



# Guidance for Consortia Preparing SPIRE Project Proposals

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V1.7



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# SPIRE Context

## SPIRE:

Sustainable Process Industry through Resource and Energy Efficiency

## SPIRE Sectors:

- Cement
- Ceramics
- Chemicals
- Engineering
- Non-ferrous metals
- Minerals
- Steel
- Water

[www.spire2030.eu](http://www.spire2030.eu)

- There are many different programmes for accessing EU funding under H2020
- If you are looking at preparing a proposal for a **SPIRE** project, it is important that you consider the context of what SPIRE needs to achieve and what has already been done
- Your project will be part of the SPIRE programme; not in isolation
- Moreover, SPIRE is a **Public-Private Partnership (PPP)**, through which the industrial community and the European Commission pursue a common goal through a 7-year action plan and dedicated budget



# SPIRE Goals

## SPIRE Vision for 2030:

<https://www.spire2030.eu/whats/walking-the-spire-roadmap/spire-vision>

## SPIRE Roadmap:

<https://www.spire2030.eu/whats/walking-the-spire-roadmap/spire-Roadmap>

SPIRE have also proposed a **2050 vision** for Horizon Europe, which includes much more ambitious CO<sub>2</sub> targets:

<https://www.spire2030.eu/news/new/spire-2050-vision>

SPIRE aims at integrating, demonstrating and validating systems and technologies capable of achieving two key resource and energy efficiency targets across all SPIRE sectors:

- **a reduction in fossil energy intensity of up to 30%** from current levels through a combination of, for example, introduction of novel energy-saving processes, process intensification, energy recovery, sustainable water management, cogeneration heat-power and progressive introduction of alternative (renewable) energy sources within the process cycle
- **a reduction of up to 20% in non-renewable, primary raw material intensity** compared to current levels, by increasing chemical and physical transformation yields and/ or using secondary and renewable raw materials
- a significant contribution to the political and societal objectives of drastic efficiency **improvement in CO<sub>2</sub>-equivalent of up to 40%**

**Make it clear how your project could affect *all* of these targets**

# Existing SPIRE Projects

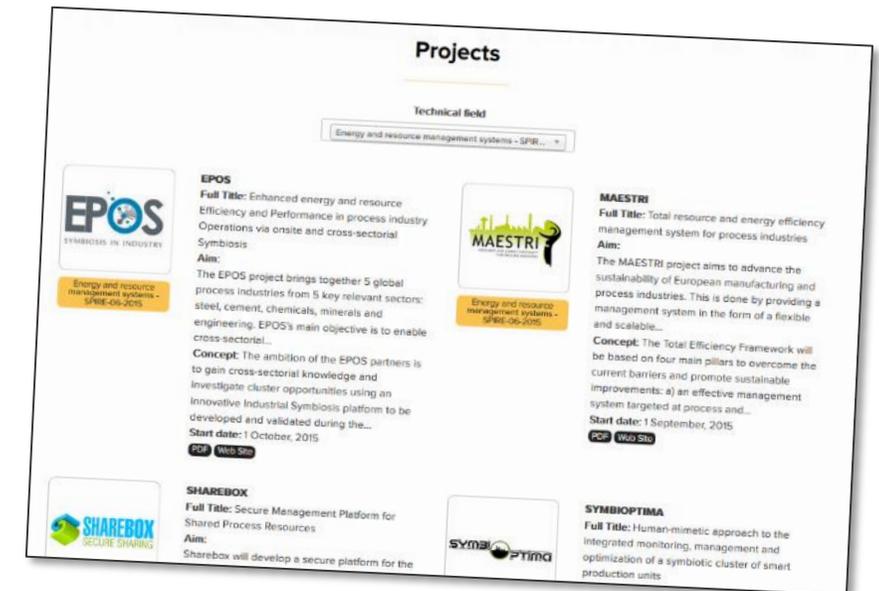


Projects are grouped by themes on the SPIRE website. Projects can host their website on the SPIRE platform for free, ensuring greater visibility of projects across the SPIRE community and long-term availability of outputs.

Projects can also choose to host websites independently, with just a link from the SPIRE site. However, you should plan for what will happen to the information once the project has completed.

