Horizon 2020 Work Programme for Research & Innovation 2018-2020

#InvestEUresearch

Impact in Horizon 2020
Group work
SESSION 5

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Research and Innovation

Part A
(online form)

- Administrative forms

Part B

(to be uploaded as pdf PDF)

- Excellence
- Impact
- Implementation
- Members of the consortium
- Ethics and Security

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Session overview: Impact

1. **General information on impact**

2. **Impact in Horizon 2020**

3. **Group work: Define the impact of your proposal**

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1. Impact: General information

From Activities to Impacts

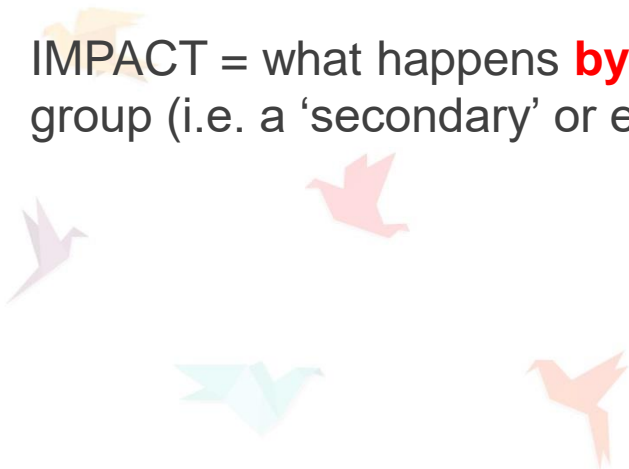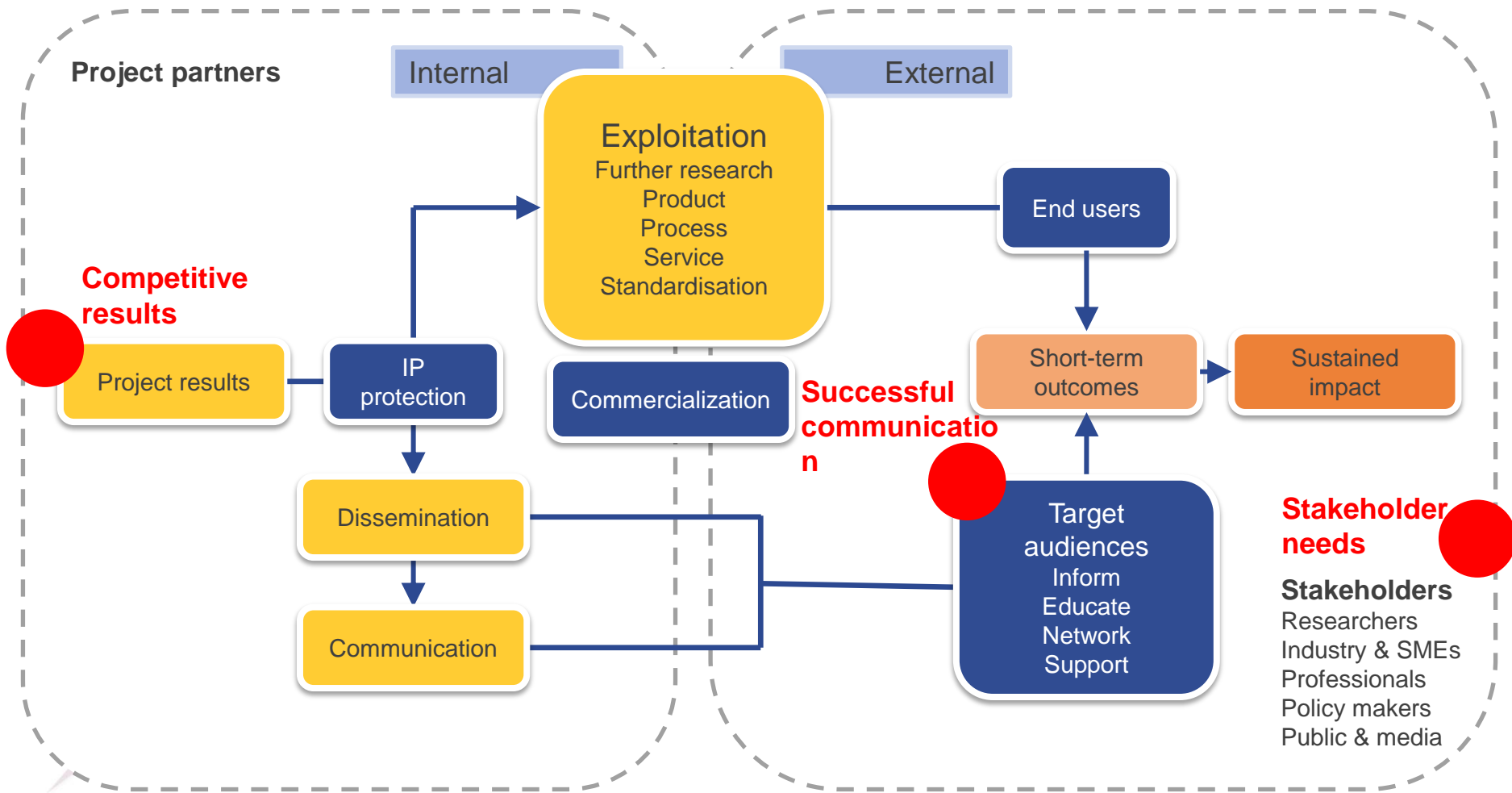| Activities	produce	Outputs	which - through use - create	Outcomes
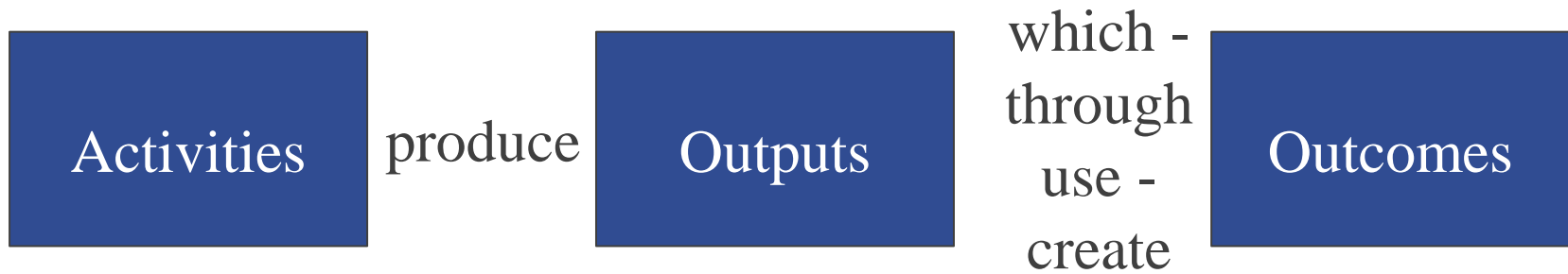
OUTCOME =what happens, if our **target group uses** our outputs!
- they become more knowledgeable (enlightenment!) or
- produce better products or
- reduce the ecological footprint

