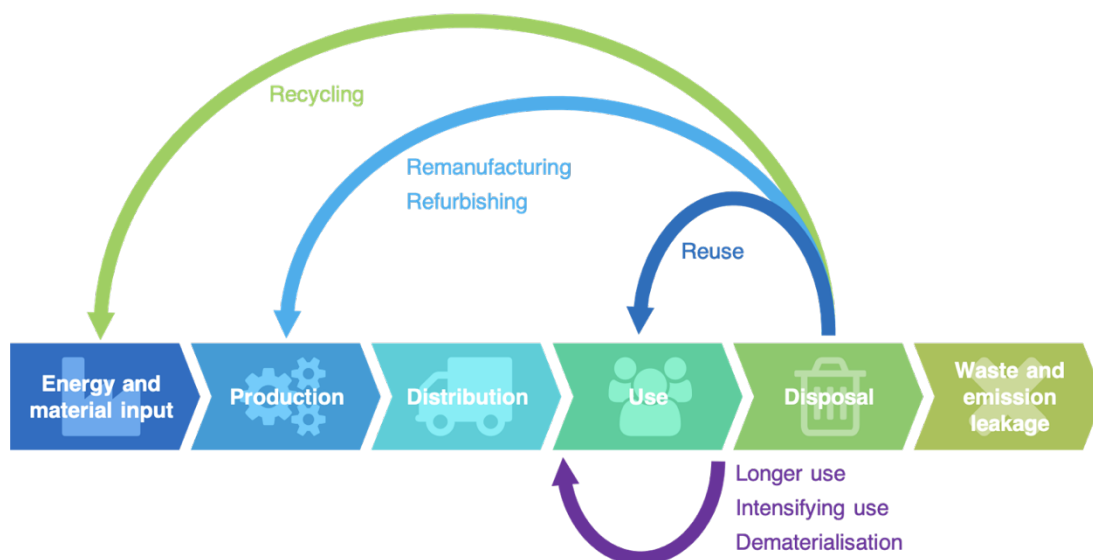


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## Produktion2030 - Call number 16

### Circularity in industrial production

Step 1 (of 2): Feasibility study

A call within the strategic innovation programme Produktion2030. The call is carried out in two steps: Step 1: feasibility study and Step 2: research and innovation project.

The strategic innovation program Produktion2030 is part of **Vinnova's, the Swedish Energy Agency's and Formas' joint investment** in strategic innovation areas. The purpose of the investment in strategic innovation areas is to create conditions for international competitiveness and sustainable solutions to global societal challenges.

For more information about the program, see [www.produktion2030.se](http://www.produktion2030.se)



Med stöd från

**VINNOVA**  
Sveriges innovationsmyndighet

 **Energimyndigheten**

**FORMAS**

**Strategiska  
innovations-  
program**

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### Revision history

Date	Change
2022-06-28	Preliminary decision date: 11 October 2022 The project description should include a maximum of 5 pages Chapter 8.2 Conditions for awarded funding: 9. The Programme Office for Produktion2030 will call all funded projects from this call for a mandatory workshop. Time, place and expected representation of the consortium will be announced later.

## 1 Produktion2030's offer in brief

Welcome to apply for funding in Produktion2030's 16th call . Global manufacturing industry is undergoing a major transformation to meet sustainability goals and reduce industry's impact on the environment and natural resources. This call for proposals will fund projects where results and impacts contribute to increased circularity in industrial production in Swedish Manufacturing industry.

Call 16 is divided into two stages with a total budget of SEK 50 million. Step 1 is carried out as feasibility studies for Step 2, which instead will be carried out as large-scale research and innovation projects. A call for funding proposals for Step 2 projects will only be available for projects approved in Step 1. A separate call for Step 2 projects will open during the winter of 2022/2023.

