# Solid for company data sharing: The Onto-DESIDE use case

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15/11/2024 Gent



### Solid lets *personal* data flow





Solid also lets *company* data flow





#### • Onto-DESIDE use case

- The Open Circularity Platform
- Demo
- Q&A



# ONTO-DESIDE

Ontology-based Decentralized Sharing of Industry Data in the European Circular Economy

> https://ontodeside.eu/ Horizon Europe project



Universität Hamburg





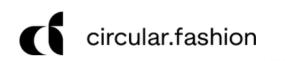
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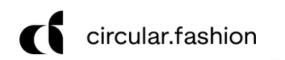
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# Circular economy aims for resource flows

Circular economy aims to reuse resources before they become waste

by establishing Circular Value Networks

between all actors along the value chain





## Circular Value Networks need data flows

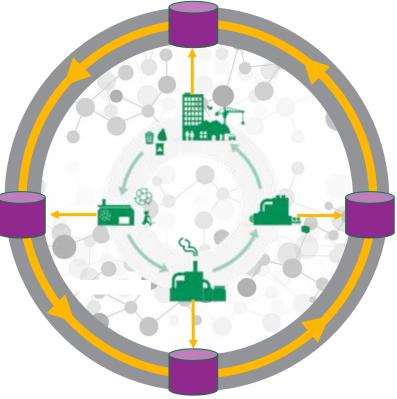
Information needs to flow between actors

Regardless of the actors'

- Domain
   (e.g., electronics, textile, construction)
- System infrastructure (e.g., Microsoft SharePoint, SQL DB, CSV files)
- Data models

(e.g., product vs material vs resource, kg vs lbs)

While the actors remain in control of their data



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- Onto-DESIDE use case
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# The Open Circularity Platform

Technical solution for permissioned data sharing

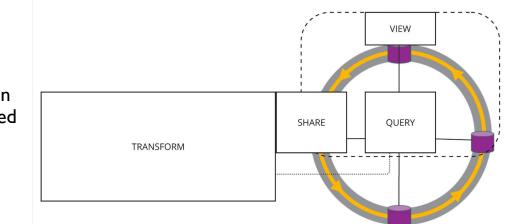
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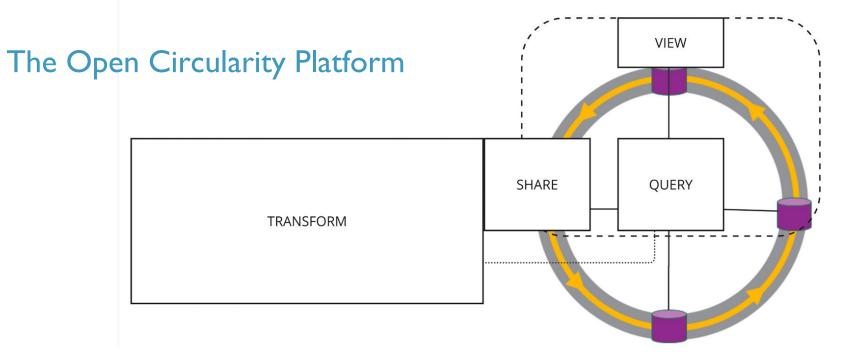
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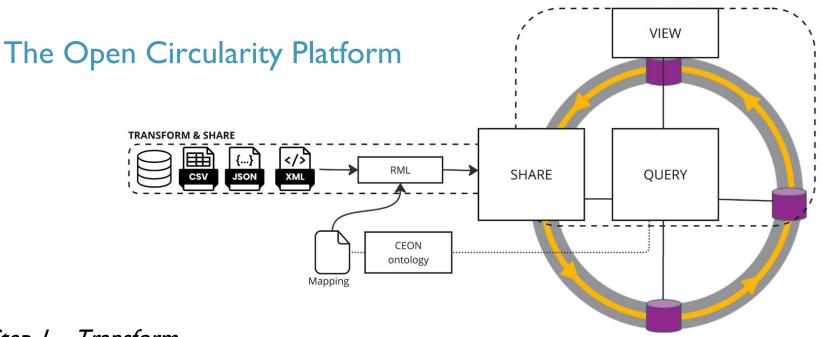
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- Enables companies to participate and collaborate on the platform in four steps, i.e.:
  - Transform To map source data to an interoperable representation
  - Share To configure which data is shared with whom
  - Query To retrieve the information spread across the actors' decentralized data stores
  - View To conveniently obtain a comprehensible representation



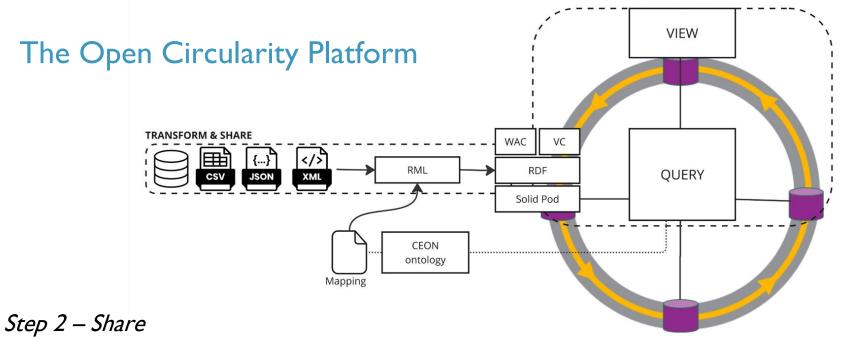






#### Step I – Transform

The **mapping component** allows a company to transform its data to RDF according to an ontology that is understood by all actors of the platform. We use RML as this allows us to declare a performant mapping process relying on standards instead of hard-coded software.



