La partecipazione al programma di ricerca Horizon 2020: opportunità ed esempi di progetti

Giorgio Micale

Palermo 16 Luglio 2019

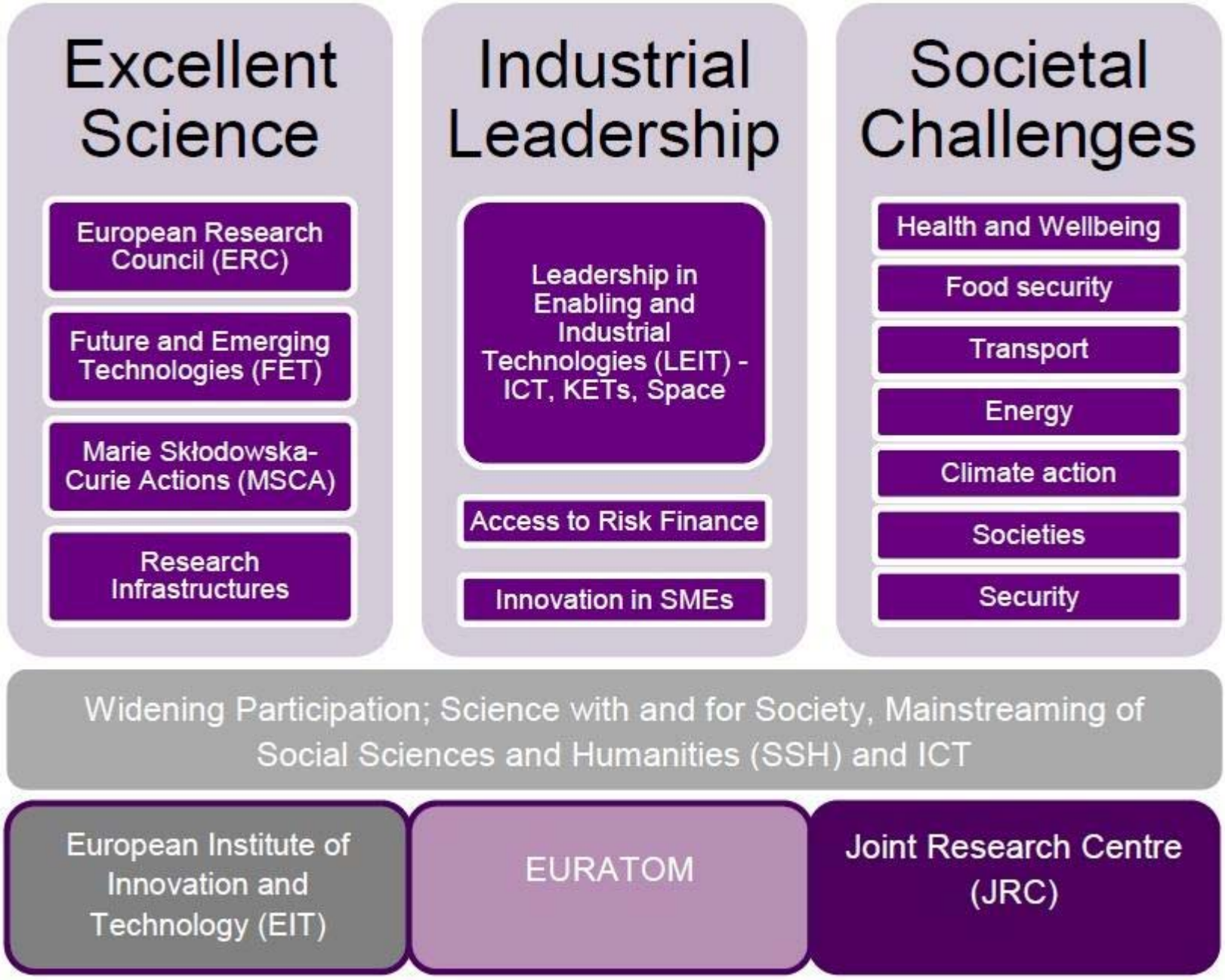
Il programma Horizon 2020

https://www.youtube.com/watch?v=CimJI88c4fE

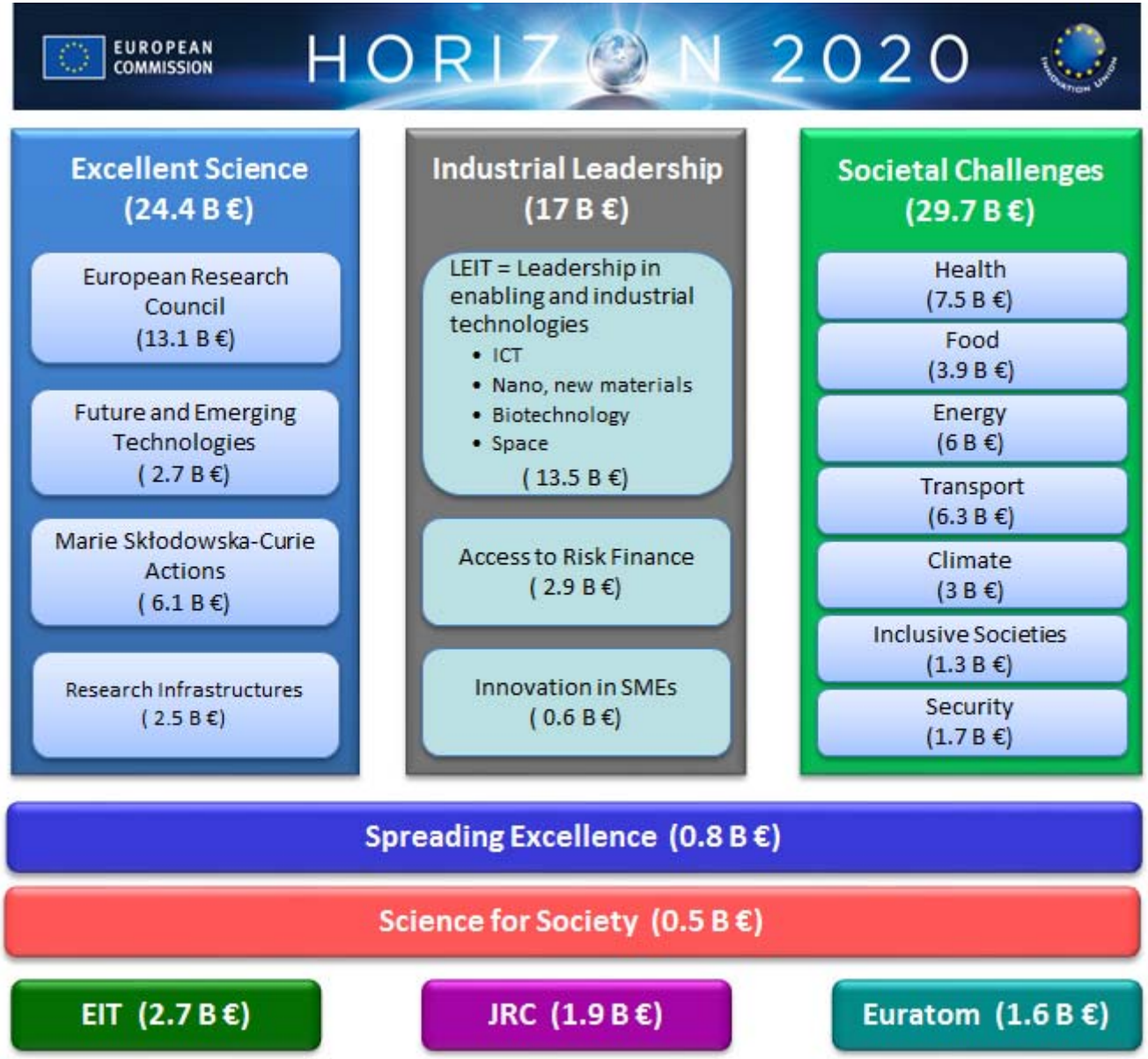
Il programma Horizon 2020

https://www.youtube.com/watch?v=mmN0NccQCD0

Il programma Horizon 2020



Il programma Horizon 2020



Horizon 2020 – final year

The European Commission announced how it will spend the last and biggest annual tranche - €11 billion - of the EU research and innovation funding programme Horizon 2020 in the final year of the programme (year 2020).

