## Output factsheet: Tools

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<tr>
<th><strong>Project index number and acronym</strong></th>
<th>CE318 - NUCLEI</th>
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<tbody>
<tr>
<td><strong>Lead partner</strong></td>
<td>CRIT Srl</td>
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<tr>
<td><strong>Output number and title</strong></td>
<td>O.T2.1 Innovation service fast-lane model &amp; tool increasing CE innovation nodes economic interdependences</td>
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<td><strong>Responsible partner (PP name and number)</strong></td>
<td>1 CRIT</td>
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<td><strong>Delivery date</strong></td>
<td>04.2018</td>
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### Summary description of the key features of the tool (developed and/or implemented)

The NUCLEI aim to design the new innovation services model for CE advanced manufacturing companies has been translated into 2 different tools/models that will support users (SMEs, large companies, research centers) in innovation in business.

The NUCLEI plan for the transnational technology transfer services is based on:

- transnational catalogue of industrial pools of excellence
- Specific manufacturing engineering & processing innovation requirements:
- R&D from KETs (>TRL5-8) from CE labs gathered by the TDP (2.2.1)

The Technology Digital Periscope (TDP) is a tool to support and speed-up the access to the existing state-of-the-art R&D results and products by their systematisation and exportability. Results included in the Periscope are from the field of advanced manufacturing and processing industry. Results cover highly important KET (Key Enable Technologies) such as Robots, production processes, ICT, Electronics and Modelling&Visualisation.

Find below a detailed description of each tool that have been created.
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<td><strong>Output number and title</strong></td>
<td>0.T2.1_a) Plan for NUCLEI advanced manufacturing transnational service</td>
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**Summary description of the key features of the tool (developed and/or implemented)**
NUCLEI plan for the transnational technology transfer services is based on:

- Transnational catalogue of industrial pools of excellence: the tool includes research institutions and universities belonging to Nuclei partners regions that are excellent in the following technology field: ICT, electronics, mechatronics, production process and robotics. The NUCLEI pool of excellence can be used as basis for the thematical definition of the open seminars and working tables in the work package WP T3.

- Specific manufacturing engineering & processing innovation requirements: the objective of this activities is to assess the “distance-to-target” between actual technical needs of industrial companies, grouped into 4 key technologies, and readiness of 7 excellence nodes (clusters, business intermediates). In the multi-annual roadmap for the factories of the future (in Horizon 2020) chapter 6 refers to the Key technologies and enablers. We carried out a survey to assess current and upcoming technical needs of industrial companies, where more than 270 companies / institutions have participated. For this survey we focused on the 4 KETs: Advanced manufacturing process, Mechatronics for advanced manufacturing systems, Information & communication technologies (ICT), Modelling, simulation & forecasting. The analysis of the survey showed, that the most important subtopics are: Optimization of Production Processes, Service (e.g. predictive maintainance, reconfigurable production systems), Intelligent and logic systems (e.g. control units), Software Tools (e.g. CAD, CAM, control systems for various hardware), Simulation software (for e.g. mulit-parameter simulation of technological processes)

- R&D from KETs (>TRL5-8) from CE labs gathered by the TDP (2.2.1): One of the possible way how to support the interregional cooperation and research by using existing KET is to promote the tool, which will summarize actual results of R&D. Such tool should be accessible for anyone interested. In the NUCLEI project, this tool is called “Technology periscope to match KET for automation & mechatronics with NUCLEI industrial requirements”.

The project output provides a basis to overcome the obstacles concerning transnational cooperation and follow-up of research and initiatives and is an opportunity for all addressed target groups. Target groups (mainly industrial entities and higher education and research organizations) could potentially exploit the developed tool to strengthen their cooperation across borders and to exchange knowledge and expertise for future initiatives. Moreover, the tool promotes the excellence in different technological fields across CE regions and new targets such as start-ups, could benefit directly from the opportunities offered including knowledge transfer, specific competences and research and innovation projects, in a transnational and open ecosystem.

**NUTS region(s) where the tool has been developed and/or implemented (relevant NUTS level)**

The plan has been developed and implemented in all NUCLEI project regions: Italy, Germany, Czech Republic, Slovak Republic and Austria. The plan has been the result of a common discussion achieved during the first meetings of the project.
Expected impact and benefits of the tool for the concerned territories and target groups

Each NUCLEI region has its own outstanding entities as well as ones that only reach mediocrity. In order to push new, innovative solutions for upcoming challenges, we focus on the best research institutions and companies in our regions. Most of the regions as well as most of the project partners in NUCLEI have listed such entities on different platforms. As we focus on advanced manufacturing within this project, only the topic-related organisations and clusters are included in NUCLEI. Most of the NUCLEI project partners have further clusters, regional stakeholder networks or further intermediaries in their region, who represent some thousands of companies and research institutions. One can summarize, that there is huge knowledge in each of the NUCLEI-region, but more or less no common platform of the leading entities in Central Europe.

In addition, the search of technology partners for the realization of innovation processes can be crucial for a company in order to be able to have a clear and complete picture of the most important actors operating within a specific technology sector. The pool of excellence is a service dedicated to the identification and collection of all the information on the main players and technological competencies in the framework advanced manufacturing in Central Europe and it can be used by companies also after the end of the project.