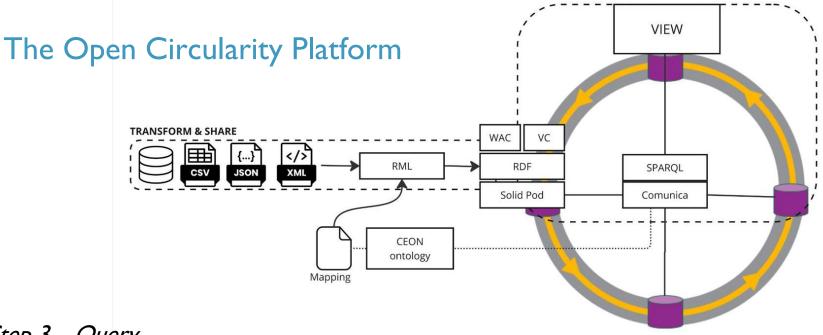
For the sharing of the data, the RDF data is stored in Solid Pods. The sharing step adds a secure layer that allows for:

Access management (e.g., using WAC). •

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Sharing the transformed RDF as a Verifiable Credential (VC). **ID**Lab



#### Step 3 – Query

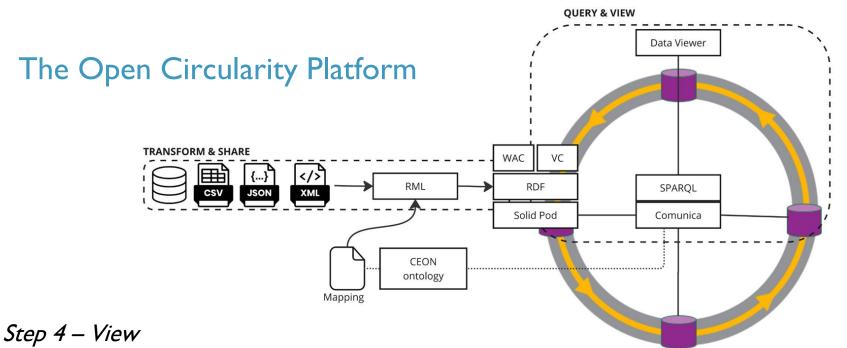
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To retrieve the information spread across the actors' decentralized data stores, we

- Define which information to retrieve using SPARQL.
- Leverage Comunica to take care of the federated querying.



To conveniently obtain a comprehensible representation over all decentralized pods, we provide a data viewer that allows users to

- Select different views over the data flowing through the Open Circularity Platform.
- Verify the authenticity and integrity of the data sources that are part of a view.

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# The Open Circularity Platform: applied standards

**RML** to map an actor's data to RDF, regardless of the actor's existing infrastructure.

**RDF** to align the actors' data models.

**Solid** to provide a decentralized infrastructure, allowing users to share their data, while retaining access control.

**SPARQL** to define the queries.

**Verifiable Credentials** to allow users to verify the authenticity and integrity of the data sources.



# The Open Circularity Platform: developed solutions

**CEON Ontology**: a shared vocabulary for circular economy.

**RML Extensions**: to describe the end-to-end pipeline from heterogeneous data sources to fine-grained RDF resources on a Solid pod.

**Data Viewer**: Web app that allows users to easily execute any query over multiple data sources (including Solid pods) and inspect the corresponding results.



- Onto-DESIDE use case
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#### We log in as the manufacturer of a speaker.

C Log

# S Community Solid Server

#### An application is requesting access

Do you trust this application to read and write data on your behalf?

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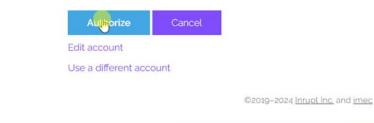
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#### Administrator@idlab299 MINGW64 ~/Documents/Onto-DESIDE/Evaluation/Electronics/user1 (main) \$

# The supplier of the electrical structure updates his source data.

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#### Administrator@idlab299 MINGW64 ~/Documents/Onto-DESIDE/Evaluation/Electronics/user1 (main) \$ []