Over the next year, the Commission will seek greater impact of its research funding by focusing on fewer, but crucial, topics such as climate change, clean energy, plastics, cybersecurity and the digital economy. It will also be geared towards shaping the future research and innovation landscape by preparing the way for Horizon Europe, the next framework programme (2021-2027).

https://ec.europa.eu/programmes/horizon2020/en

I progetti collaborativi

- **Research & Innovation actions**
- *EU funding rate – 100%*
- Activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment. Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.

I progetti collaborativi

- **Innovation actions**
- *EU funding rate – 70% (except non-profit, which are still funded 100%)*
- Activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

I progetti collaborativi

Eligibility conditions for participation

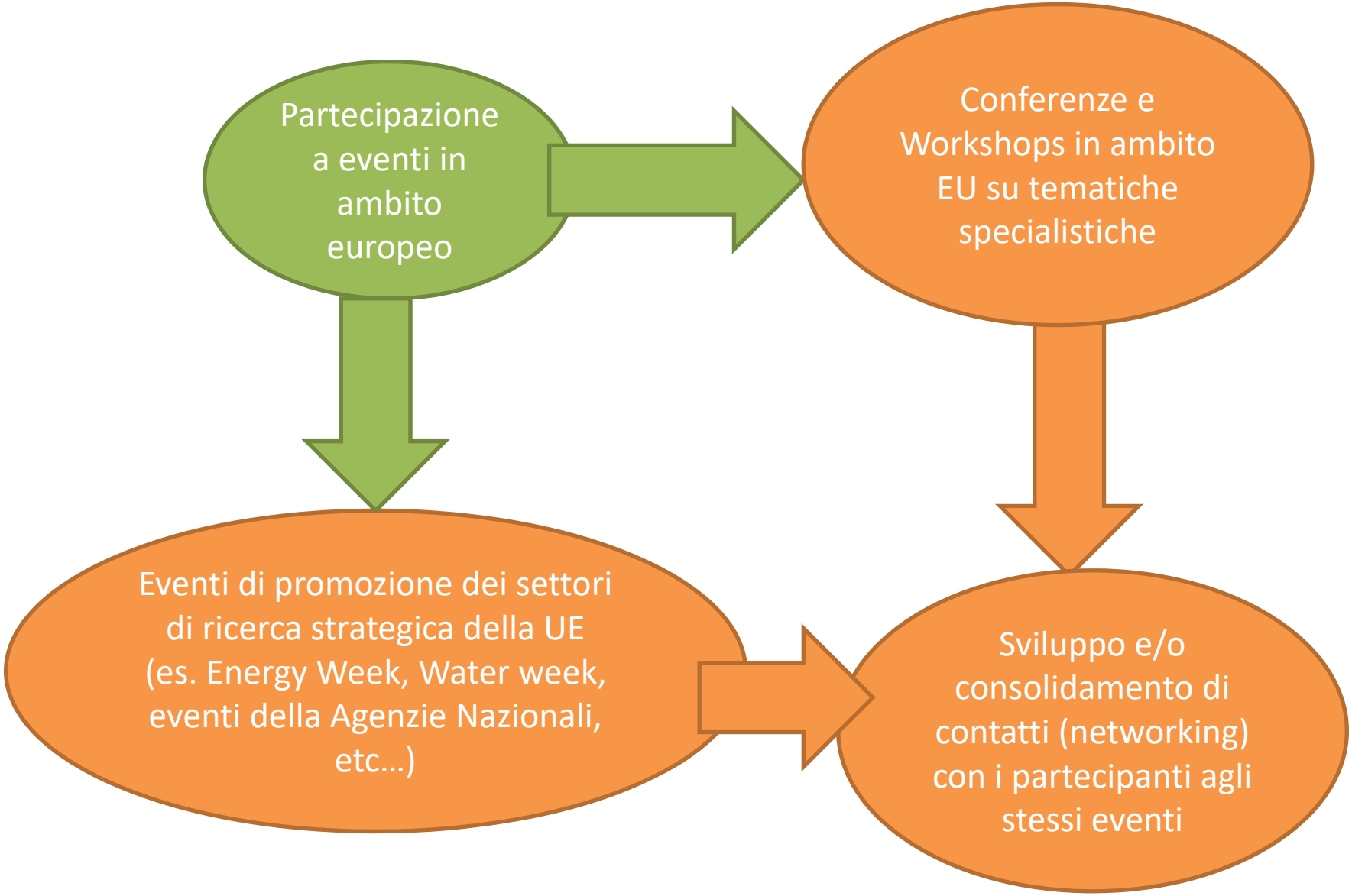
Research & innovation actions (RIA)

At least three legal entities. Each of the three must be established in a different EU Member State or Horizon 2020 associated country. All three legal entities must be independent of each other.

Innovation actions (IA)

At least three legal entities. Each of the three must be established in a different EU Member State or Horizon 2020 associated country.

Possibili approcci per la partecipazione



Il percorso

Visione dei bandi UE

Individuazione di bandi relativi ad aree tematiche di interesse e competenza specialistica del gruppo di ricerca

Proposizione di idee progettuali con obiettivi di interesse strategico per l'Unione Europea

