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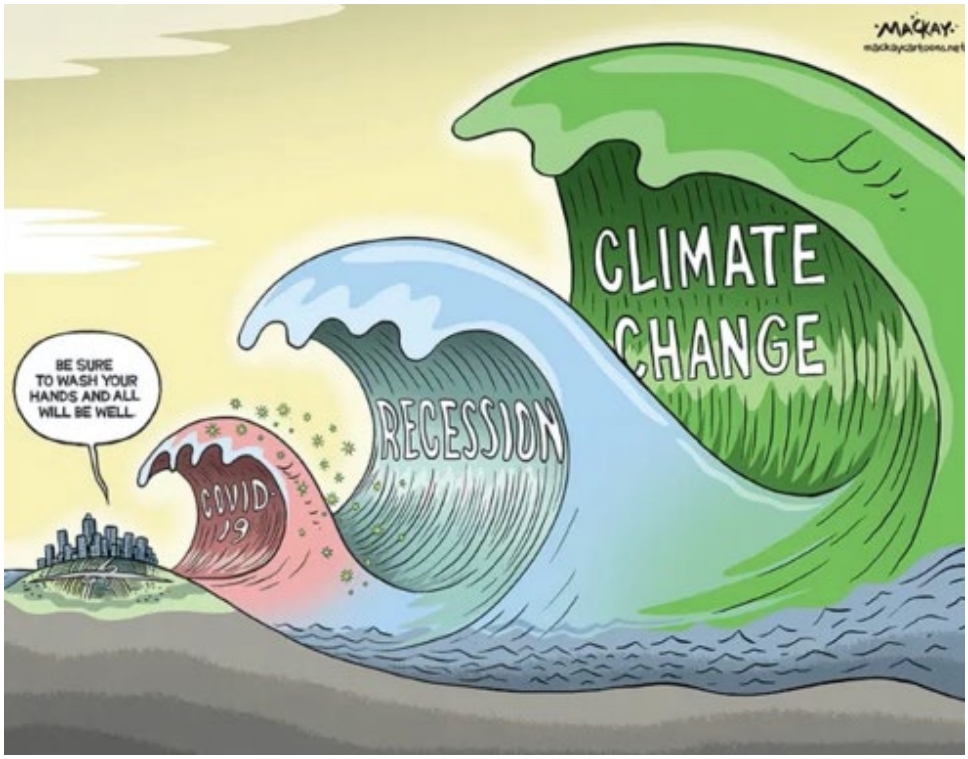


# Produktion2030 call nr 14

## Research and innovation projects that contributes to sustainable and resilient production

A call for proposals within the strategic innovation program Produktion2030

The strategic innovation program **Produktion2030** is part of Vinnova's, the Swedish Energy Agency's and Formas' joint effort 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

PRODUKTION2030

Med stöd från
VINNOVA Sveriges innovationsmyndighet
Energimyndigheten
FORMAS
Strategiska innovations-program

# Table of content



## Revision history

| Date | Change |
|---|---|
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# 1 Offer in brief from Produktion2030

The strategic innovation program Production 2030 announces SEK 41 million in funding for research and innovation projects. Qualified consortia can apply for a maximum of SEK 6 million in grant funding.

Produktion2030's fourteenth call for proposals will contribute to a sustainable and resilient[1] manufacturing industry in Sweden. This means sustainable production that copes with disruptions and unexpected events and meets the sustainability goals in Agenda 2030[2].

The long-term impact goals for the call include increased global competitiveness for the Swedish manufacturing industry. It includes initiatives for the creation of climate-neutral and circular production focused on green transition, agility and resilience in the manufacturing industry's production and value chains. The production of the future will also contribute to socially sustainable workplaces and attractive, knowledge-intensive jobs.

Production2030 focuses in everything that is done on the manufacturing industry's most important challenge areas. Projects that will be funded in this will therefore primarily focus on one of these six industrial challenge areas. The research and innovation project can have a project period of a maximum of 3 years. The project partners must finance at least 50% of the project's total budget.

Call 14 is aimed at project consortia consisting of actors in the Swedish manufacturing industry, colleges, universities, and research institutes. Manufacturing industry here refers to companies with production where the end products are discrete[3] products or units, not process- and energy industry.

