

Examples of integration

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The EC DG-JRC / EASME Technical Workshop "Channelling knowledge from European projects into the Raw Materials Information System (RMIS)" Online event, 3rd December 2020

> Joint Research Centre

Outline

- JRC & RMIS role in raw materials related knowledge management
- Current ways of integration (examples)
- Future ways of integration & co-operation
- Concluding remarks



JRC & RMIS

ROLE IN KNOWLEDGE MANAGEMENT





JRC & RMIS & H2020 PROJECTS ROLE IN KNOWLEDGE MANAGEMENT





CURRENT WAYS OF INTEGRATION

- "direct" integration
- processed integration (incl. database)
- archivation with smart search
- data & information use
- profiles of selected projects
- embedded references



CURRENT WAYS OF INTEGRATION -

DIRECT (ONE-TO-ONE) INTEGRATION



CURRENT WAYS OF INTEGRATION -

DIRECT (ONE-TO-ONE) INTEGRATION



Responsible Sourcing (IRS) is becoming a reality for more and more businesses, NGOs, and policymakers. Everyone is striving to keep ahead of rapidly evolving ecological and social needs, company practices, business models, government regulations, and initiatives spearheaded by civil society, etc.

In response to the growing challenge of responsible sourcing, the RE-SOURCING Global Stakeholder Platform has been started in 2020.

RE-SOURCING, funded under the EU Horizon 2020 programme, is a four-year project coordinated by the Institute for Managing Sustainability, at the Vienna University of Economics and Business. The project's consortium consists of 12 international partners in- and outside the EU working together to create the RE-SOURCING Platform. The project's vision is to **advance and establish Responsible Sourcing as a minimum requirement among EU and international stakeholders**. The project will foster the development of a globally accepted definition of Responsible Sourcing, facilitate the implementation of RS practices through direct knowledge exchange within its network and beyond, and advocate for Responsible Sourcing in international political forums.

To guarantee a thorough and comprehensive Responsible Sourcing framework, RE-SOURCING will take a holistic approach by integrating firms and industries (up- and downstream) across the mineral value chains of three sectors: Renewable Energy, Mobility and Electronics – all which play a decisive role in the EU Green Deal and the dean energy transition. As such, RE-SOURCING equally takes into account traditional minerals, conflict minerals and green tech minerals in its approach. The main target groups of the project will be EU and international industry stakeholders, EU policy makers and divil society.

To achieve its intended aims, a variety of physical and virtual events and facilitation tools will be rolled out during the project:

An opening and closing conference will raise large-scale awareness for Responsible Sourcing and convene the international community or pressing issues of needs, implementation, regulation, obstacles & opportunities, etc..

Three sectoral roadmap workshops to provide industry, policy and civil society stakeholders with concrete courses of action and milestones in their uptake of Responsible Sourcing.

Three sectoral peer-learning events (flagship Labs) will foster direct sharing of experiences on challenges and solutions for the implementation of actual RS practices between industry and other players of all sizes.

The agendas of both the roadmap workshops and flagship labs will be set through the publication of **sectoral roadmaps** (one for each sector) as well as the elaboration of **good practice flagship cases**.

The project will organise three international advocacy forums for Responsible Sourcing, aimed at connecting actors beyond Europe across global value chains (Latin America, Sub-Saharan Africa and China).

Website: https://www.re-sourcing.eu/

To receive the newest information on the RE-SOURCING project subscribe here

CURRENT WAYS OF INTEGRATION - PROCESSED

Search RMIS

PROSUM

! see next presentation for details !

5 results found

Contributions of H2020 Projects in CIRCULAR ECONOMY & SECONDARY RAW MATERIALS » SRMS IN SPECIFIC INDUSTRY SECTORS

...Contributions of H2020 Projects Selected results from the **ProSUM** Project for Secondary Raw Materials arising from Waste Electrical and Electronic Screen Flows ...

Industry Associations in OVERVIEW & NEWS » STAKEHOLDERS

....TIAwww.prometia.euAssociationProspecting Secondary raw materials in the Urban mine and Mining wastesProSUMhttp://...

Raw Materials Knowledge Gateway in Raw Materials Knowledge Gateway

... Overview The ProSUM project developed the very first EU-wide and open-access Urban Mine Platform (UMP) located at www.u...

Raw Materials' Profiles - Lithium in Raw Materials' Profiles

...lectric mobility and, to a lesser extent, to portable applications like tablets and cordless tools (**ProSUM**, 2017). Lithium-ion batteries places on market per application, in tonnes of cells ...

