battery manufacturing plant
- (d) The carbon dioxide emissions of the battery, calculated as kg of carbon dioxide equivalent per one kWh of the total energy provided by the battery over its expected service life

(e) The carbon footprint of the battery differentiated according to life cycle stage\*3 as described in point 4 of Annex II of the European Battery Rule/Regulation

(f) The identification number of the EU declaration of conformity of the battery

(g) A web link giving access to a public version of the study\*4 supporting the carbon dioxide emission values referred to in points (d) and (e)

The methodology for calculating and verifying carbon footprints is in accordance with the latest versions of the "Product Environmental Footprint (PEF) Methodology"\*5 and the "Product Environmental Footprint Category Rules (PEFCRs)"\*6.

Classification into carbon footprint performance classes is calculated from the declared carbon footprint in accordance with the method established by the delegated act adopted by the European Commission. The European Commission will review the performance classes and thresholds every three years, in accordance with the conditions stipulated in point 8 of Annex II\*7. It must be demonstrated that values are below the maximum threshold stipulated by the delegated act adopted by the European Commission.

- \*1: "Carbon footprint of products" (CFP) refers to a mechanism that converts greenhouse gas emissions over the entire life cycle of a product or service from raw material procurement to disposal and recycling, into CO2 and displays this on the product or service in an easy-to-understand manner. (<u>https://www.meti.go.jp/shingikai/energy\_environment/carbon\_footprint/pdf/20230526\_3.pdf</u>)
- \*2: A carbon footprint declaration must be attached to the battery until it can be accessed via the QR code mentioned in Article 13(6).
- \*3: Ensure battery traceability throughout the entire supply chain, and collect and calculate the carbon footprint for each life cycle stage, in accordance with point 4 of Annex II and the above sentence (76).
- \*4: Investigations supporting the CFP referred to in Article 7 and in point 2(h) of Part B of Annex VIII must be verified by the notified body referred to in point 5 of Part B of Annex VIII.
- \*5: "Product Environmental Footprint (PEF)" https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013H0179&from=EN
- \*6: "Product Environmental Footprint Category Rules (PEFCRs)"
- https://epica.jrc.ec.europa.eu/permalink/PEFCR\_guidance\_v6.3-2.pdf
- \*7: Point 8 of Annex II

Carbon footprint performance classes Depending on the distribution of the values in the carbon footprint declarations of batteries placed on the market, a meaningful number of classes of performance shall be identified, with category A being the best class with the lowest carbon footprint life cycle impact, to enable market differentiation of electric vehicle batteries. The setting of the threshold for each class of performance, as well as the width of that class, shall be based on the distribution of performance of electric vehicle batteries placed on the market in the previous three years, expected technological improvements and other technical factors.

## European Battery Rule/Regulation (Article 48:Battery due diligence policies)

#### Must comply with battery due diligence information\*1 from Article 48 (including annexes cited).

Draft European Battery Rule/Regulation, Article 48 (excerpt/summary)

- 1. From August 18 2025, economic operators\*2 that place batteries on the market shall fulfil the due diligence obligations laid down in paragraphs 2 and 3 of this Article, and in Articles 49, 50 and 52 and shall, to that end, set up and implement battery due diligence policies\*3. This shall not apply when an economic operator places batteries on the market or uses batteries that have been prepared for reuse or that have been remanufactured.
- Economic operators referred to shall have their battery due diligence policies verified by a notified body(third-party verification) in accordance with Article 51 and periodically audited by that notified body to make sure that the battery due diligence policies are maintained and applied in accordance with Articles 49, 50 and 52. The notified body shall provide the economic operator with an audit report.
- 3. Economic operators shall keep documentation demonstrating their fulfilment of the obligations laid down in Articles 49, 50 and 52, including the verification report and approval decision referred to in Article 51 and the audit reports referred to in paragraph 2, for 10 years after the last battery manufactured under the relevant battery due diligence policy has been placed on the market.
- 4. Without prejudice to the individual responsibility of economic operators for their battery due diligence policies, economic operators referred may, for the purposes of compliance with the requirements laid down in Articles 48, 49, 50 and 52, collaborate with other actors, including through due diligence schemes recognized under this Regulation.
- \*1: Human rights due diligence refers to a series of actions taken by companies to identify and prevent or mitigate any negative impact on human rights by the company itself or its group companies, suppliers, etc.; evaluate the effectiveness of their efforts; and explain and disclose information on how situations are handled. (https://www.meti.go.jp/shingikai/economy/supply\_chain/pdf/20220808\_1.pdf "2.1.2. Human Rights DD")
- \*2: This does not apply to economic operators whose sales in the previous fiscal year were less than 40 million euros and do not belong to a group formed by a parent company and subsidiaries which on a consolidated basis exceeded 40 million euros, or to business operators involved in placing batteries on the market or using batteries that have been prepared for reuse, repurposed or remanufactured, if such batteries had been placed on the market or put into service before such work was performed.
- \*3: Reports on due diligence policies shall be revised annually and made available to the public, including the Internet (Article 52). This also includes summary reports of third-party verification carried out in accordance with Article 51, including the name of the notified body.

## European Battery Rule/Regulation (Article 49:Economic operator's management system)



#### Must be capable of managing battery due diligence information as described in Article 49 (including annexes cited).

Draft European Battery Rule/Regulation, Article 49 (excerpt/summary)

- 1. Each economic operator referred to in Article 48(1) must implement the following:
  - (a) Economic operators that place electric vehicle batteries shall adopt, and clearly communicate to suppliers and the public, a company battery due diligence policy, concerning raw materials listed in point 1 of Annex X, and associated social and environmental risk categories listed in point 2 of Annex X.
  - (b) Incorporate in its policy standards that are consistent with internationally recognized due diligence guidance standards\*1 listed in point 4 of Annex X.
  - (c) Structure its internal management system to support its due diligence policy by assigning responsibility to the top management level of the economic operator to oversee its policy as well as maintain records of that system for a minimum of 10 years.
  - (d) Establish and operate a system of controls and transparency regarding the value chain, including a chain of custody or traceability system, identifying upstream actors in the supply chain.
  - (e) Incorporate its battery due diligence policy, including risk management measures, into contracts and agreements with suppliers.
  - (f) Establish a grievance mechanism, including an early-warning risk-awareness system and a remediation mechanism, or provide for such mechanisms through collaborative agreements with other economic operators or organizations or by facilitating recourse to an external expert or body. Such mechanisms shall be based on the UN Guiding Principles on Business and Human Rights.
  - 2. The system referred to in paragraph 1, point (d), shall be supported by documentation that provides at least the following information:
    - (a) A description of the raw material, including its trade name and type
    - (b) The name and address of the supplier that supplied the raw material present in the batteries
    - (c) The country of origin of the raw material and the market transactions from the raw material's extraction to the immediate supplier to the economic operator that places the battery on the market.
    - (d) The quantities of the raw material present in the battery (expressed in percentage or weight)
    - (e) Third-party verification reports issued by a notified body and concerning the suppliers as referred to in Article 50(3).
    - (f) If the reports referred to in point (e) are not available and where the raw material originates from a conflict-affected and high-risk area, additional information in accordance with the specific recommendations as set out in OECD Due Diligence Guidance, where relevant, such as the mine of origin, locations where the raw material is consolidated, traded and processed, and taxes, fees and royalties are paid.

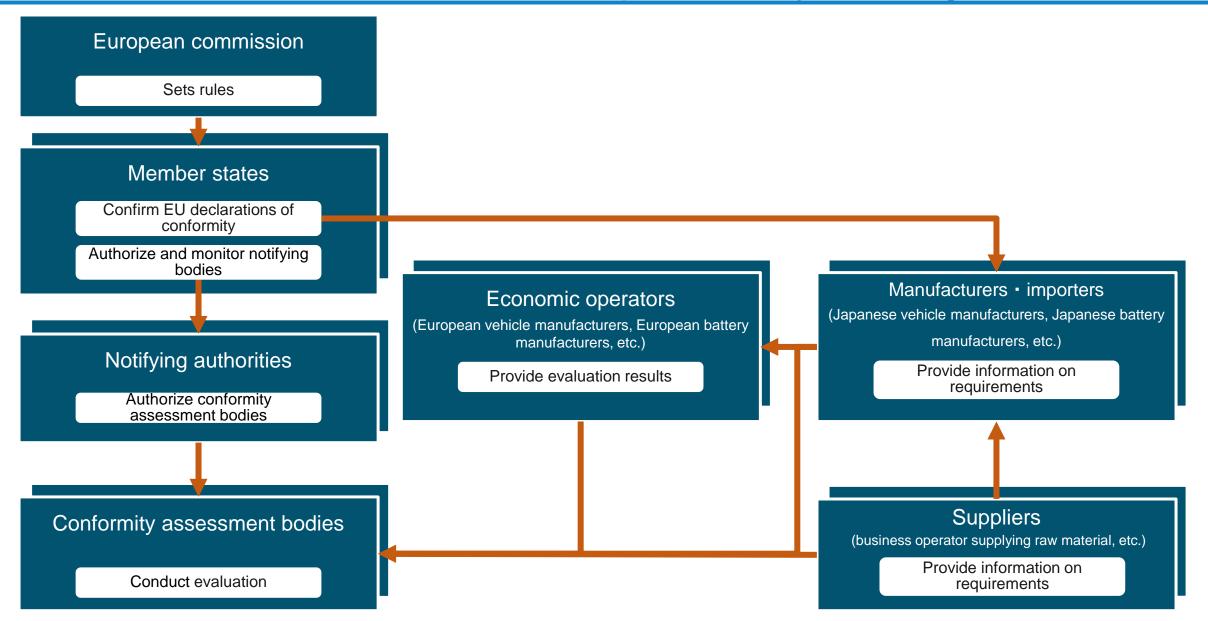
Third-party verification reports referred to in point (e) shall be made available to the downstream operators of the supply chain.

- \*1: "UN Guiding Principles on Business and Human Rights": <u>https://www.unic.or.jp/texts\_audiovisual/resolutions\_reports/hr\_council/ga\_regular\_session/3404/</u>
- "OECD Guidelines for Multinational Enterprises" :<u>https://www.mofa.go.jp/mofaj/gaiko/csr/pdfs/takoku\_ho.pdf</u>
- "OECD Guidance for Responsible Business Conduct" :<u>https://www.mofa.go.jp/mofaj/files/000486014.pdf</u>
- "OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas"

. https://www.mofa.go.jp/mofaj/gaiko/csr/pdfs/oecd\_ddg\_jp.pdf

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## Stakeholders as defined in the draft European Battery Rule/Regulation





### **Chapter 2: Rules**

### 2.1 Overview of European Battery Rule/Regulation

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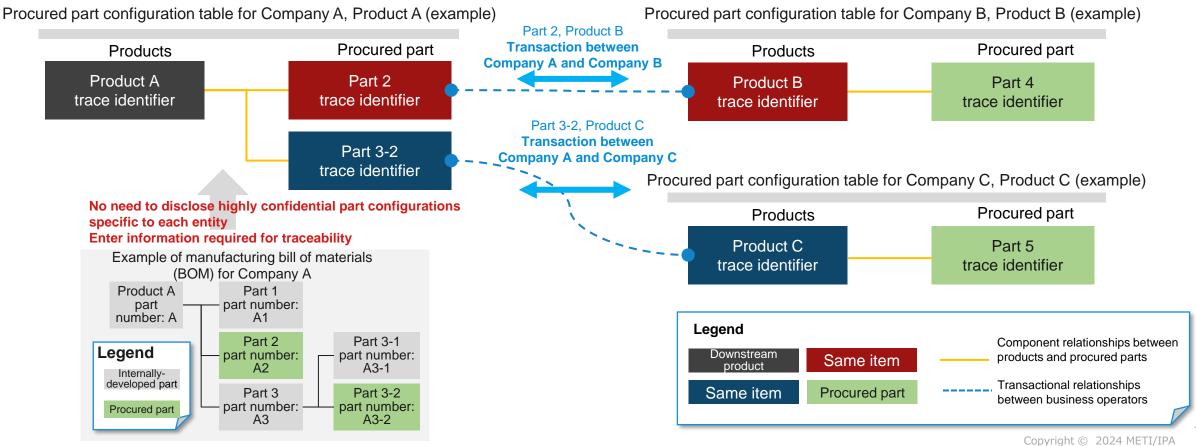
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## 2.2 Ensuring traceability

## **Ensuring traceability**

Interoperable Data Infrastructure for ensuring supply chain traceability <u>records "component relationships between products and procured</u> <u>parts" and "transactional relationships between business operators" by linking trace identifiers (uniquely identifiable identifiers</u> <u>assigned to trace a product or part in the system) as indexes</u> to allow tracing within a supply chain. The "component relationships between products and procured parts" do not require the use of part numbers from the manufacturing bill of materials (BOM) information of each entity, and <u>trace identifiers are issued from the system stipulated in Interoperable Data Infrastructure</u>.

Traceability in this Interoperable Data Infrastructure: Tracing transaction and part configuration relationships, between supply chain parties

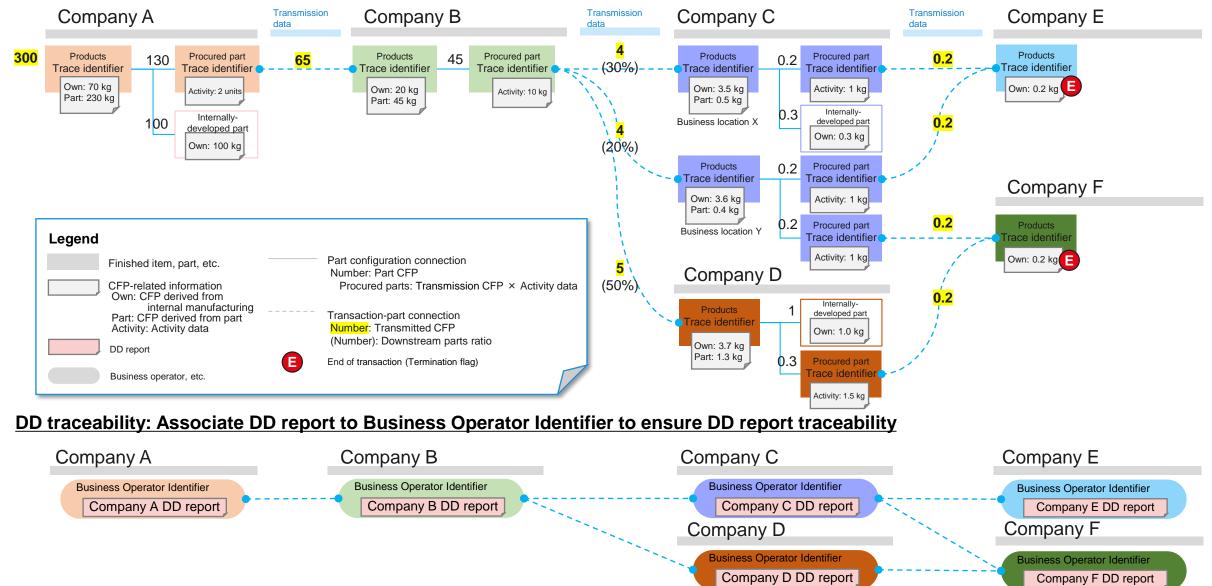


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## Trace information management to ensure CFP/DD traceability



#### CFP traceability: Associate CFP to trace identifier to ensure CFP calculation traceability



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## **Chapter 3: Business requirements**

## 3.1 Specific expected sales channel patterns

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### 3.2 Expected workflows

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## Specific expected sales channel and business patterns



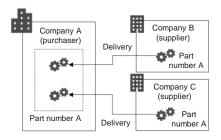
It must be possible to respond to expected sales channel and business patterns (including combinations). In doing so, instead of building a single mechanism for each pattern, aim to build a general mechanism for various patterns. The number of patterns could increase or decrease, so it must be possible to respond flexibly.

#	Case	Sales channel and business patterns			
(1)		Parts and components of the same model name (part number) are purchased from multiple companies (multi-company arrangement)			
(2)	Cases where connection and integration methods of answers are special	Parts and components of the same model name (part number) are delivered to multiple companies (N-to-1)			
(3)		Parts and components of the same model name (part number) are purchased from multiple plants of the same company			
(4)		Parts, components and raw materials are delivered in different units			
(5)		Different CFPs for the same parts even from one company (some of them are produced using renewable energy, etc.)			
(6)	Cases where the sales channel	The company requested to calculate is a direct delivery company (pass-through company) such as a trading company, etc.			
(7)	itself is special	The company requested to calculate uses supplied items			
(8)	Cases where answer input is	The component parts of the requested product are purchased from another plant within the company as an internally manufactured item			
(9)	special	The upstream supplier that was requested cannot provide an answer * Proxy input by downstream company			
(10)	Cases for special users	There is a user who does not participate in Interoperable Data Infrastructure within the sales channel (including users using other applications and overseas platform)			
(11)		A part supplier is changed to another company			
(12)		A change occurs to a product that was already compliant with regulations			
(13)	Cases requiring convenience	A calculation request is received from a different direct commerce company, with regard to a product for which an answer has been submitted			

## **Details on Specific Expected Sales Channel and Business Patterns (1/2)**

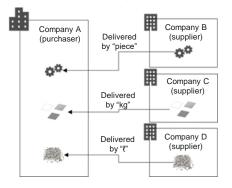
#### (1) Same part, different sales channel (answer receipt)

Consideration is required so that the purchaser can request multiple suppliers to calculate the CFP for the same model name (part number), and answers can be received.