**Step 1, feasibility studies, can go on for a maximum of six months** and are expected to result in proposals for research and innovation projects and consortium for step 2. Project consortia in step 1 must include at least two actors from the Swedish manufacturing industry and at least two actors from universities or research institutes. The maximum funding for a feasibility study in Step 1 is SEK 800,000, with a maximum public funding of 80% of eligible costs

The feasibility studies are intended to build credible and clear plans for projects in **Stage 2, research and innovation projects (R&I)** which can last a maximum of three years. R&I-projects will develop and implement ideas from the feasibility studies, and also scale, test, and verify results. Project consortia for Step 2 must contain at least three companies from the manufacturing industry operating in Sweden, at least one university, and at least one research institute. Research and innovation projects can apply for a maximum of SEK 8.5 million, with a public funding of max 40% of eligible costs. Funding for Stage 2 can only be applied for by projects approved in Step 1, during a separate call in the winter 2022/2023

**Step 1, feasibility study, important dates:**

The call opens:	17 May 2022
Application deadline:	1 September, 2022
Preliminary decision date:	11 October, 2022
Project should start by	14 October 2022
Project should be completed by:	14 April, 2023

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Technical questions about the Stakeholder Portal, tel. +46 (0)8-473 32 99  
[helpdesk@vinnova.se](mailto:helpdesk@vinnova.se)

Current information about the offer and link to our proposal service (Stakeholder Portal) can be found on [www.vinnova.se](http://www.vinnova.se).

## 2 What does Produktion2030 want to achieve through this call for proposals?

Global manufacturing industry is undergoing a major transformation to meet sustainability goals and reduce the industry's impact on the environment and natural resources. Large investments are being made to strengthen industrial companies' capacity for circularity. This means that companies systematically increase the lifespan of their products and production systems through new design methods, maintenance and remanufacturing. Further examples of activities for increased circularity are: reduced use of virgin materials; increased integration and collaboration within supply-chains to ensure circularity throughout life cycles; and increased use of recycled materials<sup>1</sup>. See also examples in chapter 4.

When the manufacturing industry in Sweden increases its investments in circular production, it also means new business opportunities and increased competitiveness. An increase in circular production within the planet's boundaries contributes to Sweden's ability to achieve Agenda 2030 and the UN's climate goals, especially SDGs 9 and 12.<sup>2</sup>

Produktion2030 wants to increase circularity in manufacturing industry. In this call, project consortia are expected to develop new knowledge and technical solutions through collaboration between industry and research actors. Step 1, feasibility studies, will refine project ideas and create excellent project consortia. Projects from stage 2, Research and Innovation projects, will concretize circularity through demonstrations in real-life environments or test beds.

### **Impact goals of call 16 (step 1 and 2):**

Produktion2030's expectations of the projects' effects after Step 2 are:

- increased service life of products and production systems
- reduced resource waste along entire product life cycles and value chains
- increased use of renewable raw materials

In all calls, Produktion2030 aims to strengthen collaboration between actors in the Swedish manufacturing industry, universities, and research institutes.

Produktion2030 focuses on six key challenge areas for the manufacturing industry. The consortia should develop their new solutions in one or more selected challenge areas, see Chapter 4.

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<sup>1</sup> Taisch, M. et al Eds (2021) 2021 World Manufacturing Report: Digitally Enabled Circular Manufacturing

<sup>2</sup> SDG 9 Industry, innovation and infrastructure and SDG 12 Responsible consumption and production

### 3 Who is the call for?

Produktion2030's 16<sup>th</sup> call (both feasibility studies in step 1 and full-scale projects in step 2) **is intended** for project consortia with actors within manufacturing industry, universities, and research institutes with focus on manufacturing. In this call we limit manufacturing to production processes, production systems, and enterprises where end manufacturing results are discrete products or units.<sup>3</sup>

Call 16 **is not intended** for project consortia from continuous process industry, energy-producing industry, healthcare, service sectors or similar.

Project consortia in step 1, **feasibility studies**, must include at least two actors from the Swedish manufacturing industry and at least two actors from universities or research institutes.