As of summer 2019, **over 100 projects** will have been funded in the SPIRE programme. It is likely that several previous projects will have done work on the topic that you are preparing a proposal for, so make sure that you are adding to, or building on, this past research.

<https://www.spire2030.eu/projects/our-spire-projects>



# Projects to help other projects

A.SPIRE is the Association that represent the private side of SPIRE and runs the programme with the European Commission.

A.SPIRE can also help link you to other projects across SPIRE and related H2020 programmes relevant to your innovations.

Several Coordination and Support Action (CSA) projects have been funded to focus on cross-cutting, ‘horizontal’ issues that affect all SPIRE projects and/or bring together findings on a single theme. Their findings can help support your Impact section:



**HARMONI**  
Standardisation and regulatory bottlenecks

**MEASURE**

**SAMT**

**STYLE**  
SUSTAINABILITY TOOLKIT FOR EASY LIFE-CYCLE EVALUATION

**INSPIRE**  
Business models

**SPRING**  
Setting the Framework for Enhanced Impact of SPIRE Projects

**CarbonNext**  
The Next Generation of Carbon for the Process Industry

**SCALER**

**Enhancing impact**

**Industrial symbiosis**

# Learning from Cross-Cutting Topics

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Cross-cutting topics that affect all SPIRE projects include:

- **Sustainability Evaluation** – Tools, methodologies, data, best practice
- **Standardisation**
- **Exploitation of Results**
- **Business Models** – How to make the business case for your innovations
- **Managing and Monitoring Impact**
- **Communication and Dissemination**
- **Skills, Education and Training**

# Sustainability Evaluation



STYLE focused on pragmatic approaches for evaluating the sustainability impact of product/ process improvement option in industry project teams.

MEASURE focused on comprehensive Life Cycle Analysis approaches

SAMT focused on industry best practice

- STYLE, SAMT and MEASURE (2015-2016) looked at various aspects of sustainability evaluation and made recommendations for evaluations in general and those specific to SPIRE projects
- Key issues for sustainability evaluation in SPIRE projects:
  - **Lack of consistency** - in metrics and methodologies
  - **Lack of clarity** - regarding benchmark case, assessment boundaries and scale of potential impacts
  - **Lack of integration** - into the project decision making processes
  - **Methodologies and tools** – what’s available and how to choose
  - **Sourcing data** - difficulties in finding and selecting appropriately
- Guidance produced for incorporating sustainability into SPIRE projects and methodologies for indicator measurement



# Sustainability evaluation guidance for new projects



Plan to involve all the consortium in defining the benchmark and scope of the evaluation. Schedule time in the kick-off meeting to at least discuss the expected qualitative impacts of your project. e.g. you might save resources, but use more energy

A new **SPIRE Sustainability Practitioners Group** has been launched to help share learning and develop methods across SPIRE projects.

Project partners (from live, proposed, or past projects) can join the LinkedIn group here:

<https://www.linkedin.com/groups/12143240/>

- **Define a benchmark** and communicate clearly the baseline against which the results have been assessed.
- Consider different aspects and dimensions of sustainability (environmental, economic **and social**). Inclusion of positive aspects and benefits within the assessments is encouraged.
- Apply life cycle based assessment methods and cover both upstream and downstream processes, where relevant to your system boundaries.
- Refer to accepted and well-known methods and indicators, and apply standardized methods and indicators and vocabulary, when available.
- Address uncertainty related to the applied methods, modelling choices and data, taking into account the TRL of the assessed technology.
- Report transparently applied **methods, functional unit, system boundaries, data sources, assumptions and limitations** of the study.



# Sustainability Resources



[www.spire.2030.eu/measure](http://www.spire.2030.eu/measure)

[www.spire2030.eu/samt](http://www.spire2030.eu/samt)

[www.spire.2030.eu/style](http://www.spire.2030.eu/style)



- Towards sustainability in SPIRE innovation projects
- Current state in resource efficiency evaluation
- Training slides concerning multi-criteria decision analysis
- MEASURE Roadmap

*Everyday Industry—Pragmatic approaches for integrating sustainability into industry decision making, Sustainable Production and Consumption, 13, 2018, pp93-101*  
<http://bit.ly/SPC-STYLE>

