Virtual WP: Innovation

UKRI [CEDA] : Martin Juckes

“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 824084”.

Definitions from the EU

Innovation

The successful **exploitation** of new creations, which when **used** produce tangible benefits, satisfying needs and wants.

Invention + exploitation Innovation

Invention IS NOT Innovation

Impact

The extent of the benefits derived from the innovation

bit.ly/enesInnovate101

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Definitions from the EU

Innovation is "*an idea put into practice with success*";
"*Innovation may be technological, but also non-technological, organisational or social. Innovation may be based on new but also on traditional practices in a new geographical or environmental context. The new idea can be a new product, practice, service, production process or a new way of organising things, etc.* "
(EC DIRECTORATE-GENERAL FOR AGRICULTURE AND RURAL DEVELOPMENT)[1]

Innovation "*describes the development and application of ideas and technologies that improve goods and services or make their production more efficient.*" (European Central Bank) [2]

1: bit.ly/enesInnovate102 , 2: bit.ly/enesInnovate103

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WP2 (NA1), task 2: Innovation

Innovation is focused on the strategic aspects of widening the exploitation of the IS-ENES infrastructure, both in terms of innovative uses of the infrastructure, and innovation around the technology used (e.g. by working with cloud providers). It will involve developing strategic metrics of innovation, coordinating pull-through from individual innovation activities in NA2-NA4, and addressing the interfaces with major external organisations (such as Copernicus).

M2.2 (Task 2, mo12): Innovation Plan. Short report summarising the development of a shared project-wide approach to innovation and reporting on cross-disciplinary fertilisations and a wider sharing of information, knowledge and technologies across fields and between academia and industry (UKRI).

D2.3 (Task 2, mo 42): The Final Report on Innovation Activities will outline what the project has achieved in terms of cross-disciplinary fertilisation and wider participation (UKRI)

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What the proposal says:

(*) INNOVATION: WP2/NA1 Task 2 will ensure the integration of the dedicated innovation tasks from the different NA work packages into a common strategy on innovation. This solution has been chosen in order to better embed innovation across all IS-ENES3 activities.

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D1.3 (Task 3, mo 6): Dissemination and Exploitation Plan
The draft in section 2.2a will be complemented by a detailed analysis per work package and deliverables in order to guide its implementation during the course of the project (CNRS-IPSL).

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What the proposal says:

D4.5 (Task 3, 4 and 6, mo 44): White paper on innovation on tools, platforms and techniques. A white paper consolidating the finding within the Innovation task highlighting the opportunities within the Market to exploit climate science (Task 6) and the opportunities for climate science to exploit new technologies focusing on software and HPC (Task 4 & Task 3) (UNIMAN).

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Objectives of the Innovation Virtual WP

Meeting the Commission requirements on promoting and reporting innovation in IS-ENES3
Provide clarity to IS-ENES3 team about innovation reporting objectives;
Share information on best practice in achieving innovation;
Collate innovation reports from all WPs.

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What the proposal says:

SMEs:

Altair: " … working with IS-ENES3 on the workflow scheduler Cylc in a two-way exchange of information, experience, and code." [www.altair.com]

TEC: " ..will help better link with private climate services." [www.tec-conseil.com/]

The Climate Data Factory : " …. common development of model evaluation tools .. access to know-how, methodologies, …. access to data". [theclimatedatafactory.com]

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What we need to report on:

Periodic report and final report:

- Prototypes and demonstrations [& clinical trials];
- Anything “launched onto the market”: products, processes, methods?