**Time plan for the call:**

| | |
|---|---|
| The call opens on: | 10th of June 2021 |
| Last submission date: | 14th of September 2021 |
| Decision date: | 28th of October 2021 |
| Project start no later than: | 15th of November 2021 |
| Project completion by: | 15th of November 2024 |

[1] https://sv.wikipedia.org/wiki/Resiliens
[2] https://sv.wikipedia.org/wiki/Globala_m%C3%A5len. Read more about Vinnova's work to contribute to the goals in Agenda 2030: https://www.vinnova.se/m/agenda-2030
[3] https://en.wikipedia.org/wiki/Discrete_manufacturing

**Contact persons regarding the call's background, aim and effects:**

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**Contact person regarding the assessment process, legal issues and other questions about the content of the call:**

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Anna Delin, Call manager at Vinnova, Phone: 08-473 30 79
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**Administrative matters:**

Helena Claesson, administrator at Vinnova, Phone: 08-473 31 57
Helena.claesson@vinnova.se

**Contact regarding the proposal service:**

**Vinnova's IT support:**

Technical questions about your proposal in the Stakeholder Portal,
Phone: +46 (0)8-473 32 99, helpdesk@vinnova.se

Up-to-date information about the offer and a link to our application service (Vinnova's e-services portal) is available at www.vinnova.se

# 2 What does Produktion2030 seek to achieve with this call?

With this call Produktion2030 wants to get more people to collaboratively develop their innovative capacity and create new solutions that contribute to the goals for sustainable development in Agenda 2030, within the framework of the call's priorities.[4]

The projects are expected to contribute to an equal development of society by both women and men taking part in the contribution in an equal manner, have influence over the project and actively participate in its implementation.

Call 14 must clearly contribute to sustainability and resilience [5] manufacturing industry in Sweden. The long-term impact goals for the call are to contribute to increased sustainability in society and increased global competitiveness for the Swedish manufacturing industry. This includes efforts to create climate-neutral and circular production for green conversion, agility and resilience in the manufacturing industry's production and value chains. The production of the future will also contribute to socially sustainable workplaces and attractive, knowledge-intensive jobs.[6]

Projects in Call 14 shall focus on research and innovation project with a Technology Readiness Level (TRL) 3 – 6[7] where the projects will demonstrate a TRL increase of 1-2 steps during the project period. We would like the project results to be tested, demonstrated, and validated in an existing test bed[8], laboratory environment or equivalent. (for TRL definition see Chapter 11)

Produktion2030 also wants to achieve stronger collaboration between actors in the Swedish manufacturing industry, universities, colleges, and research institutes to increase the broad access to knowledge in the field of sustainable production.

[4] https://sv.wikipedia.org/wiki/Globala_m%C3%A5len. Read more about Vinnova's work to contribute to the goals in Agenda 2030: https://www.vinnova.se/m/agenda-2030
[5] https://sv.wikipedia.org/wiki/Resiliens
[6] For more information see https://www.vinnova.se/m/hallbar-industri
[7] https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf
[8] Examples of test beds in Sweden https://produktion2030.se/alla-projekt/testbaddar-for-smart-produktion/

# 3 Who is this call for proposals aimed at?

The call is aimed at project consortia involving actors in Swedish manufacturing industry, colleges, universities, and research institutes. Manufacturing industry here refers to companies with production[9] where the end products are discrete products or units, not process and energy industries.

As the proportion of small and medium-sized Swedish manufacturing companies is over 90%, Produktion2030 prioritizes that small and medium-sized companies are included in project consortia. In this call for proposals, universities, colleges, and research institutes, as well as companies with less than 50 employees, can be beneficiaries.
Each project is expected to contribute to the equal development of society, by both women and men in an equal way, take part of the grant and have influence over the project. Both women and men must actively participate in the project implementation[10].

# 4 What do we fund?

Produktion2030 finances projects where the focus is **one** of the six areas that constitute priority challenges to increase the competitiveness of the manufacturing industry operating in Sweden (see Fig. 1)[11]. Research, innovation, and results from all areas of challenge will contribute to achieving the sustainability goals within Agenda 2030. The ongoing digital transformation of the industry and of society is an important enabler for competitiveness, resilience, sustainability, and lifelong learning.