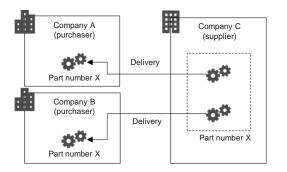
#### (4) Different material, different unit (CFP calculation)

Consideration is required so that, when calculating the CFP, the purchaser can specify a unit so that the CFP included in the answer and the usage amount can be multiplied.



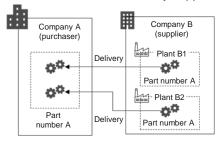
## (2) Same part, different sales channel (answer sending)

Consideration is required so that the supplier can reference the calculated CFP and easily provide an answer.



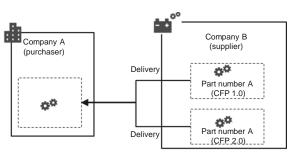
## (3) Same part, different factory (CFP calculation)

Consideration is required so that the purchaser can register the amount prorated from the ratio of the amount used from each CFP, since the CFP varies by supplier plant.



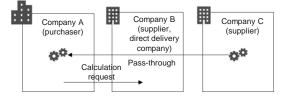
### t (5) Same part, different CFP

Consideration is required so that the supplier can register separate parts and different CFP parts when the CFP differs even for the same part.



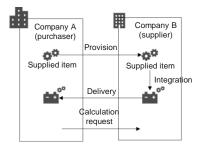
#### (6) Direct delivery arrangement (answer sending)

Consideration is required so that the direct delivery company can forward the received request to the direct delivery source supplier, without needing to create answer information.



## (7) Supplied item (blank answer sending)

Consideration is required so that, when an item is supplied from the purchaser, the supplier can distinguish it from within component part information, and enter the CFP.



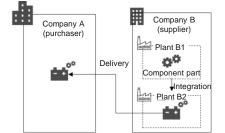
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## **Details on Specific Expected Sales Channel and Business Patterns (2/2)**



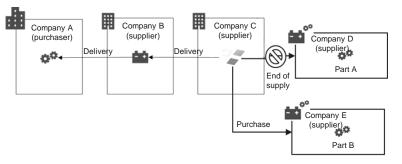
#### (8) Internal link (CFP calculation)

Consideration is required so that, when there is an internally manufactured item within component part information, the supplier can request internal CFP calculation and then enter the CFP as an answer.



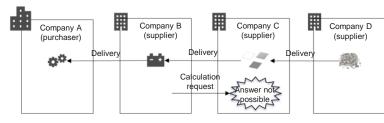
#### (11) Supplier change

Consideration is required so that the supplier can change CFP following sales channel changes.



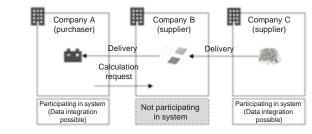
#### (9) Answer refused (CFP calculation, answer)

Consideration is required so that, when the supplier cannot provide a CFP answer, the purchaser can use secondary data, etc. to perform proxy input.



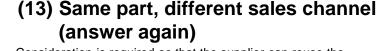
#### (10) Not participating in platform (CFP calculation)

Consideration is required, when a middlestream company does not participate in the platform but an upstream company does participate in the platform, whether the upstream company shall be allowed to extract data from this system and create answer information or not.

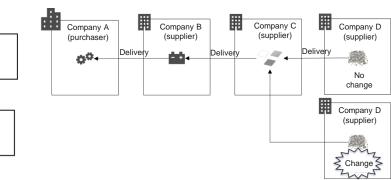


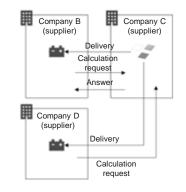
## (12) Data update (CFP calculation, answer sending/receipt)

Consideration is required so that the downstream supplier and purchaser can easily update CFP when there is a change and a supplier updates CFP. A mechanism to automatically update CFP must be investigated, as there would be a significant burden on each entity if a product is changed upstream. Operational rules for automatic updates such as the scope, need for approval and retention of history information will be specified separately.



Consideration is required so that the supplier can reuse the calculated CFP and easily provide an answer. Conditions for reuse such as the reuse period will be specified separately.





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### **Chapter 3: Business requirements**

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- 3.1 Specific expected sales channel patterns
- 3.2 Expected workflows

## **Operation list (1/2)**



Design a system by taking into account which items should be handled by the system during assumed operations and workflows. Revise and add operations and workflows as necessary.

#	Rule	Operation	Sub-operation 1	Sub-operation 2	Operation overview	Most downstream	Middle -stream	Most upstream
1			CFP information collection	Collect internal CFP information	Collect CFP information that can be obtained internally.	0	0	0
2		CFP calculation	CFP calculation	Calculate CFP of finished item	Calculate CFP of finished item.	0	0	0
3				Calculate CFP derived from internal manufacturing	Calculate CFP related to internal manufacturing.	0	0	0
4			CFP transmission	CFP transmission request	Request the supplier to calculate the CFP of the finished item (requested during part registration when the agreement is made).	0	0	
5				CFP transmission	Transmit the CFP of the finished item to the recipient.		0	0
6				CFP receipt	Receive and approve the CFP for the item purchased.	0	0	
7		Third-party organization certification	CFP information certification	Receipt of certificate from third- party organization	Receive certificate guaranteeing the accuracy of emissions derived from internal manufacturing, from a third-party certification authority.	0	O*1	O*1
8				Application to third-party organization	Send application requesting the information on the accuracy of emissions derived from internal manufacturing to a third-party certification authority.	0	O*1	O*1
9	Article 7		CFP maintenance and management	CFP maintenance and management	Maintain and manage CFP regulatory values.	0	0	0
10			CFP change decision	CFP change decision	Determine whether to request the supplier to make a CFP change.	0	0	0
11			CFP change request	CFP change request	Request CFP change activities from specific companies.	0	0	
12			CFF change request	CFP change request receipt	Receive and approve requests for CFP change activities.		0	0
13			CFP change activity	CFP change handling	Handle CFP changes in finished items.	0	0	0
14				Alternate part search	Find alternate part.	0	0	
15			CFP change	CFP change	The most upstream or midstream entity makes a change with the downstream (most downstream) entity.		0	0
16			EU declaration of	EU declaration of conformity creation	Prepare a CFP EU declaration of conformity, and submit it to authorities.	0		
17		conformity activity	Final EU declaration of conformity creation	Prepare a CFP EU declaration of conformity for the final product, and submit it to authorities.	0			

\*1: Implement when necessary

## **Operation list (2/2)**



Design a system by taking into account which items should be handled by the system during assumed operations and workflows. Revise and add operations and workflows as necessary.

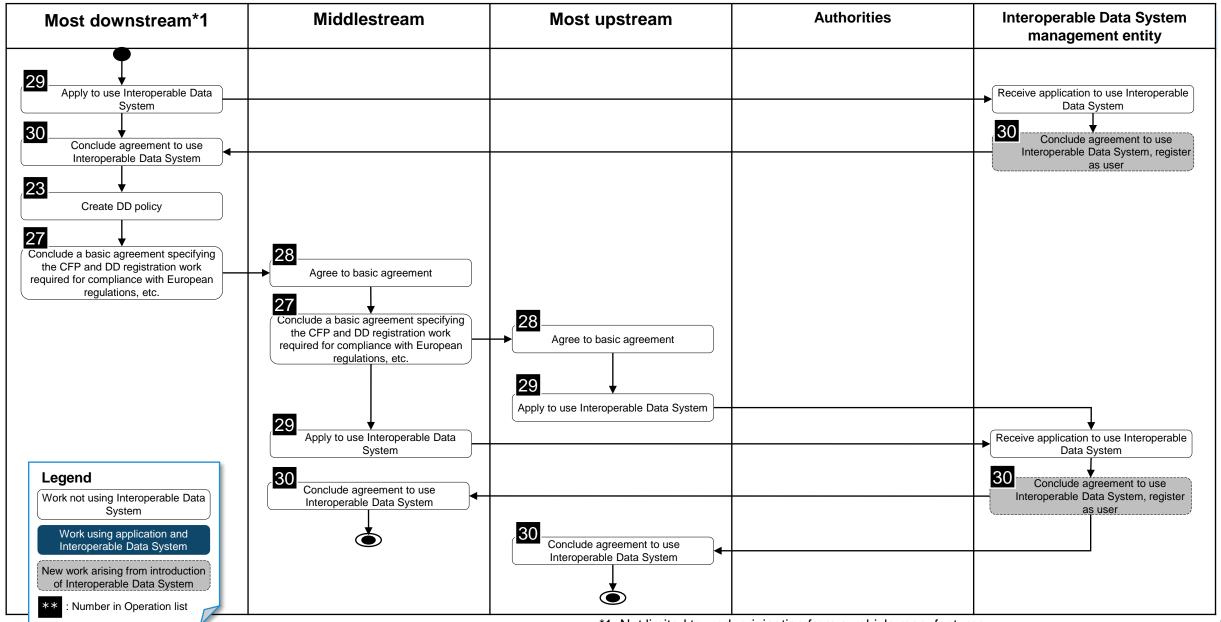
#	Rule	Operation	Sub-operation 1	Sub-operation 2	Operation overview	Most down -stream	Middle -stream	Most upstream
18			DD implementation	DD implementation	Perform supply chain due diligence (DD).	0	0	0
19			DD result transmission	DD result transmission	Transmit DD results to third-party organization.	0	O*1	O*1
20			DD transmission	DD information transmission request	Request the supplier to transmit DD information (requested during part registration when the agreement is made).	0	0	
21		DD implementation		DD information transmission	Transmit DD information to recipient.		0	0
22				DD information receipt	Receive and approve supplier DD information.	0	0	
23			DD policy	DD policy creation	Create a DD policy.	0	0	0
24	Article 48	48	DD implementation necessity	Confirm DD implementation necessity	Determine the necessity of performing DD, after determining whether DD has been performed, whether DD is no longer valid, if there has been a change to the DD policy, etc	0	0	0
25		Certification by third- party certification authority	DD certification	Third-party organization certificate receipt	Obtain DD certification from a third-party certification authority, and receive a certificate.	0	O*1	O*1
26		Submission to (European, etc.) authorities	DD information submission	DD information submission	Submit DD results and certificates received from all members to (European) authorities.	0		
27			Data provision agreement	Data provision request	Request the supplier to provide data when agreements are reached between entities.	0	0	
28				Data provision request receipt	Receive request from recipient to comply with laws and regulations for agreements between each entity.		0	0
29	0	A		Usage application to Interoperable Data System management entity	Submit usage application to Interoperable Data System management entity.	0	0	0
30	Common	Agreement		Conclusion of Interoperable Data System management entity usage agreement	Conclude usage agreement with Interoperable Data System management entity.	0	0	0
Included in #4				Part registration request	Request upstream company to register part (CFP/DD).	0	0	
31				Part registration association	Register part information for own company's finished item on the basis on registration request from downstream company.		0	0

\*1: Implement when necessary

26

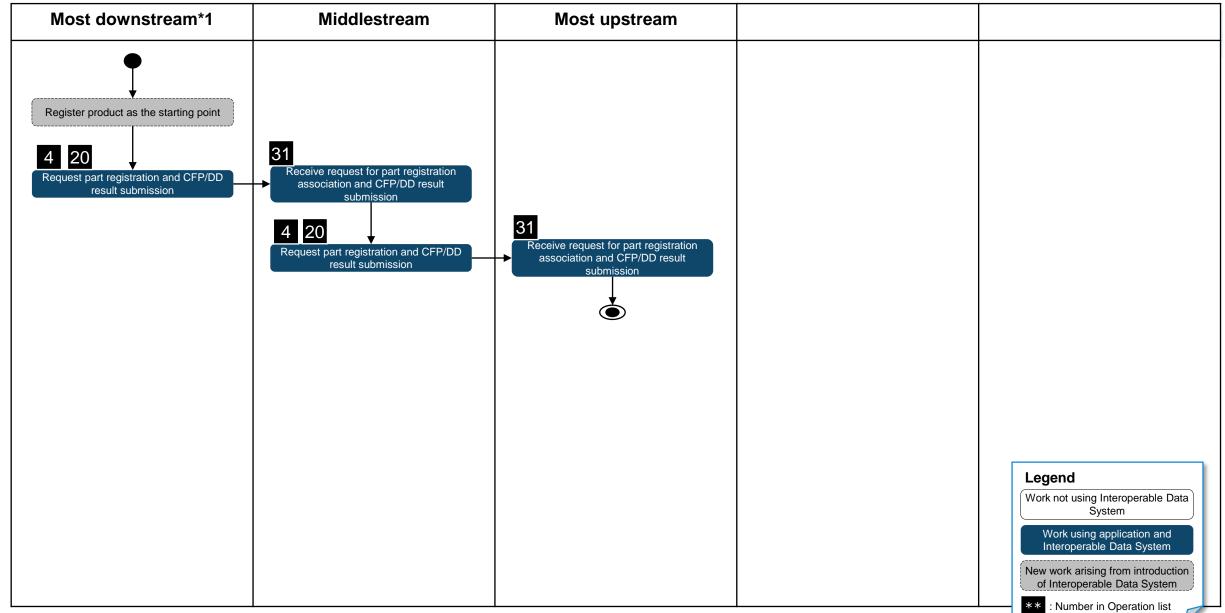
## Make agreement on regulatory compliance when ordering a product. Basic workflow 1: Agreement work (Basic Agreement)



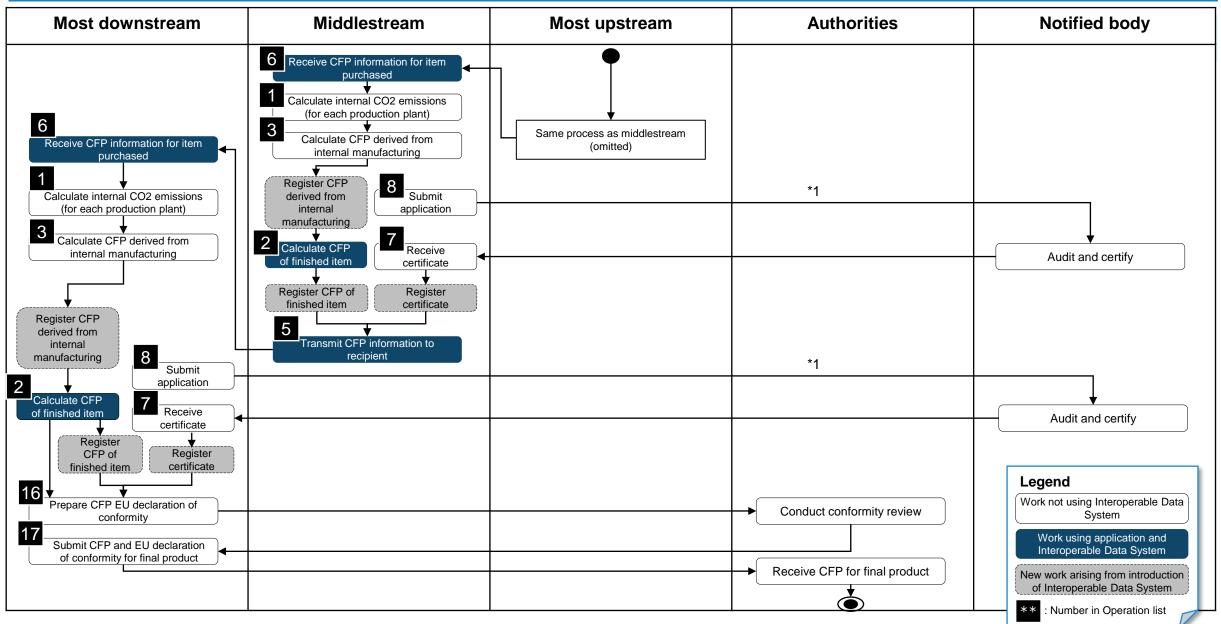


## **Basic workflow 2: Request Work**





### Basic workflow 3:Work from CFP Calculation to Final Product CFP Submission



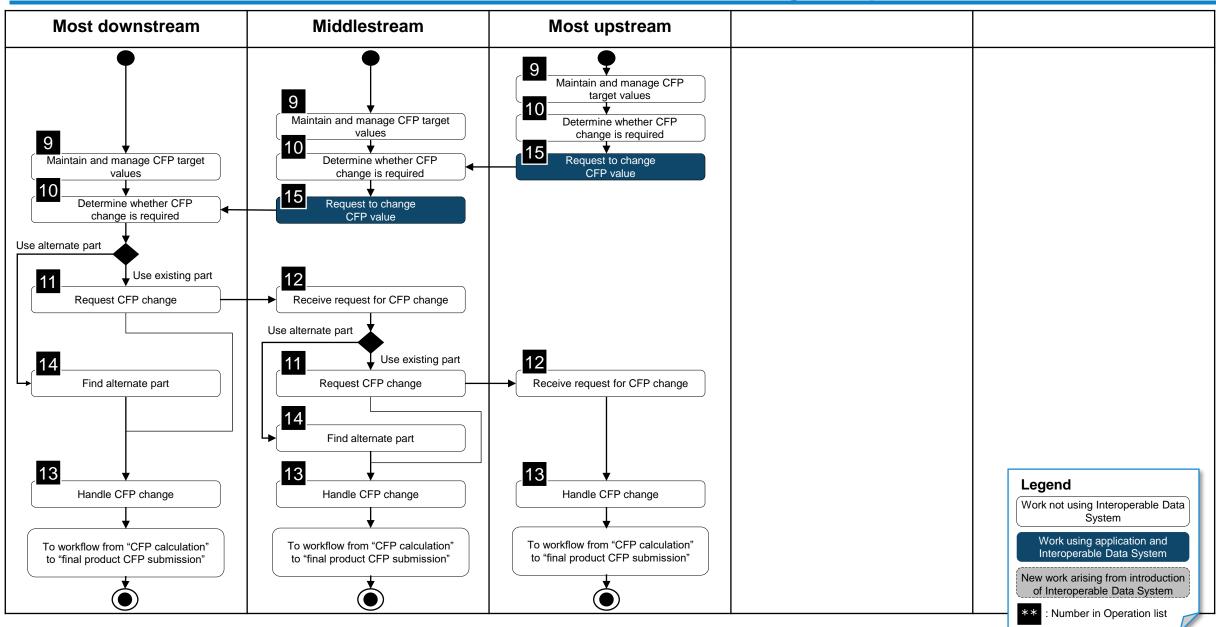
\*1: Request not required if CFP of part has already been certified

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Ouranos

Identify parts with high CFP and, if necessary, request suppliers to reduce CFP or select alternate parts.