# He manages the access to his resources on his Solid pod in a local CSV file.

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Electronics	<pre>4 idsa: https://w3id.org/idsa/core/</pre>	
> 🖿 data > 🖿 input	5 idlab-fn: http://example.com/idlab/function/	
Input	6 grel: http://users.ugent.be/~bjdmeest/function/grel.ttl#	
V Mata	<pre>7 ex: http://example.com/</pre>	
electronics_user1_acl.csv	<pre>8 elec: http://w3id.org/CEON/demo/electronics/</pre>	
electronics_user1_data.csv	<pre>9 ns1: http://w3id.org/CEON/ontology/actorODP/</pre>	
Helectronics_user1_mapping.yml	<pre>10 ns2: http://qudt.org/schema/qudt/</pre>	
ill empty.csv	<pre>11 ns3: http://w3id.org/CEON/ontology/resourceODP/</pre>	
i mapping.rml.ttl	12 ns4: http://w3id.org/CEON/ontology/provenance/	
> iiii user2	<pre>13 ns5: http://w3id.org/CEON/ontology/product/</pre>	
> 🖿 user3	<pre>14 formats: http://www.w3.org/ns/formats/</pre>	
> 🖿 user4	<pre>15 rmli: https://w3id.org/imec/rml/</pre>	
> 🖿 user5	<pre>16 LT: http://knows.base/logical_target/</pre>	
> user6	17 T: http://knows.base/target/	
execute_mappings.sh	<pre>18 rml: http://semweb.mmlab.be/ns/rml#</pre>	
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Administrator@idlab299 MINGW64 ~/Documents/Onto-DESIDE/Evaluation/Electronics/user1 (main) \$

A mapping configures the publication pipeline for his data.

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Evaluation Electronics user1 data data electronics user1 manning.vml

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electronics_user1_data.csv	28	)     - ''								
📶 electronics_user1_mapping.yml	29	acl:								
in empty.csv	30	access: ./electronics_user1_acl.csv								
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JSON For

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Administrator@idlab299 MINGW64 ~/Documents/Onto-DESIDE/Evaluation/Electronics/user1 (main) \$

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empty:

targets:

ceon\_index:

Document  $1/1 \rightarrow$  prefixes:

access: ./empty.csv

type: solid\_resource

serialization: jsonld

referenceFormulation: csv

The mapping describes how to access the source data and where in the Solid Pod the generated RDF should end up.

access: https://onto-deside.ilabt.imec.be/css11/electronics\_user1/ceon/index

> 🖿 user2

> 🖿 user3

> 📄 user4

> user5

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execute\_mappings.sh

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> Construction		Dase
e data 42 0 auth:		6
Electronics 43 Username: electronics_user1@example.com		1
→ mata 44 password: electronics_user1		110
<pre>&gt; input 45 oldc_issuer: https://onto-deside.ilabt.imec.be/css1/</pre>		
web_id: https://onto-deside.ilabt.imec.be/css11/electronics_user1/profile/card#me		Notifications
✓ Mapping:		
electronics_user1_acl.csv 48 © products:		
delectronics_user1_data.csv 49 sources: data		
Helectronics_user1_mapping.yml		
empty.csv		
mapping.rml.ttl 51 value: ex:product-\$(Part Number code)		
> im user2 52 6 targets: LT:product-\$(Part Number code)		
> 🖿 user3 53 😑 po:		
> imuser4 54 - [rdfs:label, \$(Product name)]		
> 🖿 user5 55 - [ a, elec:ElectronicsProduct~iri ]		
> im user6 56 - [ elec:hasCompliance, ex:\$(Part Number code)-REACHCompliance~iri ]		
> in user9 57 - p: ns3:hasMatter		
<pre>Execute_mappings.sh 58 0: elec:RareEarthMaterial~iri</pre>		
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The mapping describes how to transform the source data to RDF.

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> Construction	63 - [grel:valueParameter2, Yes]	abase
data 🔤	64 manufacturer:	ō
Electronics	65 sources: data	
> 🖿 data	66 🖸 S:	20
> input	67 value: ex:manufacturer-\$(Company code)	+ Notifications
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i mapping.rml.ttl	73 S:	
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> 🖿 user3	75 🖕 🌻 targets: LT:product-\$(Part Number code)	
> 🖿 user4	76 🖸 po:	
> 🖿 user5	77 - [ ns1:participantRole, http://w3id.org/CEON/ontology/actor/manufacturer~iri ]	
> 🖿 user6	78 - [ ns1:participatingActor, ex:manufacturer-\$(Company code)~iri ]	
> 🖿 user9	79 - [ns1:participatingResource, ex:product-\$(Part Number code)~iri ]	
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> Screencast	81 sources: data	
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#### Administrator@idlab299 MINGW64 ~/Documents/Onto-DESIDE/Evaluation/Electronics/user1 (main) \$ []

With the introduction of dynamic targets as an RML extension we enable flexible publication strategies.