RECOMMENDED LIFE CYCLE METRICS FOR THE EVALUATION OF THE SPIRE PPP TARGETS	
Recommended metrics	SPIRE sustainability goal by 2030
Cumulative energy demand [MJ] according to VDI 4600 guideline expressed in: <ul style="list-style-type: none"> <li>• Non-renewable energy demand</li> <li>• Renewable energy demand</li> </ul>	A reduction in fossil energy intensity up to 30 % from current levels;
Total material consumption [kg] grouped in <ul style="list-style-type: none"> <li>• critical/non-critical<sup>[56]</sup></li> <li>• fossil/non-fossil</li> </ul>	A reduction of up to 20 % in non-renewable, primary raw material intensity compared to current levels;
Global warming potential calculated via infrared radiative forcing (100 years) [kg CO <sub>2</sub> -eq.], based on IPCC data, 2013	Efficiency improvement of CO <sub>2</sub> - equivalent footprints of up to 40 % compared to current levels.

# Standardisation



Also look for relevant recommendations from the [HARMONI](#) project

In order to ensure the greatest impact, standardization has to be included in your project from the proposal stage.

- **Screen existing standards** - Browsing standards database can help you decide which standards would be useful for your project. If there is no standard that «fits» and you think a standard would bring value to your project, you might decide to contribute to ongoing standardization work or develop new standardization activities.
- **Contribute to ongoing standardization activities** - If you want to contribute to ongoing standardization activities, your project can become a 'Liaison Organization'. This allows a representative of your project, once accepted, to participate in meetings of the relevant Technical Committee and contribute to the ongoing standardization work.
- **Develop new standardization activities** - Identified standardization needs can be included as an activity (work package) in your project proposal. A CEN or CENELEC Workshop Agreement can be a first option as it can be delivered within your project timeframe. Alternatively, your project can lead to the development of a new Technical Specification (TS) or European Standard (EN).
- **Involve the right standardization partner** - A CEN or CENELEC Member – the National Standardization Organization/Committee – can become a partner in your project.

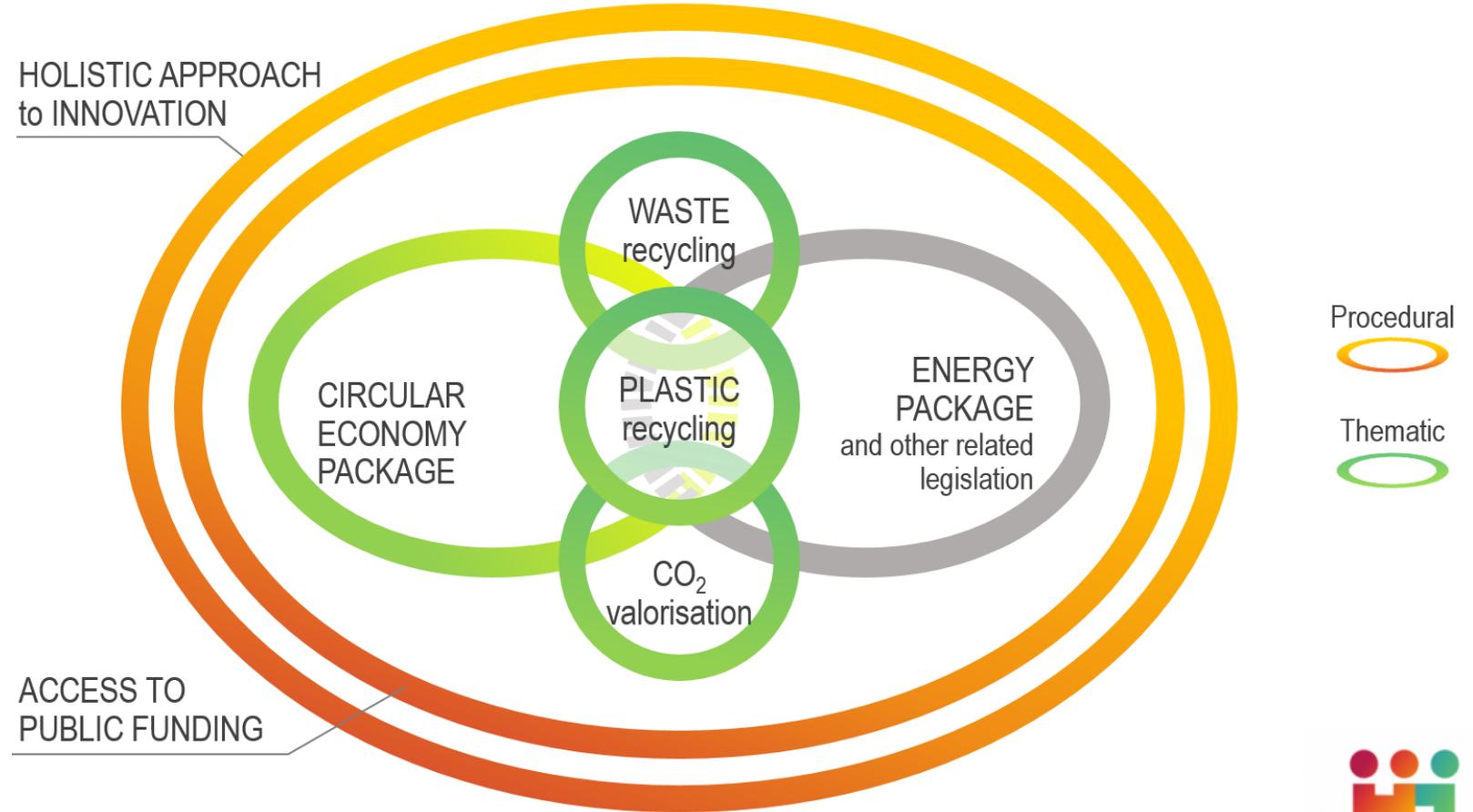
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# Regulatory bottlenecks