### **Basic workflow 4: Work related to Part Selection or CFP Change Requests**

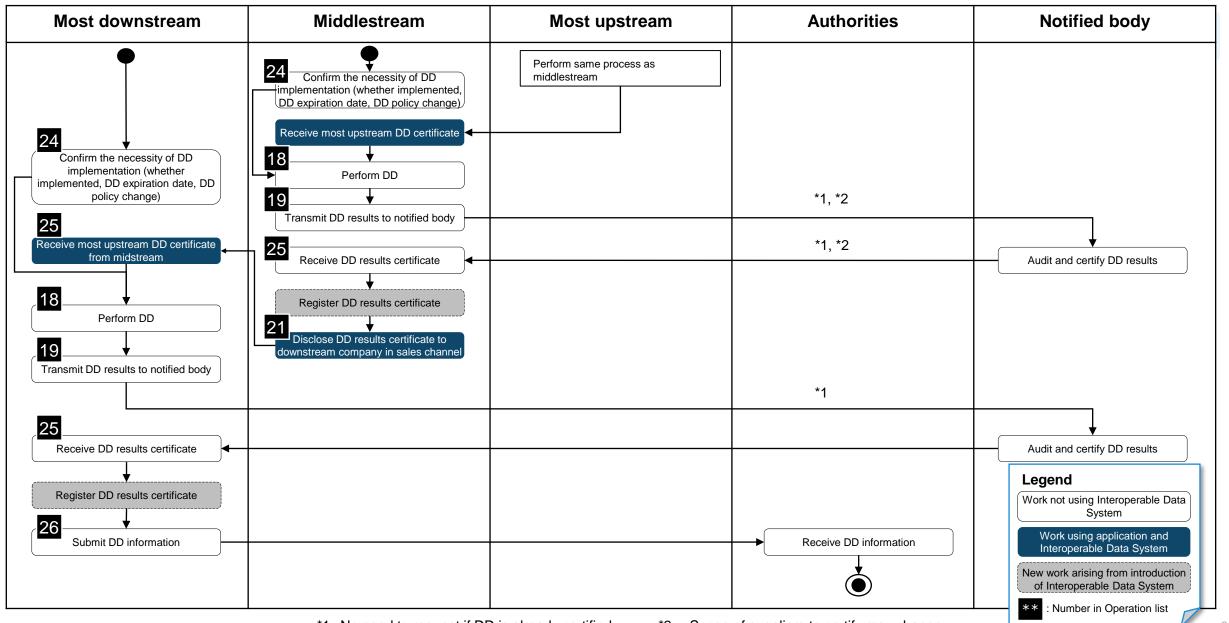


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Ouranos

Submit the DD of the product to ship to authorities. Each entity obtains a third-party report from an upstream company one level above, obtains a third-party assessment and then transmits it downstream (supply chain transactional relationships are not transmitted).

### **Basic workflow 5: Work from DD Implementation to DD Information Submission**



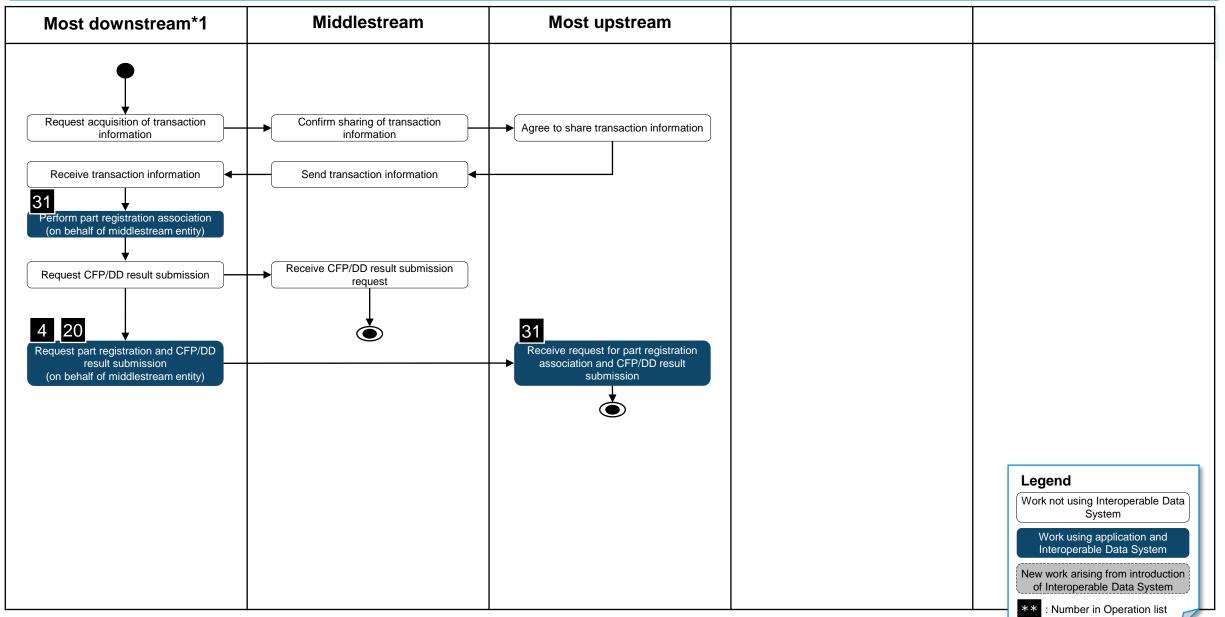
<sup>\*1:</sup> No need to request if DD is already certified \*2: Scope of suppliers to certify may change

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The downstream company performs part registration association on behalf of the other entity, and the middlestream company performs part registration association with that, thereby connecting the information chain.

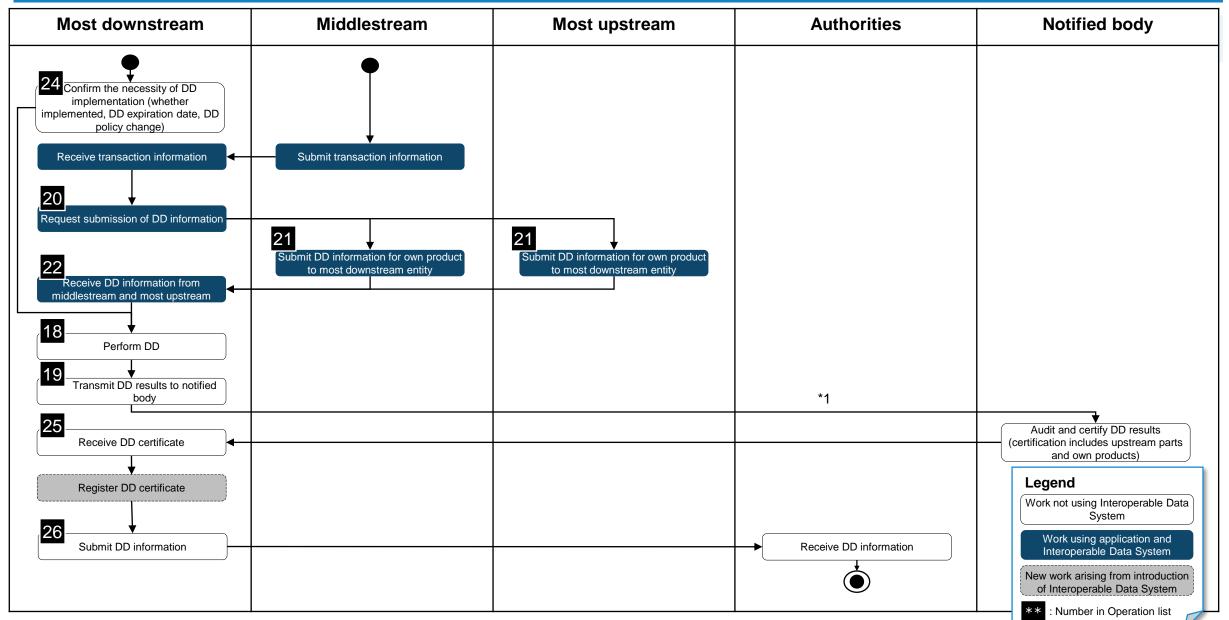
## Expanded process 1: Derived from Basic Workflow 2, when there is a company (middlestream) not participating in the platform on the supply chain





## Submit the DD of the product to ship to authorities. The most downstream entity obtains supply chain transactional relationships, obtains DD evidence information required for certification and then obtains third-party certification. Expanded process 2: Derived from Basic Workflow 5 (work from DD implementation to DD information submission)





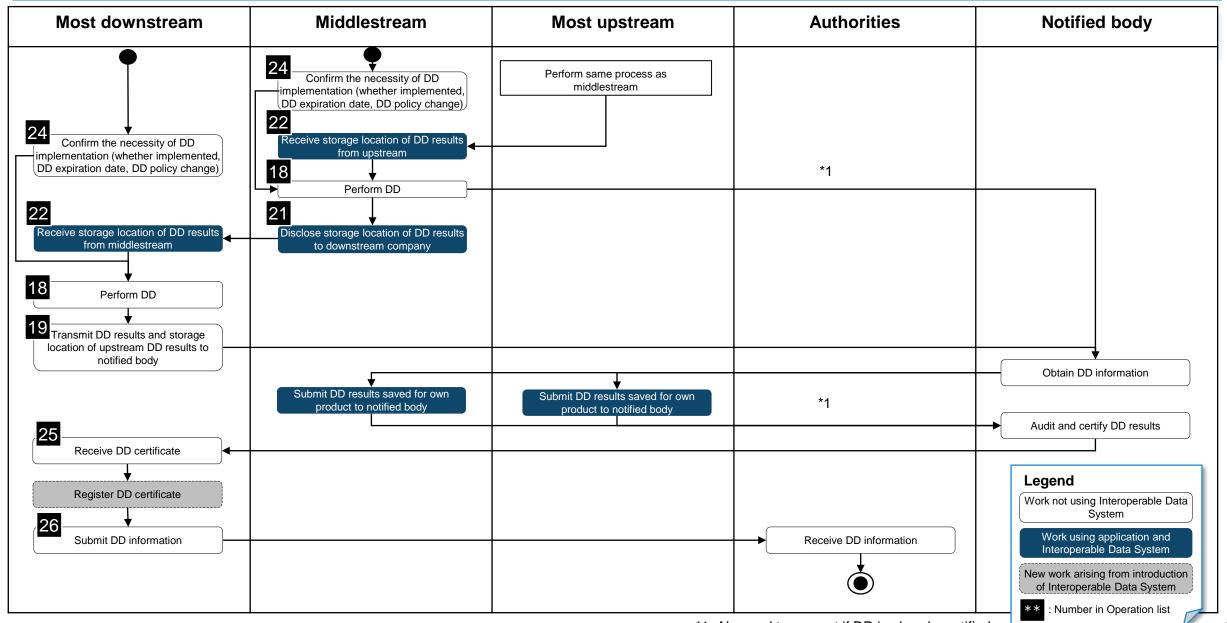
\*1: No need to request if DD is already certified

Submit the DD of the product to ship to authorities.

Storage location information for the results of DD implemented by each entity is collected most downstream, and the most downstream entity requests certification by the notified body. The notified body acquires and certifies DD results from the storage location.

#### Coranos Ecosystem

#### Expanded process 3: Derived from basic workflow 5 (work from DD implementation to DD information submission)



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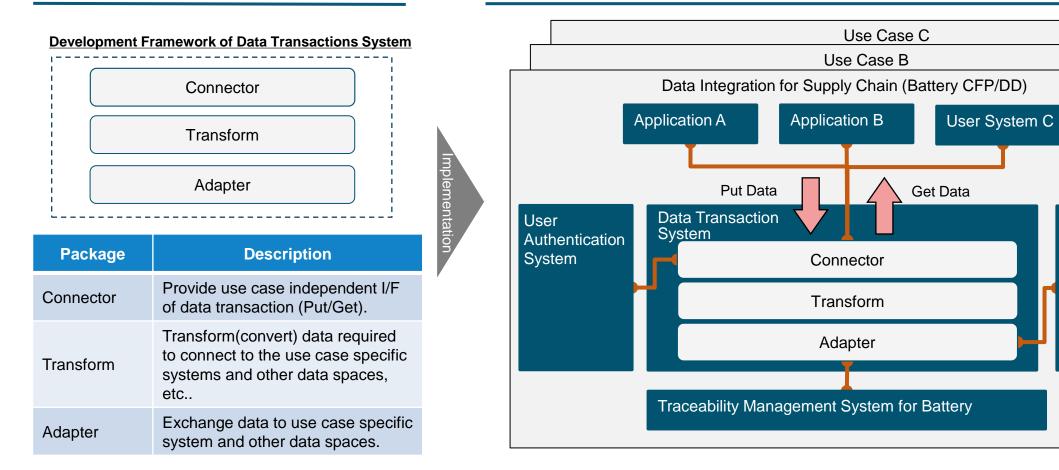
## **Development Policy of Data Transaction System**



"Development Framework of Data Transaction System" is defined as a mechanism to enable rapid service deployment of cross-industry data collaboration. The framework is designed to be simple and practical, and consists of "Connector" that provide lightweight data exchange interfaces such as data Put/Get, "Transform" that perform data conversion, etc. necessary for integrate with other systems, and "Adapter" that access other systems. By developing Data Transaction System in accordance with this framework, it is possible to build a distributed system that can be integrated with each other even if implemented for different use cases.

Define Development Framework.

Implement Data Transaction System in compliance with the development framework.





Other

and

etc.

domestic

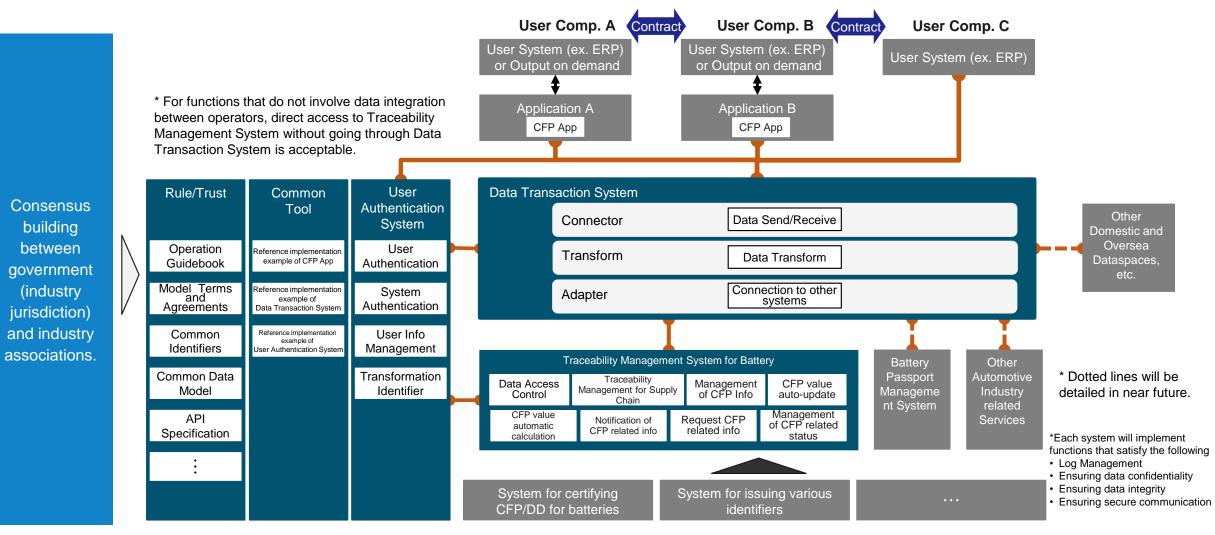
Oversea

Dataspaces.

#### System Architecture of Interoperable Data Infrastructure (Battery /Automotive Industry)



Interoperable Data Infrastructure for the supply chain is an architecture that achieve data integration in the supply chain by connecting applications, User Authentication Systems, Data Transaction Systems, and Traceability Management System for Battery.