Il percorso

Idea innovativa particolarmente rispondente ad una specifica Call

Valutazione critica della competitività dell'idea rispetto allo stato dell'arte

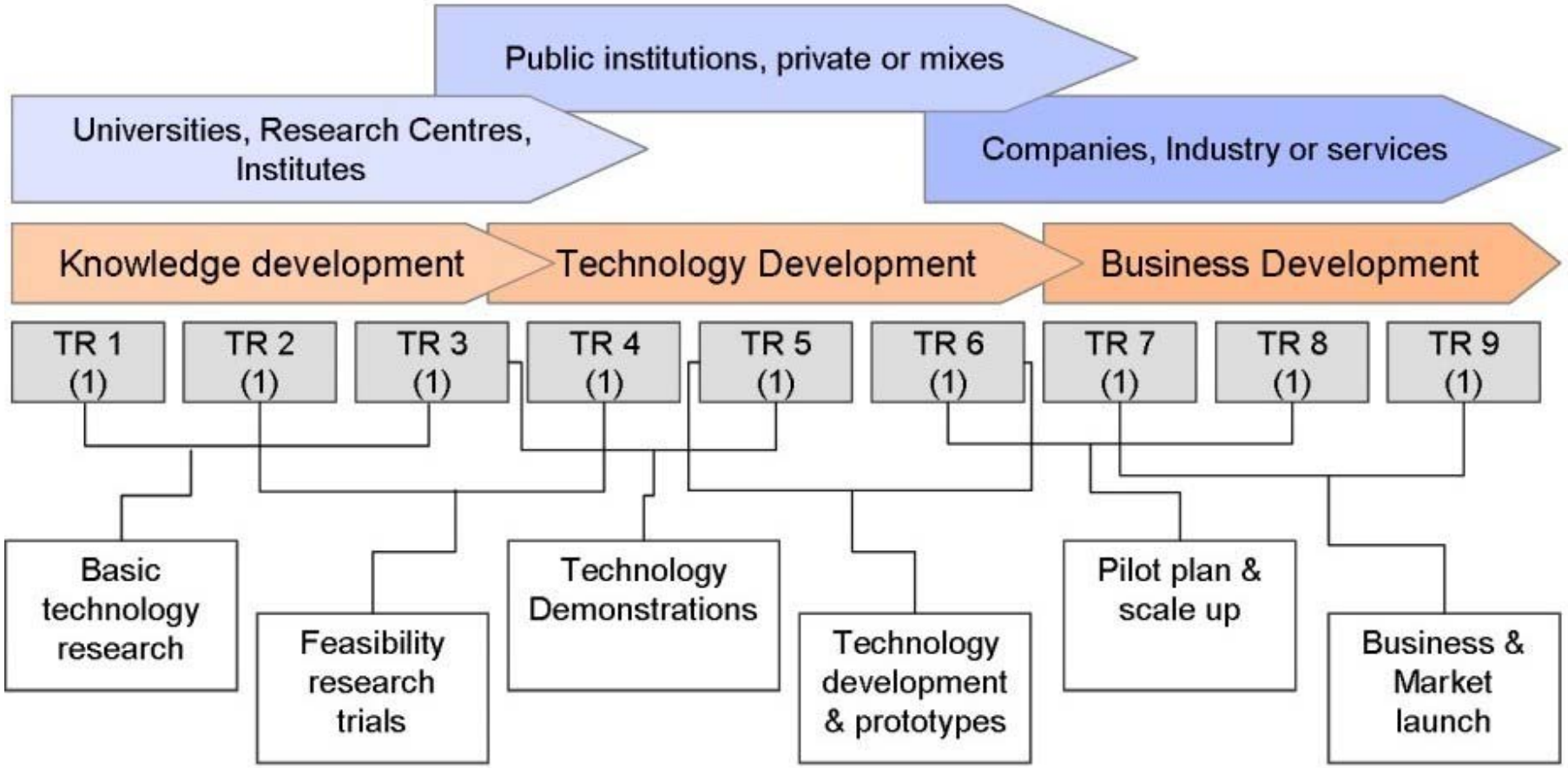
Individuazione del partenariato (opportunamente rappresentativo di differenti stati membri della UE)

Proposizione e quantificazione degli obiettivi e delle sfide, in linea con il TRL e la natura della specifica call

TRLs


European
Commission
Technology Readiness Levels
TRL 0: Idea. Unproven concept, no testing has been performed.
TRL 1: Basic research. Principles postulated and observed but no experimental proof available.
TRL 2: Technology formulation. Concept and application have been formulated.
TRL 3: Applied research. First laboratory tests completed; proof of concept.
TRL 4: Small scale prototype built in a laboratory environment ("ugly" prototype).
TRL 5: Large scale prototype tested in intended environment.
TRL 6: Prototype system tested in intended environment close to expected performance.
TRL 7: Demonstration system operating in operational environment at pre-commercial scale.
TRL 8: First of a kind commercial system. Manufacturing issues solved.
TRL 9: Full commercial application, technology available for consumers.

TRLs



(1) TRL. Technology Readiness Levels. Used in TSB (Technology Strategy Board, UK), ESA (European Space Agency), NASA (USA) etc.

Source: The Innovation Process. CPI (UK) May 2013. http://www.uk-cpi.com/news/the-innovation-process/

Il percorso

Ideazione, sviluppo e progettazione di un programma di attività preliminare (1° stage)

Valutazione della capacità dei soggetti partecipanti a sostenere le diverse attività del progetto e raggiungere gli obiettivi prefissati

Progettazione dettagliata di un programma definitivo (specificazione di tutti i WP, tasks e milestones)

Definizione di un budget sulla base di quanto prefissato dalla Call in modo congruente con le attività e gli obiettivi del progetto

Rispondenza ai criteri di valutazione:

1
ECCELLENZA

2
IMPATTO

3
IMPLEMENTAZIONE

Criteri di valutazione:

Experts score each **award criterion** on a scale **from 0 to 5** (half point scores may be given):

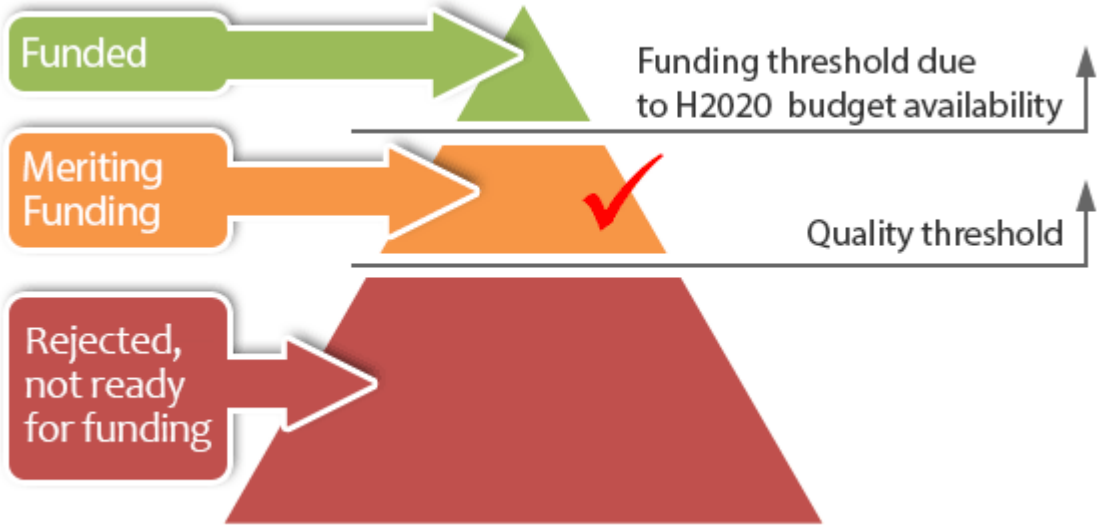
0 – Proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.
1 – Poor. The criterion is inadequately addressed or there are serious inherent weaknesses.
2 – Fair. The proposal broadly addresses the criterion, but there are significant weaknesses.
3 – Good. The proposal addresses the criterion well, but a number of shortcomings are present.
4 – Very good. The proposal addresses the criterion very well, but a small number of shortcomings are present.
5 – Excellent. The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

The maximum overall score is thus 15 (3x5), unless a weighting is applied.

Criteri di valutazione:

The maximum overall score is thus 15 (3x5), unless a weighting is applied.

The threshold for individual criteria will be 3.
The overall threshold, applying to the sum of the three individual scores, will be 10.