Sustainability of the tool and its transferability to other territories and stakeholders

We can summarize that the 7 clusters involved in project NUCLEI offer a huge variety of seminars, trainings and services to meet the above-mentioned needs of industry. Additionally, to the above mentioned 4 KETs the clusters also offer services regarding the further two KETs, mentioned in the roadmap:

- Manufacturing strategies
- Knowledge workers

Nevertheless, one has to keep in mind, that most of the activities of the clusters are focused on their own region. Within NUCLEI we have now the possibility to transform these activities to a transnational scale.

Lessons learned from the development/implementation process of the tool and added value of transnational cooperation
The initial requirements definition of the plan, achieved during the first calls and meetings of the project, has been successful for the final implementation. All the partners gave their contribution to the discussion and for define a plan that might be able to bring value to actors and companies belonging to all the CE regions involved.

As regard the pool of excellence, in the future, according to the idea of the partners to extend the collaboration also after the end of the project including also new members, the tool could extend to other territories and it could involve information and excellent actors belonging to new European regions.

Furthermore, the concept of transnationality is fostered by the Regional S3 policies in partners’ regions and it is sought by companies, SMEs, start-ups and research centers working on advanced manufacturing, who see transnational cooperation as a key component of the new innovation management services in the Industry 4.0 field.

References to relevant deliverables and web-links
If applicable, pictures or images to be provided as annex

- References to deliverable D.T2.3.1
- Transnational catalogue of industrial pools of excellence: https://www.easymapmaker.com/map/75524a0eea968ee71befcc9cc3511ed
- Technology Digital Periscope web link: http://www.transfertech.eu/
- NUCLEI blog: https://opentech.t2i.it/
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**Summary description of the key features of the tool (developed and/or implemented)**
Technology Digital Periscope (TDP) is a tool to support and speed-up the access to the existing state-of-the-art R&D results and products by their systematisation and exportability. Results included in the Periscope are from the field of advanced manufacturing and processing industry. Results cover highly important KET (Key Enable Technologies) such as Robots, production processes, ICT, Electronics and Modelling&Visualisation.

Several option how to use search engine are available: key-word search, region preference, TRL level according European commission definition or Technological Scope can be used to find requested records in database. “SEARCH” button starts searching in the database while “Reset” button clears all search definition. The search results in database are open in new browser window presented by short info. By clicking on the Title, detail description of the result is opened.

The GUI (Guide User Interface) will be installed on the website (public access) and will provide special features for the user. The GUI will consist of:

- **Periscope info** - information regarding Periscope usage:
  - What is the Periscope
  - Why it could be useful for the user
  - How to use the Periscope
  - Other necessary info related to the NUCLEI project, Periscope usage etc.

- **Search Interface** - the main part of the GUI, where the definition of the request for searching can be specified (based on roll-up menu; string fields; binary specification and others). The examples of search specification are:
  - Technological field
  - Targeted partner
  - region preference
  - TRL

- **Search results area** - the area, where results of the database search will be provided for the user. The one each record in database will be structured and will show all information related to this record in the repository

**NUTS region(s) where the tool has been developed and/or implemented (relevant NUTS level)**
NUCLEI partners can be separated into two groups, according their role. There will be two main roles to develop the Technology periscope:

- Develop the GUI Guide User Interface (D.T2.2.1) and the Repository (D.T2.2.2) and release the tool on the server and website
  - Responsible partners – RCMT (Czech Republic), CRIT (Italy), ITQ Germany
- Deliver requested data from each CE region for specific technologies
  - Responsible partners – CRIT, RCMT, Biz-Up, T2i, ATR, PWR, CMAB, SIG

The tool collects project belonging to 6 EU regions (Italy, Germany, Czech Republic, Slovak Republic and Austria) and it is online at the following link: [http://www.transfertech.eu/](http://www.transfertech.eu/)

**Expected impact and benefits of the tool for the concerned territories and target groups**

The Periscope can support transnational cooperation within Central Europe (CE) through connecting research area with the private sector or companies across CE region. Each record in the database contains description and short abstract of achieved target and includes the relevant contact.

The database (deriving from the systematization of existing databases) is a practical solution that prepares the space where knowledge and experience can meet with requests from industry. Users have the opportunity to benefit from the easy way to access to existing R&D projects/applications/solutions, that are localizable per region, per thematical scope, per technology readiness level.

**Sustainability of the tool and its transferability to other territories and stakeholders**

The tool is an online platform; each company in EU can access to the tool and researching for existing state-of-the-art R&D results.

The tool includes project belonging to Nuclei partners regions but also a list of passive links to other databases where the users can find other results of R&D:

- EEN - enterprise europe network
- CORDIS - community research and development information service
- EFFRA - the european factories of the future research association

In the future, according to the idea of the partners to extend the collaboration also after the end of the project including also new members, the tool could extend to other territories and it could involve information and technologies belonging to new European regions or new European projects. As regard the future collaboration, each member (old and new) could insert new project in the platform.
Lessons learned from the development/implementation process of the tool and added value of transnational cooperation

The initial requirements definition of the tool, achieved during the first calls and meetings of the project, has been successful for the final implementation. The three main aspects have been referred to:

- Exploitable R&D results repository
- Data sources and selection
- TRL definition issue

For each topic each partners share considerations, idea, and personal experiences.

The development of the platform was a very useful activity because it gave the opportunity to all partners to assess information regarding EU R&D projects and to evaluate the best way to share information, through a platform, to external users.

References to relevant deliverables and web-links
If applicable, pictures or images to be provided as annex

- References to deliverable D.T2.2.1 and D.T2.3.1
- Technology Digital Periscope web link: http://www.transfertech.eu/