IMPACT = what happens **by use or non-use** of others than our primary target group (i.e. a 'secondary' or even 'not-intended audience')

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Impacts & Exploitation

Project partners

Internal

External

Competitive results

Exploitation
Further research
Product
Process
Service
Standardisation

End users

Project results

IP protection

Commercialization

Successful communication

Short-term outcomes

Sustained impact

Dissemination

Stakeholder needs

Communication

Target audiences
Inform
Educate
Network
Support

Stakeholders
Researchers
Industry & SMEs
Professionals
Policy makers
Public & media

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Results-oriented impacts: usually **quantitative measurable results** (e.g. creation of jobs, new publications, patents, reduction etc.)

Behavioural impacts: **changes** in the (social, economic, …) **behaviour** (e.g. changes concerning innovative behaviour, change of environmental behaviour, change of images & awareness etc.)

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Various categories of impacts

Scientific/Academic/Research: This avenue generally focuses on the possible *publications, conferences*, or any other opportunities that can arise as a result of this project to promote the research field.

Socio-economic: Here, researchers often touch on the *new possibilities fo*r job creation, important policy outputs, and overall social benefits of their project.

Environmental: Such applications mostly refer to *policy papers* or guidance documents produced as a result of the research project.

Public engagement: In this selected avenue, researchers describe varying ways to *publicly engage* through communication strategies, education, media or social media outlets, and user groups.

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Science impacts:

Knowledge, Research activities, Training

Technology impacts:

Products, Processes, Services, Know-how

Organization impacts:

Planning, Work organization, Administration, Human resources

Health impacts:

Public health, Health systems

Economy impacts:

Production, Financing, Investments, Commercialisation, Budget

Environment impacts:

Management of natural resources and the environment, Climate and meteorology

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Culture impacts:

Knowledge, Know-how, Attitudes, Values

Symbolic impacts:

Legitimacy/credibility/visibility

Society impacts:

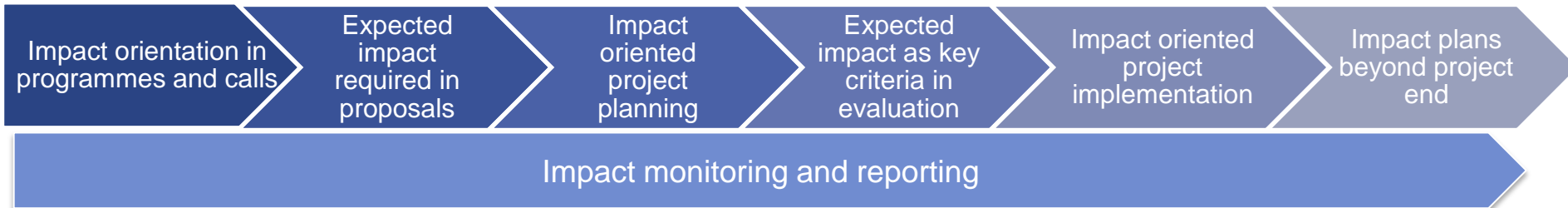Welfare, Discourses and actions of groups

Training impacts:

Curricula, Pedagogical Tools, Qualifications, Graduates, Insertion into the job market, Fitness of training/work, career, use of acquired knowledge

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Policy impacts:

Policymakers, Citizens, Public programs, National security

Source: Godin and Doré, 2006

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Impact orientation in all stages

Impact orientation in programmes and calls	Expected impact required in proposals	Impact oriented project planning	Expected impact as key criteria in evaluation	Impact oriented project implementation	Impact plans beyond project end

Impact monitoring and reporting

- Most programmes have an **impact-oriented approach**

- Horizon 2020 **balances research and innovation** and aims to drive competitiveness/growth and to tackle global societal challenges

- Many programmes encourage **collaboration between different stakeholders** (researchers, industry including SMEs, public sector organisations and citizens)

- Expected **impacts are crucial** for successful proposals and projects

- Aspects of the project (activities, partnership, open access of results, etc.) intend to **maximise potential impacts**

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2. Impact in Horizon 2020: a brief overview

The 5 targets for the EU in 2020

Example of framework conditions for impact

1. **Employment**

   75% of the 20-64 year-olds to be employed

2. **R&D**

   3% of the EU's GDP to be invested in R&D

3. **Climate change and energy sustainability**

   greenhouse gas emissions 20% (or even **30%**, if the conditions are right) **lower than 1990**

