



Euratom Treaty, 1957



Status and Outlook of the Euratom Research & Training Programme (2014-2018) in Radioactive Waste Management



HORIZON 2020

DG Research and Innovation
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Legislation and Policy at European level



Directive
2014/87/Euratom
on nuclear safety



Safety of nuclear
installations

Directive
2011/70/Euratom on
RAW and SF safety



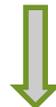
Management of radioactive
waste and spent fuel

Directive
2006/117 RAW
and SF shipment



Import, export
and transit

Directive
2013/59/EURATOM
Basic Safety Standards



Radiation Protection



Directive 2011/70/EURATOM

(Responsible and Safe Management of Spent Fuel and Radioactive Waste)

- Basic requirements on EU Member States to establish national policy, legislative, regulatory, organisational framework and a national programme to manage all types of RW from generation to disposal
- National programme consists in:
 - ✓ Implementation of the policy
 - ✓ Timeframes, Milestones
 - ✓ Classification, Inventory
 - ✓ Concepts and Plans, etc.
 - ✓ Costs and Financial schemes
 - ✓ R&D and demonstration → Support from Euratom R&T programme
 - ✓ Public information and participation
 - ✓ Monitoring and Performance indicators
 - ✓ International agreements
 - ✓ Self-assessment and Peer reviews



REPORT ON WASTE DIRECTIVE

First Commission report on implementation of the Waste Directive 2011/70/Euratom
Staff Working Document Implementation of the Directive
Staff Working Document on Inventories



Published in May 2017 <https://ec.europa.eu/energy/en/topics/nuclear-energy/radioactive-waste-and-spent-fuel>

PINC Nuclear Illustrative Programme

Commission Communication & Staff Working Document on the PINC



Published in May 2017 <http://ec.europa.eu/energy/en/topics/nuclear-energy>

The Commission through the PINC and the Waste Directive aim to compile for the first time a comprehensive picture of the full costs linked to decommissioning and waste management and how Member States ensure that these are financed.



Current Euratom R&T programme, 2014-2018
(5 years) in radioactive waste management and
disposal complementing Horizon 2020 (7 years)

is the 9th programme since 1975

Objectives in radioactive waste management and disposal :
Safe, long-term solutions for the management of ultimate nuclear waste, incl.
Geological Disposal and P&T

Activity areas :

- joint and/or coordinated research activities on remaining key aspects of GD of SF and long-lived RW with, as appr., demo. of techn. and safety.
- Those activities are to promote the development of a common Union view on the main issues related to waste management from discharge of fuel to disposal."
- Research activities related to management of other radioactive waste streams for which industrially mature processes currently do not exist.

Implementation will be mainly in 2-year Work Programmes (WP):

WP 2014-2015

WP 2016-2017

WP 2018 (one year)

WP 2019-2020 if Euratom is extended

Horizon 2020 - Euratom (2014 - 2018)

WP 2014 / 2015

WP 2016 / 2017

2018

Selected projects

Call topics

IGD-TP priority

CEBAMA
Modern2020
MIND

Costs 22.6
€M / EU 16.3

TSO support

SITEX II

Preparatory phase for Joint Programme

JOPRAD

E&T + Socio-economic aspects

ANNETTE
HoNEST

Costs 6.23
€M / EU 5.56

1. IGD-TP priorities (GD & HLW/SF)

New and unconventional Fuels
EBS materials & Performance

2. RWM & other wastes

(unconventional, legacy & decom.ing)

Waste Characterisation,
Treatment & Minimisation
Quality control and checking
Long-term storage safety

EU budget
18.89 €M

3. KM & transfer to less-advanced prog.

Guidance in R&D, Training material
S-o-A in S/T
Method for transfer (Kdge, Comp. & Tech)



Horizon 2020 - Euratom (2014 - 2018)