Project consortia in step 2, **research and innovation projects**, must include at least three companies from the Swedish manufacturing industry, at least one university and at least one research institute. Funding for Stage 2 can only be applied for by projects approved in step 1, in a separate call in the winter 2022/2023

All projects shall contribute to equal social development by ensuring that both women and men take part in funding on an equal footing, have real influence over the project and participate clearly and actively in the project's implementation with substantial effort in a timely manner.<sup>4</sup>

### 4 What can be funded by Produktion2030?

Produktion2030 focuses on one or several of the programme's six industrial challenge areas (see Fig. 1). Research, innovation, and results from all challenge areas contribute to the programme's efforts to achieve the sustainability goals of Agenda 2030 and the Produktion2030's other long- and short-term impact goals<sup>5</sup>

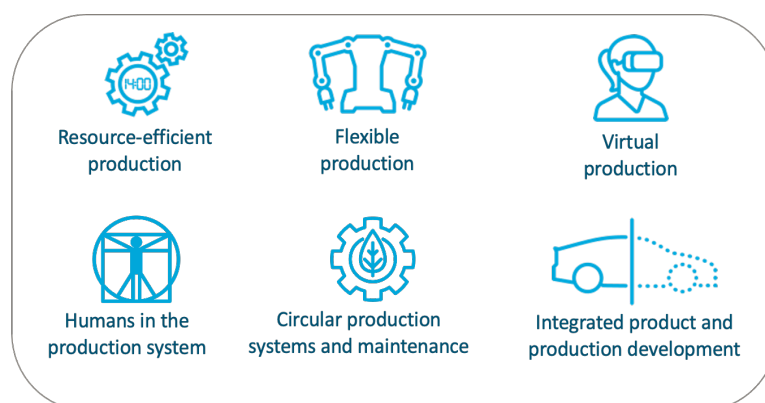


Fig. 1. Produktion2030's six industrial challenge areas. See [www.produktion2030.se](http://www.produktion2030.se)

<sup>3</sup> [https://en.wikipedia.org/wiki/Discrete\\_manufacturing](https://en.wikipedia.org/wiki/Discrete_manufacturing)

<sup>4</sup> <https://www.vinnova.se/m/jamstalld-innovation/>

<sup>5</sup> <http://produktion2030.se>

#### **4.1 Challenge Area 1 – Resource-efficient Production**

*Example:* Resource-efficient production is a requirement for manufacturing in high-cost countries as Sweden. How can resource consumption and environmental impact from production systems be minimized? How do production systems and employees become competitive, resource efficient, and competent? How can production systems and supply chains become more circular and at the same time competitive, resource-efficient, and resilient to disruptions?

#### **4.2 Challenge Area 2 – Flexible Production**

*Exempel:* How are flexible value chains, production systems and manufacturing processes created for rapidly changing customer requirements and increased circularity? How are the requirements for volume and variant flexibility in production and variations in material combinations met? How are manufacturing methods and automation solutions created for rapid transition? How can flexible automation and digitization contribute to circularity through new automation solutions, simulation or integration of systems to decentralize control and monitoring of production processes?

#### **4.3 Challenge Area 3 – Virtual Production**

*Example:* How can data and information be quickly transformed into knowledge and decision support in virtual production systems and digital twins/threads of processes, factories and value chains, and utilized for visualization of climate effects, circularity, and resource traceability? How can the digital maturity of companies be increased for digital transformation and concepts such as Industry 4.0 where equipment is often connected to the internet?

#### **4.4 Challenge Area 4 – The Human in Production Systems**

*Example:* How can effective collaboration between humans, automation and robots be created? How are workplaces designed for with good ergonomics, safety, productivity and flexibility? How are continuing education and social sustainability integrated into the work? How is the role of humans strengthened through decision support, instructions and advanced production systems? How are people in production systems given access to real-time information through global networks and the opportunity to influence the circularity of the systems?

#### **4.5 Challenge Area 5 – Circular Production Systems and Maintenance**

*Exempel:* How can manufacturing support circular economy and circular production? How should products, production systems and business models be designed to enable circularity and remanufacturing? How is digitization and connectivity used to collect large amounts of data for analysis through AI or machine learning? Can new forms of maintenance extend the life, resilience and durability of products and production systems? Can Industry 4.0 technology create services and decision support that reduces industry's climate impact?

#### **4.6 Challenge Area 6 – Integrated Product and Production Development**

*Example:* How can parallel product and production development increase circularity and reduce climate impact? How does product development create value, resilience and robustness for all actors in a supply chain? How is the development process streamlined to meet new environmental and market requirements? How can smart product development decisions increase circularity and the reuse of materials in the value chain? How does standardization reduce environmental impact? How does decision support affect the product developer's ability to change the environmental impact of products?