   20% of energy from renewables

   20% increase in energy efficiency

4. **Education**

   Reducing the rates of early school leaving below 10%

   at least 40% of 30-34–year-olds completing third level education

5. **Fighting poverty and social exclusion**

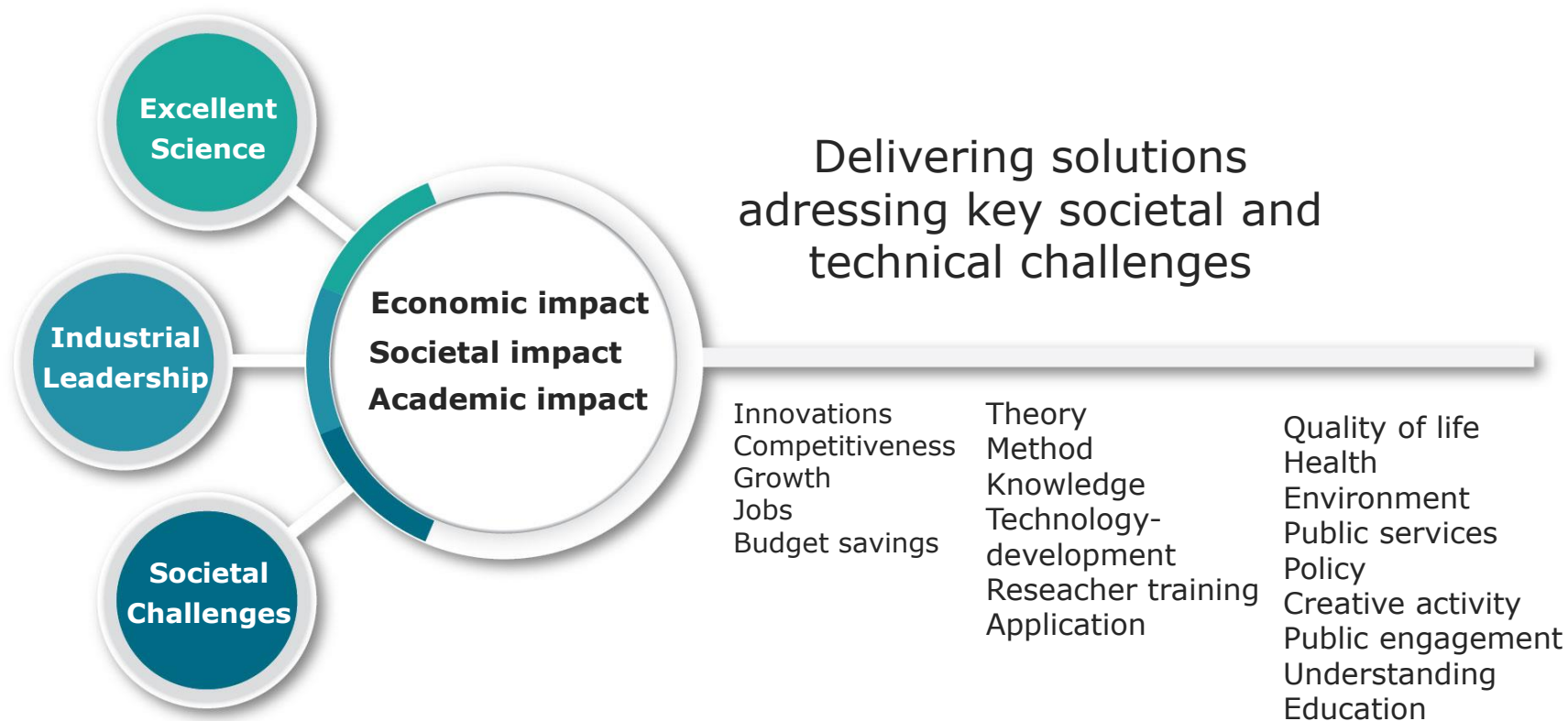   at least **20 million fewer people in or at risk of poverty and social exclusion**

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Impact in Horizon 2020: a brief overview

What is meant by impact in terms of research/ innovation projects?