WP 2014 / 2015	WP 2016 / 2017	2018
<p>Selected projects</p>	<p>Call deadline 05 Oct. 2016</p> <p>Project start June 2017</p>	
<p>IGD-TP priority</p> <p>CEBAMA Modern2020 MIND</p> <p>TSO support</p> <p>SITEX II</p> <p>Preparatory phase for Joint Programme</p> <p>JOPRAD</p>	<p>1. IGD-TP priorities (GD & HLW/SF)</p> <p>New and unconventional Fuels EBS materials & Performance</p> <p>13 proposals Total eligible costs 36.34 €M Requested grant 33.38 €M</p> <p>Quality & Safety Long-term storage safety</p>	<p>EU budget 18.89 €M</p>
<p>E&T + Socio-economic aspects</p> <p>ANNETTE HoNEST</p>	<p>3. KM & transfer to less-advanced prog.</p> <p>Guidance in R&D, Training material S-o-A in S/T Method for transfer (Kdige, Comp. & Tech)</p>	

Selected projects

Call deadline
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Project start
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- ANNETTE
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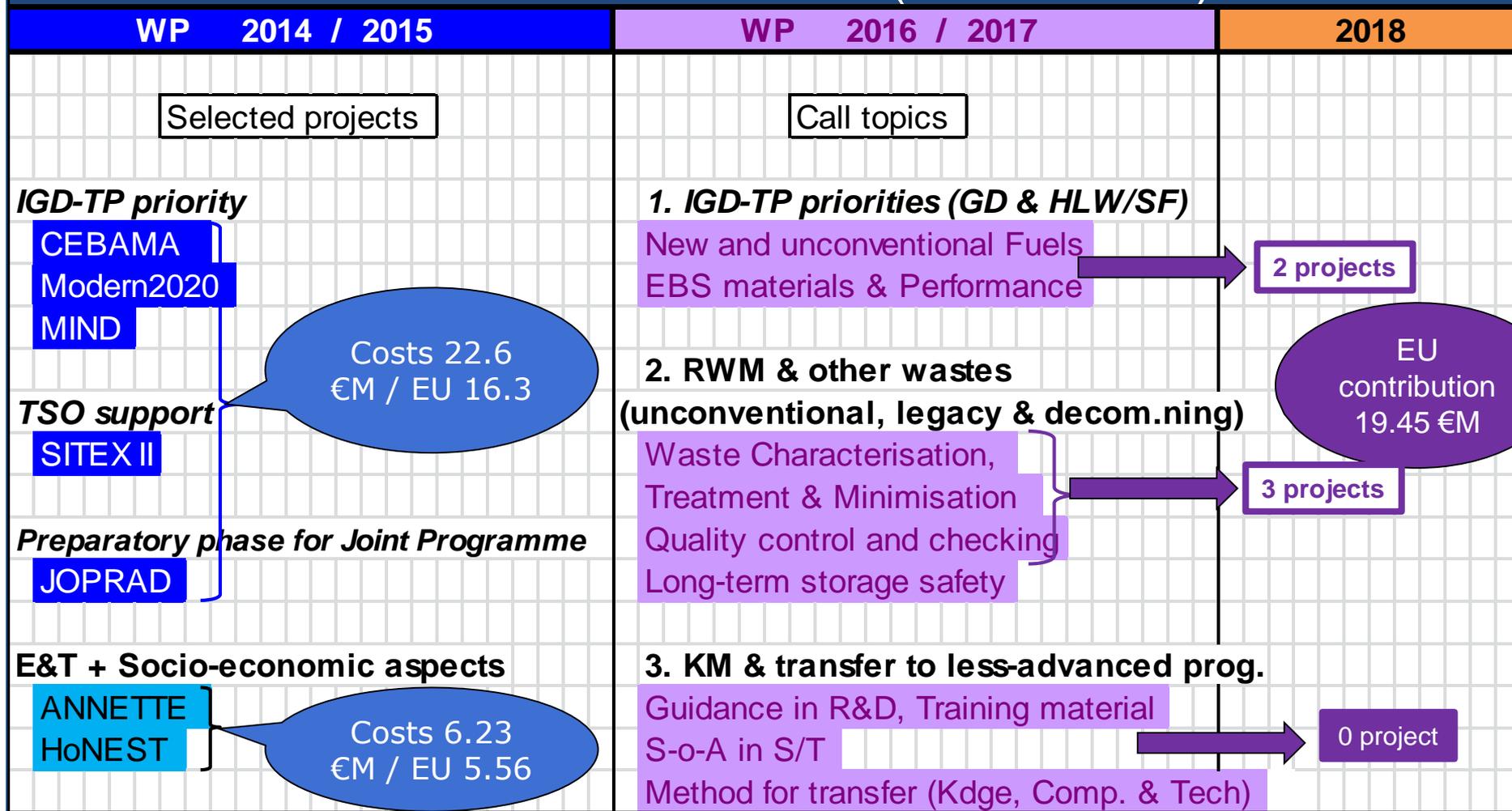
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- Guidance in R&D, Training material
- S-o-A in S/T
- Method for transfer (Kdige, Comp. & Tech)