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#### Administrator@idlab299 MINGW64 ~/Documents/Onto-DESIDE/Evaluation/Electronics/user1 (main)

\$ docker run --rm -v /\$(pwd)/data:/runtime/data demo -m electronics\_user1\_mapping.yml

# The supplier of the Electrical Structure reruns his mapping pipeline.

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🕈 👻 🖿 Evaluation C:\Users\Administrator\Documents\	0 234	- [a, rml:LogicalTarget~iri]		<b>A</b> 13	× 49 ×	~ ~
Construction	235	- [rmlt:serialization, formats:Turtle~iri]				
_ data	236 🖯	- p: rmlt:target				
Electronics	237	o: T:\$(access_to)-acl~iri				
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> input	239	sources: acl				
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V data	241	value: T:\$(access_to)-acl				
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electronics_user1_data.csv	243 🗇	po:				
empty.csv	243	- [a, rmlt:Target~iri]				
a mapping.rml.ttl	244	- [a, rmli:SolidAclTarget~iri]				
> user2	245					
> user3		- [rmli:forResource, https://onto-deside.ilabt.imec.be/css11/electronics_user1/ceon/\$(access_to)~iri]				
> user4	247	- [idsa:userAuthentication, ex:authentication_user1~iri]				
> 🖿 user5	248					
> 🖿 user6						
> user9						
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Converting YARRRML mapping to RML map	oping					
Using RML mapping to construct knowle						
" Shutting down services						
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0	Generic query examples	Basic Information	
*	Construction use case	Query name * (Cloned from) Resilience of the supply chain of a product	
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*	Evaluation June 2024 - V Construction	SPARQL query*         PREFIX schema: <http: schema.org=""></http:> PREFIX rdfs: <http: 01="" 2000="" rdf-schema#="" www.w3.org="">         PREFIX ex: <http: example.com=""></http:></http:>	2
4	Evaluation June 2024 - A Electronics	PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:> PREFIX ns1: <http: actorodp="" ceon="" ontology="" w3id.org=""></http:> PREFIX ns2: <http: qudt="" qudt.org="" schema=""></http:> PREFIX ns3: <http: ceon="" ontology="" resourceodp="" w3id.org=""></http:>	
:=	Overview	PREFIX ns4: <http: ceon="" ontology="" provenance="" w3id.org=""></http:> PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>	
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:=	All accessible data	SELECT ?ComponentLabel ?siteCountry	
:=	Sources in electronic	iic WHERE {	
스	Evaluation June 2024 - Textile	<ul> <li>Product rdfs:label \$ProductLabel;</li> <li>ns5:hasProductComponent ?component .</li> <li>?component rdfs:label ?ComponentLabel .</li> </ul>	64

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	Rare Earth content o. Recycled content of	PREFIX ns3: <a href="http://w3id.org/CEON/ontology/resourceODP/&gt;">http://w3id.org/CEON/ontology/resourceODP/&gt;</a>	
	All accessible data	PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>	
:=	Sources in electronic.		
2	Evaluation June 2024 - Textile	?product rdfs:label \$ProductLabel ;         ns5:hasProductComponent ?component .         ?component rdfs:label ?ComponentLabel .	65

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← →	C 🔄 https://d	/onto-deside.	e.ilabt.imec.be/viewer/#/customQuery?name=%28Cloned+from%29+Resilience+of+the+supply+chain+of+a+product&description=How+resilient+is+the+supply+chain+of+ 🛧 🛃 🗛 Inco	gnito :
=			🖁 C 😝 Electronic	s User6
火	Construction use case	~		
2	Textile use case	~	Custom Query Editor	
소	Extended textile use case	~	Basic Information Query name* Resilience and rare earth content of the supply chain of a product	
伏	Evaluation June 2024 - Construction	~	Give this custom query a name.  Description * How resilient is the supply chain of a product, based on the origin of the materials?	
4	Evaluation June 2024 -	~		
	Electronics		Give a description for the query.  SPARQL query*	
≡	Overview		PREFIX schema: <http: schema.org=""></http:> PREFIX rdfs: <http: 01="" 2000="" rdf-schema#="" www.w3.org=""></http:>	
188	Resilience of the su		PREFIX ex: <http: example.com=""></http:> PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:>	
	REACH compliance		PREFIX ns1: <http: actorodp="" ceon="" ontology="" w3id.org=""></http:> PREFIX ns2: <http: gudt="" gudt.org="" schema=""></http:>	
18	Rare Earth content	t o	PREFIX ns3: <http: ceon="" ontology="" resourceodp="" w3id.org=""></http:>	
:=	Recycled content o	of	PREFIX ns4: <http: ceon="" ontology="" provenance="" w3id.org=""></http:> PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>	
:=	All accessible data	a	SELECT ?ComponentLabel ?siteCountry	
:=	Sources in electron	nic	WHERE {	
ک	Evaluation June 2024 - Textile	~	ns5:hasProductComponent ?component . ?component rdfs:label ?ComponentLabel .	66