Sources of Data in CIRCULAR ECONOMY & SECONDARY RAW MATERIALS > MONITORING SRMS: DATA, INDICATORS AND TOOLS

...hrough a Recycler Information Centre is intended to make recycling procedures quicker and safer. The **ProSUM** project is establishing a European network of expertise on secondary sources of CRMs. ...



CURRENT WAYS OF INTEGRATION – ARCHIVATION





TERMINOLOGY & LIBRARY

conomy CommissionPartnership roon additionRawMaterials collaboration high ectors erriticality industry information wood object sustainable growth assessment action within Strategic growth assessment action area Research implementation context

RMIS Library

ISBN/Code
Vear
<u>▲</u>

Advanced search - additional filters

Geographical coverage		Thematic coverage along value chain
Belgium	^	exploration (incl. survey, prospection too)
Bulgaria		
Czechia		primary and secondary processing
Denmark		mine closure (incl. remediation, aftercare)
Germany		production (incl. fabrication, design, material
🗆 Estonia		efficiency, substitution, replacement)
□ Ireland		distribution (incl. sustainable consumption, materia
Greece	~	discipation)

□ research & innovation

 \Box technologies for raw materials production (exploration, extraction, processing, recycling)

 \Box substitution (materials for green energy technologies, for electronics, for extreme conditions, for large streams) \Box improving EU RM framework (policy, access to deposits, public awareness)

EIP SIP relevance

Improving EU waste management framework (product design, quality recycling, illegal waste shipment, optimized
recovery)

knowledge & skills & Material Flows (knowledge base, EIT Community, optimized material flows)

International cooperation (technology, governance, dialogues, health & safety & environment, skills & education & knowledge, investments)

Clear search fields and filters

Hide

Critical raw materials and the circular economy - background report	201
> Electric vehicles from life cycle and circular economy perspectives	201
> Li-ion batteries for mobility and stationary storage applications - Scenarios for costs and market growth	201
> Materials dependencies for dual-use technologies relevant to Europe's defence sector	201
> Prospecting Secondary Raw Materials in the Urban Mine and mining wastes (ProSUM) - Final Report	201

technologies in the EU. Wind power, photovoltaic and electric vehicles technologies, time frame: 2015-2030

> Sustainability Assessment of Second Life Application of Automotive Batteries (SASLAB): JRC Exploratory Research (2016-2017): Final technical report: August 2018

2016

2018

CURRENT WAYS OF INTEGRATION – ARCHIVATION: HOW TO SERVE WITH YOUR REPORTS 2021+



The scale of potential input (also beyond SC5):

- ORAMA mapped ca. **600** projects, selected 40-50 with relevant info (ie. network and/or database)
- EIT RM: 200 projects (+EIT Innoenergy?)
- EIP RM commitment consortia: 100+
- ERAMIN, ERAMIN2, GEOERA, ERAMET: **50+**
- Interreg, ERC, RFCS, NER300 ...: 50+
- Member States: ???

IN TOTAL: >1000 projects (4-5000 reports)

Proposal for developing the RMIS Library and/or the Thematic Gateway:

- an xls with attributes to be filled for each report by the project co-ordinator
- send to RMIS with the pdf report in attachment

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CURRENT WAYS OF INTEGRATION – DATA USE



SRMS IN THE CE ACTION PLAN MONI

MONITORING SRMS: DATA, INDICATORS AND TOOLS 📘 SRMS IN PRIORITY AREAS OF THE CE AI

SRMS IN SPECIFIC INDUSTRY SECTORS

Availability of data, indicators and tools is a necessary condition for the development of a dynamic market for Secondary Raw Materials within te-Information System and EU-wide research on raw materials flows address this need by providing a comprehensive overview of:

Available data from Eurostat

Available data from Horizon 2020 projects and Member State projects

Scoreboard indicators

• Tools and Methods

Future data needs

SOURCES OF DATA SCOREBOARD INDICATORS TOOLS & METHODS FURTHER DATA NEEDS

H2020 projects

Raw Materials

According to the Executive Agency for Small and Medium-sized Enterprises (EASME) of the European Commission, a number of relevant H2020 projects concerns Waste and Recycling and hence Secondary Raw Materials. A description of the main projects is provided hereinafter.

CloseWEEE develops integrated solutions for pre-processing of WEEE, in particular proper dismantling upstream processes. The project focuses on the recovery of SRMs (including CRMs) and on advanced recovery of valuable plastic streams, such as PC-ABS and ABS. The goal of improving the flow of information to recyclers through a Recycler Information Centre is intended to make recycling procedures quicker and safer.