Criteri di valutazione:

Excellence

To the extent that the proposed work corresponds to the topic description in the work programme:

- **Clarity and pertinence of the objectives**
- **Soundness of the concept, and credibility of the proposed methodology**
- **Quality of the proposed coordination and/or support measures**

Impact

- **The expected impacts listed in the work programme under the relevant topic**
- Quality of proposed measures to:
  - Exploit and disseminate project results (including IPR, manage data research where relevant);
  - Communicate the project activities to different target audiences

Implementation

- Quality and effectiveness of the work plan, including extent to which resources assigned in work packages are in line with objectives/deliverables
- Appropriateness of management structures and procedures, including risk and innovation management
- Complementarity of the participants and extent to which the consortium as a whole brings together the necessary expertise
- Appropriateness of allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfill that role

Template for proposals RIA, IA

1. Excellence

1.1 Objectives

1.2 Relation to the work programme

1.3 Concept and methodology

a) Concept

b) Methodology

1.4 Ambition

Template for proposals RIA, IA

2. Impact

2.1 Expected impacts

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

b) Communication activities

Template for proposals RIA, IA

2. Impact - Dissemination and exploitation of results

Link your proposal to the policy context of the call for proposals.
Calls usually specify the EU policy aims needing further research. How will your proposal help meet these aims? Give a detailed explanation.

Prepare your exploitation and dissemination plan carefully.
There is no 'one-size-fits-all' template. However, the plan should be as **precise** as possible.

- In what area do you expect to make an impact?
- What needs might be solved/met thanks to the results of your project?
- What outputs will be created?
- Where will the outputs be made available during and after the project?
- Who are the potential users of your results?
- How will you contact them?

Template for proposals RIA, IA

2. Impact - Dissemination and exploitation of results

Involve potential end-users and stakeholders in your proposal.
If they're committed from early on, they may help guide your work towards applications. End-users could come from the regional, national and international networks of the partners in your consortium, or from the value chains they operate in. They could be involved as partners in the project, or, throughout its duration, as members of an advisory board or user group tasked with testing the results and providing feedback.

Implement open access and consider how you manage your data
Think of use, ownership and access rights. All projects receiving Horizon 2020 funding are required to **make sure that any peer-reviewed journal article they publish is openly accessible**, free of charge (article 29.2. Model Grant Agreement). Consider how you will implement this obligation, which is described in more detail in the Open access section, including detailed guidance.

Template for proposals RIA, IA

2. Impact - Dissemination and exploitation of results

Say how you expect the results of your project to be applied and give the main advantages of the new solution(s) you expect to emerge.

The results could be:

direct - like a manual, test, model, new therapy, better product or process, or improved understanding of mechanisms

indirect - like reduced material or energy usage, improved safety, or better-trained staff.

Show you understand the barriers to any application of your results.

How will you tackle them? Possible obstacles include:inadequate financing

- skills shortages
- regulation that hinders innovation
- intellectual property right issues
- traditional value chains that are less keen to innovate
- incompatibility between parts of systems (lack of standards)
- mismatch between market needs and the solution.

Template for proposals RIA, IA

2. Impact - Dissemination and exploitation of results

Think ahead. Once your research and innovation is complete, will you need to take further steps to apply it in actual practice?

Examples of further steps: standards to be agreed on, financing the testing, scaling up or production, promoting acceptance by consumers or other partners in a value chain. Policymakers may also establish follow-up steps to work the results into policies.

You could also consider support schemes for follow-up steps, e.g. national programmes, InnovFin, EFSI, Regional Funds, Enterprise Europe Network (EEN), European IPR Helpdesk, European exploitation support schemes (more onESIC in the Work Programme), or check if there are any Boosters' services available.

Template for proposals RIA, IA

2. Impact - Communication

Communicating and promoting your project:

The beneficiaries must promote the action and its results, by providing targeted information to multiple audiences (including the media and the public), in a strategic and effective manner and possibly engaging in a two-way exchange.

The communication activities must already be part of the proposal (either as a specific work package for communication or by including them in another work package).

They are taken into consideration as part of the evaluation of the criterion 'impact'.

Template for proposals RIA, IA

2. Impact - Communication

Communicating and promoting your project:

With your communication activities you call attention of multiple audiences about your research (in a way that they can be understood by non-specialists) and **address the public policy perspective** of EU research and innovation funding, by considering aspects such as:

- transnational cooperation in a European consortium (i.e. how working together has allowed to achieve more than otherwise possible)
- scientific excellence
- contributing to competitiveness and to solving societal challenges (eg. impact on everyday lives, better use of results and spill-over to policy-makers, industry and the scientific community).

Template for proposals RIA, IA

2. Impact

Template for proposals RIA, IA

3. Implementation

3.1 Work plan — Work packages, deliverables

3.2 Management structure, milestones and procedures

3.3 Consortium as a whole

3.4 Resources to be committed

RED Heat-to-Power

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Conversion of Low Grade Heat to Power through closed loop Reverse Electro-Dialysis

Main facts:

- Cooperative project financed through the H2020 programme (H2020-LCE-2014-1 CALL FOR COMPETITIVE LOW-CARBON ENERGY Topic: New knowledge and technologies)
- Starting date: 1 May 2015
- Closing date: 30 April 2019
- Total financing: 3.992.403 €
- Budget allocation to UNIPA: 934.406 € (**≈25%!!!**)

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Proposal preparation

104 proposals submitted (April 2014)

23 proposals passed the first step (September 2014)

5 projects funded

EU acceptance notification: February 2015

2° step submission: 23rd September 2014

1° step submission: 1st April 2014

Project idea: June-December 2013

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Proposal preparation

1° step submission: 1st April 2014

15 page document with focus on

- Excellence: Objectives, Concept, Ambition
- Impact

2° step submission: 23rd September 2014

70 page document with focus on

-Excellence: Objectives, Concept, Ambition
- Impact
- Implementation

H2020-LCE-2014-1 CALL FOR COMPETITIVE LOW-CARBON ENERGY

Topic: New knowledge and technologies

Specific Challenge:

"The technologies that will form the backbone of the energy system by 2030 and 2050 are still under development. Promising technologies for energy conversion are being developed at laboratory scale and need to be scaled up in order to demonstrate their potential value in our future energy system."

Scope:

"Activities will focus on accelerating the development of transformative energy technologies or enabling technologies that have reached TRL 2 The proposals should bring the proposed technology solutions from TRL 2 to TRL 3-4."

TRL 2 technology concept formulated
TRL 3 experimental proof of concept
TRL 4 technology validated in lab

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The RED HtP Project Consortium