#### An overview of functions, etc. in the architecture is provided below.

Category	Function/tool name Overview	
	Connector	Function that provide use case independent I/F of data transaction (Put/Get).
Data Transaction System	Data Send/Receive	Function that provide data to users of Data Transaction System, including the Put function, Get function, and functions that provide processing branching and type checking based on assumed queries.
	Transform	Function for transforming (converting) data required to connect to the use case specific systems and other data spaces, etc
	Adapter	Function for exchanging data to use case specific system and other data spaces.
	Connection to other systems	Function for transforming APIs of Traceability Management Systems, etc. and APIs of Data Transaction Systems after authentication.
	User Authentication	Functions of verifying the identity of users (Business Operator) registered in advance for applications, user systems, and other system users.
	System Authentication	Functions of verifying the systems registered in advance for applications and other systems.
User Authentication System	User Information Management	Function for managing information on businesses and offices linked to users (Businesses Operator).
	Transformation Identifier	Function for transforming between business operator identifiers and business location identifiers (global and local) handled by applications and user systems, and business operator identifiers and business location identifiers (internal) handled by Traceability Management System*1.

\*1: The business operator identifier and business location identifier are described later.



#### An overview of functions, etc. in the architecture is provided below.

Category	Function/tool name	Overview
	Data access control	Function of setting access rights (scope of disclosure, etc.) for data shared with data users via Traceability Management System and controlling access from data users.
	Traceability Management for Supply Chain	Function of associating and managing part configurations and business transactional relationships for products.
	Management of CFP Information	Function of managing information (Registering and Browsing) related CFP.
Traceability	CFP value auto-update	Function of automatically updating the related CFP when certain CFP is updated in the supply chain.
Management System for batteries	CFP value automatic calculation	Function of automatically calculating the related CFP when the amount of activity is registered in Traceability Management System.
	Notification of CFP related information	Function of provide updating data related to CFP, and providing notification.
	Request CFP related information	Function for requesting CFP calculation and other requested items to upstream and downstream companies.
	Management of CFP related status	Function for checking the status of requests and answers related CFP.

#### An overview of functions, etc. in the architecture is provided below.

Category	Function/tool name	Overview	
Common tools	Reference implementation example of CFP Application	Released source code of an application to calculate CFP as Open Source Software.	
	Reference implementation example of Data Transaction System	Released source code of Data Transaction System described in this guideline as Open Source Software.	
	Reference implementation example of User Authentication System	Released source code of User Authentication System System described in this guideline as Open Source Software.	
Common functions	Log management	Function for storing access and monitoring unauthorized behavior and unauthorized access on systems on the basis of access logs.	
	Ensuring data confidentiality	Function for preventing data handled by the system from being used by, disclosed or leaked to users without legitimate rights.	
	Ensuring data integrity	Function for preventing tampering of data handled by the system.	
	Ensuring secure communication	Function for ensuring that connection information is legitimate, and ensuring the confidentiality and integrity of communications.	

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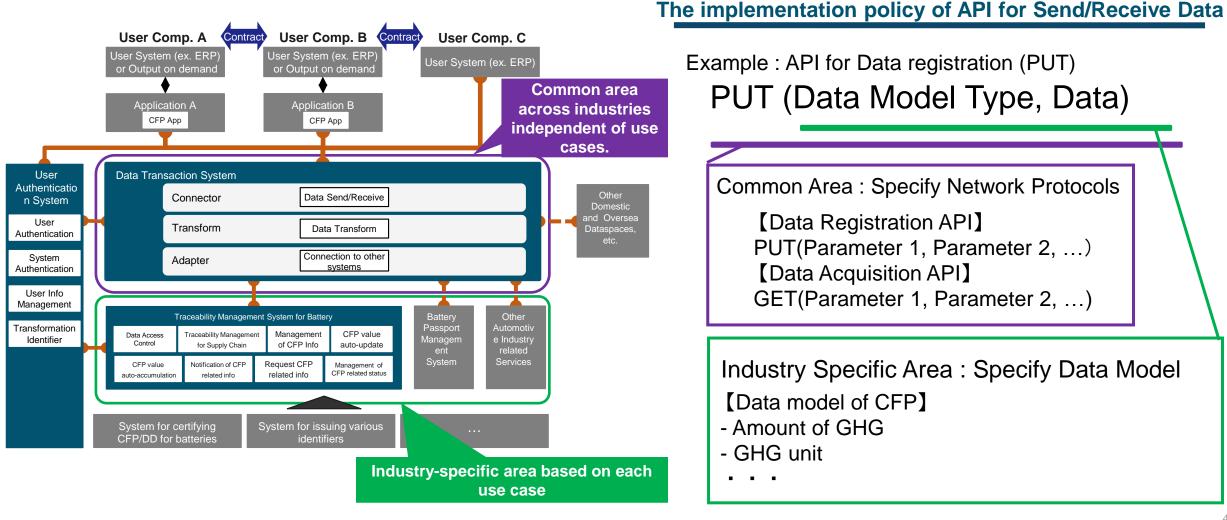


The functional requirements are described as a detailed functional overview to Data Transaction System.

Function Name	Outline	
Data Send/Receive	Send and Receive data between users of Data Transaction System.	
Function "Put"	Send and Receive data with a data sending user as origin. Mainly making a use when sending data from the application to Data Transaction System.	
Function "Get"	Send and Receive data with a data receiving user as origin. Mainly making a use when the application receives the data from Data Transaction System. (The application requests data transmission and executes to receive data.)	
Data Transform Function for performing data transformations required for connection to use-case-specific stand other data spaces.		
Connection to other systems	Function for connecting APIs of Traceability Management Systems, etc. and APIs of Data Transaction Systems after authentication.	

## The implementation policy (Separate common and industry specific area)

As the implementation policy API, it should be designed to separate the cross industry common part which have no dependency of use case (just like network protocol) and the industry specific part (just like data model) based on each use cases.



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The following functional requirements are provided to provide a detailed overview of functions for User Authentication System. The users handled by User Authentication System will be business operators.

Category	Function name	Overview	Input data	Output data
/stem	User Authentication	Function for confirming that a user using an application, user system or any other system is the actual registered user (business operator)	-	-
User Authentication System	User identity authentication function	Function for confirming authentication information for application users (handled as individual business operators)	User authentication information	Access token
enticat	Access token information update function	Function for updating access tokens by using refresh tokens	Refresh token	Access token
Authe	System Authentication	Function for confirming that an application, user system or any other system is the actual registered system	-	-
User	Application identity authentication	Function for confirming that an application is legitimate	Application authentication information	Authentication result
	Data Transaction System identity authentication	Function for confirming that Data Transaction System is legitimate	Data Transaction System authentication information	Authentication result
	Traceability Management System identity authentication	Function for confirming that Traceability Management System is legitimate	Traceability Management System authentication information	Authentication result
	User Information Management	Function for managing information associated with a user (business operator)	-	-
	Business operator information registration function	Function for registering new business operator information	Business operator information	Process success/failure
	Business operator information update function	Function for updating business operator information	Business operator information	Process success/failure
	Business operator information acquisition function	Function for searching business operator information*1	Search criteria	Business operator information list
	Business location information registration function		Business location information	Process success/failure
	Business location information acquisition function Function for searching business location information*1		Search criteria	Business location information list



The following functional requirements are provided to provide a detailed overview of functions for User Authentication System.

Catego ry	Function name	Overview	Input data	Output data
User Authentication System	Transformation Identifier	Function for transforming business operator identifiers and business location identifiers (global/local) handled by applications and user systems, and business operator identifiers and business location identifiers (internal) handled by Traceability Management System	-	-
User Authenti	Internal transformation function for transforming business operator identifiers and business location identifiers (global/local) handled by applications and user systems, into business operator identifiers and business location identifiers (internal) handled by Traceability Management System		Business operator identifier (global/local) Business location identifier (global/local)	Business operator identifier (internal) Business location identifier (internal)
	External transformation function function for transforming business operator identifiers and business location identifiers (internal) handled by Traceability Management System, into business operator identifiers and business location identifiers (global/local) handled by applications and user systems		Business operator identifier (internal) Business location identifier (internal)	Business operator identifier (global/local) Business location identifier (global/local)

#### **Overview of User Authentication System for Interoperable Data Infrastructure**

User Registration



The User Authentication System verifies the authenticity of users who access "User Companies using Data" and "Applications" registered in advance by Business Operator of Interoperable Data Infrastructure by performing business user (business operator) authentication (Token Authentication) and system authentication (Access Key).

#### Traceability User Authentication System User Company Application Management System using Data Each Implementation Section. **Business User** User Authentication (4) Verify Access Key (Authentication Section) (1) Authentication Registration /Access Token Data Access Control Request Application **Business User** Form Authentication Info System Authentication . . . Business User Account Business (ID/PW) User Account-Access Key (ID/PW) Each Implementation Section. Authentication (competitive Application Information for API (2) Issue area) Execution Development Access Token Company Access Token Application Access Key Form for Developing Applications Access Key for (5) Send Data (3) Send Data connection **Data Transaction System**

Authentication (System)

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## **Business Operator Identifiers**



As business operator identifiers used by infrastructure users, (1) Business Operator Identifier used for data integration within this Interoperable Data Infrastructure (Business Operator Identifier (local)) and (2) Business Operator Identifier used for federation with other domestic and overseas data spaces (Business Operator Identifier (global)) are assumed. In addition to the above, a unique identifier to identify a business operator (Business Operator Identifier (internal)) shall be used and managed inside Interoperable Data System.

Identifier	Proposed identifier format	Additional information
Business Operator Identifier (local) (For participants in this Data Transaction System)	<ul> <li>20 digit alphanumeric</li> <li>[Domestic Company]</li> <li>Corporate Number (13 digit number)</li> <li>[International Company]</li> <li>Identifier of international company)</li> </ul>	In case international suppliers use this system, it should be considered that longer digits than the corporate number and that alphanumeric numbers are also used, so that non-Japanese corporate numbers can also be registered. For reference, the longest taxpayer identification number outside of Japan*1 is 18 digits with mixed alphanumeric characters as far as we have researched.
Business Operator Identifier (global) (For collaborating with other domestic and international data spaces)	<ul> <li>20 digit alphanumeric</li> <li>Corporate Number (13 digit number)</li> <li>LEI (20 digit number)</li> </ul>	Since the corporate number is complied with ISO 15459-2 and ISO 6523-2 and should be an identifier that a corporation already possesses, Corporate number was selected as a candidate from the perspective of international standards and widespread use. On the other hand, LEI is also a candidate, since EU side may request "LEI" compliant with ISO17442. This will be changed by depending on the detailed information on the EU Battery Regulation scheduled to be released in 2024.
Business Account Identifier	E-mail address format	The Business operator should be uniquely identified in order to access to Interoperable Data System.
Business Operator Identifier (internal)	UUID	The business operator was identified uniquely in Interoperable Data System.

\*1 : Taxpayer identification number systems in various countries and regions https://www.nta.go.jp/taxes/shiraberu/kokusai/crs/pdf/nouzeibangou.pdf (only in Japanese)



Business Location Identifiers shall be a method that expresses a combination of each business operator identifier and an optional identifier issued and managed by the business operator.

Identifier	Proposed identifier format	Additional information
Business location identifier (local) (For participants in this Interoperable Data Infrastructure, mainly domestically)	Business Operator Identifier (local) + optional identifier (6-digit number)	The business location identifier (local) is a combination of the Business Operator Identifier (local) and a 6-digit number identifying the business location designated by the user company. The 6-digit number identifying the business location of the user company is the same as the business location identifier (global).
Business location identifier (global) (For overseas dataspace integration)	Business Operator Identifier (global) + optional identifier (6-digit number)	The business location identifier (global) is a combination of the Business Operator Identifier (global) and a 6-digit number identifying the business location designated by the user company. The 6-digit number identifying the business location of the user company is the same as the business location identifier (local).
Business location identifier (internal)	UUID	Uniquely identifies a business location used in a system in Interoperable Data System. This must be managed associated with the Business Operator Identifier (internal).

# Expected data flow for Business Operator Identifiers and Business Location Identifiers

Curanos Ecosystem

The user manages the business operator and business location identifiers registered in User Authentication System, and uses an application. The application uses the identifier transformation function provided by User Authentication System to convert the business operator identifier (global and local) and the business location identifier (global and local) into the business operator identifier and the business location identifier (internal) handled in Traceability Management System, and then accesses functions.

	Ider		without knowin erator Identifier ernal)		
Business Account Identifier	Ider	Business Operator Identifier (internal)	Business Loca Identifier (internal)	tion Application	
(1) Authentication		ŕ			
User Authentication	<ul> <li>(2) Request Business Operator</li> <li>Identifier (internal) from Business</li> <li>Operator Identifier (global or local)</li> </ul>				
Transformation Identifier (global/local ⇔ internal)	(3) Return Business Operator Identifier (internal) if already			(4) Access each function by Business Operator Ident (internal) and Business I	ntifier
Business Operator Identifier	registered in User Authentication System			Identifier (internal)	
(global/local/internal) Business Location Identifier (global/local/internal)		Managed using Business Operator Identifier (internal)	Each Fu	nctions	
User Authentication System		Traceability Ma	inagement	System	

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## **Traceability Management System functions (1/4)**



Categ ory	Function name	Overview	Input data	Output data
ent System	Data access control	Function for setting access rights (scope of disclosure, etc.) for data users and controlling access from data users, with respect to data shared with data users through Traceability Management System	-	-
Traceability Management	CFP information disclosure setting registration function	Function for registering CFP information access rights for data users	Business Operator Identifier Trace identifier	-
eability	CFP information disclosure setting acquisition function	Function for obtaining CFP information access rights for specific parts	Trace identifier	CFP information disclosure setting
Trac	CFP certificate information disclosure setting registration function	Function for registering CFP certificate information access rights for data users	Business Operator Identifier Trace identifier	-
	CFP certificate information disclosure setting acquisition function	Function for obtaining CFP certificate information access rights for specific parts	Trace identifier	CFP certificate information disclosure setting

## **Traceability Management System functions (2/4)**



Cate gory	Function name	Overview	Input data	Output data
System	Traceability Management for Supply Chain	Function for associating and managing part configurations and transactional relationships for products	-	-
ement (	Part configuration information registration function	Function for registering part configuration information	Part configuration information	Part configuration information identifier
Traceability Management System	Part registration association function	Function for associating and registering part information to transactional relationship information	Transactional relationship information Part information	Transactional relationship information identifier
ceabilit	Part configuration information search function	Function for searching part configuration information that meets specified search criteria	Search criteria	Part configuration information list
Trae	Management of CFP Information	Function for managing (registering and browsing) information about CFP	-	-
	CFP information registration function	Function for registering CFP by specifying transactional relationship information identifier	Transactional relationship information identifier, CFP	CFP information identifier
	CFP information acquisition function	Function for obtaining CFP specified by CFP information identifier	CFP information identifier	CFP information
	CFP certificate information registration function	Function for registering information related to CFP certificates	CFP certificate info CFP certificate	Process success/failure
	CFP certificate information acquisition function	Function for obtaining CFP certificate information of target parts	Trace identifier	CFP certificate information
	CFP certificate file download function	Function for downloading a target CFP certificate file based on CFP information	CFP certificate information	CFP certificate

## **Traceability Management System functions (3/4)**



Catego ry	Function name	Overview	Input data	Output data
System	CFP value auto-update see below for details	Function for automatically updating related CFP when certain CFP is updated in the supply chain	-	-
lagement S	CFP value automatic calculation	Function of automatically calculating the related CFP when the amount of activity is registered in Traceability Management System	Part information, CFP information	CFP
Man	Notification of CFP related information	Function for updating data related to CFP, etc.	-	-
Traceability	CFP information registration notification function	Function for notifying business operators of CFP information registration on the basis of transactional relationship information	Transactional relationship information	Notification information
Tr	Notification confirmation function	Function for obtaining a list of notification information received by own company	-	Notification information list

## **Traceability Management System functions (4/4)**

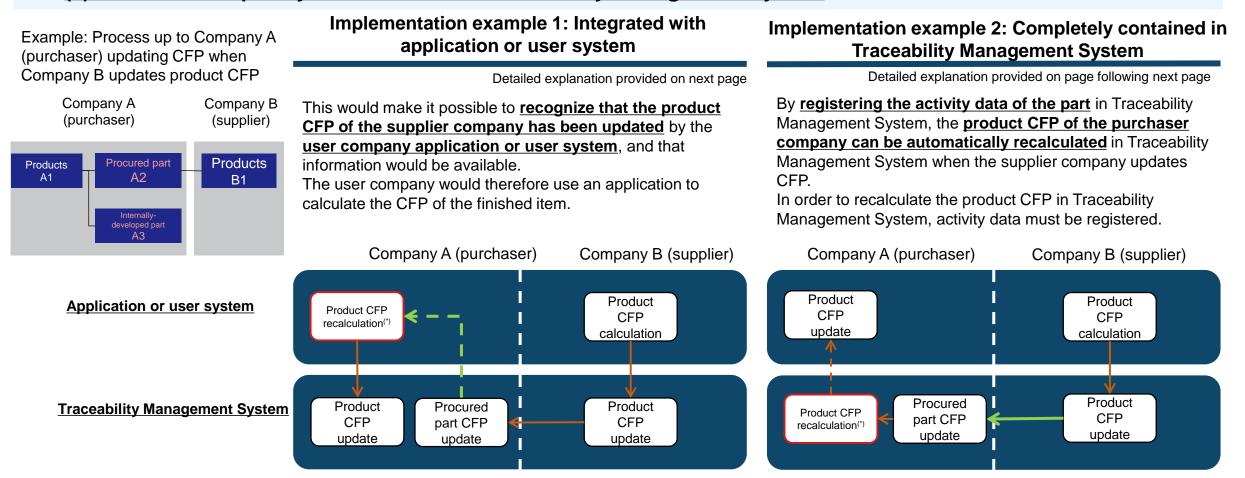


Cate gory	Function name	Overview	Input data	Output data
ystem	Request CFP related information	uest CFP related information Function for requesting CFP calculation, etc. of the upstream/downstream company -		-
Traceability Management System	Request/answer information search function (send)	Function for searching requests sent by own company, as well as answer information associated with requests	Search criteria	Transactional relationship information Request/answer information list
eability Mar	Request information search function (receive)	Function for searching request information received by own company	Search criteria	Transactional relationship information Request/answer information list
Trace	CFP information registration request function	Function for requesting part registration association with transactional relationship information, and CFP information registration	Part configuration information Business Operator Identifier of Purchaser	Request identifier Transactional relationship information
	Request cancellation function	Function for cancelling request information made by own company	Request identifier	-
	Request send back function	Function for sending back request information received by own company	Request identifier	-
	Management of CFP related status	Function for checking the status of requests and answers related to CFP	-	-
	Request status registration function	Function for registering request status information	Status information	Status identifier
	Request status update function	Function for updating request status information	Status information	Status identifier
	Status acquisition function	Function for obtaining status information for a specified identifier	Status identifier	Status information

## Specific example of automatic CFP update method



Design automatic CFP updates to allow for various implementation methods, depending on how the functions of Traceability Management System are used. More specifically, allow (1) a method closely integrated with applications or user systems and (2) a method completely contained within Traceability Management System.