## **5 Costs and funding**

### **5.1 Conditions for receiving funding**

Our funding is provided in the form of grants. Funding for organizations that operate economic activities is subject to regulations regarding state aid<sup>6</sup>. These regulations govern which costs and what proportion of these costs may be covered by the grant.

Universities, university colleges, research institutes and companies with a maximum of 49 employees can receive grants in this call. Which costs that are eligible and support levels for different parties in the project must comply with the GBER Regulation<sup>7</sup>. For universities, university colleges and institutes that do not perform financial activities, funding is not granted as state aid but in accordance with ordinance (2009:1101) with instructions for the Swedish innovation agency.

The total budget for step 1 and step 2 is about SEK 50 million. Only feasibility studies approved in step 1 will be offered the opportunity to apply for funding for research and innovation projects in step 2, in a separate call.

**Feasibility studies** can last a maximum of six months. Project consortia must include at least two actors from the Swedish manufacturing industry and at least two actors from universities or research institutes.

### **5.2 How much funding is available?**

The maximum funding for feasibility study projects (step 1) is SEK 800,000, with a maximum public funding of 80% of eligible costs. Maximum public funding *per project* is not the same as maximum public funding *per individual project partner*.

The following support levels apply to companies, universities, university colleges and research institutes. For research institutes, a condition for funding is that they participate through non-commercial activities.

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<sup>6</sup> Read more about state support on Vinnova's website: <https://www.vinnova.se/sok-finansiering/regler-for-finansiering/statligt-stod/>. There you will also find Vinnova's general terms and conditions for grants and an instruction to eligible costs: <https://www.vinnova.se/sok-finansiering/regler-for-finansiering/allmanna-villkor/>

<sup>7</sup> Read more about state aid on our website: <https://www.vinnova.se/sok-finansiering/regler-for-finansiering/statligt-stod/>

<sup>8</sup> The number of employees and turnover in partner and affiliated enterprises shall also be taken into account; for full-fledged criteria, see <https://www.vinnova.se/globalassets/huvudsajt/sok-finansiering/regler-och-villkor/dokument/eu-definition-smf.pdf>



*Table 1. Public funding for categories of project partners in Step 1 (feasibility studies).*

	Maximum number of employees	Highest turnover	Maximum aid intensity
Small businesses	Max 49 employees	Maximum €10 million	50 %
Major companies	> 49 employees	-	0 %
Universities and similar	-	-	100 %
Research institutes	-	-	100 %
Estimated public funding for the total project/consortium			80 %

## 6 Prerequisites for proposal to be assessed

In Step 1, we will only evaluate proposals for funding that meet the following formal requirements:

- √ The project must not have started before the proposal is submitted.
- √ Project consortia in step 1, **feasibility studies**, must include at least two actors from the Swedish manufacturing industry that manufacture discrete products and at least two actors from universities or research institutes.
- √ The project proposal should focus on one or more of Produktion2030's challenge areas (see Chapter 4).
- √ The project parties shall be legal entities.
- √ Swedish Companies, universities, or research institutes can be project coordinators.
- √ The project should be able to start by October 14, 2022
- √ Projects are to be completed by April 14, 2023
- √ Proposal must be complete according to the instructions in chapter 9.
- √ At the time of proposal, the project summary must also be sent to the program management for Produktion2030: [cecilia.warrol@produktion2030.se](mailto:cecilia.warrol@produktion2030.se)
- √ The funding can amount to a maximum of 80% percent of eligibility costs for Step 1. The project budget reported shall only include eligible costs, see section 5.2. Project costs that are not eligible should, however, appear in the project description as they may be important in the evaluation..
- √ Of the total project budget, **minimum of 2 percent should be set aside for packaging and dissemination** of project results outside the consortium, for example as technology workshops and / or training / education modules. This must be clearly stated in the project description and budget summary.

If the above requirements are not met, the proposal will not be assessed but will be rejected on formal grounds, without further justification. Once the proposal deadline has passed, proposals may only be supplemented at Vinnova's request.