The ProSUM project is establishing a European network of expertise on secondary sources of CRMs. ProSUM will produce a centralised database of all available data and information on arising, stocks, flows and treatment of WEEE, end of life vehicles (ELVs), batteries and mining wastes. Such an information would serve to improve Europe's position on raw material supply, with the ability to accommodate more wastes and resources in future.

SMART GROUND intends to support resource recovery from both urban solid waste landfill sites and mine waste disposal sites. One of the main goals of the project is to improve the availability and the accessibility of data and information on SRMs. In particular, the database includes volumes of SRMs in EU anthropogenic deposits (e.g. landfills), integrating data from existing databases and new information.

MSP-REFRAM aims to develop a comprehensive study of the entire value chain of key refractory metals including mining, processing, recycling and final applications (and potential substitution opportunities). Such an analysis takes into account several aspects: policy/society, technology and market. The main objective of this project is to strengthen the refractory metals supply chain in Europe.

Other relevant projects are the following:

- Erecon: European Rare Earths Competency Network
- SCREEN: Solutions for Critical Raw materials a European Expert Network
- New Mine: EU Training Network for Resource Recovery Through Enhanced Landfill Mining



• Mica: Mineral Intelligence Capacity Analysis

CURRENT WAYS OF INTEGRATION – INFORMATION USED IN RMIS OUTPUTS, e.g. SCOREBOARD



+ a number of other references on **ORAMA, ProSUM, STRADE, MINLAND**

Figure 1.2: Number of mineral policy documents and other related policy documents in EU countries in 2018⁶⁸.

The recently finished MINLAND project studied national minerals policies in the context of spatial development and land use planning. The sterilisation, i.e. becoming inaccessible, of minerals

CURRENT WAYS OF INTEGRATION – DATA & INFORMATION USED IN RMIS OUTPUTS, e.g. CRM, MSA



CURRENT WAYS OF INTEGRATION – STAKEHOLDERS LIST



Commission

CURRENT WAYS OF INTEGRATION – KNOWLEDGE GATEWAY

RAW MATERIALS PROFILES Au bit dis criticals constructions Raw Materials Knowledge GATEW Raw Materials Knowledge NATIONAL L	AY » Gateway EVEL	RAW N	MATERIALS KNOWLEDGE GATEWAY	TARANTULA	ntula
European Institutions	European Data Services	European Industry Associations	EU Funded Projects		
EU Funded Projects				TARANTULA homepage	
Select a data provider from the drop-d	lown list:			Overview	
<u> </u>	BIORECOVER			Raw materials knowledge	
	INTERMIN			Research and innovation	
	MICA			Links and contacts	
	MIN-GUIDE Minerals	Policy Guidance for Euro	оре		
	MinLand				
	ORAMA				
	STRADE – Strategic	Dialogue on Sustainabl	e Raw Materials for Europe		
2	TARANTULA				European
15	Urban Mine Platform	(ProSUM)			Commission

CURRENT WAYS OF INTEGRATION – EMBEDDED REFERENCES

Search RMIS

H2020

15 results found

Contributions of H2020 Projects in CIRCULAR ECONOMY & SECONDARY RAW MATERIALS > SRMS IN SPECIFIC INDUSTRY SECTORS

EU H2020 Funds in OVERVIEW & NEWS » FUNDING OPTIONS

Future foresight in OVERVIEW & NEWS

...t all scales. This section gathers information of such prospective studies primarily on basis of EU H2020 consortia, JRC, and international entities hereby below. The European Innovation Partnership o...

National R&I Entities in OVERVIEW & NEWS » STAKEHOLDERS

... be sorted by fields of expertise or specific topics. In addition, the catalogue of R&I projects in H2020, Societal Challange 5 - 201 and the catalogue of EU funded projects in environmental research of ...

Overview and context in ENVIRONMENTAL & SOCIAL SUSTAINABILITY » RESPONSIBLE SOURCING

...conomic sustainability in the supply chain through production data', while a report of the EU H2020 project STRADE argues that "responsible sourcing" objective is to ensure and demonstrat...

Raw Materials Knowledge Gateway in Raw Materials Knowledge Gateway

...llurgical processing. More information will become available as the project progress at: https://h2020-tarantula.eu/publicdeliverables/Raw materials of interest Tungsten (W), niobium (Nb) and tantalum ...