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← →	C 😅 https://onto-c	deside.ilabt.imec.be/viewer/#/customQuery?name=%28Cloned+from%29+Resilience+of+the+supply+chain+of+a+product&description=How+resilient+is+the+supply+chain+of+ 🕁 🛃 🗛 Incogni	ito :
=		📩 C 🤤 Electronics U	User6
火	Construction use case		
ک	Textile use case 🗸	Custom Query Editor	
ک	Extended textile use case	Basic Information Query name* Resilience and rare earth content of the supply chain of a product	
*	Evaluation June 2024 - V Construction	Give this custom query a name.	
4	Evaluation June 2024 - ^ Electronics	How resilient is the supply chain of a product, based on the origin of the materials, and does it container rare earth materials?	
10	Overview	PREFIX schema: <http: schema.org=""></http:> PREFIX rdfs: <http: 01="" 2000="" rdf-schema#="" www.w3.org=""></http:>	
:==	Resilience of the sup	PREFIX ex: <http: example.com=""></http:> PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:>	
:=	REACH compliance	PREFIX ns1: <http: actorodp="" ceon="" ontology="" w3id.org=""></http:>	
18	Rare Earth content o	PREFIX ns2: <http: qudt="" qudt.org="" schema=""></http:> PREFIX ns3: <http: ceon="" ontology="" resourceodp="" w3id.org=""></http:> ]	
:=	Recycled content of	PREFIX ns4: <http: ceon="" ontology="" provenance="" w3id.org=""></http:> PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>	
I	All accessible data	The CEON Ontology is used to	
10	Sources in electronic	SELECT ?ComponentLabel ?siteCountry         WHERE {         ?product rdfs:label \$ProductLabel ;    formulate SPARQL queries	
2	Evaluation June 2024 - Textile	ns5:hasProductComponent ?component . ?component rdfs:label ?ComponentLabel .	67

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<del>~</del> -	C C https://onto-deside.ilab	ot.imec.be/viewer/#/customQuery?name=%28Cloned+from%29+Resilience+of+the+supply+chain+of+a+product&description=How+resilient+is+the+supply+chain+of+ 🛠 🛓 🐇	금 Incognito	
	Construction was	Basic Information		
火	Construction use case	Query name * Resilience and rare earth content of the supply chain of a product		
2	Textile use case 🗸	Give this custom query a name.		
_		C Description *		
2	Extended textile use case	How resilient is the supply chain of a product, based on the origin of the materials, and does it container rare earth materials?		
	STREET, STREET, ST	Give a description for the query.		
44	Evaluation June 2024 -	SPARQL query *		
×	2024 - V Construction	PREFIX schema: <http: schema.org=""></http:>		
	Construction	PREFIX rdfs: <http: 01="" 2000="" rdf-schema#="" www.w3.org=""></http:>		
	Evaluation June	PREFIX ex: <http: example.com=""></http:> PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:>		
4	2024 -	PREFIX ns1: <http: actorodp="" ceon="" ontology="" w3id.org=""></http:>		
	Electronics	PREFIX ns2: <http: qudt="" qudt.org="" schema=""></http:>		
		PREFIX ns3: <http: ceon="" ontology="" resourceodp="" w3id.org=""></http:>		
:==	Overview	PREFIX ns4: <http: ceon="" ontology="" provenance="" w3id.org=""></http:>		
4853637		PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>		
122	Resilience of the sup			
:==	REACH compliance	SELECT ?ComponentLabel ?siteCountry		
		WHERE {		
100	Rare Earth content o	?product rdfs:label \$ProductLabel;		
	Recycled content of	ns5:hasProductComponent ?component . ?component rdfs:label ?ComponentLabel .		
	Recycled content of	OPTIONAL {		
8 0000 8 0000 8 0000	All accessible data	?s1 ns1:participantRole <http: actor="" ceon="" manufacturer="" ontology="" w3id.org="">;</http:>		
:=	Sources in electronic	ns1:participatingActor ?company ; ns1:participatingResource ?component .		
0.000	Evaluation June	?company elec:siteCountry ?siteCountry.		
2	2024 - Textile	}		
		}		
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头	Construction use	Basic Information     Query name*     Resilience and rare earth content of the supply chain of a product		
ک	Textile use case 🗸	Give this custom query a name.		
ک	Extended textile view of the second s	How resilient is the supply chain of a product, based on the origin of the materials, and does it container rare earth materials?		
火	Evaluation June 2024 - 🗸	Give a description for the query.  SPAROL query*  PREFIX schema: <a href="http://schema.org/">http://schema.org/&gt; PREFIX rdfs: <a href="http://www.w3.org/2000/01/rdf-schema#">http://schema.org/</a></a>		
4	Evaluation June 2024 - ^ Electronics	PREFIX ex: <http: example.com=""></http:> PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:> PREFIX ns1: <http: actorodp="" ceon="" ontology="" w3id.org=""></http:> PREFIX ns2: <http: qudt="" qudt.org="" schema=""></http:> PREFIX ns2: <http: qudt="" qudt.org="" schema=""></http:>		
:=	Overview	PREFIX ns3: <http: ceon="" ontology="" resourceodp="" w3id.org=""></http:> PREFIX ns4: <http: ceon="" ontology="" provenance="" w3id.org=""></http:> DDEFIX == 5 = http://w3id.org/CEON/ontology/provenance/>		
:=	Resilience of the sup	PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>		
:=	REACH compliance	SELECT ?ComponentLabel ?siteCountry WHERE {		
100	Rare Earth content o	?product rdfs:label \$ProductLabel ; ns5:hasProductComponent ?component .		
:==	Recycled content of	?component rdfs:label ?ComponentLabel . OPTIONAL {		
100	All accessible data	?s1 ns1:participantRole <http: actor="" ceon="" manufacturer="" ontology="" w3id.org="">;</http:>		
18	Sources in electronic	ns1:participatingActor ?company ; ns1:participatingResource ?component .		
소	Evaluation June 2024 - Textile	<pre>?company elec:siteCountry ?siteCountry. } I }</pre>		69
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头	Construction use case	Query name *         Resilience and rare earth content of the supply chain of a product         Give this custom query a name.	)	
ک	Textile use case 🗸	Description * How resilient is the supply chain of a product, based on the origin of the materials, and does it container rare earth materials?		
ک	Extended textile use case	Give a description for the query.		
头	Evaluation June 2024 - V Construction	SPAROL query* PREFIX schema: <http: schema.org=""></http:> PREFIX rdfs: <http: 01="" 2000="" rdf-schema#="" www.w3.org=""> PREFIX ex: <http: example.com=""></http:></http:>		
4	Evaluation June 2024 - ^ Electronics	PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:> PREFIX ns1: <http: actorodp="" ceon="" ontology="" w3id.org=""></http:> PREFIX ns2: <http: qudt="" qudt.org="" schema=""></http:> PREFIX ns3: <http: ceon="" ontology="" resourceodp="" w3id.org=""></http:> PREFIX ns4: <http: ceon="" ontology="" provenance="" w3id.org=""></http:>		ľ
:=	Overview	PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>		
:=	Resilience of the sup	SELECT ?ComponentLabel ?siteCountry		
:=	REACH compliance	WHERE {		
18	Rare Earth content o	ns5:hasProductComponent ?component . ?component rdfs:label ?ComponentLabel .		
100	Recycled content of	OPTIONAL {		
100	All accessible data	<pre>?s1 ns1:participantRole <http: actor="" ceon="" manufacturer="" ontology="" w3id.org="">; ns1:participatingActor ?company;</http:></pre>		
12	Sources in electronic	ns1:participatingResource ?component . ?company elec:siteCountry ?siteCountry.		
ک	Evaluation June 2024 - Textile	<pre>} OPTIONAL {</pre>	7	70