Non-technological barriers are important in the preparation of proposal. How your proposal will address those challenges is an important asset as it will contribute to maximize the exploitation of your developments. HARMONI has developed 6 fiches which depict the difficulties and the main issues to pay attention to:

- [Holistic Approach To Innovation](#)
- [Access To Public Funding](#)
- [Circular Economy Package](#)
- [Waste Recycling](#)
- [Plastic Recycling](#)
- [CO<sub>2</sub> Valorisation](#)



# Exploitation of results



Success factors:

<https://www.effra.eu/success-factors>

Ensuring outputs and results from projects actually lead to industrial exploitation is a major goal of the SPIRE programme. The [SPRING](#) project has been working with the FoF-IMPACT project to take learning from the Factories of the Future H2020 programme. Within FoF-IMPACT a list of [Success Factors](#) was developed for project consortia to address in order to maximise potential exploitation, which are also relevant to SPIRE projects. These factors cover:

- ✓ Market aspects
- ✓ IP Management
- ✓ Consortium, project team and general project management
- ✓ Demonstration and upscaling
- ✓ Communication



# Exploitation Pathways

Exploitable results can be categorized into the following areas:

- **Products** – items for sale
- **Processes** – ways to make or do
- **Equipment** – makes products using processes
- **Knowledge & IP** – valuation of “how to”
- **Services** – by offering the above products, processes, equipment, or knowledge
- **Other** – Platform, publications, patent....

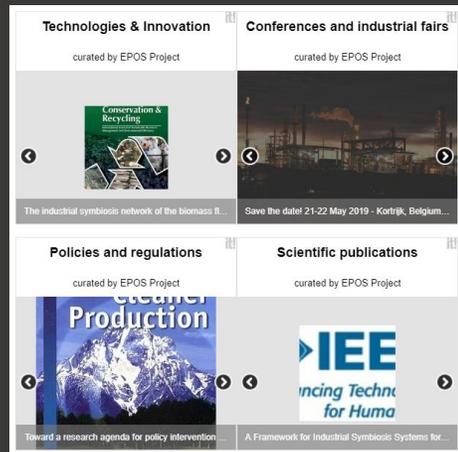
You should clearly articulate the business plan for potential exploitation of outputs.

Further Internal Research	Research activities beyond the end of the project
Collaborative Research	Results used as background for future collaborative research projects
Internal Product Development	Results used in developing, creating and marketing a product/process
Internal Service Creation	Results used in creating and providing a service
Licensing	Results exploited by other organisations through out-licensing
Assignment	Results exploited by other organisations by the transfer of ownership
Joint Venture	Results used as background for a joint venture
Spin-Off	A separate company established in order to bring to the market technology resulting from the project
Standardisation Activities	Results used either to develop new standardisation activities, or to contribute to on-going standardisation work

Note that care should be taken to comply with H2020 rules

# Technology Scanning for Exploitation

An example of Technology Scanning can be found on the EPOS project website “[Technology Watch](#)”, where information is captured on Technologies, Conferences, Policy and Scientific Publications.