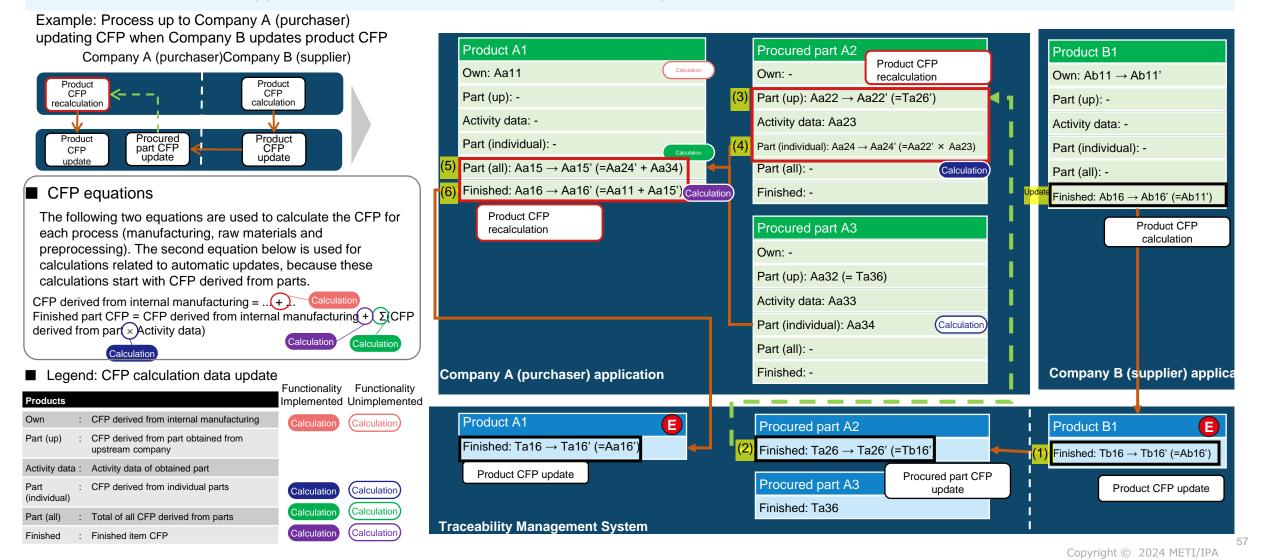


Product CFP recalculation: Refers to detecting procured part CFP updates and recalculating procured part CFP and product CFP

#### Implementation example 1: Integrated with application or user system

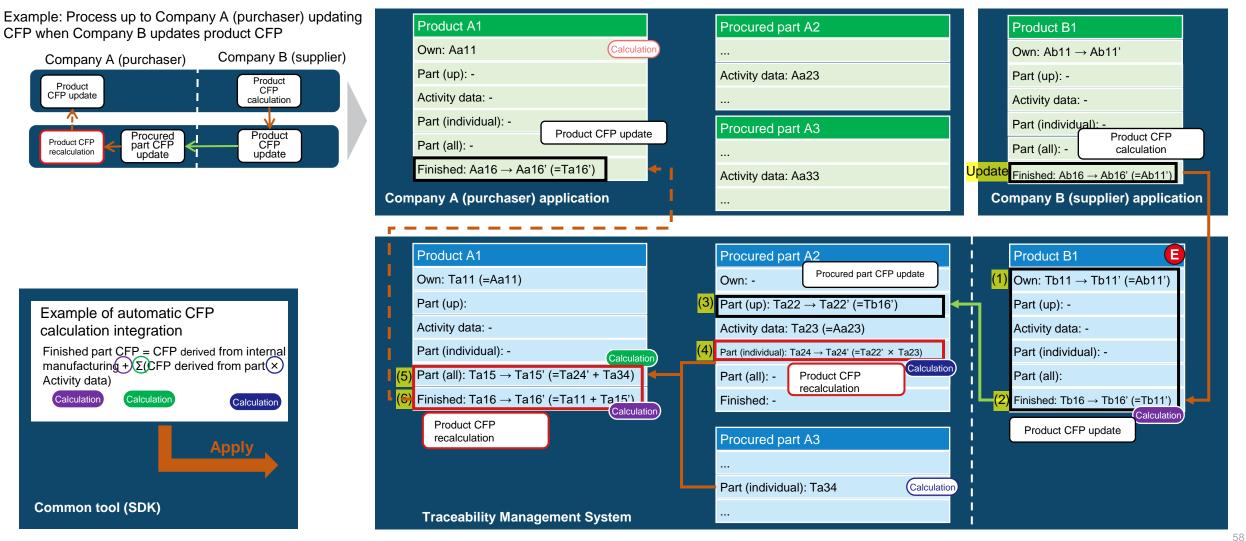


Automatic CFP updates in Traceability Management System would make it possible for a user company application to recognize that the CFP of an upstream company one level above has been updated and would provide access to that information. The user company would therefore use an application to calculate the CFP of the finished part.



#### Implementation example 2: Completely contained in Traceability Management System Ecosystem

CFP calculations related to CFP updates by upstream companies are provided in a common tool. This allows calculation processing and data transaction to be done completely in Traceability Management System and automatically updated, when the upstream company updates CFP.



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## Data integration functions applications should have (1/3)



At minimum, functions to operate the functions of systems (User Authentication System, Traceability Management System and Data Transaction System) and other related functions (login function, CFP calculation function, etc.) must be implemented for applications, so that considerations of domestic and oversea regulations such as European Battery Rule/Regulation can be achieved.

Category	Function name	Overview	Input data	Output data
(common)	User management call function	Function for calling a process to perform User Authentication System management	-	-
	Login function	Function for authenticating users authorized to use the application	User authentication information	Access token
Application	Business operator and business location management call function	Function for calling a process to perform business operator and business location management	-	-
Ap	Business operator information search call function	Function for searching business operator information in Interoperable Data System	Search criteria	Business operator information
	Business operator information update call function	Function for updating business operator information (company name, address, etc.) in Interoperable Data System	Business operator information	-
	Business location information registration call function	Function for registering business location information (plant, manufacturing site, etc.) in Interoperable Data System	Business location information	Business location identifier
	Business location information search call function	Function for searching business location information in Interoperable Data System	Search criteria	Business operator information
	Business location information update call function	Function for updating business location information (plant, manufacturing site, etc.) in Interoperable Data System	Business location identifier, business location information	-

## Data integration functions applications should have (2/3)



Catego ry	Function name Overview		Input data	Output data
(uomr	Part traceability management call function Function for calling processes related to product part configuration and transactional relationship traceability		-	-
n (com	Part information registration call function	Function for registering and updating part information in Interoperable Data System	Part information	Part information identifier
Application (common)	Part configuration information registration call function	Function for registering and updating part configuration information in Interoperable Data System	Part configuration information	Part configuration information identifier
Ap	Part configuration information search call function	Function for searching part information in Interoperable Data System	Search criteria	Part configuration information
	Part configuration information acquisition call function	Function for obtaining part configuration information that meets specified search criteria from Interoperable Data System	Part configuration information identifier	Part configuration information
	Part registration association request call function	Function for requesting Interoperable Data System to associate corresponding parts	Part configuration information identifier	-
	Part registration association function	Function for registering the association of corresponding parts	Part configuration information, Part information	-
	Transactional relationship information search call function	Function for searching transactional relationship information in Interoperable Data System	Search criteria	Transactional relationship information
	Common request/notification call function	Function for calling a process to handle request and notification information	-	-
	Request confirmation function	Function for confirming request information to Interoperable Data System	-	Request/answer information
	Request status modification call function	Function for canceling a request (if source of request) or passing back a request (if subject of request)	Status information	-
	Notification confirmation function	Function for confirming information on notifications from Interoperable Data System	-	Notification information

## Data integration functions applications should have (3/3)



Categor y	Function name	Function name Overview		Output data
application)	CFP calculation function	Function for calculating CFP in accordance with the CFP calculation method based on domestic and oversea regulations such as European Battery Rule/Regulation	Activity data, emission intensity	CFP
	CFP information management call function	Function for calling a process to perform CFP information management	-	-
Application (CFP	CFP search function	Function for obtaining CFP for the corresponding part by specifying a transactional relationship information identifier	Transactional relationship information identifier	CFP
icat	CFP update call function	Function for updating CFP	CFP	CFP
Appl	CFP information disclosure setting registration call function	Function for setting CFP information access rights for the specified business operator	Disclosure setting	-
	CFP information disclosure setting acquisition call function	Function for obtaining CFP information access rights for the specified business operator	Search criteria	Disclosure setting
	CFP certificate information disclosure setting registration call function	Function for setting CFP certificate information access rights for the specified business operator	Disclosure setting	-
	CFP certificate information disclosure setting acquisition call function	Function for obtaining CFP certificate information access rights for the specified business operator	Search criteria	Disclosure setting
	CFP request/notification call function	Function for calling a process to handle request and notification information related to CFP	-	-
	CFP information answer function	Function for answering the request source with CFP information	Request/answer information CFP information	-

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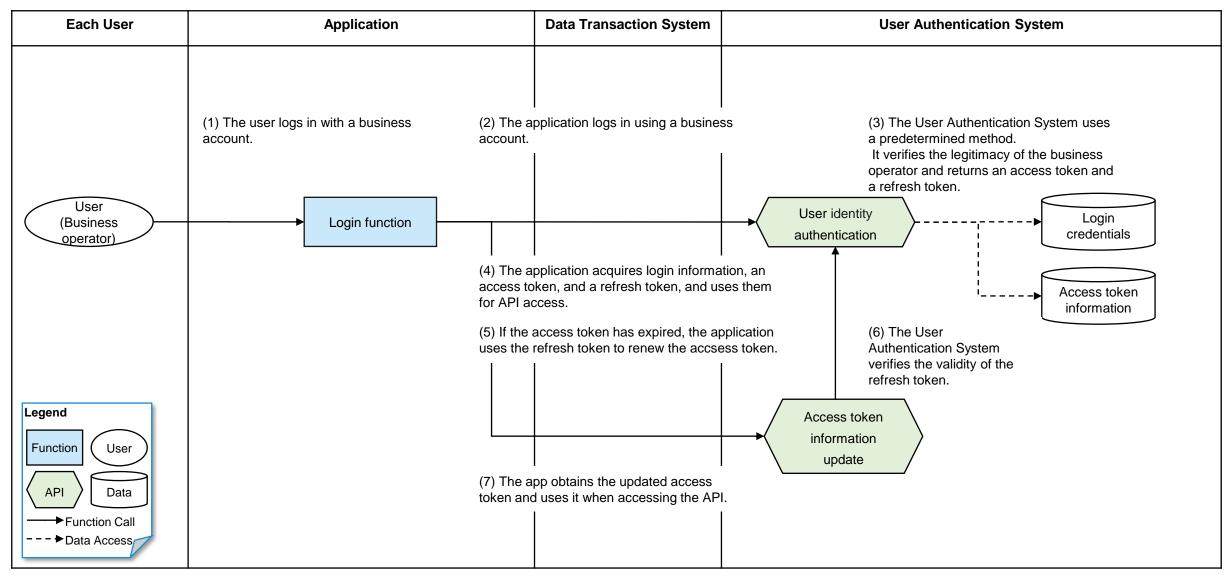
## **Systemized workflow**



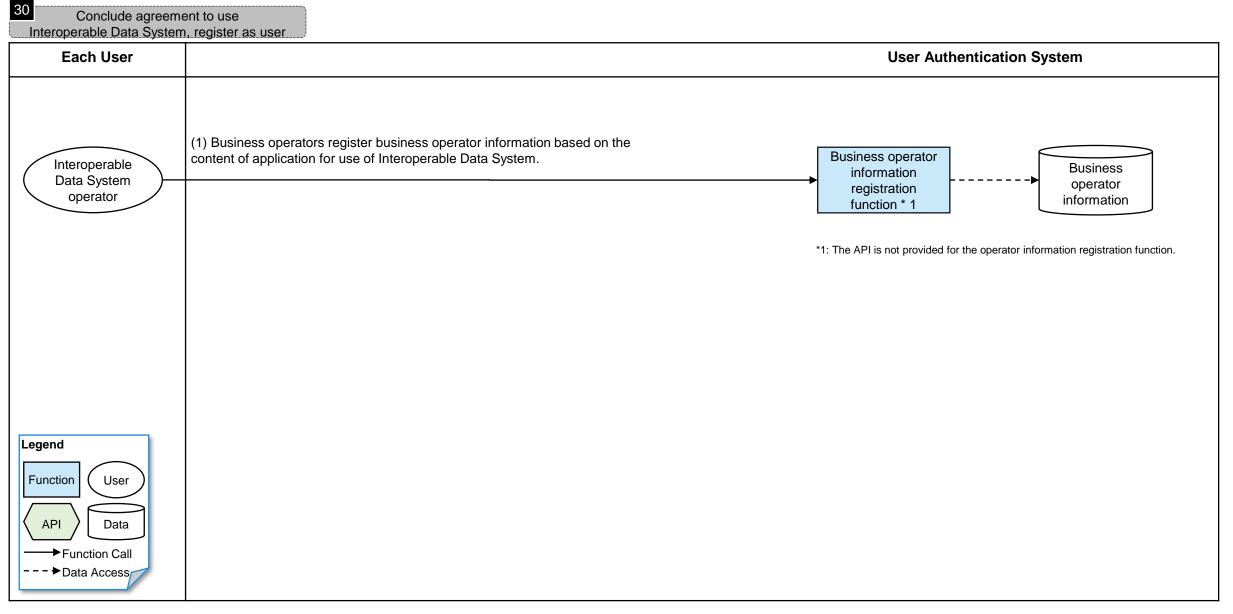
Based on the operations from the perspective of the participants of this data federation infrastructure supposed in this use case summarized in "3.2 Expected Workflows," select the part to be developed into a system. This should be used as reference information when examining Interoperable Data Infrastructure architecture and associated functional structure. The details of the systemized workflow to be implemented for Data Transaction System shall not be described.

Expected workflow	Operation No.	Systemized workflow
	-	Login
	-	Business operator information registration
Common	-	Business operator information update
	-	Business location information registration/update
	-	Part information registration, part configuration information registration
	4	Basic workflow 2 (request work): Request part registration and CFP/DD result submission
Basic workflow 2 (request work)	31	Basic workflow 2 (request work): Receive request for part registration association and CFP/DD result submission
	6	Basic workflow 3: Receive CFP information for item purchased
Basic workflow 3 (work from "CFP calculation" to "final product CFP submission")	2	Basic workflow 3: Calculate CFP of finished item
	5	Basic workflow 3: Transmit CFP information to recipient
Basic workflow 4 (work related to part selection or CFP change requests)	15	Basic workflow 4: Request to change CFP value
	-	Assuming access to CFP/DD data as example of authentication/authorization (access control)
Other	-	CFP information registration status confirmation, request cancellation or request send back
	-	Termination flag update

\*The description of the login function of User Authentication System is omitted from the following systematized workflow.