Raw Materials' Profiles - Borates in Raw Materials' Profiles

...tential use of boron minerals as flux in chromite smelting process2015 - 2016Source : CORDIS, H2020, LIFE, ERA-NET, EIT Raw Materials websites and databases, ORAMA project, Environmental concerns tha...

Raw Materials' Profiles - Platinum in Raw Materials' Profiles

...potential companion or minor by-products only. (FODD, 2017), (SCRREEN, 2018a), (Boliden, 2018b). The H2020 SCRREEN project provided an update of the available information on geological occurrences of PGM in...

Raw Materials' Profiles - Ruthenium in Raw Materials' Profiles

... million)ObjectivesProject yearsPLATIRUSPlatinum-group metals recovery using secondary raw materialsH20207.0Upscale to industrial level an innovative and cost-efficient recovery process for PGMs from autoc...

RE-SOURCING H2020 project in ENVIRONMENTAL & SOCIAL SUSTAINABILITY » RESPONSIBLE SOURCING

Artisanal & small-scale mining in ENVIRONMENTAL & SOCIAL SUSTAINABILITY >> SOCIAL DIMENSION

...age between estimates from BGR (2019), OECD (2019) and CSO representatives consulted within the JRC **project** Surebatt (Reference year: 2019). Sapphires, Gold, Tantalum, Tin and Diamonds - (IGF 2017). (Referen...

Climate change & decarbonisation in ENVIRONMENTAL & SOCIAL SUSTAINABILITY » ENVIRONMENTAL _ DIMENSION

... derived from energy use, emissions intensity and emissions reductions. Also the Climate Disclosure **Project**, to which companies report emission savings and saving targets. Both reporting initiatives c...

Conflict diamonds and conflict minerals in ENVIRONMENTAL & SOCIAL SUSTAINABILITY » RESPONSIBLE SOURCING

...hat produce the metals tantalum, tin and tungsten (often referred as 3TG). Evidence from the Enough **Project**, published in 2009, showed that besides copper and diamond, the 3TG are reported to be traded by ar...

EIP Monitoring and Evaluation in RAW MATERIALS SCOREBOARD & MONITORING

...icular the progress made by the so-called EIP Raw Materials Commitments (RMC) and the raw materials **project**s actually implemented. The EIP on Raw Materials? Monitoring and Evaluation scheme tracks progress on...

EIT & EIT Raw Materials in OVERVIEW & NEWS » FUNDING OPTIONS

...oclaw, Poland);Nordic CLC (Luleå, Sweden);Southern CLC (Rome, Italy);Western CLC (Leuven, Belgium). ProjectsKAVAs are directly funded by the EIT (Budapest) and are separate from the KCAs. EIT Raw Materials i...

EU Community Structural & Cohesion Funds in OVERVIEW & NEWS » FUNDING OPTIONS

...d development in various regions of the EU.European Social Fund (ESF) ? supports employment-related **projects** throughout Europe and invests in Europe?s human capital: its workers, young people and all those s...

EU Country Profiles - Austria in EU Country Profiles

...action and permitting procedures for exploration and exploitation in the EU, final report of MINLEX **project**, 2017, https://publications.europa.eu/en/publication-detail/-/publication/18c19395-6dbf-11e7-b2f2-0...

EU Country Profiles - Belgium in EU Country Profiles

...action and permitting procedures for exploration and exploitation in the EU, final report of MINLEX **project**, 2017, https://publications.europa.eu/en/publication-detail/-/publication/18c19395-6dbf-11e7-b2f2-0...

EU Country Profiles - Portugal in EU Country Profiles

...I 43-101) InferredZinc-None102.93Million tonnes2.85%Historic Resource Estimates Source: Minerals4EU **project** Estimated reserves Data to be updated Commodity Sub-Commodity Reporting code Quantity Unit...

Land use & soil in ENVIRONMENTAL & SOCIAL SUSTAINABILITY > ENVIRONMENTAL DIMENSION

...a include both active mines and mining sites currently not operational.On an EU scale, the Minatura **project** has analysed the location of the main mineral deposits and its possible competition with other curr...



Mining Waste and Landfills in CIRCULAR ECONOMY & SECONDARY RAW MATERIALS > SRMS IN SPECIFIC INDUSTRY SECTORS

...rials from mining tailings and industrial waste, as in the case of the Penouta mine, the CHROMIC **project**, biohydrometallurgy at the Kasese mining site, and the REDMUD ...