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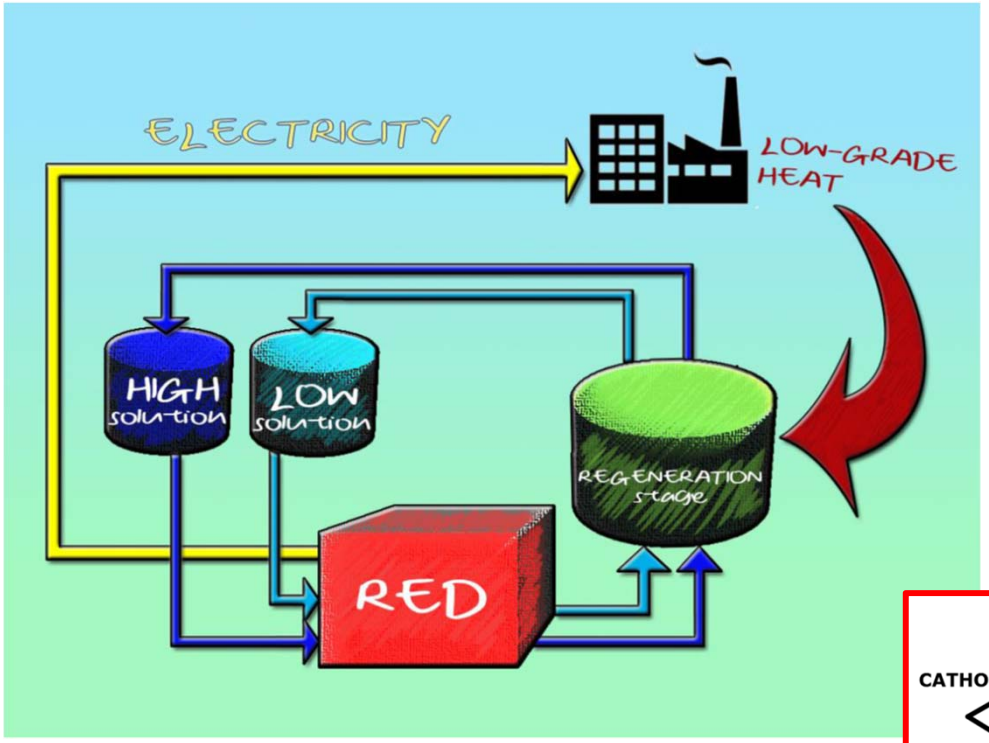
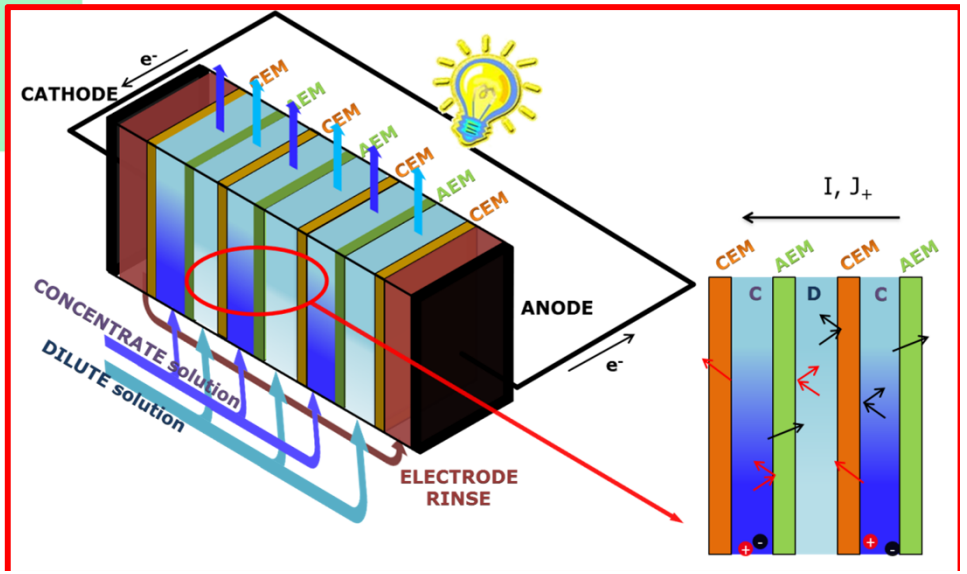
The RED HtP Project IDEA



To convert low-temperature heat into electricity by using a Reverse Electrodialysis system with artificial saline solutions and a closed-loop thermal regeneration stage

The Reverse Electrodialysis process… at a glance



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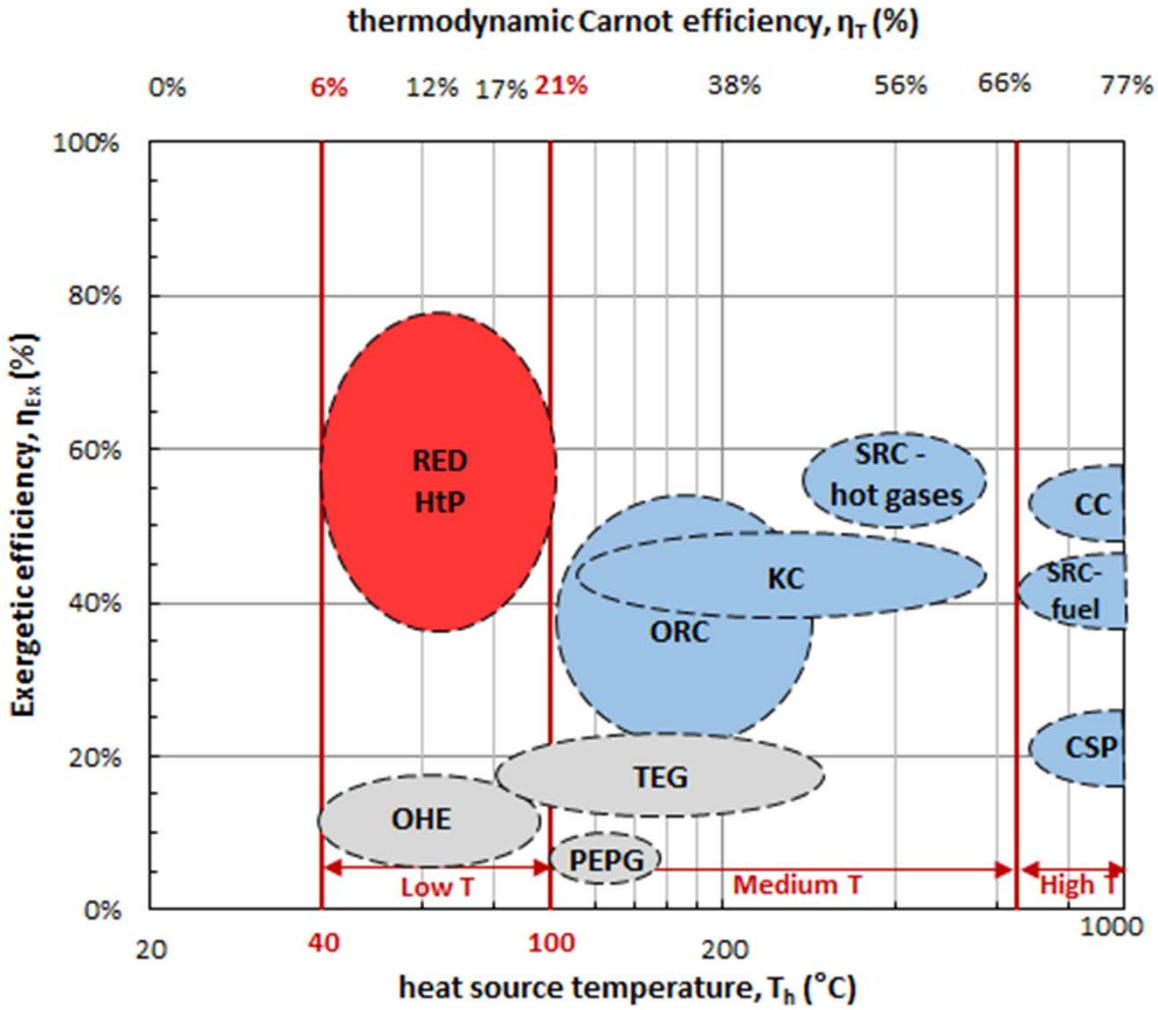
The RED HtP Project: Technology state of the art