Horizon 2020 - Euratom (2014 - 2018)



RWM & Geological Disposal – WP 2014-15



European
Commission

Project Acronym & Title	Key technical activities	Coordinator / no. partners	Start date & duration	Total cost / EU funding
JOPRAD – Towards a Joint Programming (JP) on Radioactive Waste Disposal	To study options for Joint Programming between national research programmes.	<u>ANDRA (FR)</u> 10 partners (5 countries)	June 2015 30 months	€1,78M / €1.1M CSA
SITEX-II – Sustainable network for Independent Technical Expertise for radioactive waste disposal – Interactions and implementation	To develop own strategic research agenda incl. civil society view, contribute to JP development , guidance & training on safety case review and prepare framework for sustainable network .	<u>IRSN (FR)</u> 18 partners (11 countries + Canada)	June 2015 30 months	€1.48M / €1.17M CSA
CEBAMA – Cement-based materials, properties, evolution, barrier functions	To study processes at interface cement materials, bentonite and host rocks and impact on radionuclide transport and retention properties.	<u>KIT (DE)</u> 27 partners (10 countries + Japan)	June 2015 48 months	€5,95/ €3.86M RIA (R&D)
MIND – Development of the safety case knowledge base about the influence of microbial processes on geological disposal of radioactive wastes	To study the behaviour of ILW-LL waste containing organics and the impact of microbial processes on the performance of HLW & SF in GD; Propose guidelines to communicate geo-microbiological risk.	<u>SKB (SE)</u> 15 partners (8 countries)	June 2015 48 months	€4,71/ €4.16M RIA (R&D)
Modern2020 – Development and Demonstration of monitoring strategies & technologies for geological disposal	To develop framework, strategies, technologies & methods incl. civil society view for what should be monitored and how results & information can be used in decision-making and responded to	<u>ANDRA (FR)</u> 28 partners (12 countries + Japan)	June 2015 48 months	€8,66/ €5.99M RIA (R&D)

RWM & Geological Disposal – WP 2016-17



Project acronym and title	Key technical activities	<u>Coordinator / no. partners</u>	Start date & duration	Total cost / EU funding
DISCO – Modern Spent Fuel Dissolution and Chemistry in Failed Container Conditions	<ul style="list-style-type: none"> ▪ Spent fuel dissolution in realistic environment ▪ Interactions with the surrounding materials ▪ Behaviour of novel types of fuel: MOX, doped 	<u>SKB (SE)</u> 16 partners 8 countries	June 2017 48 months	€ 4.69 M / € 3.99 M RIA (R&D)
BEACON – Bentonite Mechanical Evolution	<ul style="list-style-type: none"> ▪ Develop and test the tools necessary for the assessment of the mechanical evolution of an installed bentonite barrier and the resulting performance of the barrier 	<u>SKB (SE)</u> 25 partners 10 countries	June 2017 48 months	€ 4.05 M / € 3.80 M RIA (R&D)
CHANCE – Characterization of conditioned nuclear waste for its safe disposal in Europe	<ul style="list-style-type: none"> ▪ Identify current shortcomings of the state of the art on characterisation technics for radioactive waste ▪ Carry out R&D on specific characterisation technologies: calorimetry, muon tomography, cavity ring down spectroscopy 	<u>ANDRA (FR)</u> 12 partners 8 countries	June 2017 48 months	€ 4.25 M / € 3.98 M RIA (R&D)