PRACTICAL STEPS

- please assess which form(s) of integration you prefer
- the "low hanging fruits":

send reports (pdf) and their searchable attributes (xls) send project profile for the Gateway

- also think about the sophisticated ways
- please always put <u>rmis@ec.europa.eu</u> in cc
- register for the RMIS newsletter



FUTURE WAYS OF INTEGRATION & CO-OPERATION

Beyond the current practices, new ways to be considered:

- copy/transfer "ready made applications"
- database transfer and update through established APIs
- advanced knowledge management (Community of Practice?)





CONCLUDING REMARKS

- RMIS is a sustainable information system with sound legal mandate, stable infrastructure and expert capacity to host your data and information free of charge
- RMIS is a popular website with already lots of information coming from H2020 projects, it complements very well EASME's data hub <u>https://sc5.easme-web.eu/?theme=green</u>
- Co-operation and joint efforts with consortia are needed to develop new, enhanced ways
 of integration of information





Website: Contact: rmis.jrc.ec.europa.eu ec-rmis@ec.europa.eu tamas.hamor@ec.europa.eu





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Integrating H2020 ProSUM / ORAMA results in RMIS

Example of electronics, batteries and vehicles raw materials information

Jaco HUISMAN RMIS workshop, Dec. 3 - 2020



Policy context (1)

- Green Deal (2019): "low carbon technologies", "digital Europe" -> batteries
- Circular Economy Action Plan (2020):
 - Specific chapter on mobility and batteries;
 - The global dimension of CE (towards a Global CE Alliance?)
 - "An EU market observatory on secondary raw materials" (?)
- Critical Raw Materials Resilience (2020)
 - Battery raw materials explicitly mentioned (forward looking)
 - Battery as key EU industrial ecosystem (cf. Battery Alliance)
 - Further development of the RMIS

CHAINS

3. KEY PRODUCT VALUE

3.2. Batteries and vehicles

Sustainable batteries and on enhancing the sustain and boost the circular pe a new regulatory frame evaluation of the Batterie consideration of the followin





European Commission





Policy context (2)



- Publication of (an ambitious!) EU regulation on sustainability requirements for batteries in November 2020;
 - Related to e.g. collection rate, recycled content, recycling efficiency, responsible sourcing
 - JRC may support the implementation of several aspects (JRC-Ispra, Petten and Seville)
- Support of the review of end-of-life vehicles Directives
 - JRC will support work on recycled contents on plastics;
- EU-Africa strategy





Incorporating updated ProSUM data in RMIS

Battery information from TU Berlin and Recharge



Jaco HUISMAN RMIS workshop, Dec. 3 - 2020

Joint Research Centre

Follow-up activity 1: (TU Berlin/ RECHARGE) RMIS battery raw materials



https://rmis.jrc.ec.europa.eu/apps/bvc/#/

More detailed info: http://www.urbanmineplatform.eu/urbanmine/batteries/weightpercapita





2020 activities:

CRMs in strategic technologies and sectors Battery Data and scenario analysis for DG GROW



Jaco HUISMAN RMIS workshop, Dec. 3 - 2020

Joint Research Centre

Follow-up activity 2: (JRC and DG GROW) CRMs in strategic technologies and sectors – a foresight study



Additio

Additional material consumption for batteries in **e-mobility only** in 2030/2050 compared to current EU consumption* of the material in **all applications**





Cobalt

Critical Raw Materials for Strategic Technologies and Sectors in the EU A Foresight Study



* See the methodological notes in Annex 1 and all data in Annex 2 ** of refined supply (Stage II) instead of ore supply (Stage I) ** increase in demand of all graphite in relation to natural graphite





Follow-up activity 2: (JRC and DG GROW) CRMs in strategic technologies and sectors – a foresight study



European Commission

Follow-up activity 3: (JRC and DG GROW) Battery supply – demand modelling for DG GROW – 'AA Task 5.2'



battery forecasts, but key data gaps

remain on raw material content

European Commission



2021 activities:

Towards a Global Battery Waste Monitor Updating vehicle data in RMIS

> Jaco HUISMAN RMIS workshop, Dec. 3 - 2020

Joint Research Centre

Follow-up activity 4 - 2021 Towards a global battery waste monitor





Joint Research Centre

Feasibility study planned for March 2021 Feasibility study for a Global or Regional Waste Battery Monitor

- Concept note -

Long term objective: To develop and publish a Global Battery Waste Monitor to inform policy makers, recyclers, the civil society and battery waste management



Follow-up activity 5: (EMPA/ Chalmers) Update of vehicle fleet and composition data