bit.ly/enesPeriodic101 Section 6.4

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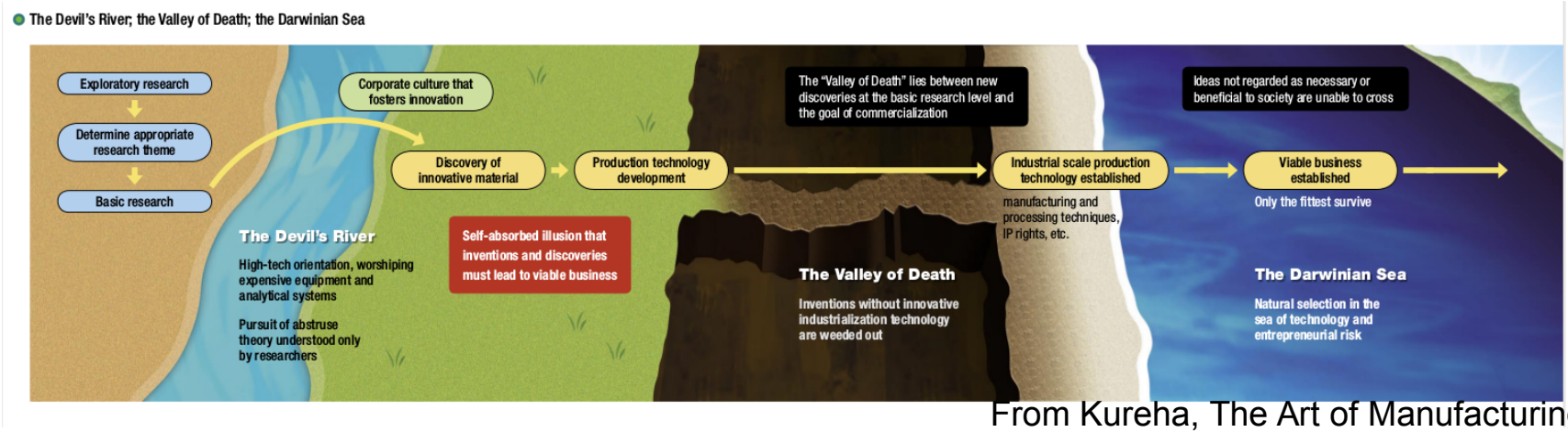
Some ideas from the global conversation

Creative use of metaphors:
“Devil’s River” : barrier between scientific discovery and demonstration systems;
“Valley of Death” : barrier between development and deployment in a production environment;
“Darwinian Sea” : barrier between successful operation and sustainable use.



From Kureha, The Art of Manufacturing

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Innovation

Research
Seeding ideas

Development
Obtain patents
Establish technology

Commercialize
Applied products
Launch service

Industrialize
Expand market

Above: 4 stages defined by Shunpei Yamazaki (bit.ly/enesInnovate104)
Below: Adapted for ENES:

Research
Seeding ideas;

Development
Functional prototype;

Innovation
Operational or commercial environment;

Impact
Significant usage, delivering commercial or societal benefits

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Where does Innovation happen?

1. Commercial companies: using or selling a product;
2. Climate Services: using a service or method; delivering a product;
3. Partner Institutions: using IS-ENES3 foreground in core activities;*

-- Partner SMEs count double under (1) and (3).

(*) This is related to sustainability: running a service developed in IS-ENES3 and then suspending it when the EU funding stops will not count as innovation

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Next steps

WP co-leader?

M2.2 (Task 2, mo12): Innovation Plan. Short report summarising the development of a **shared project-wide approach** to innovation and reporting on cross-disciplinary fertilisations and a wider sharing of information, knowledge and technologies across fields and between academia and industry (UKRI).

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Innovation Plan -- Outline

- Introduction
  - Innovations in Earth System Modeling Infrastructure
  - Framework for Promoting and Reporting Innovation in IS-ENES3
- Metrics
- Potential Innovation Activities
  - WP2
    List areas of potential innovation, specifying source of the idea (e.g. produced by a national research activity or earlier H2020 project), the current status (using terminology to be defined in the Metrics section), and the expected IS-ENES3 outcomes (e.g. demonstrating use in an operational environment).
  - WP3 (*as above*)
  - ……
- Discussion

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Terminology

- Steps along the H2020 pathway to product maturity:
  - Seed concept; development; innovation; impact.
- What can be innovated:
  - Products, Processes, Method
- Where is it happening:
  - Commercial companies, Climate Services, partner institution;

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Communication .....

- Web conference?
- GA breakout …
- Virtual workshop (period of focussed activities …)
- WP/Theme telcos

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Discussion .....

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