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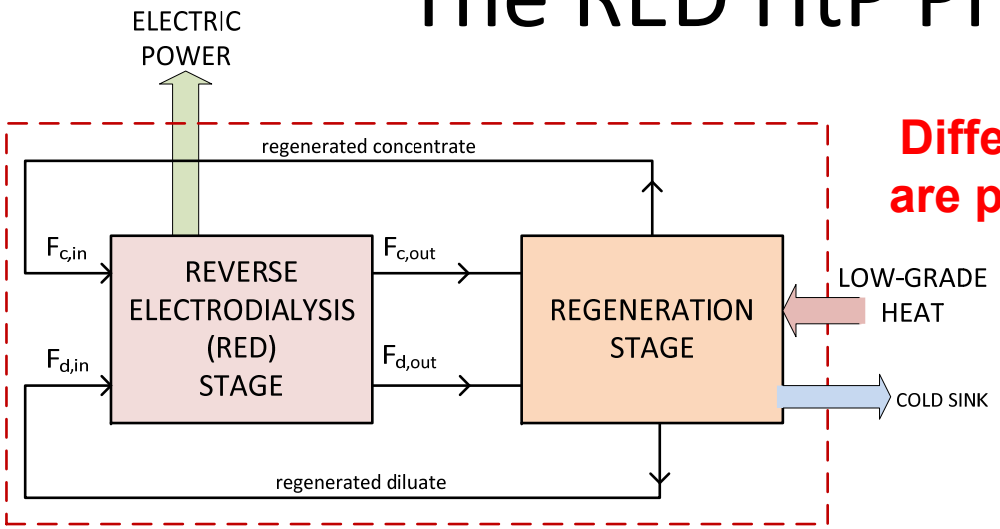
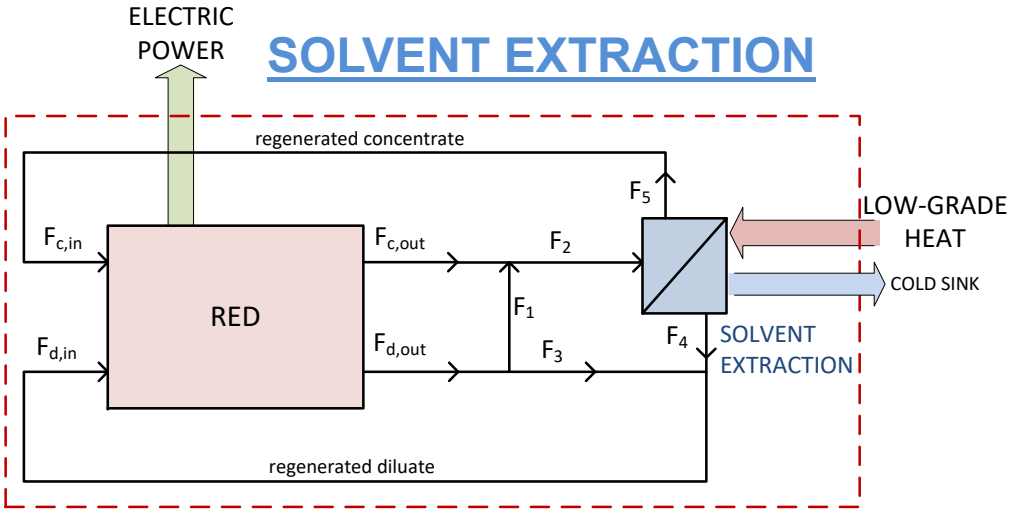
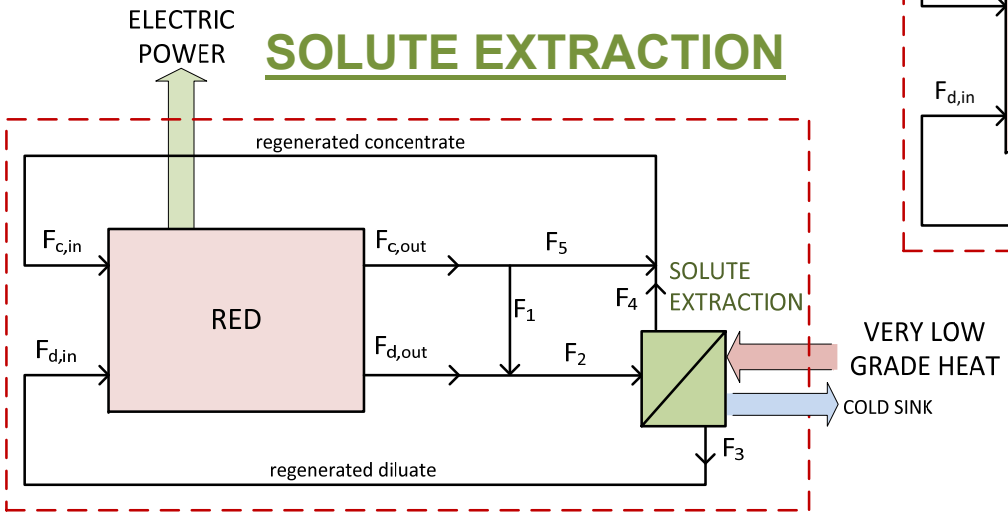
The RED HtP Project IDEA



Different REGENERATION STRATEGIES are possible and will be tested within the project activities





HORIZON 2020
EXCELLENT SCIENCE
COMPETITIVE INDUSTRIES
BETTER SOCIETY

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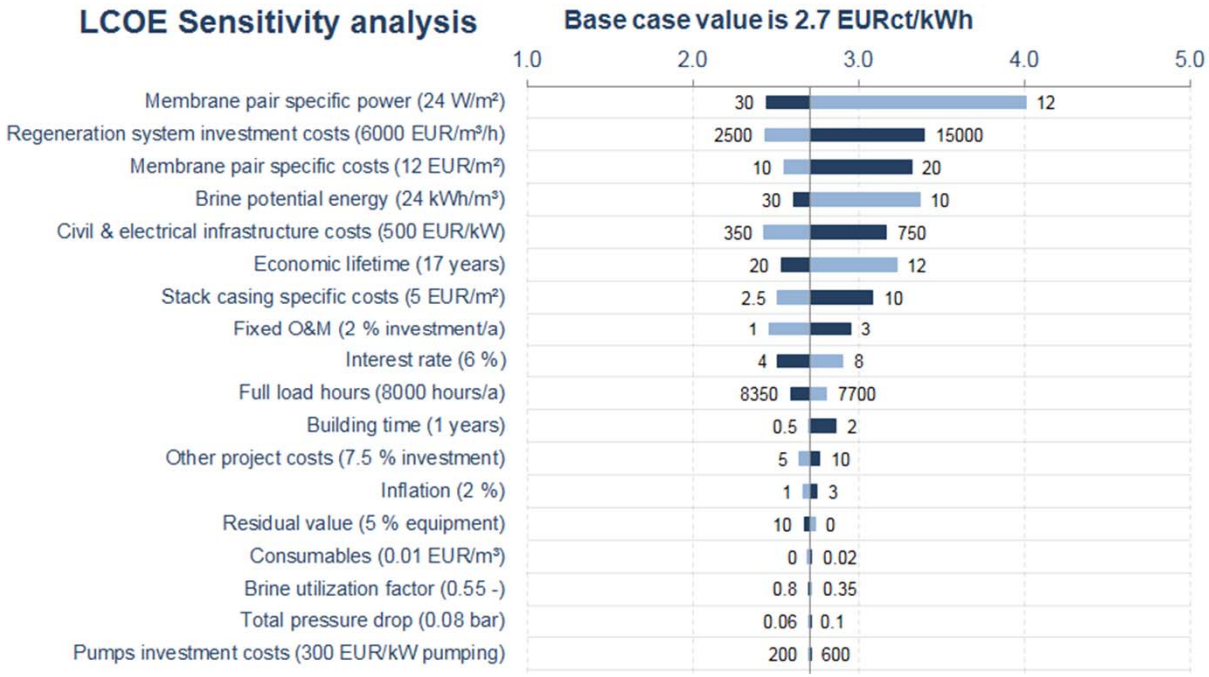
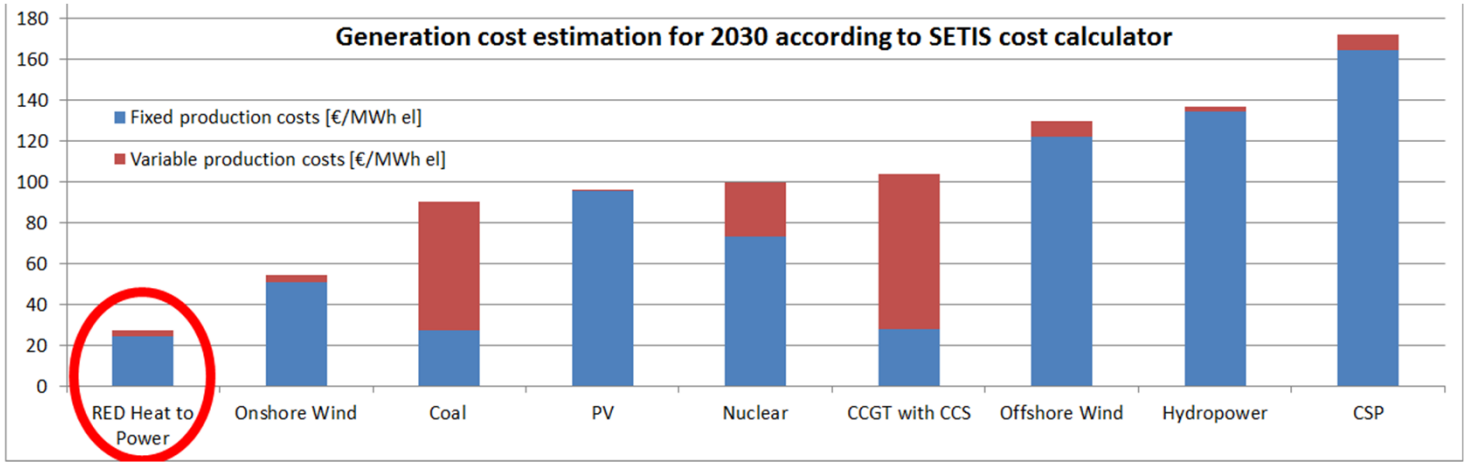
Levelised Cost of Electricity (LCOE)