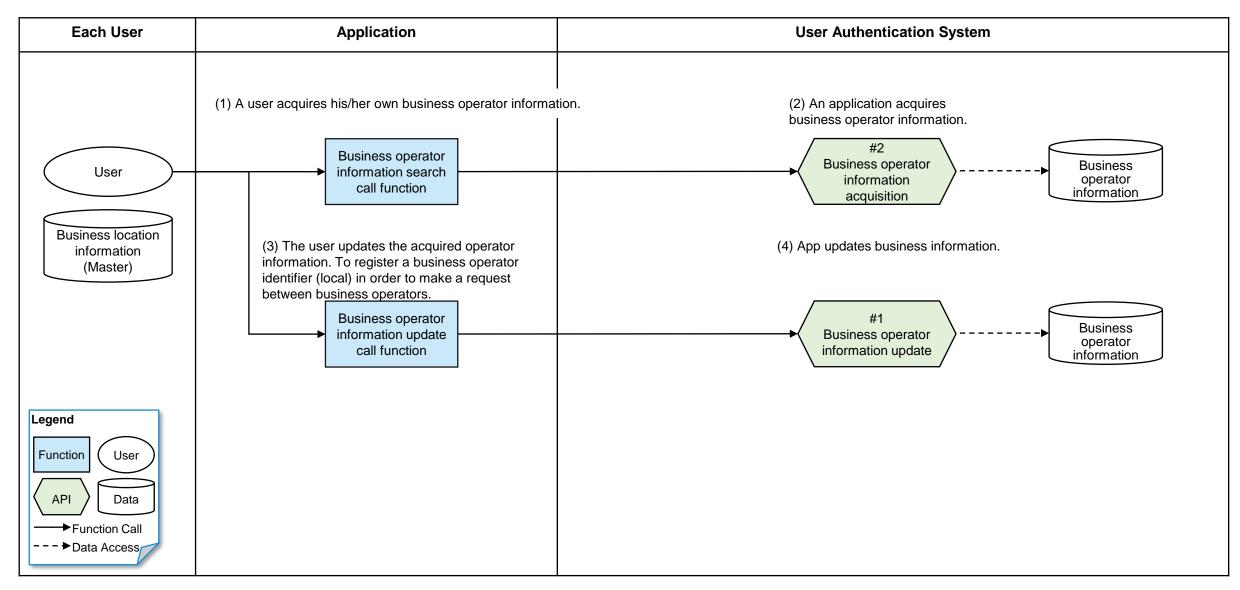


## Systemized workflow: Business operator information registration



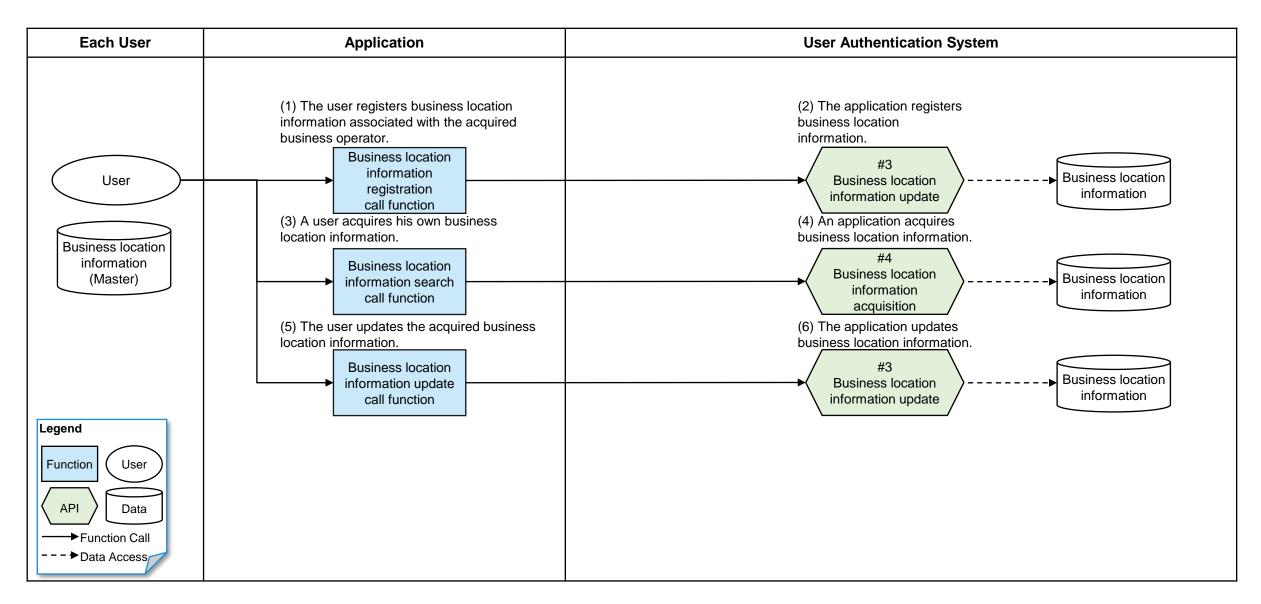
## Systemized workflow: Business operator information update



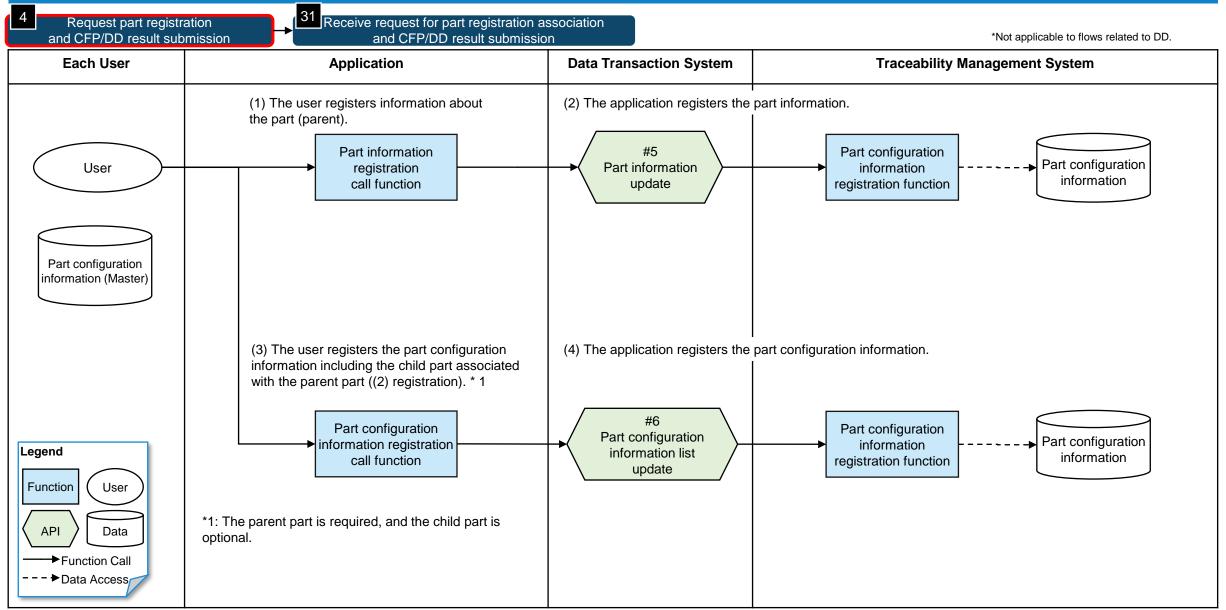


## Systemized workflow: Business location information registration/update





## Systemized workflow: Part information registration, part configuration information registration

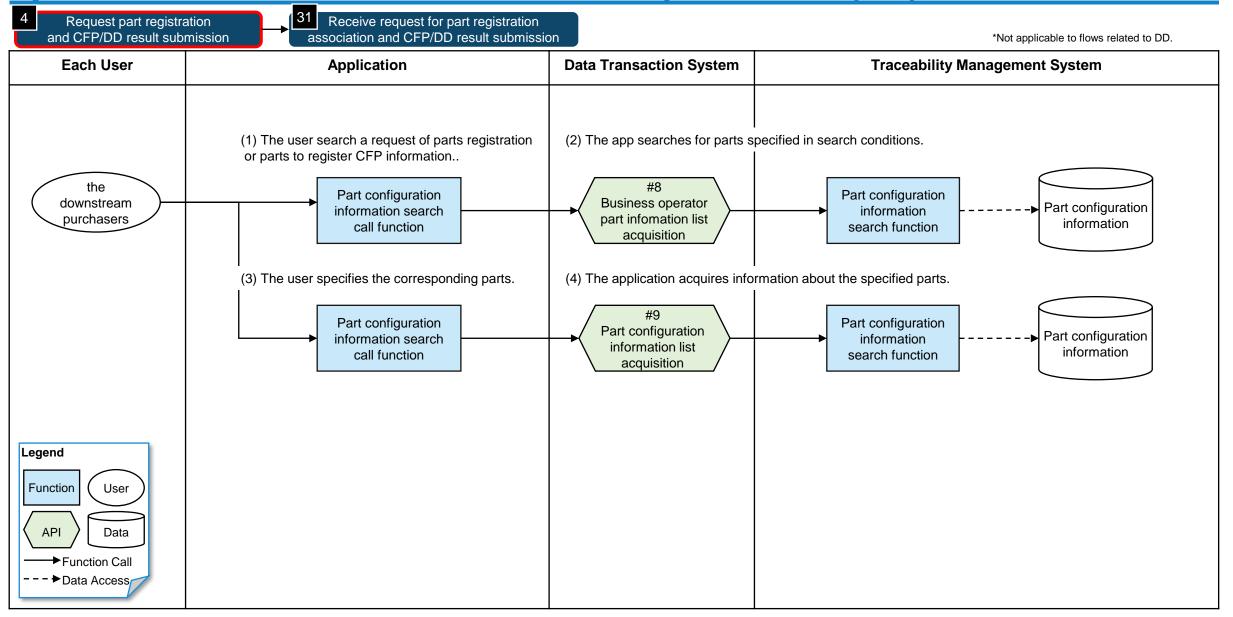


Ouranos

Ecosystem

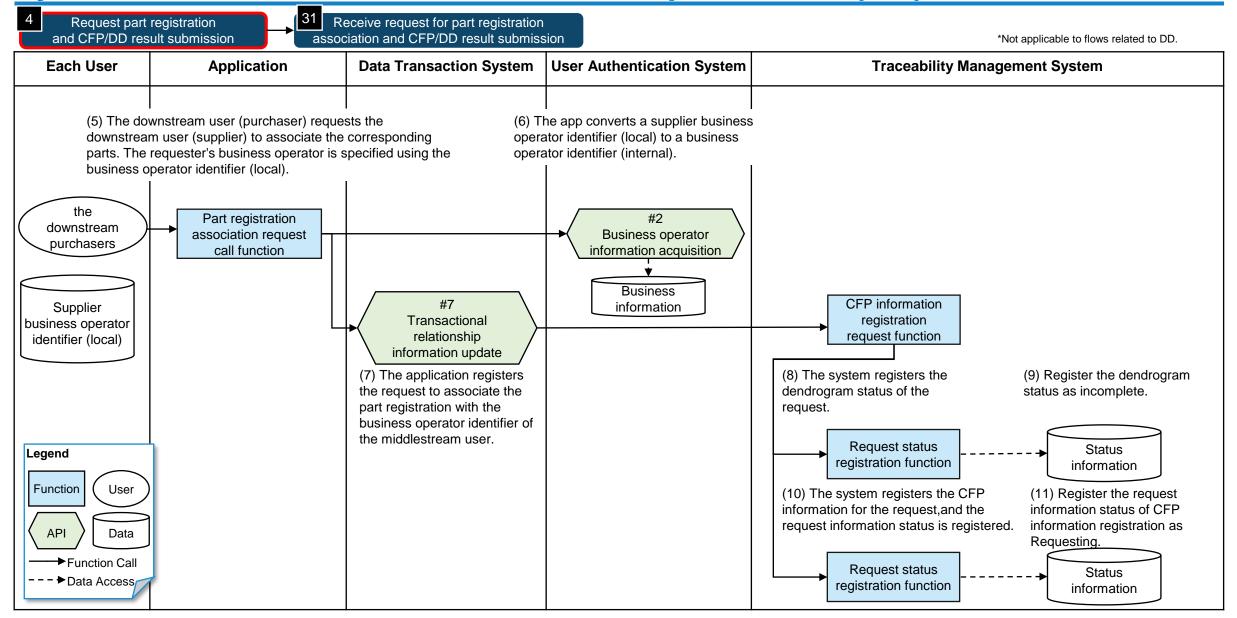
## Systemized workflow: Basic flow 2 Request work (1/4)



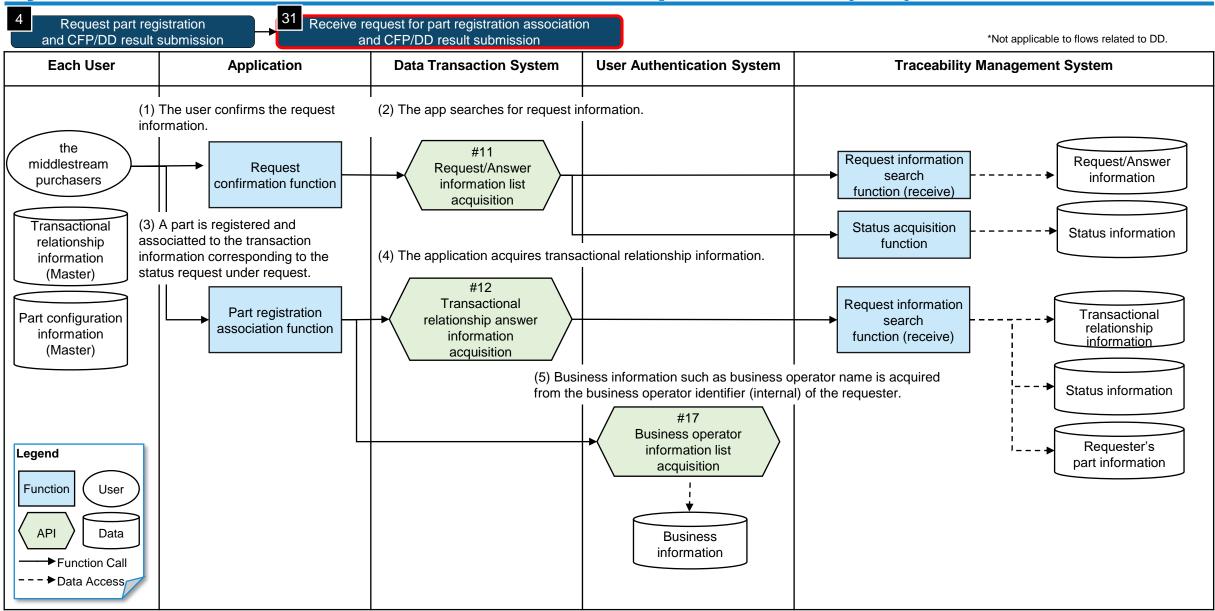


## Systemized workflow: Basic flow 2 Request work (2/4)





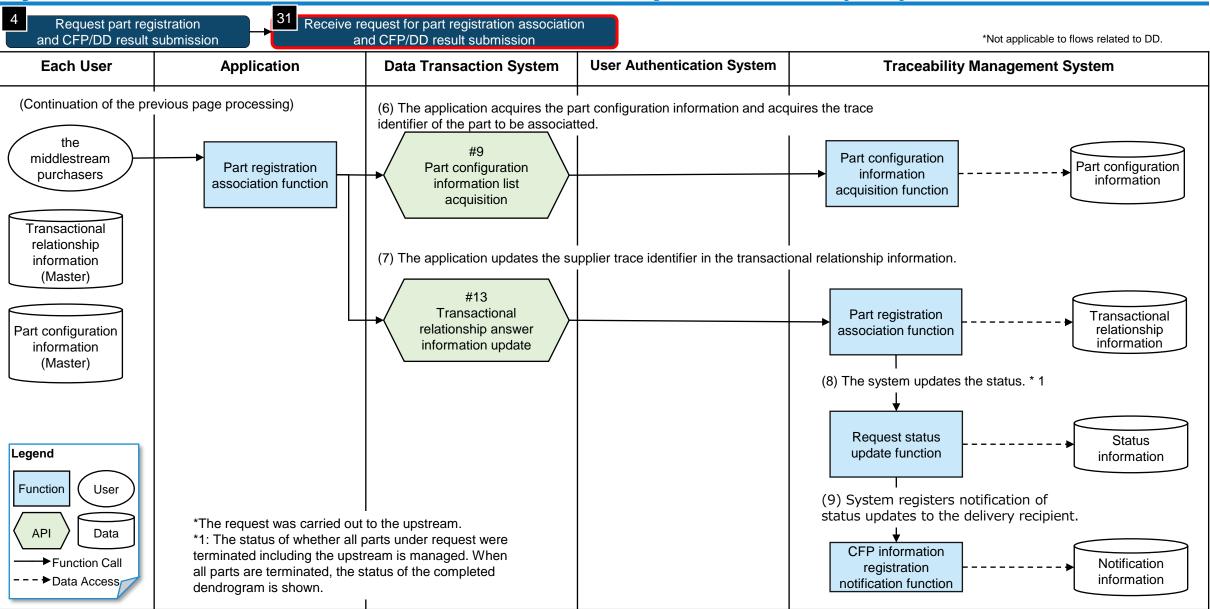
## Systemized workflow: Basic flow 2 Request work (3/4)