RWM & Geological Disposal – WP 2016-17



<p>INSIDER – Improved Nuclear Site characterisation for waste minimization in D&D operations under constrained EnviRonments</p>	<ul style="list-style-type: none"> ▪ Define the best sampling strategy for waste production optimization ▪ Assess performance of available measurement techniques (methods & tools) to establish a science base for decision-making ▪ Establish common methodologies in view of deploying reference guidelines for selected use cases 	<p><u>CEA (FR)</u> 18 partners 9 countries</p>	<p>June 2017 48 months</p>	<p>€ 4.17 M / € 3.78 M RIA (R&D)</p>
<p>THERAMIN – Thermal treatment for radioactive waste minimisation and hazard reduction</p>	<ul style="list-style-type: none"> ▪ Identify treatment processes for the different type of waste ▪ Demonstration of treatment for selected waste stream ▪ Disposability of waste products (including long term behaviour) 	<p><u>VTT (FI)</u> 12 partners 7 countries</p>	<p>June 2017 36 months</p>	<p>€ 3.97 M / € 3.90 M RIA (R&D)</p>
Total				<p>€ 21.13 M / € 19.45 M</p>

OUTLOOK to Work Programme 2018



Horizon 2020 - Euratom (2014 - 2018)

Euratom extension

WP 2014 / 2015	WP 2016 / 2017	WP 2018	WP 2019 / 2020
On-going projects	Project start June 2017	Call 4th quarter 2017 Deadline 27/09/2018	EJP start mid-2019 Joint Programme 1 (2019-2023)
IGD-TP priorities CEBAMA Modern2020 MIND	IGD-TP priorities (GD & HLW/SF) proj. #1 - Modern SF disso. & charact. proj. #2 - Bentonite Mech. Evolution		
TSO support SITEX II	RWM & other wastes proj. #3 - Charact. of conditioned waste proj. #4 - Thermal treatment for waste mini. proj. #5 - Charact. for waste mini. in D&D		Call WP 2019-2020 No topic in RWM if JP in 2018
Preparatory phase for Joint Programme JOPRAD			
E&T + Socio-economic aspects ANNETTE HoNEST			



EC Research Policy to:

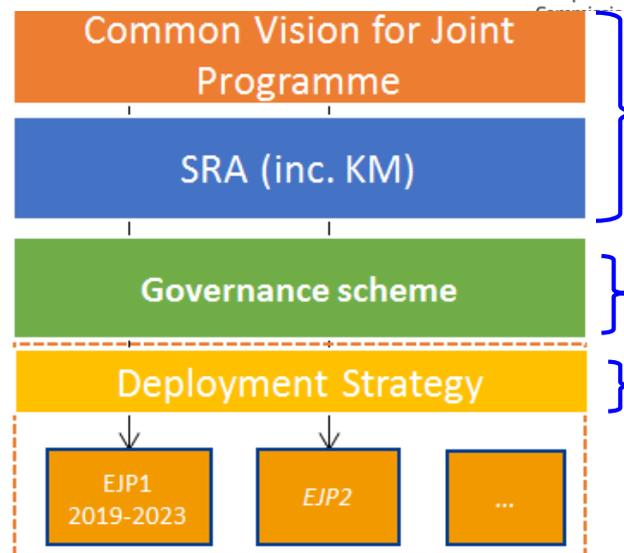
- to fund a European Joint research Programme between European Union Member State programmes
(instead of funding individual projects)