Comparison at 2030



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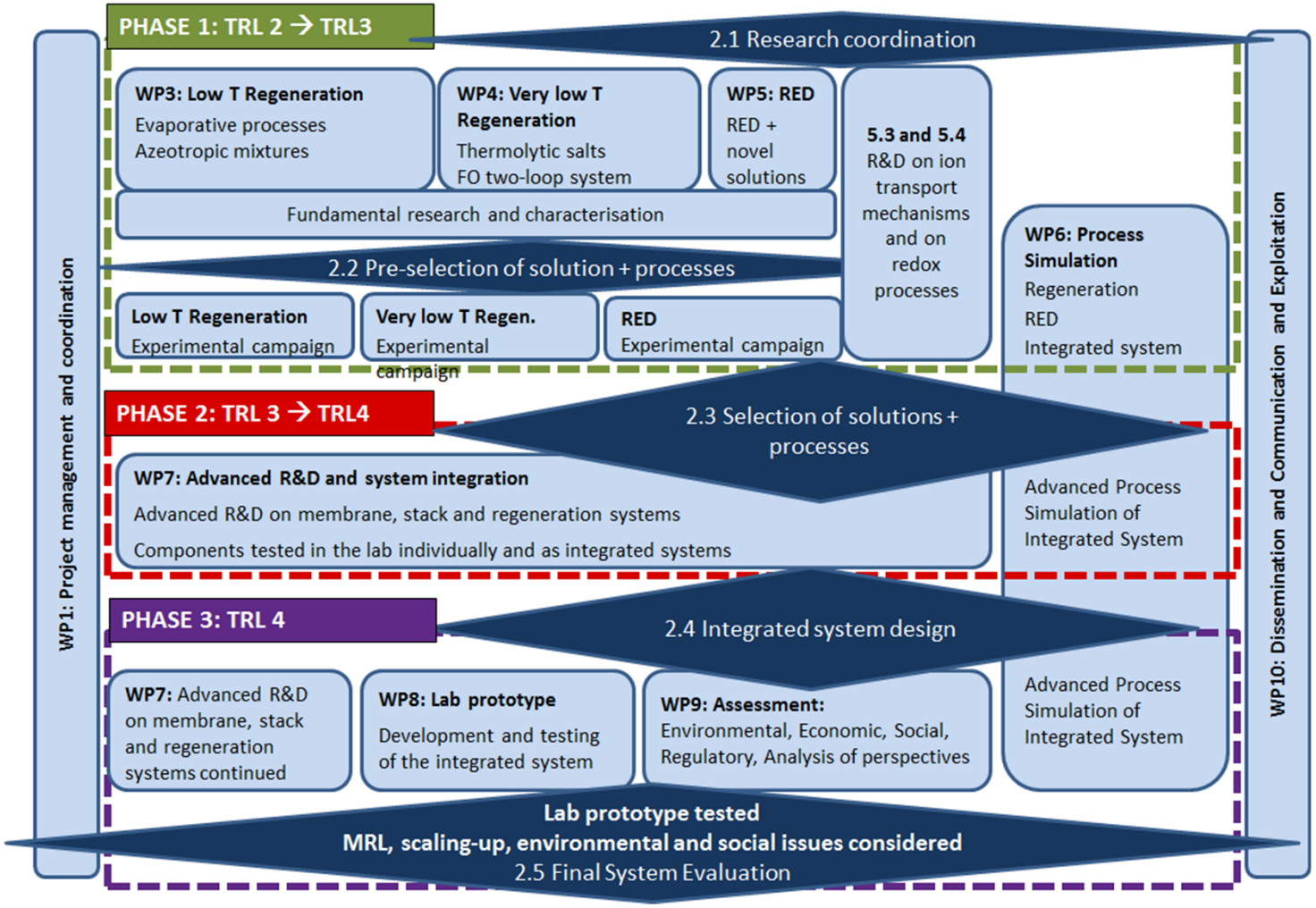
The RED HtP Project WORKPLAN



TRL 2 technology concept formulated

TRL 3 experimental proof of concept

TRL 4 technology validated in lab

Three different chronological phases for passing from TRL2 to TRL4 (TRL: Technological Readiness Level)