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头	Construction use	Query name *		^
2	Textile use case ∨	Give this custom query a name. Description * How resilient is the supply chain of a product, based on the origin of the materials, and does it container rare earth materials?		l
ک	Extended textile use case	Give a description for the query.		
头	Evaluation June 2024 - V Construction	PREFIX schema: <http: schema.org=""></http:> PREFIX rdfs: <http: 01="" 2000="" rdf-schema#="" www.w3.org=""> PREFIX ex: <http: example.com=""></http:></http:>		
4	Evaluation June 2024 - ^ Electronics	PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:> PREFIX ns1: <http: actorodp="" ceon="" ontology="" w3id.org=""></http:> PREFIX ns2: <http: qudt="" qudt.org="" schema=""></http:> PREFIX ns3: <http: ceon="" ontology="" resourceodp="" w3id.org=""></http:>		1
≡	Overview	PREFIX ns4: <http: ceon="" ontology="" provenance="" w3id.org=""></http:> PREFIX ns5: <http: ceon="" ontology="" product="" w3id.org=""></http:>		
18	Resilience of the sup	SELECT ?ComponentLabel ?siteCountry (BOUND(?RareEarthMaterial) AS ?containsRareEarthMaterial)		
:=	REACH compliance	WHERE {		
122	Rare Earth content o	ns5:hasProductComponent ?component .		
	Recycled content of All accessible data	OPTIONAL {		
:=	Sources in electronic	ns1:participatingResource ?component . ?company elec:siteCountry ?siteCountry.		
ک	Evaluation June 2024 - Textile	<pre>} OPTIONAL {</pre>	7	71
			1	

https://onto-deside.ilabt.imec.be/viewer/#/customQuery?name=%28Cloned+from%29+Resilience+of+the+supply+chain+of+a+product&description=How+resilient+is+the+supply+chain+of+... 🔒 Incognito coment to the supply chain of a product, based on the origin of the materials, and does it container rare ca Construction use 火 Give a description for the query. case SPARQL query \* -Textile use case v ふ PREFIX schema: <http://schema.org/> PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#> Extended textile PREFIX ex: <http://example.com/> ふ  $\sim$ PREFIX elec: <http://w3id.org/CEON/demo/electronics/> use case PREFIX ns1: <http://w3id.org/CEON/ontology/actorODP/> PREFIX ns2: <http://gudt.org/schema/gudt/> Evaluation June PREFIX ns3: <http://w3id.org/CEON/ontology/resourceODP/> 2024 -X  $\sim$ PREFIX ns4: <http://w3id.org/CEON/ontology/provenance/> Construction PREFIX ns5: <http://w3id.org/CEON/ontology/product/> Evaluation June SELECT ?ComponentLabel ?siteCountry (BOUND(?RareEarthMaterial) AS ?containsRareEarthMaterial) 2024 - $\mathbf{\nabla}$ WHERE { Electronics ?product rdfs:label \$ProductLabel ; ns5:hasProductComponent ?component Overview ?component rdfs:label ?ComponentLabel **OPTIONAL** { Resilience of the sup... ?s1 ns1:participantRole <http://w3id.org/CEON/ontology/actor/manufacturer>; REACH compliance ... ns1:participatingActor ?company ; ns1:participatingResource ?component . Rare Earth content o... ?company elec:siteCountry ?siteCountry. Recycled content of ... **OPTIONAL** { ?component ns3:hasMatter elec:RareEarthMaterial. All accessible data BIND (elec:RareEarthMaterial AS ?RareEarthMaterial). Sources in electronic... **Evaluation June**  $\sim$ 2024 - Textile Enter your SPARQL query here.