## 7 Evaluation of proposals

Each proposal is assessed in competition with other submitted proposals and it is only the electronic proposal submitted to Vinnova via Vinnova's proposal service portal (Intressentportalen) that will be evaluated. An expert group of independent, international experts carries out the evaluation. All project must have a clear focus on *one or more* of Produktion2030's challenge areas. These areas are stated in the project proposal.

### 7.1 How do we evaluate proposals?

**The following criteria are used by the international evaluators to assess and rate all project proposals that meet the formal requirements. The grades are compared, and the highest ranked project proposals are financed. It is therefore a strong recommendation that you take all criteria into account.** For this call, the evaluation of proposals for Step 1, feasibility studies, puts its greatest emphasis on **Potential**.

*Table 2. Evaluation criteria for Call 16, Step 1, feasibility studies*

		Criterion	Description
<b>Potential</b>	1.1	Impact goals	How well does the project contribute to the impact goals of the call?
	1.2	State-of-the-art	How well does the proposal describe the current state of knowledge in the field?
	1.3	Research level and novelty	How well described is the scientific excellence and research height of the project?
	1.4	Industrial and societal impact	How well described is the potential industrial and societal benefit of the project?
<b>Actors</b>	2.1	Project consortium	How well do the project's overall competence, project management, roles and stated resource needs correspond to the set goals for the project?
	2.2	Equality between actors	How well composed is the team in terms of gender balance and distribution of power and influence between women and men?
<b>Feasibility</b>	3.1	Gender equality in implementation	How well are gender aspects integrated into the project plan?
	3.2	Plan for implementation	How well does the proposal describe the plan for the implementation of the project?

### 7.2 The proposal and decision-making process

1. Proposal shall be submitted via Vinnova's application service portal (Intressentportalen): <https://portal.vinnova.se/>
2. A project summary shall be sent to the programme management for Produktion2030: [cecilia.warrol@produktion2030.se](mailto:cecilia.warrol@produktion2030.se)
3. Proposals meeting the formal requirements will be evaluated against the evaluation criteria set out above. It is done by specially appointed external evaluators (international experts in the field) who give recommendations on which projects should be granted and which should be rejected.

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4. Vinnova decides which proposals that are to be funded.
5. Decisions are notified to the applicant and the management of the strategic innovation program is informed of the outcome

## 8 Decisions and conditions

### 8.1 Vinnova's decision

How much each party in the project is granted is stated in the decision. The decisions for the granted funding are supported by Article 25 of the Commission Regulation No 651/2014 (GBER), industrial research and experimental development. The aid basis is stated in the decision and governs which costs are eligible.

Vinnova's decision to grant or reject a proposal cannot be appealed.

### 8.2 Conditions for awarded funding

Vinnova's general terms and conditions for grants apply to grants awarded.<sup>8</sup> The terms and conditions include regulations on project agreements, conditions for payment, follow-up, reporting and utilization of results. Scientific publication of results must be made using open access in accordance with Vinnova's instructions.<sup>9</sup>

Since the call is made within the framework of strategic innovation programmes, the following special conditions also apply:

1. The project must be represented by at least one project partner at the conferences and other activities organized within Produktion2030.
2. The project shall maintain a continuous dialogue with the Produktion2030 Programme Office and project support throughout the duration of the project
3. The Programme Office shall be given the opportunity to carry out a mandatory mid-term reconciliation involving all partners of the project
4. When informing about the project and at all publication of project results, it must be stated that: ***the work has been carried out within the strategic innovation program Produktion2030, a joint effort by Vinnova, Formas and the Swedish Energy Agency.***
5. At the same time as the project final reports to Vinnova, a public summary of the project results must also be sent to Produktion2030 via e-mail - [Cecilia.warrol@produktion2030.se](mailto:Cecilia.warrol@produktion2030.se)  
The summary should be able to be disseminated and published freely and must not contain confidential or sensitive information.
6. When presenting project results, Produktion2030's templates and logos shall be used according to instructions from Produktion2030's programme office

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<sup>8</sup> Aktuella villkor hittar du på Vinnovas webbplats, tillsammans med hjälp för att förstå och uppfylla villkoren: <https://www.vinnova.se/sok-finansiering/regler-for-finansiering/allmanna-villkor/>