Conclusions

- RMIS is a natural receiver of H2020 projects information
- Data on (secondary) raw materials is highly welcomed by many stakeholders
- Data is supporting co-creation of policy relevant analysis and datasets
- More foresight studies upcoming. Further data will become relevant for newer projects like f.i. SCRREEN 2 and PANORAMA

Past H2020 projects do continue in **newer** cooperation formats



Thank you



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Integration of knowledge output into RMIS

IT technical guidelines

Joint Research Centre

Four modes of integration of external information into RMIS

✓ Library

RM Knowledge Gateway

Raw Data

✓ Web-Apps



RMIS Library

- Reports, papers, articles, projects summaries
- RM relevant documents

Title of the document	Authors
Document type	ISBN/Code
Publisher	Year
Advanced search - additional filters	Thematic coverage along value chain exploration (incl. survey, prospection too) extraction primary and secondary processing mine closure (incl. remediation, aftercare) production (incl. fabrication, design, material for incent with the time market market
	EIP SIP relevance
research & innovation technologies for raw materials producti substitution (materials for green energ	ion (exploration, extraction, processing, recycling) γ technologies, for electronics, for extreme conditions, for large streams) crees to denosits, public awareness)



Raw Materials Knowledge Gateway

- General profile overview
- Key activities related to RM
- Project's description
- Summaries, outputs, results
- Relevant linkages

NATION	AL LEVEL	EUROPEAN	I LEVEL
European Institutions	European Data Services	European Industry Associations	EU Funded Projects
uropean Institutions			
elect a data provider from the d	rop-down list:		
Joint Research Centre 🗸 🗸			
oint Research Centre (D	3 Unit)		
A Joint Possarch Contro	(D3 Unit) homonago		
W Joint Research Centre	(DS Onic) noniepage		
Overview			
independent evidence through Directorate has the mission to	counce and knowledge service, the Jo nout the whole policy cycle. The JRC : (1) provide information to balance of	Land Resources Unit (JRC-D3) of competing land use demands while	to support EU policies with of the Sustainable Resources st securing access to natura
resources and maintaining eco trends in land condition and conditions; (3) develop the Ray	system services; (2) focus on underst management, along with how these v Materials Information System.	anding the interaction between hu respond to changing environme	imans and the biosphere and ental, societal and economic
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resources and maintaining eco trends in land condition and conditions; (3) develop the Ray Activities on raw materials The following paragraphs descr The European Commission ? non-agricultural raw materials entire value chain. The overa required by specific EU raw m base, within and beyond Europ home Materials according and	system services; (2) focus on underst management, along with how these v Materials Information System. ibe the main dossiers developed by JR s Raw Materials Information Syste from primary and secondary sources rching goal of the RMIS is to facilita aterials policies and EC services; (2) s	C-D3 on Raw materials. (RMIS) is the web-based kno It focuses on both abiotic and fi te: (1) The availability, coherence Access to key raw materials info	mans and the biosphere and intal, societal and economic wiledge platform on non-fuel blotic materials, covering the e, and quality of knowledge mation from the knowledge overview of challenges and into and will be approved to



Raw Data Transfer

- What?
 - 3^{rd} party knowledge output \rightarrow computer data interchange format
 - Prerequisite: structured, well-defined, well-documented data
 - Files: tabular data [spreadsheet, csv, tsv], other structured data files [json, geojson, sql, xml], other types [doc, txt, image, pdf etc.]
 - Reasonable-sized databases preferably single-file database SQLite
- How?
 - Manual online transfer by mail, ftp, cloud, file-sharing
 - Web API
- Then?
 - The data will be analyzed, post-processed, eventually used in an RMIS application





Web Applications

- Foreign-developed Single-Page web Applications (SPA):
 - Slim, self-contained, data-driven web-apps
 - Favoring open-source over vendor locked-in software tools
 - Prerequisite: compatibility, simplicity, straight-forward integration into RMIS, first-class UX/UI, well-documented, low maintenance
 - Technical requirements:
 - SPA with all resources included/bundled within
 - without external dependencies or direct calls to foreign domain APIs, CDNs
 - static or no back-ends
 - static database datasets as files: SQLite, json, html





Thank you

Detailed guide for download:

https://rmis.jrc.ec.europa.eu/uploads/Technical_guidelines_for_knowledge_transfers_into_RMIS.pdf

Contact: <u>ec-rmis@ec.europa.eu</u> https://rmis.jrc.ec.europa.eu



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