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Generic Data Viewer

Generic Data Viewer 😴 https://onto-deside.ilabt.imec.be/viewer/#/customQuery?name=%28Cloned+from%29+Resilience+of+the+supply+chain+of+a+product&description=How+resilient+is+the+supply+chain+of+... 📩 🔒 Incognito C ¥. Construction use 终 × Comunica Context & Sources case Advanced Comunica Context Settings Textile use case v え Fixed data source(s) Extended textile 2 V Give the source URL(s) for the query. Separate URLs with '; '. (These are the comunica context sources) use case **Evaluation June** Indirect sources 2024 -× V Index file URI \* Construction https://onto-deside.ilabt.imec.be/css11/electronics\_user9/ceon/index Give the URL of the index file. **Evaluation June** 2024 -SPARQL query \* 4 ~ PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#> Electronics SELECT ?object Overview -WHERE { Resilience of the sup... ?s rdfs:seeAlso ?object . 100 REACH compliance ... 100 Rare Earth content o ... Give the SPARQL query to get the sources from the index file. -2 Recycled content of .... All accessible data **Templated Query** Sources in electronic... -Fixed Variables Variables Give one or more queries to retrieve the variable(s) from the source(s). **Evaluation June** ふ V 2024 - Textile Query 1 for indirect variable(s)\* PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#> Î 73 ָ PREFIX elec: <http://w3id.org/CEON/demo/electronics/>

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*	Construction use case	×	SELECT ?object WHERE { ?s rdfs:seeAlso ?object . }		
2	Textile use case	~			
ک	Extended textile use case	~	Give the SPARQL query to get the sources from the index file.		_
*	Evaluation June 2024 - Construction	~	Templated Query  Fixed Variables  Indirect Variables		
4	Evaluation June 2024 - Electronics	^	Give one or more queries to retrieve the variable(s) from the source(s).  Query 1 for indirect variable(s)*  PREFIX rdfs: <a href="http://www.w3.org/2000/01/rdf-schema#&gt;">"&gt;"&gt;""""""""""""""""""""""""""""""</a>	Î	
18	Overview	- 1	SELECT DISTINCT ?ProductLabel		
:=	Resilience of the	sup	WHERE {		
:=	REACH complian	ce	?Product a elec:ElectronicsProduct ; rdfs:label ?ProductLabel		
18	Rare Earth conter	nt o	} ORDER BY ?ProductLabel I		
18	Recycled content	of			
:=	All accessible data	a	Enter the 1st SPARQL query to retrieve the variables.		
13	Sources in electro	nic	+ ADD ANOTHER QUERY		
ک	Evaluation June 2024 - Textile	•	Extra Options		74

	S Generic Data Viewer	× +	
÷	→ C 🖙 https://onto	o-deside.ilabt.imec.be/viewer/#/customQuery?name=%28Cloned+from%29+Resilience+of+the+supply+chain+of+a+product&description=How+resilient+is+the+supply+chain+of+ 🛧 🛃 🔒 Incognit	5
*	Construction use case		
2	Textile use case 🗸	Templated Query	
2	Extended textile vise case	Fixed Variables       Indirect Variables         Give one or more queries to retrieve the variable(s) from the source(s).	
*	Evaluation June 2024 - 🗸 🗸	Query 1 for indirect variable(s)*         PREFIX rdfs: <http: 01="" 2000="" rdf-schema#="" www.w3.org="">         PREFIX elec: <http: ceon="" demo="" electronics="" w3id.org=""></http:>         SELECT DISTINCT ?ProductLabel</http:>	
4	Evaluation June 2024 - ^ Electronics	WHERE {	
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	REACH compliance	+ ADD ANOTHER QUERY	
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ک	Evaluation June 2024 - Textile	+ CREATE QUERY	75
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*	Construction use case		DELETE QUERY
2	Textile use case		
ک	Extended textile use case	ProductLabel * ▼	
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4	Evaluation June 2024 - A Electronics	·	
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10	REACH compliance		
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ک	Evaluation June 2024 - Textile	×	76

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٤	Evaluation June 2024 - Textile	Resilience and rare earth content			
≡,	Custom queries 🖍	of the supply chain of a product			
+	Resitence and rar	How resilient is the supply chain of a product, based on the origin of the materials, and does it container rare earth materials?			77

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4	Evaluation June 2024 - ^ Electronics	V QUERY	
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=	REACH compliance		
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=	All accessible data		
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گ	Evaluation June 2024 - Textile		
=,	Custom queries 🔨		
+,*	Resilience and rare to-deside.ilabt.imec.be/viewer/#/17	720005000040	78