- **Impact**: The changes or benefits to the economy, society, culture, public policy or services, health, the environment or quality of life, derived from the innovation

- **Impact is assessed alongside research outputs** to provide an evaluation of research taking place within a firm or an institution

- As such, research outputs, for example, knowledge generated and publications, can be translated into outcomes, for example, new products, services and standards, which generate impacts

| Inputs | Activities | Outputs | Outcomes | Impacts |

Objectives of the project

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Global expected impact in different pillars of Horizon 2020

Excellent Science

Industrial Leadership

Societal Challenges

Economic impact
Societal impact
Academic impact

Delivering solutions adressing key societal and technical challenges

Innovations
Competitiveness
Growth
Jobs
Budget savings

Theory
Method
Knowledge
Technology-development
Reseacher training
Application

Quality of life
Health
Environment
Public services
Policy
Creative activity
Public engagement
Understanding
Education

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Horizon 2020 Structure

EXCELLENT SCEINCE

- European Research Council
- Future and Emerging Technologies (FET)
- Marie Skłodowska-Curie research grant scheme
- Research Infrastructures

INDUSTRIAL LEADERSHIP

- ICT
- Key EnablingTechnologies (KETs):
  - Microelectronics
  - Photonics
  - Nanotechnologies
  - Advanced materials
  - Production systems
  - Biotechnologies
- Space
- Innovation in Small and Medium Enterprises (SMEs)
- Access to Risk Finance

SOCIETAL CHALLENGES

- Health, wellbeing and aging
- Food security, bioeconomy, …
- Safe, clean, efficient energy
- Intelligent, green, integrated transportation
- Climate, environment, raw materials
- Inclusive, innovative society, capable of reflection
- Security

Spreading of best practices and widening participation

Science with and for Society

European Institute of Innovation and Technology (EIT)

Joint Research Centre (JRC)

EURATOM

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Impact dimensions for the Horizon 2020 programme

Scientific impact

- EU world class excellence in science (theory, methods, knowledge, application of science results)
- Better cross-border and cross-sector coordination and integration
- Emergence of new fields of science in the EU

Economic impact

- Better innovation capability of EU firms, increased competitiveness
- EU technological leadership and reinforced competitiveness
- Diffusion of innovation generating jobs, growth and investments

Societal impact

- Better contribution of R&I to tackle societal challenges (health, quality of life, sustainability, etc.)
- Stronger global role of the EU
- Better societal acceptance of innovative solutions, public engagement, understanding, creativity

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Key performance indicators for impact in Horizon 2020 pillars

Scientific Excellence

- Percentage of publications from ERC funded projects which are among the top 1% highly cited
- Publications in peer-reviewed high impact Journals
- Patent applications and patents awarded in Future and Emerging Technologies
- Cross-sector and cross-country circulation of researchers, including PhD Candidates
- Number of researchers who have access to research infrastructures through support from Horizon 2020
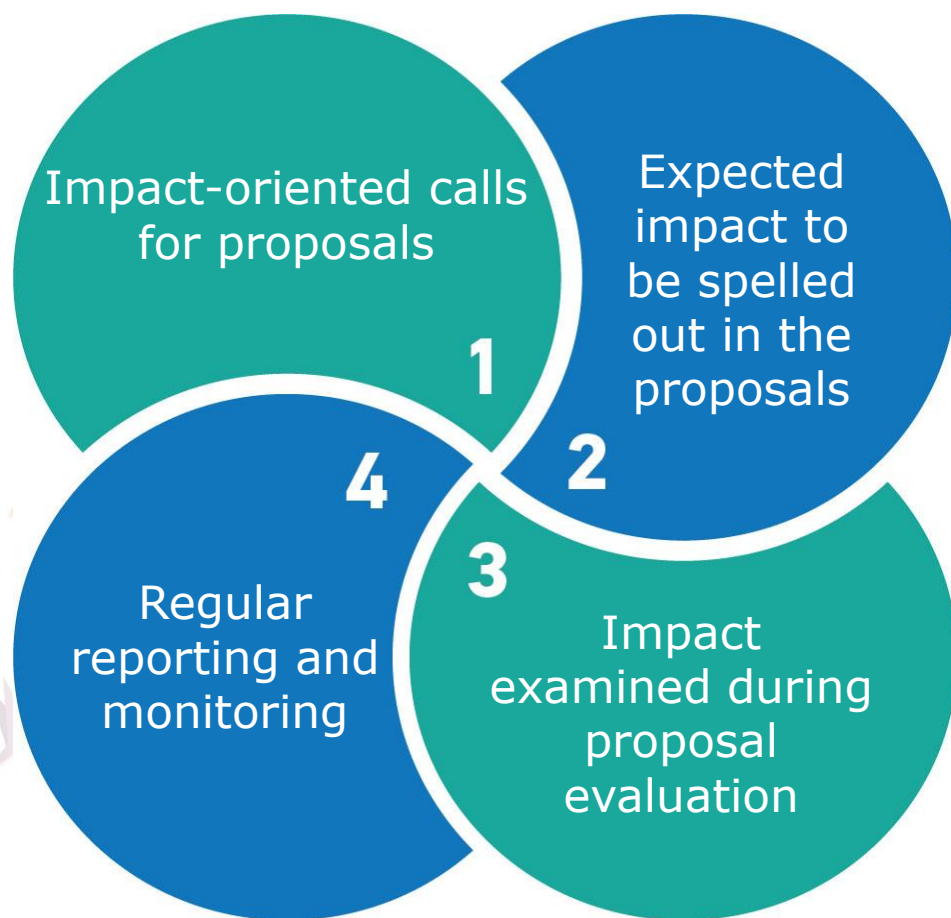
Industrial Leadership