From the time that a project proposal is written, a lot can happen. The world is moving fast and many technologies may arise as new competition to your project outputs during its life. Consequently, regular monitoring of technological evolution becomes fundamental to benchmark the performance of project outputs and to ensure that innovations stay relevant to industry needs.

Technology Scanning provides insight into the technological landscape, predicting the direction that the technological changes will take or assessing the potential of a technology.

More than just a part of exploitation planning, Technology Scanning provides a broad range of information to assess and exploit the outputs potential, but also aids understanding of the actual barriers to the achievements of project objectives.



More detailed guidance on how to integrate Technology Scanning into your project can be found here:

[SPRING Technology Scanning Guidance](#)

# Business Models and Cases

Business model archetypes explored by the [INSPIRE](#) project

- SPIRE does not exist to develop technologies that are just *interesting*, or just *green*. They need to be commercially viable too.
- You must clearly articulate the business plan for commercialisation.
- Different business models *may* be required to make your new technology commercially viable.

## Decentralised & Modular production

Production units operate in complementary parts of the value chain  
 Allows production at different locations  
 Modularity is enabler for the concept

## Mass customization

Customer gets product that meets individual preferences  
 Customer gets part of design process  
 Mainly in discrete manufacturing, but will also impact chemical industry

## Servitization

Delivering functionality instead of ownership  
 Integrates products and services (PSS – Product Service Systems)  
 Customer needs are focus  
 E.g. chemical leasing

## Reuse

Optimizes input and reuse of raw materials, energy and water  
 Requires cross-sectoral collaboration  
 Waste is seen as profit center instead of cost  
 E.g. waste-2-chemicals



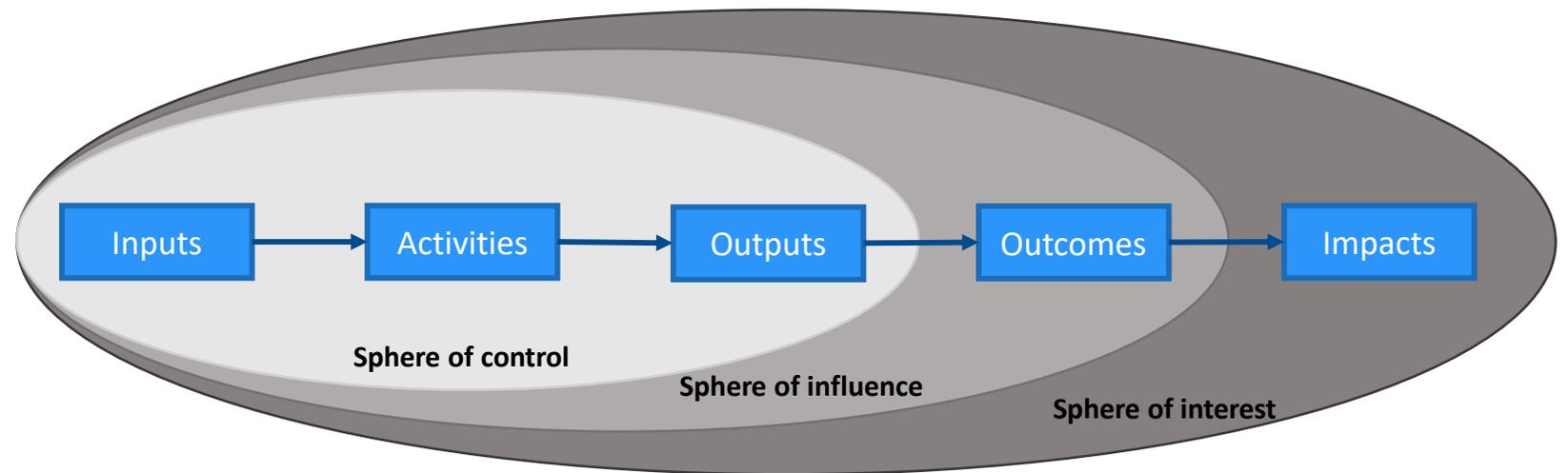
**INSPIRE**

# Managing & Monitoring Impact

The SPIRE programme has a mandatory annual Progress Monitoring Report. Questionnaires for coordinators and industry are sent out to projects in early Spring every year. **Plan ahead to have relevant data available.**

Projects should be analysing how they will contribute to the [SPIRE goals](#) and consider aligning Key Performance Indicators with SPIRE.