Ouranos

Ecosystem

## Systemized workflow: Basic flow 2 Request work (4/4)



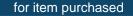
Ouranos

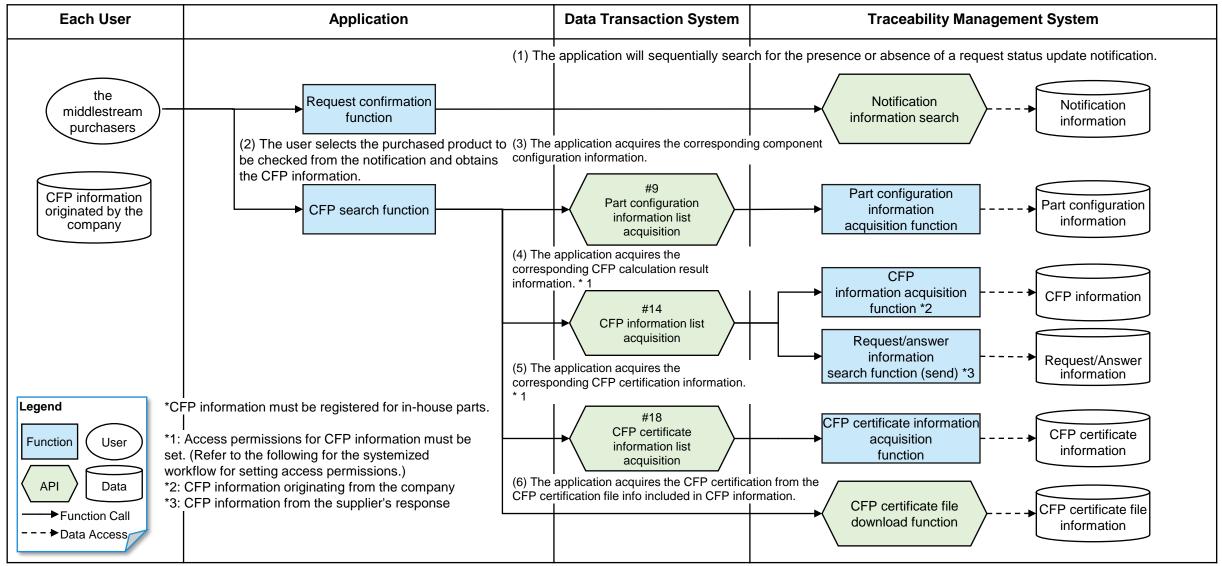
Ecosystem

# Systemized workflow: Basic Flow 3 Work from "CFP calculation" to "final product CFP submission" (1/4)



#### 6 Receive CFP information

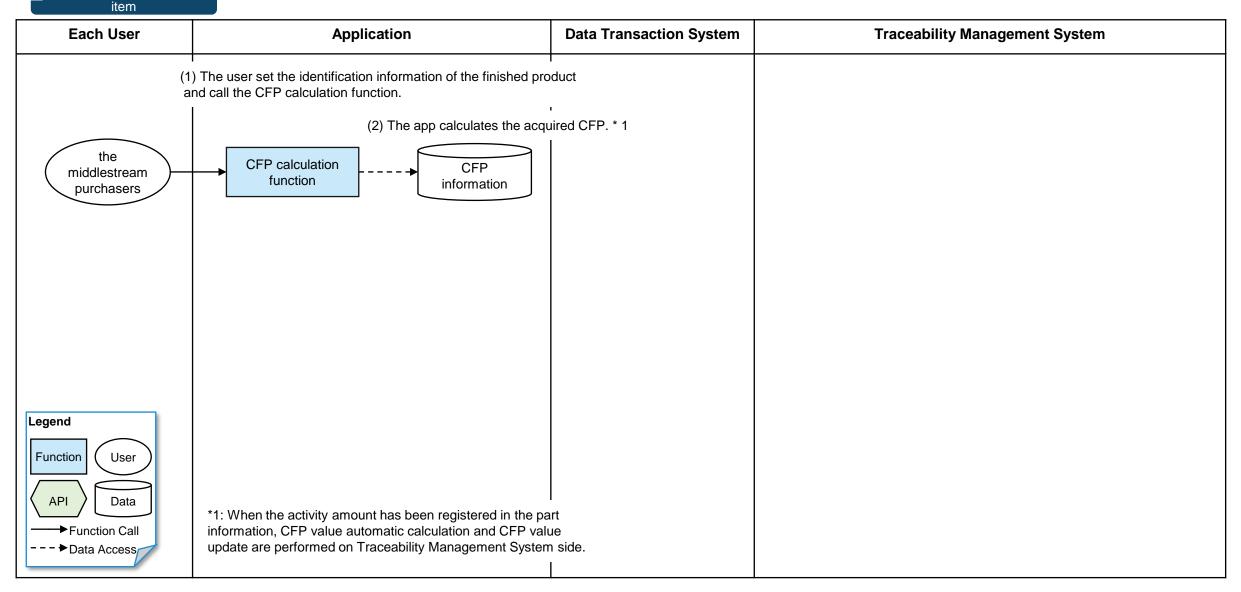




# Systemized workflow: Basic Flow 3 Work from "CFP calculation" to "final product CFP submission" (2/4)



2 Calculate CFP of finished

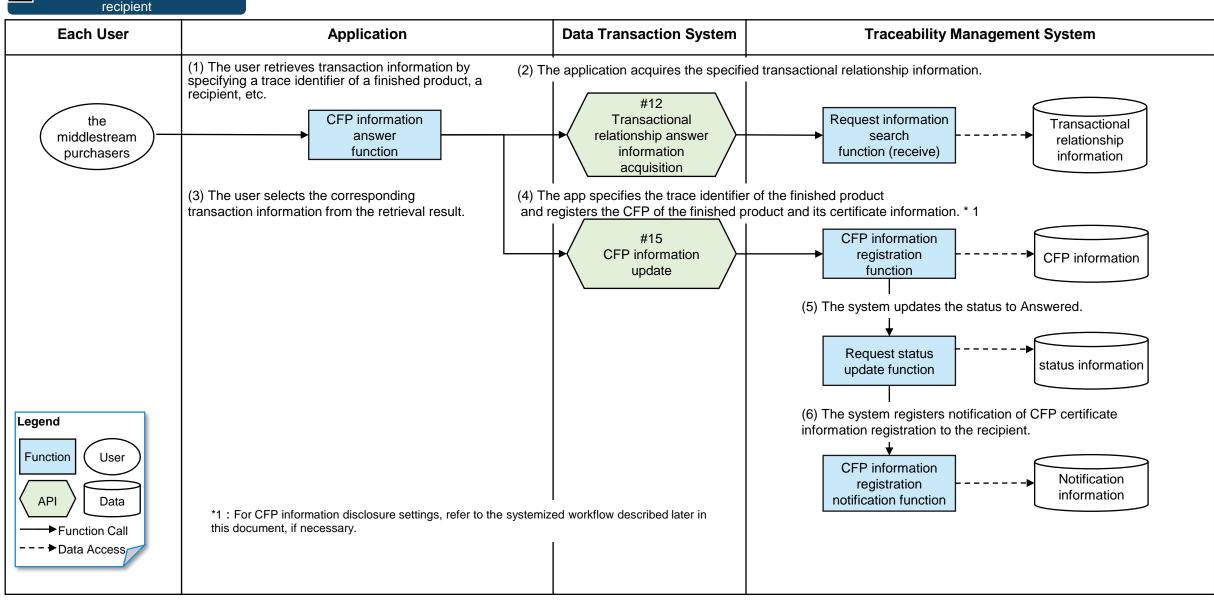


# Systemized workflow: Basic Flow 3 Work from "CFP calculation" to "final product CFP submission" (3/4)



Transmit CFP information to

5



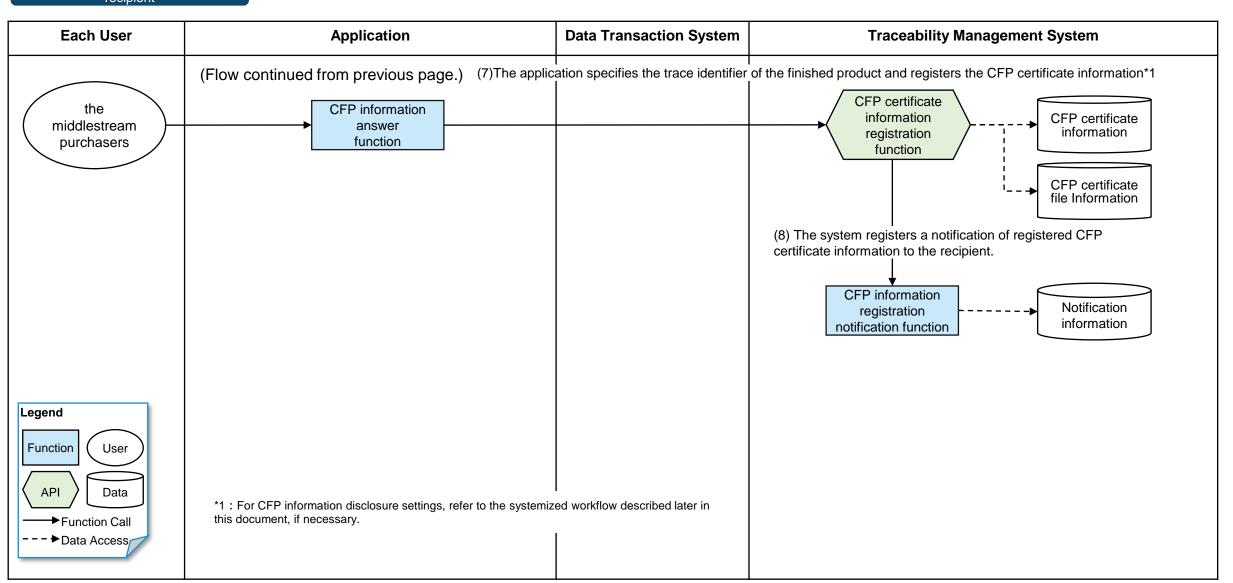
# Systemized workflow: Basic Flow 3 Work from "CFP calculation" to "final product CFP submission" (4/4)



#### Transmit CFP information to



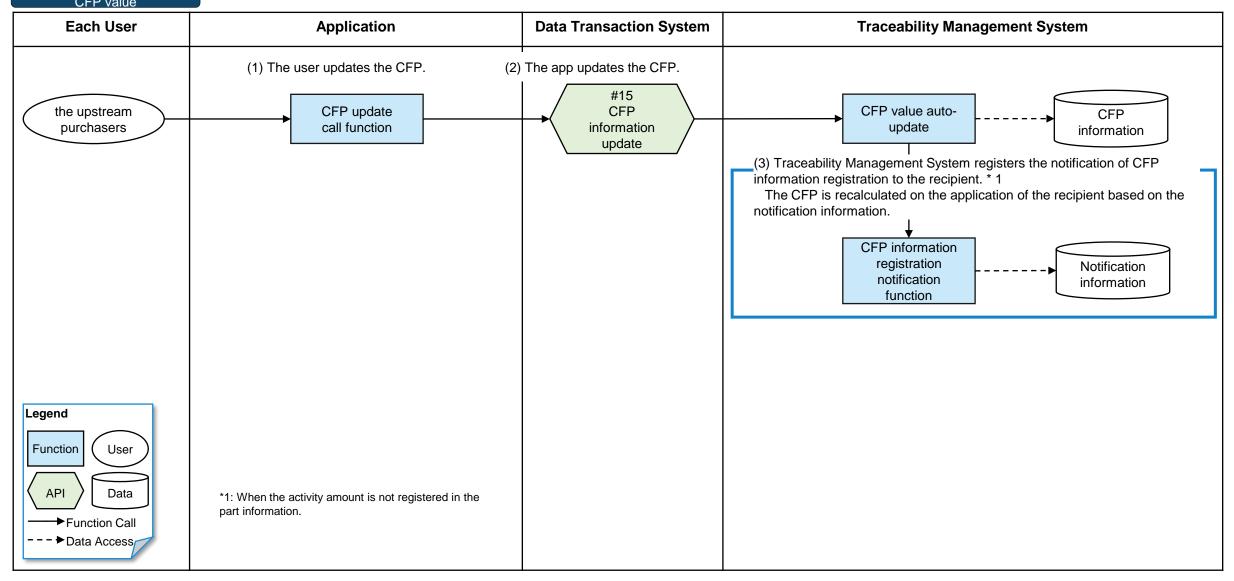
5



# Systemized workflow: Basic Flow 4 Work related to part selection or CFP change requests (CFP automatic update method 1 1/2)

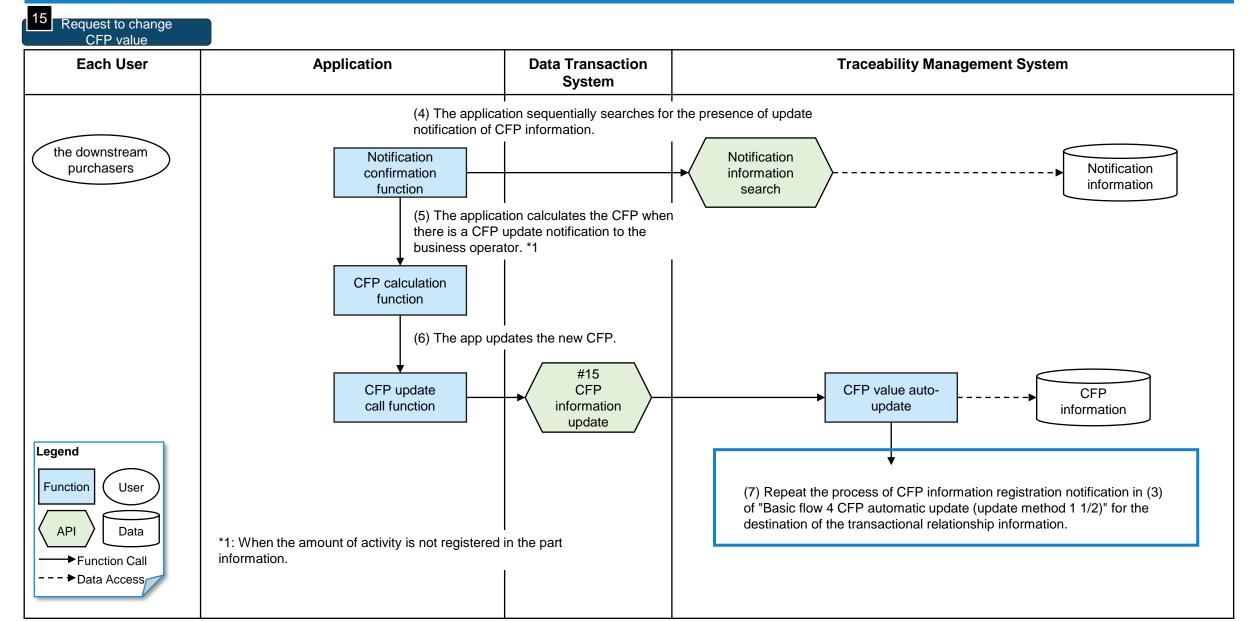


15 Request to change CFP value



# Systemized workflow: Basic Flow 4 Work related to part selection or CFP change requests (CFP automatic update method 1 2/2)

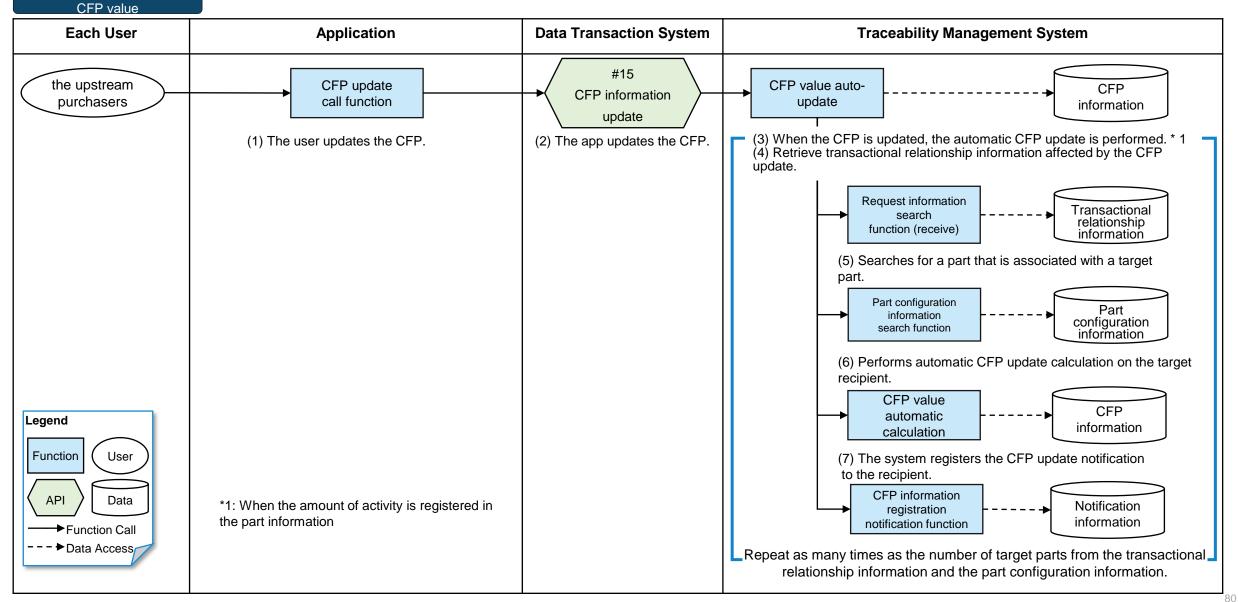




## Systemized workflow: Basic Flow 4 Work related to part selection or CFP change requests (CFP automatic update method 2)