- Patent applications and patents awarded in the different enabling and industrial technologies
- Percentage of participating firms introducing innovations
- Number of joint public private publications
- Total investments mobilised (from different funds)
- Number of organisations funded and amount of private funds leveraged
- Percentage of participating SMEs introducing innovations
- Growth and job creation in participating SMEs
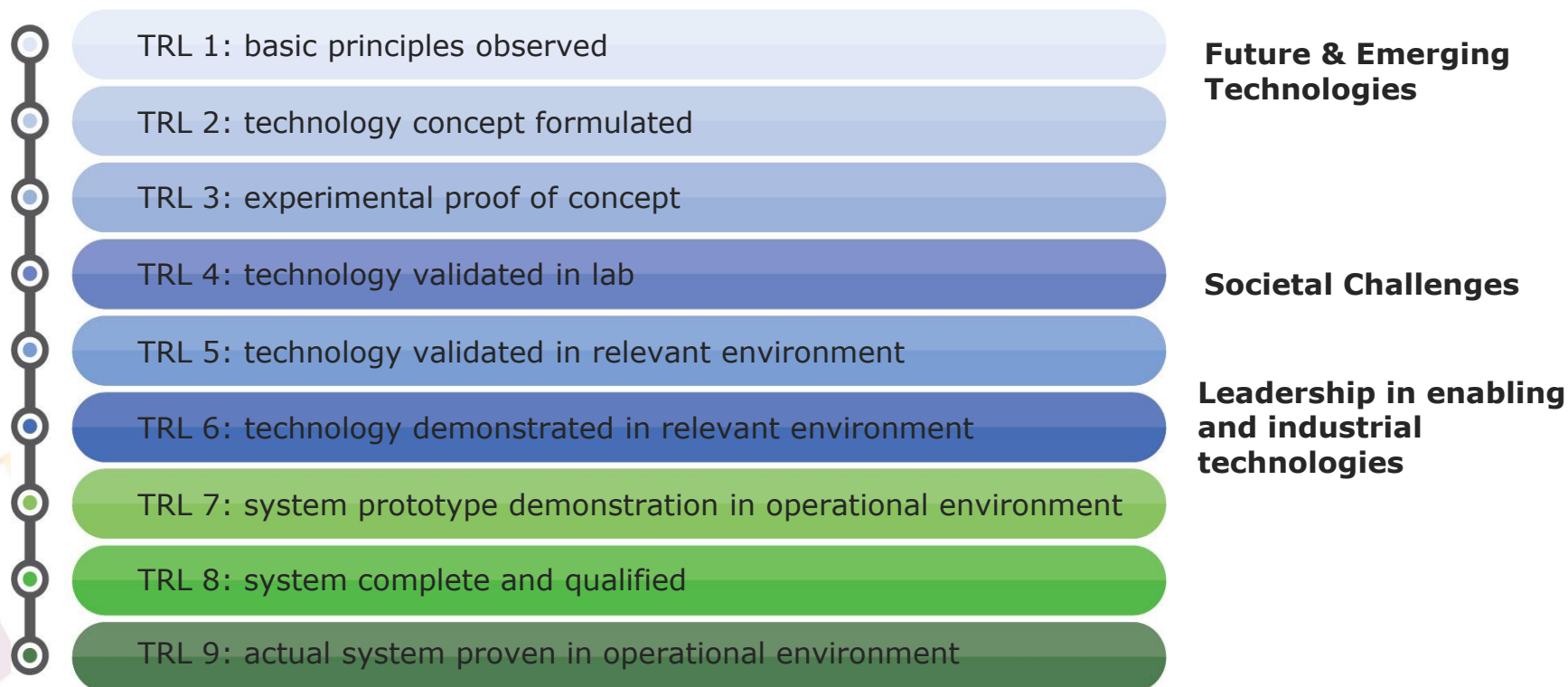
Societal Challenges