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ک	Extended textile use case	EDIT QUERY     SHARE QUERY     CLONE	DELETE QUERY
*	Evaluation June 2024 - 🗸	ProductLabel*  "Aluminum basket"	
4	Evaluation June 2024 - ^ Electronics	"Coil" "Cone" "Electrical structure"	
≡	Overview	"Magnet"	
=	Resilience of the sup	"Speaker"	
≡	REACH compliance		
=	Rare Earth content o		
=	Recycled content of		
≣	All accessible data		
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ک	Evaluation June 2024 - Textile		
≡,	Custom queries		
+.	Resilience and rare		79

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ک	Extended textile use case	► EDIT QUERY SHARE QUERY	DELETE QUERY
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ک	Evaluation June 2024 - Textile		
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2	Extended textile use case	로 CHANGE VARIABLES	/ EDIT QU	JERY SHARE QUERY	CLONE DELETE QUERY
火	Evaluation June 2024 - V Construction	Resilience and rare	earth content of the supply Finished in: 0s Sour	- discould a series of the series of the	EXPORT
	Evaluation June	ComponentLabel 🖘	siteCountry	containsRareEarthMaterial	
4	2024 - ^	Electrical structure	Austria	true	
	Electronics	Magnet	China	true	
:=	Overview	Aluminum basket	China	false	
100	Resilience of the sup	Coil	China	false	
:=	REACH compliance	Cone	Spain	false	
:=	Rare Earth content o				Rows per page: 10 - 1-5 of 5
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ک	Evaluation June 2024 - Textile				
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+*	Resilience and rare	×			81

✓ ③ Generic Data Viewer

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and the second second	Dash <mark>biha</mark> rd Custom Query Editor	<b>建 CHANGE VARIABLES</b>	PDIT QUI		
0	Generic query examples	Resilience and rare	e earth content of the supply	chain of a product	
	Construction use		Finished in: 0s Source	ces: 12 🚯	▲ EXPORT
火	case	ComponentLabel GD	siteCountry	containsRareEarthMaterial	
ک	Textile use case 🗸	Electrical structure	Austria	true	
-		Magnet	China	true	
2	Extended textile use case	Aluminum basket	China	false	
	430 6430	Coil	China	false	
终	Evaluation June 2024 -	Cone	Spain	false	
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	Dashboard Custom Query Editor	Please log in as the appropriate actor and select a query from the menu on the left.	
0	Generic query examples	Load/save your custom queries from/to a file in a pod. Saving destroys previous file contents.	
*	Construction use case	LOAD ALL From: https://onto-deside.ilabt.imec.be/css11/electronics_user6/customQueries/myQueries.json	
ک	Textile use case 🗸		
ک	Extended textile use case	To: https://onto-deside.ilabt.imec.be/css11/electronics_user6/customQueries/myQueries.json	
火	Evaluation June 2024 - V Construction		
4	Evaluation June 2024 - ^ Electronics	You can save custom queries on your Solid Pod	
:=	Overview	and reload them when you use the viewer again.	
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## S Community Solid Server

## An application is requesting access

Do you trust this application to read and write data on your behalf?

Name: Generic Data Viewer

ID: Ql8al14dBLGh2go8PmCit

Choose your WebID to authorize

https://onto-

deside.ilabt.imec.be/css11/electronics\_user1/profile/card#me

Remember this client





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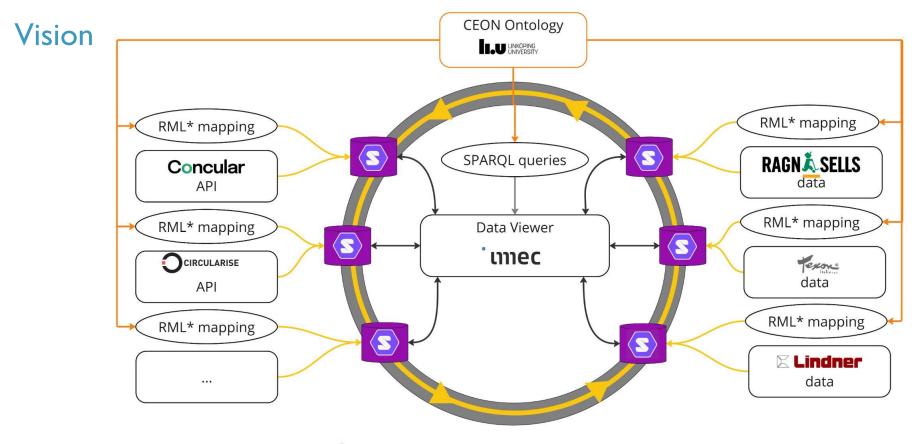
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RML\*: including RML extensions **IIIIEC** 

- Onto-DESIDE use case
- The Open Circularity Platform
- CEON Ontology
- RML Extensions
- Data Viewer
- Q&A





Onto-DESIDE project: <u>https://ontodeside.eu/</u> OCP: <u>https://github.com/KNowledgeOnWebScale/open-circularity-platform</u> Onto-DESIDE Data Viewer: <u>https://onto-deside.ilabt.imec.be/viewer/</u> CEON ontology: <u>https://liusemweb.github.io/CEON/</u> Data Viewer: <u>https://github.com/SolidLabResearch/generic-data-viewer-react-admin</u>



## embracing a better life