<sup>9</sup> <https://vinatet.vinnova.se/contentassets/19d7ce8a36d243d499e2d7bd9840b80d/forslag-201109-vinnovas-anvisning-for-oppnen-tillgang-till-vetenskapliga-publikationer.pdf>

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7. The coordinator must provide information on the project summary, project manager and actor constellation for publication on - <http://www.kunskapsformedlingen.se> Instructions and templates are communicated in close connection with the decision.
8. At least 2 % of the total contribution shall be allocated to the packaging of project results for dissemination outside the consortium, for example in the form of technology workshops and/or training modules.
9. The Programme Office for Production2030 will call all funded projects from this call for a mandatory workshop. Time, place and expected representation of the consortium will be announced later.

Additional specific conditions may be decided for individual projects.

Our recommendation is that the coordinator prepares the form for the project party's approval well in advance of the start of the project. If you do not comply with Vinnova's terms and conditions, you may be liable to repay. This also applies if you have been awarded a funding incorrectly or with too high an amount.<sup>10</sup>

## 9 How to apply

To apply, please complete an online form in our Stakeholder Portal, which can be accessed via [portal.vinnova.se](http://portal.vinnova.se). There you shall also upload the following appendices<sup>11</sup>:

- Project description
- Project summary (public)
- CV Appendix

The appendices must be submitted in pdf format.

**Please note that proposals are evaluated by international experts. We strongly recommend that you write your proposal in English.**

1. The project description should include a maximum of 5 standing A4 pages with single-column 12-point black text, font times novel. The proposal pages beyond page 5 as well as any information on web pages and similar are not taken into account by the when assessing.
2. The Project Summary (maximum two pages) must be freely publishable and must therefore not contain confidential or otherwise sensitive information. In direct connection with submitting the proposal to Vinnova, the appendix Project Summary must also be sent to the program office for Produktion2030 via e-mail to the address: [cecilia.warrol@produktion2030.se](mailto:cecilia.warrol@produktion2030.se)

**This is mandatory for the proposal, to be considered for evaluation!**

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<sup>10</sup> Guide and forms can be found on our website:

<https://www.vinnova.se/sok-finansiering/regler-for-finansiering/allmanna-villkor/>

<sup>11</sup> Templates for the attachments can be found on Vinnova's website::

<https://www.vinnova.se/e/strategiska-innovationsprogrammet-for-produktion-2030/sip-produktion2030-utlysning-14/>

3. The CV appendix should contain relevant CVs for the project manager and all key people in the project team. Each CV should be on a maximum of one A4 page with 12-point text. **We recommend that individual project participants participate to a level of at least 5% of full-time.**
- All appendices above are mandatory and must use templates provided at the pages at Vinnova's portal specifically provided for the call. Non-conforming proposals will not be evaluated.
  - Keep in mind that it takes time to make a proposal. You can start filling in details, save, and continue at a later stage. When your proposal is complete, mark it as ready. You can at any time fully unlock the proposal and make changes, right up to the last proposal date.
  - Mark the proposal ready well in advance of the call deadline.
  - When the call has closed and the proposal has been registered with Vinnova, a confirmation will be sent out by e-mail to you who are responsible for the user account, project manager and company signatory/head of department. It may take a few hours for you to receive the confirmation.
  - If you have not received a confirmation email within 24 hours of the call closing, please contact us.
  - When the proposal period has expired, the completion of the proposal can only be done at the request of Vinnova.

## 10 Who can read the proposal?

Proposals submitted to Vinnova become public documents. Vinnova does not disclose information about an individual's business or operating conditions, inventions and research results if it can be assumed that any individual will suffer harm if the information is disclosed.

Documents sent to the organization responsible for the strategic innovation program are not covered by Vinnova's confidentiality regulations.

## 11 Definition of TRL

*Table 3. Definition of Technology Readiness Levels<sup>12</sup>*

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 (industrially relevant environment in the case of key enabling technologies)
TRL 6	Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
TRL 7	System prototype demonstration in operational environment

<sup>12</sup>[https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014\\_2015/annexes/h2020-wp1415-annex-g-trl\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf)

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TRL 8	System complete and qualified
TRL 9	Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)