- Publications in peer-reviewed high impact journals in this area
- Patent applications and patents awarded in this area
- Number of prototypes and testing activities
- Number of joint public-private publications
- New products, processes, and methods launched into the market
- Percentage of the respective Societal Challenge funds allocated to related research activities

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An impact-oriented approach at all stages of Horizon 2020

Impact-oriented calls for proposals 1

Expected impact to be spelled out in the proposals 2

Impact examined during proposal evaluation 3

Regular reporting and monitoring 4

- **Built-in innovation and impact orientation:**

  - challenge-based approach

  - funding all the way from lab to market

  - enhanced involvement of business, in particular Small and Medium-sized Enterprises (SMEs)

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Varying expected impact depending on the Technology Readiness Level (TRL) in Horizon 2020

TRL 1: basic principles observed

TRL 2: technology concept formulated

TRL 3: experimental proof of concept

TRL 4: technology validated in lab

TRL 5: technology validated in relevant environment

TRL 6: technology demonstrated in relevant environment

TRL 7: system prototype demonstration in operational environment

TRL 8: system complete and qualified

TRL 9: actual system proven in operational environment

Future & Emerging Technologies

Societal Challenges

Leadership in enabling and industrial technologies

TRL in Horizon 2020 is used to assess the maturity level of a particular technology

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What evaluators of Horizon 2020 proposals are looking for

The evaluators pay particular attention to:

- Expected **impacts described for the topic** of the project

- Key performance **indicators** (KPIs) including target values

- Enhancing **innovation capacity** and integration of new knowledge

- Strengthening **competitiveness** and growth of industrial partners by developing and delivering innovations meeting **market needs**

- Other environmental or social impacts…

They evaluate effectiveness of the proposed measures to exploit and disseminate the project results (including management of IPR), to communicate the project…

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How to maximise impact in the Horizon 2020 proposals and projects (I)

Some guidelines for impact maximisation

Link the proposal to the **policy context** of the call for proposals

Involve potential **end-users and stakeholders** in the proposal

Identify **how** the consortium expects the results of the project to be applied

Understand the barriers to any application of the project results

- Intellectual Property rights issues
- Skills shortage
- Mismatch between market needs and the solution

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How to maximise impact in the Horizon 2020 proposals and projects (II)

Some guidelines for impact maximisation

Anticipate the potential need to take **further steps** to apply the project results in practice

- Standards to be agreed
- Financing the testing
- Promoting acceptance by consumers

Implement open access and consider how to manage the data

Prepare the exploitation and dissemination plan carefully

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3. Group work: Impact part

Part B:
3 Proposal Key Aspects = 3 Evaluation Criteria

Excellence

Why do I want to conduct this project? **What** are my objectives? **What** is the basis?

