SPIRE Guidance

Technology Scanning #1

Understanding the world outside your project to enhance impact

Context – A lot can happen from the time that a project proposal is first written. 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 is fundamental to a meaningful benchmark of 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 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.

Issues

- It can be hard to summarise the collected information in a simple a short format.
- The information gathered may be difficult to guarantee clear understanding for all the partners, due to different technical languages (e.g. chemist vs. engineer).
- The potential research channels are numerous, so it can be difficult to collect the right and useful information.

Recommendations

- Technology Scanning is of greatest benefit to a project when it includes the analysis of possible cross-fertilisation actions: how technologies could be used in other applications and sectors.
- To perform an effective Technology Scan, the research requirements should be clearly and properly defined.
- The information resources spectrum is huge, so it is important to define from the beginning the aspects that should be investigated.
- Technology Scanning should be used regularly at all project stages for a continuous evaluation of the scenarios outside the project.
- Results from Technology Scanning can help inform *Thematic Workshops,* identifying technologies, events, research and potential industry exploiters outside of the SPIRE community.
- Technology Scanning should help drive project management, highlighting which features and specifications need to be addressed in order to maximise chances of industrial exploitation and commercial success.

An example methodology for Technology Scanning in SPIRE projects has been provided on p2-3 of this guidance.

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SPRING
Setting the Framework for Enhanced Impact of SPIRE Projects

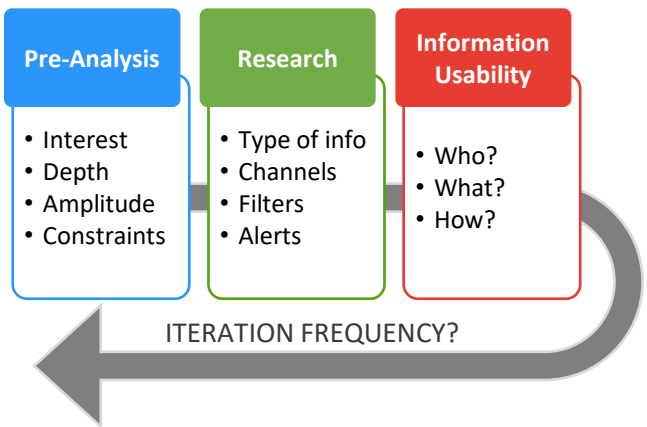
SPIRE Guidance

Technology Scanning #2

A methodology for SPIRE projects

The following outline of an example methodology builds on the SPRING recommendation to incorporate Technology Scanning into SPIRE projects.

Technology Scanning is an iterative technology validation process structured into three main phases: Pre-Analysis, Research, and Information Usability.



It is important to note that this is <u>not</u> a linear process. The project team should iterate through the stages at a frequency consistent with the length of project and the pace at which technology developments are being made on the topic globally.

Pre-analysis phase

The pre-analysis phase includes a brief overview of interesting technologies and their features, aiming at defining the information of interest for the project's partners and activities.

This phase is structured as follow:

- *Review:* general overview of the technologies developed, analysed or implemented within the project
- *Definition:* understanding of the technology of interest. Project experts will be involved in the choice, in order to align the activity on the project needs
- *Final analysis:* final characterization of the technology features concerning five key information fields: competitors, social, political, economic, technical. In this phase an analysis of information depth and amplitude will also be conducted.

Research

This phase can briefly be described as a technology scouting exercise focused on the technology chosen in the previous phase. This can often be done using public sources of information (e.g. websites, free articles) and professional tools:

Scientific Databases: e.g. Scopus, ScienceDirect, IEEE
Patent Databases: e.g. Derwent Innovation
Company Databases: e.g. Orbis (Bureau Van Dijk)

The use of filters and alerts can help streamline and automate some elements of this stage.

The final stage, **Information Usability**, is described on page 3 of this overview.

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Technology Scanning #3

A methodology for SPIRE projects

Information Usability – In the final stage of Technology Scanning, information collected through the research is presented in a format that is easily accessible and understandable to relevant project partners. A simple table for each exploitable output is a good approach to organise and manage the data.

OUTPUT NAME	Clear name to identify the output (chosen in pre-analysis phase)	**Example –** high temperature coating material
DESCRIPTION	An overview of the characteristics and properties of the output, ***why*** it has been developed	e.g. developed to reduce radiative heat transfer in X sector. Designed for retrofit…
FEATURES	Summarise the more detailed features of the output that constitute the technological and commercial value of the solutions.	e.g. reduces thermal energy dispersed through vessel walls, protects vessel from corrosion…
REQUIREMENTS	Mandatory characteristics that the output should have	e.g. stable at temperatures 500-700°C, stability for >5yrs in pH 3 conditions…
COMPETITORS	A list of the direct competitors with a brief description of the analysed solutions	e.g. Competitor X product, features, link to more info… Competitor Y product…
PATENTABILITY	Brief analysis of the patent landscape for the output sector and relevant patents, if available	e.g. Composition of coatings generally kept as trade secret, rather than patented…
OTHER USES	Other sectors outside the ones designated within the project, in which the output can be exploited	e.g. Steel furnaces – details… Petrochemical vessels – details…
ALTERNATIVE SOLUTIONS	Solutions that may be effective alternatives to the output	e.g. Alternative vessel materials of construction (intrinsic corrosion resistance)
BENCHMARK	Summary of collected information with focus on advantages and weaknesses, and potential further development of the output	e.g. Need to investigate ease of retrofit, versus competitor X; current data shows significantly lower use of critical raw materials than material Y

SPIRE PROJECT

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