Joint Programme feasibility by the JOPRAD project

Content of a proposal to



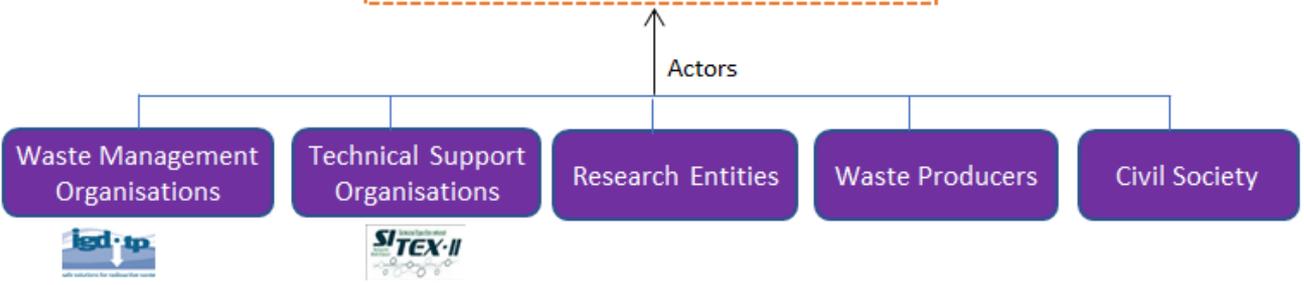
Euratom by a core group



Programme Document – The Scientific and Technical Basis of a Future Joint Programme on Radioactive Waste Management & Disposal At <http://www.joprad.eu/> for consultation