Impact

What will be the benefits during this project and beyond?

Implementation

How will I conduct this project?

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Identify the parts of the proposal – show excellence in all areas

1. Excellence

1.1 Objectives

1.2 Relation to the work programme

1.3 Concept and methodology

1.4 Ambition

2. Impact

2.1 Expected impacts

2.2 Measures to maximise impact

    a) Dissemination and exploitation of results

    b) Communication activities

3. Implementation

3.1. Workplan – Workpackages, Deliverables

3.2 Management structure, milestones and procedures

3.3 Consortium as a whole

3.4 Resources to be committed

=> Objectives that contribute to broader impact dimension

=> Draft plans to reach expected impacts, knowledge management plan, business plan, management of research data, etc.

=> WP Dissemination & Exploitation & Communication

=> Role of impact/innovation manager with adequate resources

=> Exploitation partner, Communication partner

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2.1 **Expected impacts** => impact indication can be found in Work programme and specific Call;

=> **Enhancing innovation capacity and integration of new knowledge**

=> Strengthening the competitiveness and growth of companies by developing innovations meeting the needs of European and global markets

Expected Impact:

The implementation of novel smart material technologies is expected to pave the way for innovative environmentally friendly smart products:

- Enhancing the market opportunities for European industries;
- Improving consumer safety;
- Reducing maintenance costs;
- Improving resource efficiency;
- Contributing to a future circular economy;
- Improved understanding of materials properties based on theoretical materials models.

Enhancing the knowledge base in the EU not only at the R&D level but also at the manufacturing and production level, creating a highly skilled workforce with improved levels of job satisfaction.

Proposals should include a business case and exploitation strategy, as outlined in the Introduction to the LEIT part of this Work Programme.

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Part B: Impact

The extent of benefits for…

- **Science**

- **Environment**

- **Society**

- **Technological progress**

- **Economy/competitiveness**

- **…**

→ Focus on Europe

→ Focus depends on type of action/Call

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Part B: Impact

2.1 Expected impacts - I

- Be **specific**! If possible, use quantitative statements

- In <u>relation to the expected impact from the topic</u> description– how can you contribute?

- You can use a table

- Explain the impact of the results of the objectives of the project, which goes **beyond** the topic description

- **Go for scientific advances, innovation potential, competitiveness of Europe**

- Discussion of potential **barriers/obstacles**, which might influence reaching the objectives. How would you deal with that?

- **Be convincing for evaluators**

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Part B: Impact

2.1 Expected impacts - II

- **Who benefits** from the results? Impact on the several stakeholders

- Think one step ahead: which further opportunities go beyond the direct impact?

  - For future research?

  - For market/competitiveness?

- Concerning EU context: Which EU policies, strategies and objectives do you support?

  - Laws, market habits etc.

- Output should be concrete and realistic

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Steps for the group work

- List objectives of the call

- Fill in specific expected impact from call text

- Add additional impacts of your proposal

- Identify type of impact

- Identify relevant indicators

- Stakeholders that are directly addressed

- Stakeholders that influence the impact

- Check contribution to Objectives of the call and add number of List of the objectives

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Objectives of call
1.
2.
3.

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Specific expected impact (from call text)	Type of Impact	Indicator	Stakeholders	Objectives (Numbers)

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Follow up: Description

Describe how your project will contribute to…

- Each of the **expected impacts** mentioned in the work programme, under the relevant topic;

- any substantial **impacts not mentioned** in the work programme, that would enhance innovation capacity; create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society

- Describe any **barriers/obstacles**, and any framework conditions (such as regulation, standards, public acceptance, workforce considerations, financing of follow-up steps, cooperation of other links in the value chain), that may determine whether and to what extent the expected impacts will be achieved.

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