- Each call has specific guidelines for the expected impact. As well as stating that the project will achieve these impact targets, it is advisable to carefully plan how these claims will be evidenced once the project is live. What data will be collected? By whom? When? How will long-term potential impact be estimated?
- Plan how impacts could actually be achieved by mapping how the *activities* of your project will lead to tangible *outputs*. *Outcomes* are the behavioural changes that you want to see (e.g. technology being installed in manufacturing processes). *Impacts* finally happen when the innovation actually delivers things like emissions reductions or new jobs.



QUESTIONNAIRE FOR COORDINATORS / 2013

Q 19. Based on this scenario please provide information on the environmental performance of the innovative practices your project is developing

Environmental Performance Indicator	Is the indicator relevant?	Performance		Status	Compared to proposed range target	Comments
		Is	Absolute Figure			
Reduction in CO <sub>2</sub> emissions (kt/year)	OPTIONS: Yes No			OPTIONS: Estimated Measured	OPTIONS: Better Worse Same	100 CHARACTERS
Reduction in energy consumption (t/year)	OPTIONS: Yes No			OPTIONS: Estimated Measured	OPTIONS: Better Worse Same	100 CHARACTERS
Reduction in fossil energy consumption (kt/year)	OPTIONS: Yes No			OPTIONS: Estimated Measured	OPTIONS: Better Worse Same	100 CHARACTERS
Reduction in raw material consumption (kt/year)	OPTIONS: Yes No			OPTIONS: Estimated Measured	OPTIONS: Better Worse Same	100 CHARACTERS
Reduction in non-renewable primary raw material consumption (kt/year)	OPTIONS: Yes No			OPTIONS: Estimated Measured	OPTIONS: Better Worse Same	100 CHARACTERS
Reduction in landfilled waste (t/year)	OPTIONS: Yes No			OPTIONS: Estimated Measured	OPTIONS: Better Worse Same	100 CHARACTERS

Link to [2018 SPIRE PMR](#)

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# Communication & Dissemination



## Other good practice advice:

- Hosting dissemination events close to industry (e.g. via clusters) can increase the chance of useful industry engagement. Hosting events in Brussels is good if you want to get Commission representatives to attend.
- Communication is two-way; plan activities to gather information and views, not just present your work.

Further communication, dissemination and exploitation advice can be found here: [http://ec.europa.eu/research/participants/data/ref/h2020/other/events/2017-03-01/8\\_result-dissemination-exploitation.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/events/2017-03-01/8_result-dissemination-exploitation.pdf)

For projects in the SPIRE programme, there is an ready-made audience of SPIRE members and stakeholders who have an interest in the outputs of SPIRE projects.

A.SPIRE can help publicise your project through newsletters, events, brochures and social media channels (e.g. [@spire2030](https://twitter.com/spire2030)). Projects can also host their websites on the SPIRE platform to enable increased visibility and longevity of presence.

**New for 2019:** SPIRE have launched a new section on the website to enable users to search and browse outputs from projects across the SPIRE portfolio more easily (e.g. educational resources, images, reports, videos, case studies, technology summaries):

[www.spire2030.eu/projects/outputs](http://www.spire2030.eu/projects/outputs)

An introductory video to Project Output Summaries and step-by-step guidance on how to produce them can be found here: [Output Summary Guidance](#)

**STYLE Recommendations Roadmap and Ideal Toolkit Framework**

**Summary:**  
STYLE focused on specific scenario: "A project team is evaluating options for a resource or energy improvement for their process or product and they need a pragmatic tool to check the broader sustainability implications of each technological solution".  
The STYLE Roadmap provides an interactive summary of the key recommendations from the project funder Uptake, Toolkit, Methodological and Data themes).  
A key recommendation of STYLE was the need to develop an Ideal Toolkit for the STYLE scenario. The STYLE framework details the high-level features and functions of this toolkit.