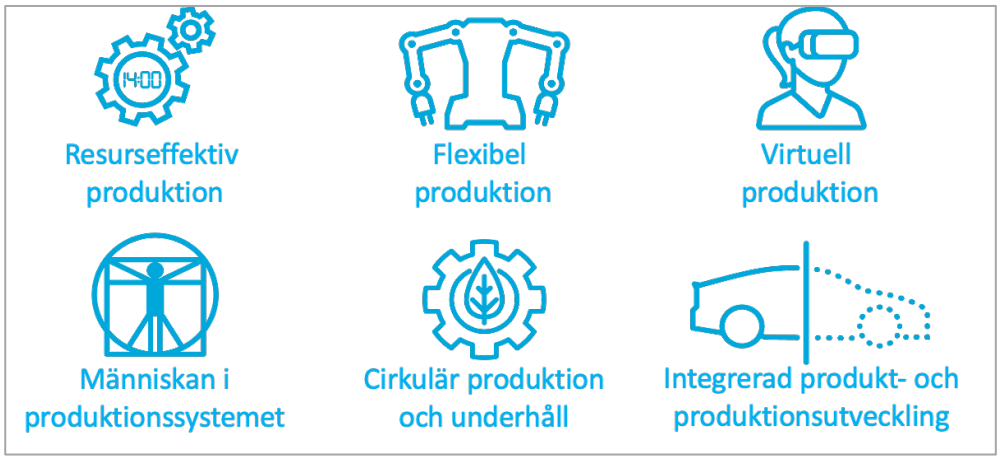


Fig. 1. Produktion2030's six industrial challenge areas.
Information about the areas is available at www.produktion2030.se

[9] https://en.wikipedia.org/wiki/Discrete_manufacturing
[10] https://www.vinnova.se/m/jamstalld-innovation/
[11] http://produktion2030.se

### 4.1 Challenge area 1
## Resource-efficient production

*Examples of industrial challenges:* Resource-efficient production is a prerequisite for manufacturing in Sweden, with the country's high wages, quality levels and material costs. How can resource consumption and environmental impact from production systems and products be minimized? How can resources such as materials, people, machinery, energy, capital, and time be used efficiently without being overused? How can production systems be developed to be competitive and resource efficient but at the same time resilient to disruption? How can a holistic perspective be created for resource-efficient production? How should life cycle analysis (LCA) be used for large production systems and long value chains for products and production systems?

### 4.2 Challenge area 2
## Flexible production

*Examples of industrial challenges:* How can you create extremely flexible value chains, production systems and manufacturing processes that match the rapidly changing products and customer requirements of the future without affecting the climate? As consumers increasingly demand customized, individualized products, how can they meet the demands of production flexibility that can handle large and small production volumes, many variants, and variations in materials and material combinations? How are innovative manufacturing methods, smart automation solutions and rapid adaptation created and tested that provide the required flexibility? How can flexible automation and digitalization contribute to flexibility through e.g. robotization, simulation or integration of systems to decentralize control and monitoring of production processes?

### 4.3 Challenge area 3
## Virtual production

*Examples of industrial challenges:* How can information and data be quickly transformed into knowledge and decision support in virtual production systems and digital models of reality? How to create virtual tools and digitized "twins" as prerequisites for simulating the complex products and production systems of the future. How do you increase the digital maturity of companies and use the digital transition to create resilience and sustainability? What new opportunities are created in Industry 4.0 when an increasing part of the equipment is connected to the internet? How can large amounts of data be collected and analyzed to be used as a basis for decision-making in virtual factories? How are digital twins used by production systems and value chains to visualize environmental impact and unexpected disruptions? How is simulation of value chains and manufacturing processes used for increased resilience and reduced environmental impact?

### 4.4 Challenge area 4
## The Human in production systems

*Examples of industrial challenges:* How is the collaboration and division of tasks between competent people and advanced automation simplified to enhance human performance? How to create workplaces that provide improved ergonomics, safety, productivity, and flexibility. In what way can people be given resilience to new future health threats, equivalent to COVID-19? How to build resilience, continuous lifelong learning, and social sustainability in production? How is man's key role facilitated in the complex and digitalized industry of the future through support systems, skills development, and advanced technical production systems? How do you best support a rapidly growing group of the elderly in the workplace? What skills are required for "industrial work 4.0", for example in operators' collaboration with industrial robots and digitized equipment?
How are people in production systems given access to real-time information through local and global networks and the opportunity to influence the sustainability of the systems?