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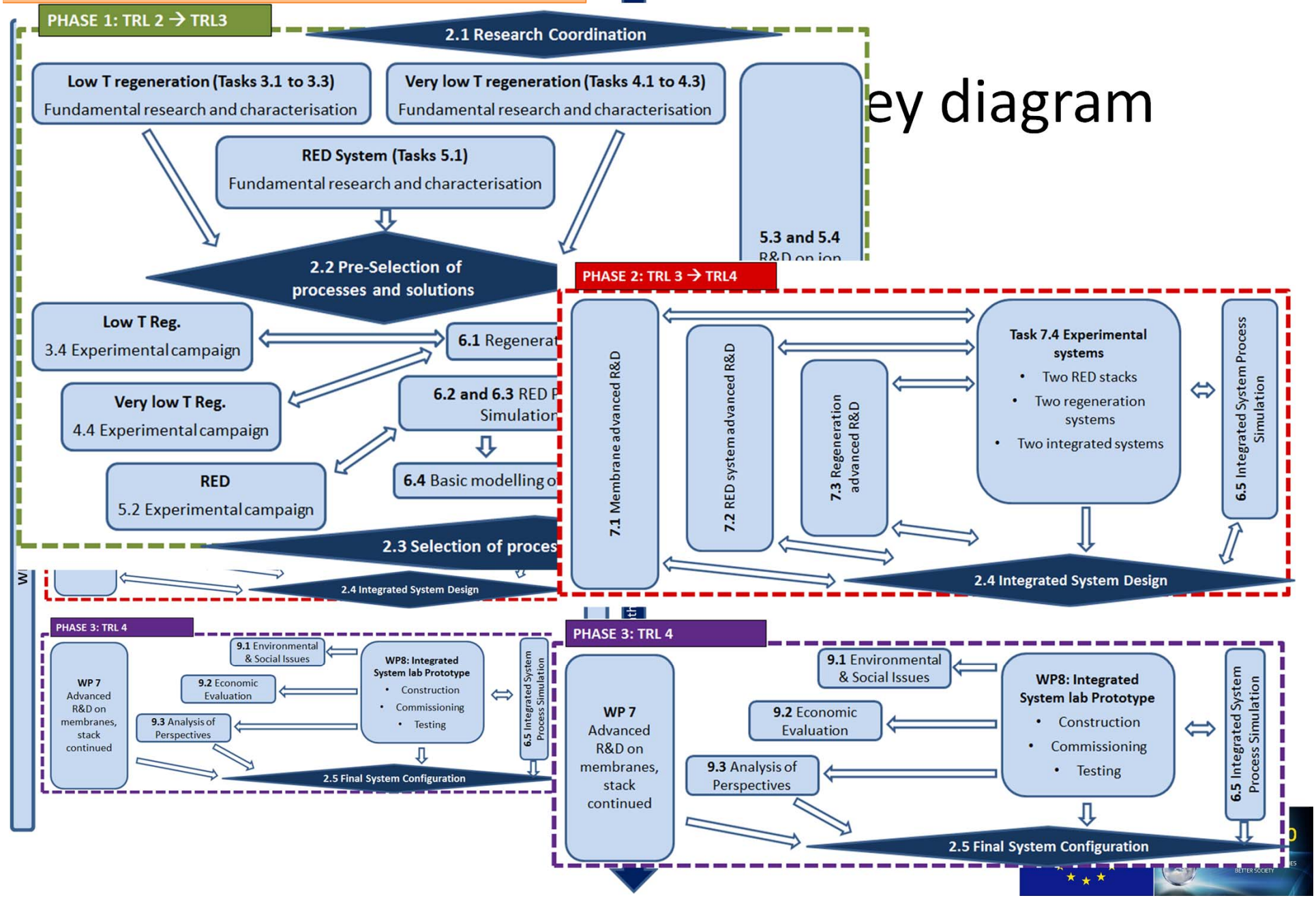
ey diagram



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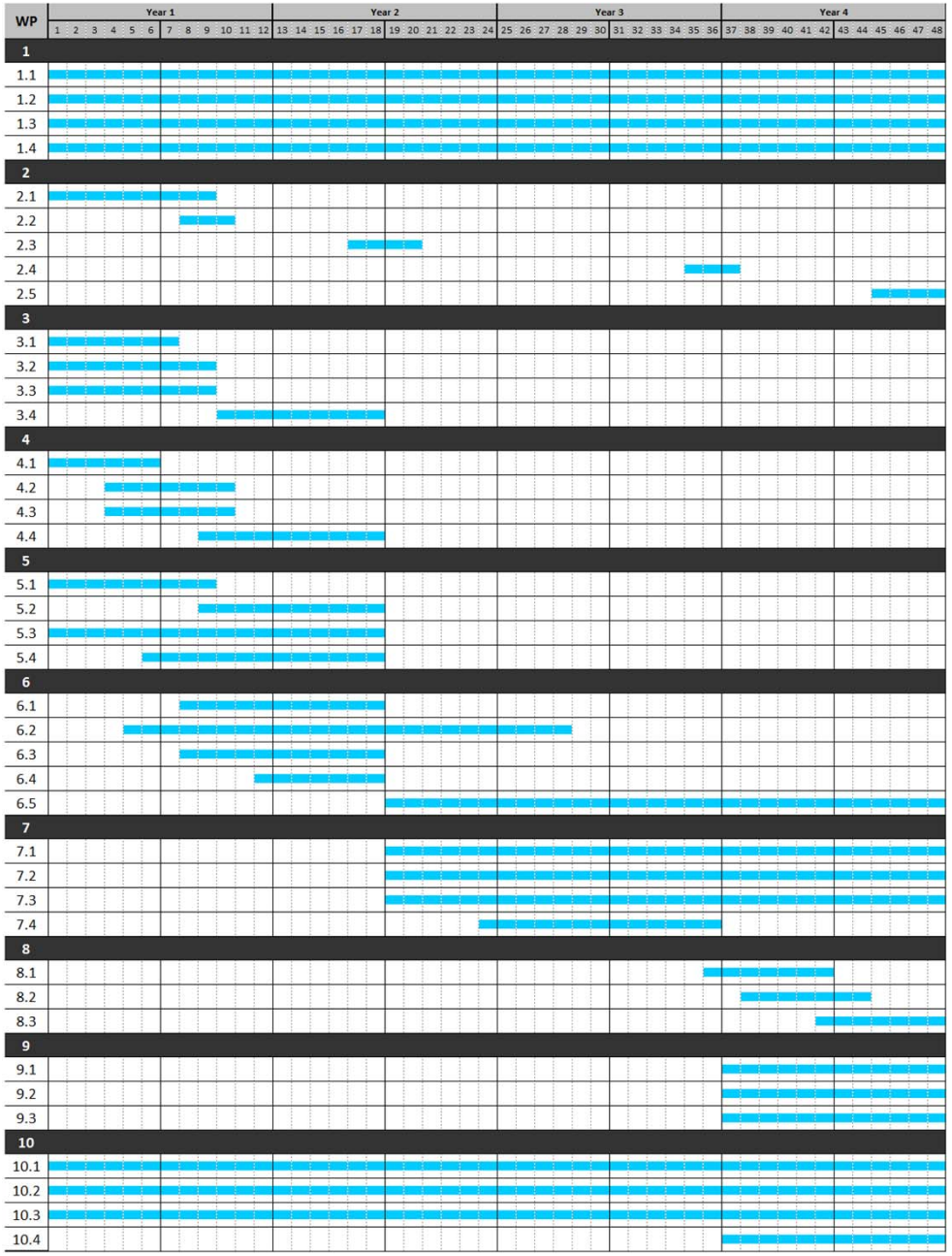

Gantt diagram and activities planning

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Continuità delle attività di ricerca in ambito progetti EU

Impegno costante a garanzia del raggiungimento dei task di lavoro assegnati

Flessibilità personale nel fornire supporto al partenariato per il raggiungimento degli obiettivi

Condivisione di risorse umane con i partner dei progetti

Indicazioni conclusive

- Idea innovativa particolarmente rispondente ad una specifica Call
- Valutazione critica della competitività dell'idea rispetto allo stato dell'arte
- Individuazione del partenariato
- Ideazione, sviluppo e progettazione di un programma di attività preliminare (1° stage)
- Valutazione della capacità dei soggetti partecipanti a sostenere le diverse attività del progetto e raggiungere gli obiettivi prefissati
- Progettazione dettagliata di un programma definitivo (specificazione di tutti i WP, tasks e milestones – 2° stage)
- Definizione di un badget sulla base di quanto prefissato dalla Call in modo congruente con le attività e gli obiettivi del progetto

Grazie per l'attenzione