**Project:**  
Sustainability Toolkit for easy Life-cycle Evaluation  
**STYLE**  
Project website: [www.spire2030.eu/style](http://www.spire2030.eu/style) This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 636771.

**Advisory Notes:**  
Project completed Dec 2016 (newer tools/ methodologies may already exist). The interactive pdf documents are compatible with Adobe Reader; there are known issues with opening the document in Microsoft Edge.

**Sector:**  
Country, Company, Careers, Engineering, Mining

**Keywords:**  
Sustainability, Roadmap, LCA, Sustainable, Tools, Methods, Toolkit, Data, Uptake, Recommendations, Pragmatic, Analysis, STYLE

**Resources**  
Additional STYLE project outputs  
STYLE IdealToolkitFramework.pdf | STYLE-Roadmap.pdf  
The roadmap and tool framework are interactive pdfs

**Type:**  
Education/training materials | Document

**Theme:**  
Sustainability tools : SPIRE04-2014

# Effective Advisory Groups



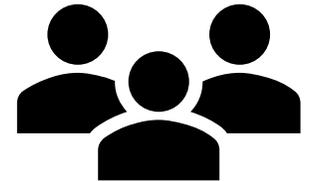
You may need to plan what information you can share with an Advisory Group. It is helpful for the groups to be able to see more than just general project publicity, but without going into details that affect partners' IPR (Intellectual Property Rights).

Many larger SPIRE projects facilitate effective communication with key stakeholders by planning to incorporate an expert advisory group into their project.

Advisory group members are usually representatives from organisations outside the project consortium; they do not receive EU grant funding, but arrangements are often made via the coordinator's budget to cover their travel costs to attend meetings and workshops, where required.

Effective advisory groups bring expertise and insight to your project to help ensure that your project's outputs are likely to have the desired outcomes and impact beyond the project consortium. The advisory group follows the project through its lifetime, and provides the project partners with advice on both technical and non-technical (policy, operational, market, etc.) aspects. Depending on the scope of your project, you may wish to consider bringing in advisory expertise from:

- Further up/ down the value chain, including potential end-users
- Other SPIRE sectors - A.SPIRE can provide guidance
- 'Civil society', e.g. Non-Governmental Organisations (NGOs)
- Trade-unions (representatives for workers whose jobs may be impacted by your innovations)
- ... be creative!



# Skills, Education & Training



Outputs from “From Collaborative Projects to Education and Training Resources” workshop:  
<http://bit.ly/SPRING-EducationWorkshop>



SPIRE projects need to include development of education and training resources.

The SusChem Educate to Innovate project identified the following needs for such resources:

- Rich in content from case studies based on real world examples
- Learn through failure as much as success
- Documented methodologies for problem-based studies
- Understand how and why decisions were made, supported by good reference material
- Accessible across different media platforms
- Adaptable to different teaching curricula demand, learning styles and approaches
- Flexible in use (not a standalone learning module)
- Appeal to a broad community



Projects should also consider how to embed education into projects, rather than just disseminate learning out at the end. Examples of good practice include having PhD students based in industrial companies; having project tasks that can be done by students (e.g. energy survey); involving teaching specialists from universities, not just researchers; consider routes to Life Long Learning (e.g. through industrial clusters).

# General Proposal Advice



Many organisations and EU institutions have advice available for preparing general H2020 proposals



European Commission

### For proposers – Do not forget to consider:

- Value Chain Approach
- Cross Sectorial / Transferable Technologies
- Lifecycle perspectives
- Outline Business Plan
- Valorisation of results and products
- Address Non-technological barriers / bottlenecks
- Links to Legislation and Standardisation
- No negotiation of proposals → Only **complete** proposals can be funded
- **AND don't forget to Pre-register your proposal and submit IN TIME**



# The SPRING Project



This guidance has been collated through the SPRING project.

For more information on our work to *enhance the impact of SPIRE projects*, see:



[www.spire2030.eu/spring](http://www.spire2030.eu/spring)

[www.twitter.com/H2020SPRING](https://www.twitter.com/H2020SPRING)



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