### 4.5 Challenge area 5
## Circular production systems and maintenance

*Examples of industrial challenges:* How do you adjust production to support circular economy and circular production? What changes are required in the design of products, production systems and business models to enable circular production and remanufacturing along the entire value chain? How can smart, predictive maintenance extends the life, resilience and durability of products and production systems? Can new forms of maintenance in Industry 4.0 lead to new, service-based products that help the manufacturing industry reduce its climate impact? How can new combinations of materials and components as well as analysis of data extend the life of products and production systems? How to increase digitalization and connectivity to create opportunities to quickly upgrade both hardware and software, for increased longevity?

### 4.6 Challenge area 6
## Integrated production- and product development

*Examples of industrial challenges:* How to strengthen the product development process and create tools for smart integration of parallel product and production development? How can product development create value, resilience, and robustness for all actors in a supply chain? How can the development process for products and production systems be streamlined to meet the market's eligibility requirements for speed and flexibility? How to increase the reuse of materials and components along the entire product value chain? Can increased standardization of product structures, modules, components, and interfaces reduce environmental impact and enable upgrades of subsystems in the products? What opportunities for increased competitiveness and sustainability are created by increased digitalization in the form of, for example, additive manufacturing and digital twins? How do you best take advantage of the product developer's extensive opportunities to change the products' environmental impact?

# 5 Costs and funding

## 5.1 Conditions for received funding

Our funding is provided in the form of grants. Funding for organizations that operate economic activities is subject to regulations regarding state aid.[12]. 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[13] regulation.

## 5.2 How much funding is available?

- The call's total budget is approximately SEK 41 million
- A research and innovation project can receive a maximum of SEK 6
- A project consortium shall consist of:
    - at least three companies in the Swedish manufacturing industry that manufacture discrete products, of which at least two companies with production in Sweden
    - at least one actor from a university or college
    - at least one actor from a research institute
- The project partners must finance at least 50 percent of the project's total budget.
- Universities, colleges, research institutes and companies with less than 50 employees can be beneficiary.

**Aid intensity.** The following support levels apply to companies, universities, colleges, and research institutes. For research institutes, the term for the funding applies that they participate in their non-financial activities.

**Table 1. Aid intensities for different categories of project party in this call.**

| | Maximum number of employees | Maximum Turnover | Maximum support level |
|---|---|---|---|
| Small companies | Max 49 employees[5] | Max. 10 million euros | 50 % |
| Larger companies | > 49 employees | - | 0 % |
| Universities and Colleges | - | - | 100 % |
| Research Institutes | - | - | 100 % |
| Estimated aid level for the project/consortium | | | 50 % |

More information about state aid is available on our website (in Swedish) at: https://www.vinnova.se/sok-finansiering/regler-for-finansiering/statligt-stod/. You will also find our general terms and conditions for our funding, as well as a guide to the terms and conditions governing eligible costs: https://www.vinnova.se/sok-finansiering/regler-for-finansiering/allmanna-villkor/

[13] Read more about state aid: https://www.vinnova.se/sok-finansiering/regler-for-finansiering/statligt-stod

[5] https://www.vinnova.se/globalassets/huvudsajt/sok-finansiering/regler-och-villkor/dokument/eu-definition-smf.pdf

# 6 Prerequisites for assessment of the proposal

Vinnova will only evaluate proposals that meet the following formal eligibility requirements:

- The project must not have started before the proposal is submitted.
- A project consortium shall consist of:
  - at least three companies in the Swedish manufacturing industry that manufacture discrete products, of which at least two companies with production in Sweden
  - at least one actor from a university or college
  - at least one actor from a research institute
- The project partners must be legal entities.
- Companies, universities, or research institutes can be coordinators of the project.
- The project must be able to start no later than 15th of November 2021
- Project should be completed by the 15th of November 2024.
- Proposal must be complete according to the instructions in chapter 9. Deviating proposals will not be assessed.
- At the time of proposal, the project summary must also be sent to the program management of Produktion2030: cecilia.warrol@produktion2030.se
- Vinnova's grant can amount to a maximum of 50 percent of eligibility costs for project. The project budget reported shall only include eligible costs, see section 5.2. Project costs that are not eligible must, however, appear in the project description as they may be important in the assessment.
- Of the total project budget, **minimum of 2.5 percent will be set aside for packaging and distributing project results outside the consortium**, for example as technology workshops and / or training / continuous 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 Assessment of proposals