In preparation by core group, draft June 2017

Draft by core group RWMD-EJP1@andra.fr for consultation

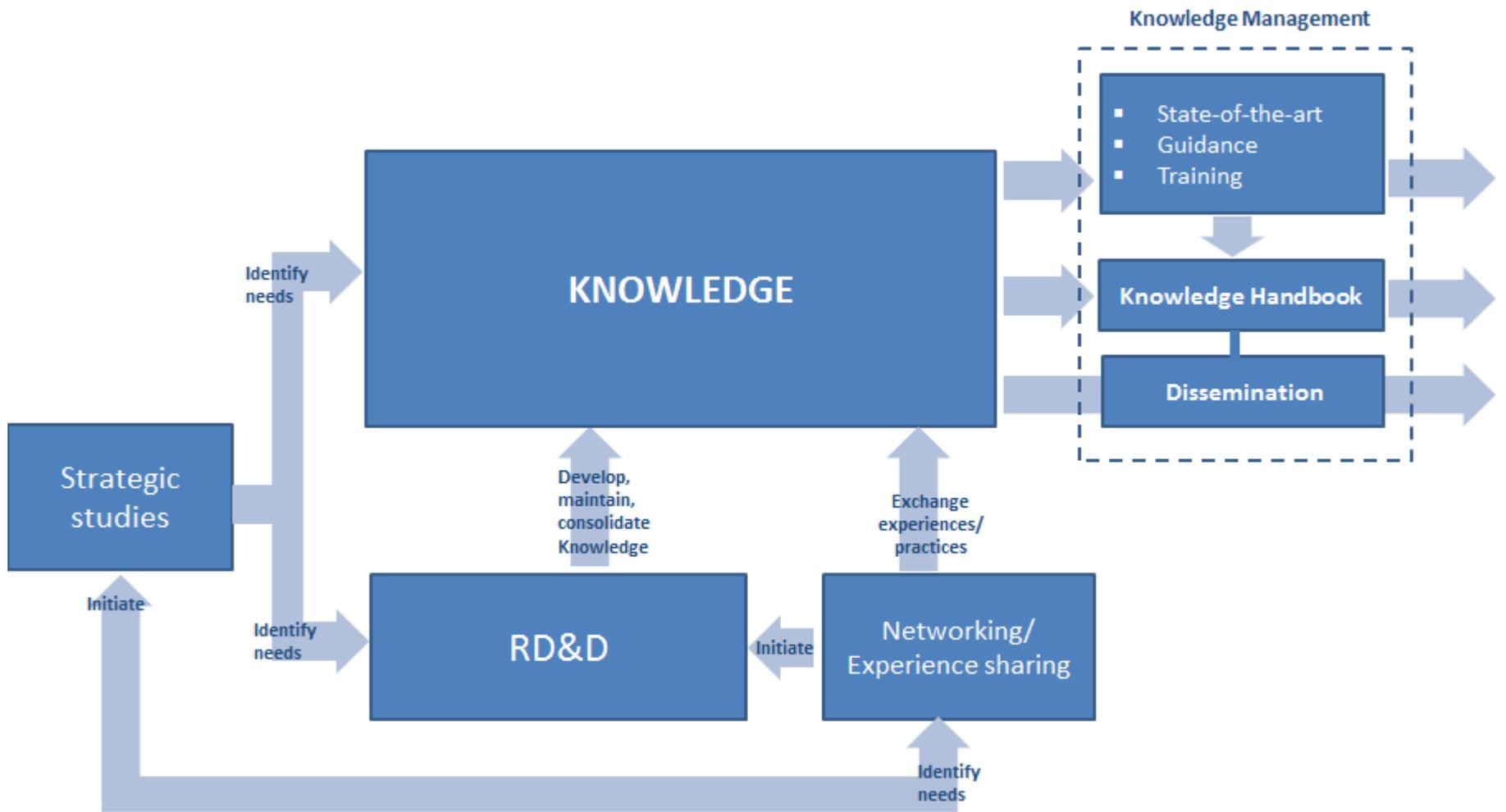


From EU Members States and Associated countries With advanced, less advanced or small programme

Programme Owners



ACTIVITIES



Project Management & Contractual issues

Project communication and acknowledgement of EU funding



1) Projects encouraged to communicate with citizens¹ :

Support, information & *"EU guide to communication"* : EC webpage²

2) Projects invited to follow the official Twitter account for the Horizon 2020 programme @EU_H2020

3) To use the new hashtag #ResearchImpactEU. when announcing 'breaking news' showing the real impact of your EU funded research

1) Mailing to all Horizon 2020 participants: http://ec.europa.eu/research/participants/data/ref/h2020/other/comm/170215_letter-rjs_communication-acknowledgement_en.pdf

2) http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/communication_en.htm



4) Contractual requirement to acknowledge the EU funding in all your communication, publication dissemination and IPR activities as well as on all equipment, infrastructure and major results funded by the grant³. – more in [Article 29](#)



This project has received funding from the *[European Union's Horizon 2020 research and innovation programme][European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme][Euratom research and training programme 2014-2018]* under grant agreement No [number]



This *[infrastructure][equipment][insert type of result]* is part of a project that has received funding from the *[European Union's Horizon 2020 research and innovation programme][European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme][Euratom research and training programme 2014-2018]* under grant agreement No [number]

3) http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/acknowledge-funding_en.htm



5) Applicable to peer reviewed scientific publications⁴:

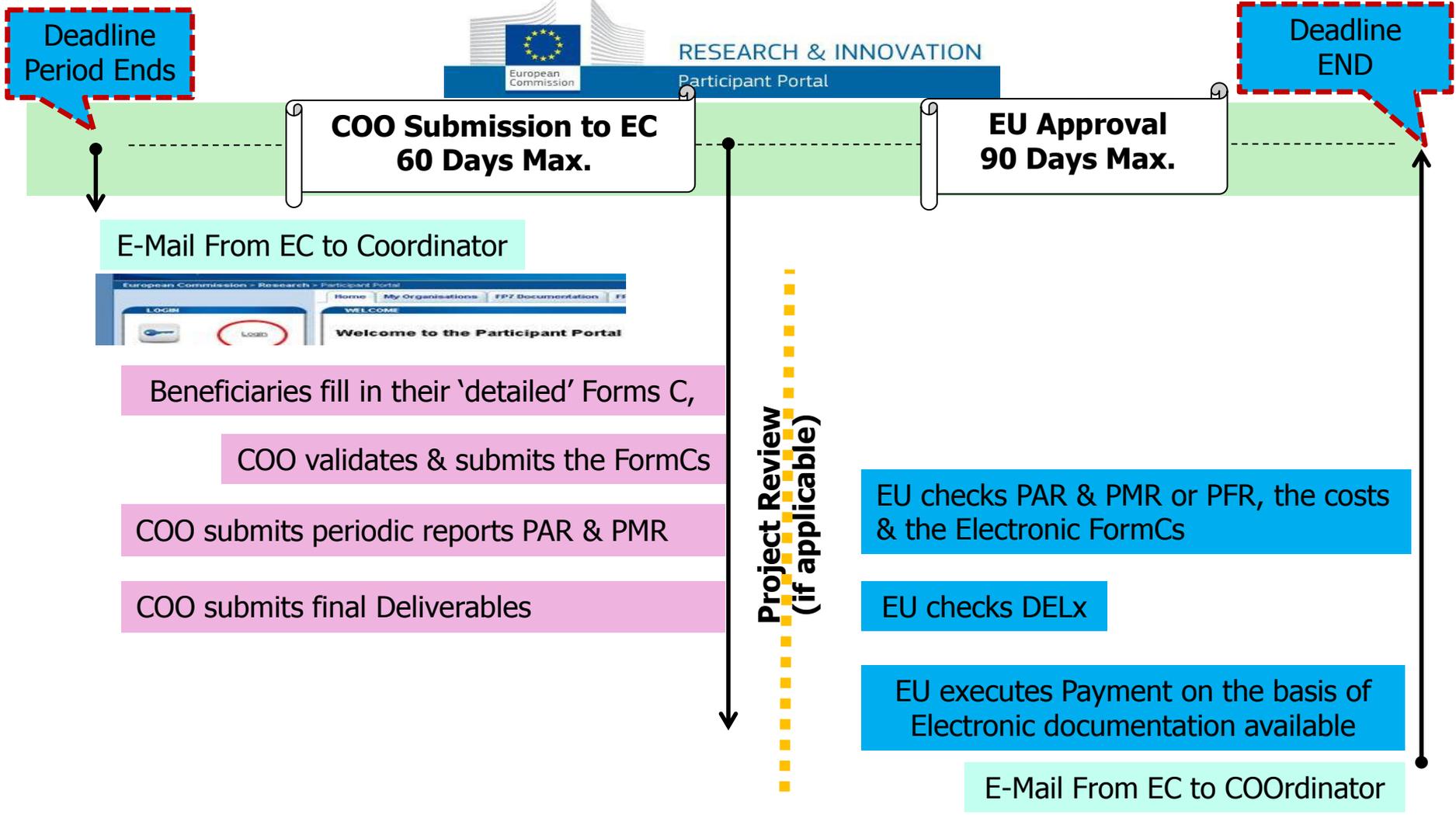
Open Access = providing online access at no charge to the user to peer-reviewed scientific publications

Open access to publications is an obligation in H2020

- Self-archiving: deposit of manuscripts & immediate/delayed OA provided by author ("Green OA"), often after embargo period set by the (non-OA) publisher
- OA publishing: costs covered & immediate OA provided by publisher ("Gold OA") – costs are eligible

5) Mailing to all Horizon 2020 participants: http://ec.europa.eu/research/participants/data/ref/h2020/other/comm/170406_open-access_en.pdf and infographic http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-infograph-oa-sci-publ_en.pdf and reference to the Grant Agreement http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/open-access_en.htm

Periodic Reporting Overview Submission & Payment



COO: Coordinator, **PAR:** Project Activity Report, **PMR:** Project Management Report, **PFR:** Project Final Report, **DELx:** Due Deliverables



Together since 1957



60 years Anniversary of the Euratom treaty on 27 March 2017



***THANK YOU
for your attention***