15 Request to change

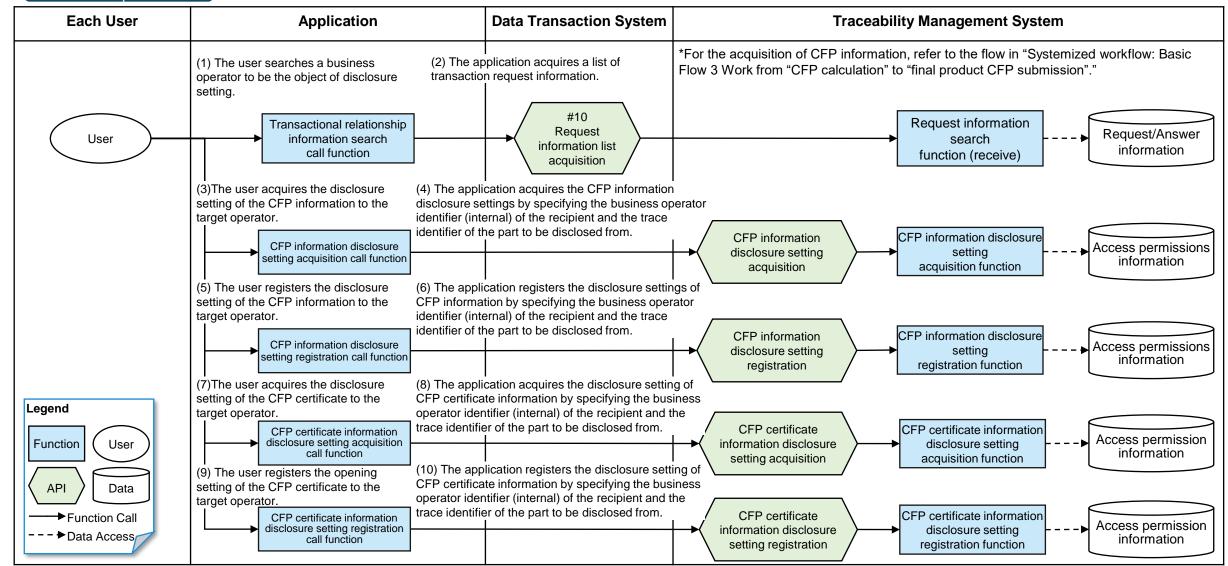


## Systemized workflow: Assuming access to CFP/DD data as an example of authentication/authorization (access control)



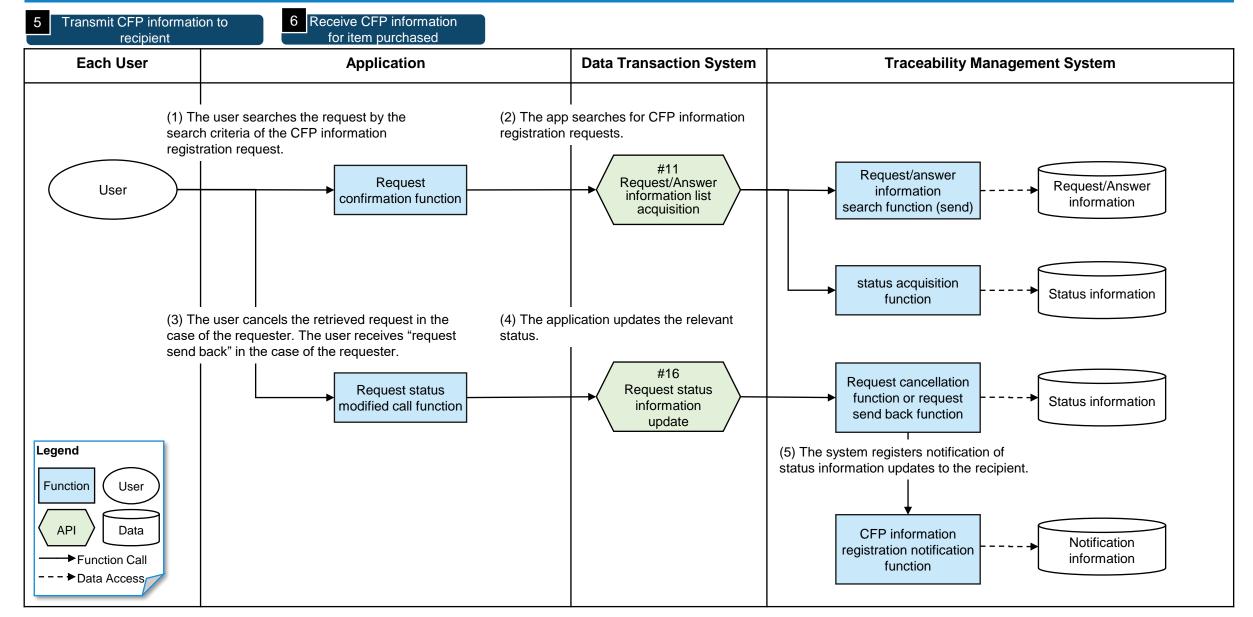
5 Transmit CFP information

to recipient



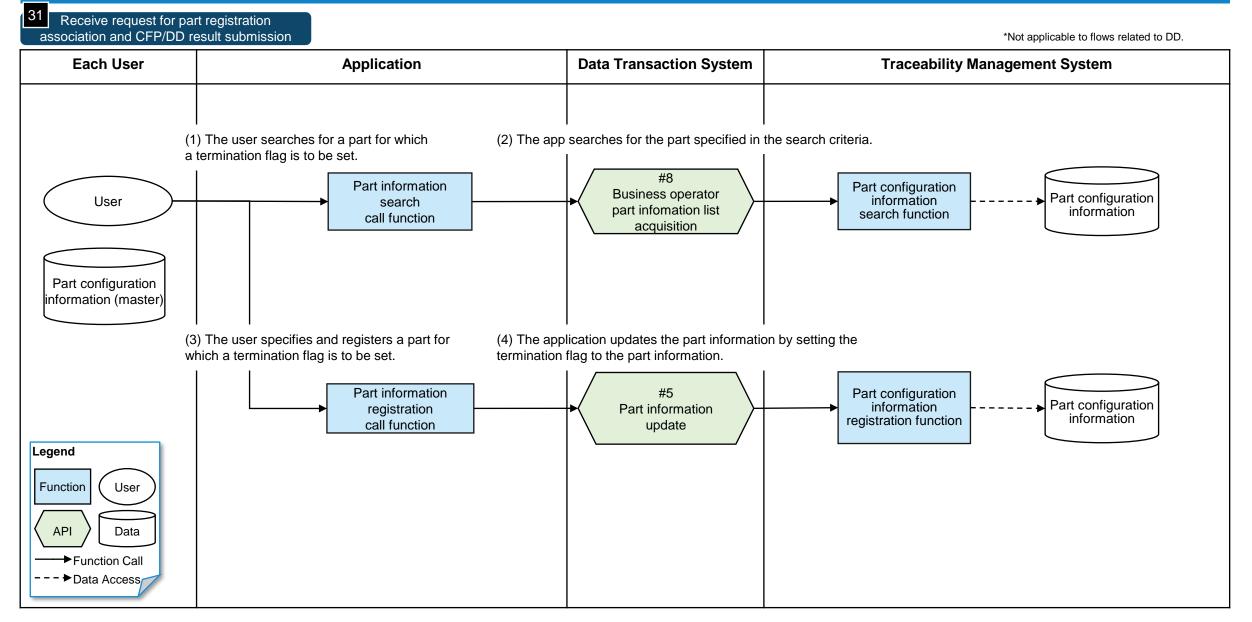
# Systemized workflow: CFP Information Registration Status Confirmation, Request Cancellation or Request Send Back





## **Systemized workflow: Termination flag update**





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## **Non-functional requirements**



The non-functional requirements in Interoperable Data System must be set appropriately upon reaching agreement among all parties concerned, with reference to resources such as "Model System Sheet" in the "Non-Functional Requirement Grades 2018: Usage Guide [Commentary]" (Information-technology Promotion Agency, Japan, April 2018), "Digital Government Promotion Standard Guidelines" and "ISO/IEC 25000."

#### **Reference: List of non-functional requirements\*1**

Category	Subcategories
Availability	Continuity, fault tolerance, disaster countermeasures, recoverability
Performance and scalability	Business processing volume, performance objective, resource scalability, performance quality assurance
Operability and maintainability	Normal operation, maintenance operation, operation to ensure business continuity, operating environment, support structure, other operation management policies
Migratability	Migration period, migration scheme, migration scope (equipment), migration scope (data), migration plans
Security	Prerequisites / restrictions, security risk analysis, security diagnostics, security risk management, access / usage restrictions, data confidentiality, fraud tracking / monitoring, network measures, malware countermeasures, web measures, security incident response/recovery
System environment and ecology	System restrictions / prerequisites, system characteristics, conformity standards, conditions of equipment installation environment, environmental management
	*1: Created by DADC, based on list of items related to system infrastructure non functional

\*1: Created by DADC, based on list of items related to system infrastructure non-functional requirements in "IPA Non-Functional Requirement Grades 2018"

### **Contents**



### **Chapter 5: System specifications**

5.1	Interface specifications
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### 5.2 Data design

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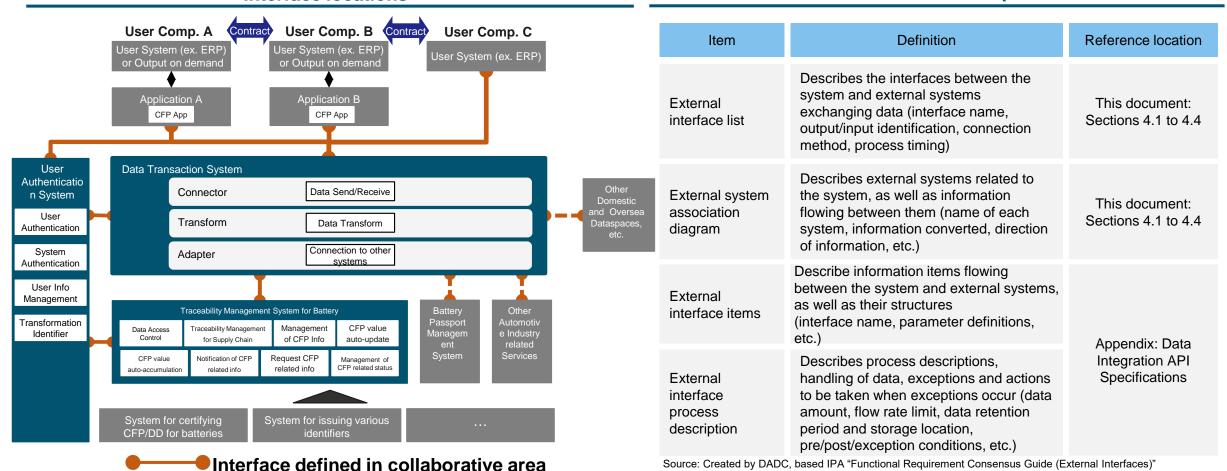
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# Interface points that must be defined in collaborative area, and definitions

Interface locations



The interfaces to define in the collaborative area are (1) between the application or user system and Data Transaction System, (2) between Data Transaction System and Traceability Management System and (3) between User Authentication System and the application or user system or Data Transaction System. More specifically, interactions between systems for the systemized workflows described in Chapter 4 must be possible.



#### Items defined in interface specifications

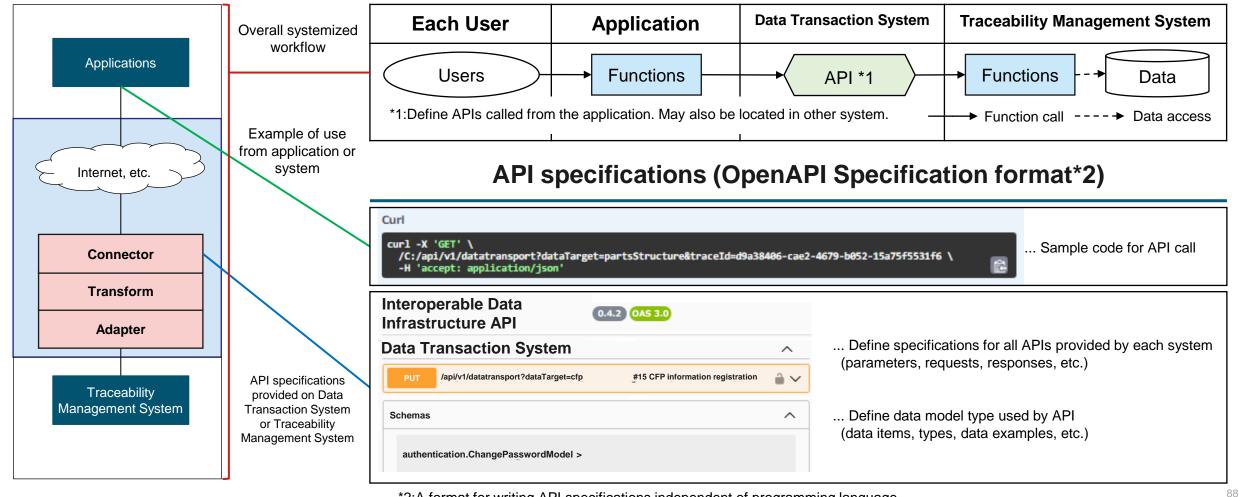
### **Relationship between function configuration and documents**



The relationship between the lightweight connector function configuration, systemized workflow and API specifications is shown below.

Systemized workflow

#### **Function configuration**



\*2:A format for writing API specifications independent of programming language.

### **Contents**



### **Chapter 5: System specifications**

5.1	Interface specifications

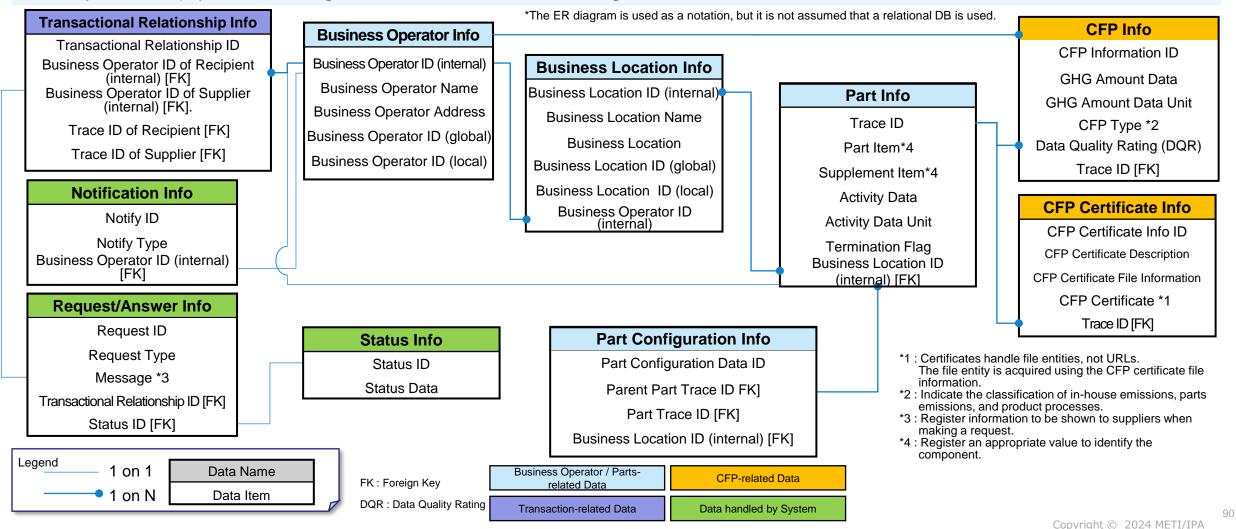
### 5.2 Data design

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## **Relationship of Data**



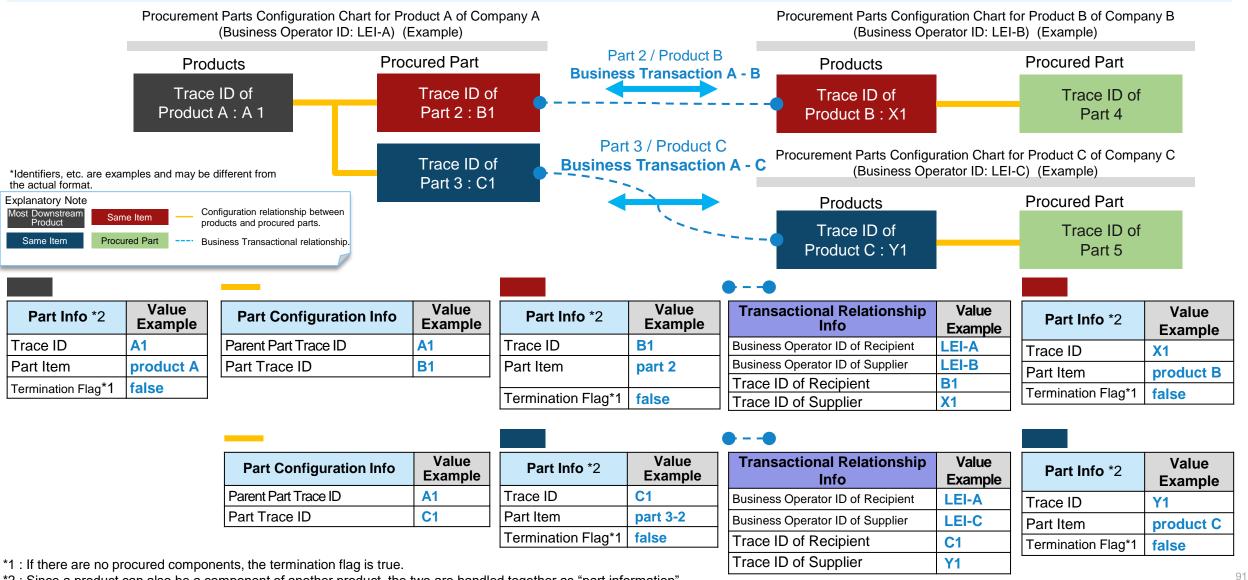
Data shall be designed so that applications and platform functions can be implemented as loosely coupled services for each of the following data: business operator/parts-related data, transaction-related data, CFP-related data, and data handled by the system. In addition, it shall be able to add and change data items flexibly to comply with changes in various laws and regulations.



### **Configuration image of Business Operator/Part Data, Business Transaction**



#### The following is an example of the configuration image of some of the business operator/part data and business transaction data.



\*2 : Since a product can also be a component of another product, the two are handled together as "part information".