A research and innovation project must have a clear focus on one of Produktion2030's challenge areas. This area must be stated in the project proposal. Proposals are assessed on the basis of three main criteria:

1. Potential
2. Actors and consortium
3. Implementation

## 8.1 How do we evaluate proposals?

Each proposal is assessed in competition with other submitted proposals and it is the electronic proposal submitted to Vinnova via Vinnova's eservices portal that will be assessed. An expert group of independent Swedish and international experts carries out the assessment.

| | | Criterion | Description |
|---|---|---|---|
| **Potential** | 1.1 | Impact goals | How well does the project contribute to the specific impact goals of the call? |
| | 1.2 | State-of-the-art | Does the proposal provide a relevant picture of the state of knowledge in the area? |
| | 1.3 | Level of research and originality | How high is the project's level of research excellence and originality? |
| | 1.4 | Industrial and societal benefit | How big is the project's industrial benefit and societal benefit? |
| | 1.5 | Environmental impact | How large positive environmental impact does the project have? |
| **Actors and consortium** | 2.1 | Project consortium | How well does the project consortium's overall competence, project management, roles, and specified resource requirements match the goals of the project? |
| | 2.2 | Collaboration | How well does the proposal show how collaboration between the project parties is to be achieved, and that all parties participate on equal terms and with equal commitment? |
| | 2.3 | Gender equality actors | How well is the team composed in terms of gender distribution, as well as the distribution of power and influence between women and men? |
| **Feasibility** | 3.1 | Work packages, objectives, and milestones | How realistic is the project plan, budget, and project goals? |
| | 3.2 | Risk analysis | How clear is the proposal's risk analysis? Are risks clearly identified and are activities for managing risks clearly described? |
| | 3.3 | Implementation and scalability | How well is the dissemination of results to parties outside the project consortium described? |
| | 3.4 | Test and demonstration | How well the proposal describes the use of test beds to test and demonstrate results? |
| | 3.5 | Dissemination of results | How well is the communication and the dissemination of results to parties outside the project consortium described? |
| | 3.6 | Gender equality | How well are gender aspects integrated into the project plan? |

*The proposal and decision-making process is as follows:*

1. Proposal shall be submitted via Vinnova's eservices portal: https://portal.vinnova.se/
2. Project summary shall be sent to the program management for Produktion2030: cecilia.warrol@produktion2030.se.
3. Proposals meeting the formal requirements will be evaluated against the assessment criteria set out above. The evaluation will be done by specially appointed external evaluators (normally this means international experts in the field) who will give recommendations on which projects should be granted and which should be rejected.
4. Vinnova decides which projects are to be funded.
5. Decisions are notified to the applicant and the management of the strategic innovation program is informed of the outcome

# 9 Decisions and conditions

## 9.1 Vinnovas 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 regulates which costs are eligible.

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

## 9.2 Conditions for received funding

Vinnova´s general terms and conditions for grants apply to grants awarded.[14] The terms and conditions include regulations on project agreements, conditions for payment, follow-up, reporting and utilization of results. Scientific publication of results must made using open access in accordance with Vinnova's instructions.[15]

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

1. The project shall be represented by at least one project party at conferences and other activities organized under the strategic innovation programme Produktion2030.
2. The project shall maintain a continuous dialogue with Produktions2030's program office and project support throughout the project's duration
3. The program office shall be given the opportunity to carry out a compulsory half-time reconciliation in which all project partners participate

[14] Current term can be found on Vinnova's website, together with help to understand and meet the conditions: https://www.vinnova.se/sok-finansiering/regler-for-finansiering/allmanna-villkor/
[15] https://vinatet.vinnova.se/contentassets/19d7ce8a36d243d499e2d7bd9840b80d/forslag-201109-vinnovas-anvisning-for-oppen-tillgang-till-vetenskapliga-publikationer.pdf

4. Information about the project and publications of project results must state that the work was carried out within the strategic innovation programme Produktion2030, a joint effort by Vinnova, Formas and the Swedish Energy Agency.
5. At the same time as the project reports to Vinnova, a public summary of the project results must also be sent to Produktion2030 via e-mail Cecilia.warrol@produktion2030.se. The summary must be able to be distributed and published freely and must not contain confidential or sensitive information.
6. When presenting project results, Produktion2030's templates and logos must be used according to instructions from Produktion2030's programme office.
7. The coordinator shall provide information regarding the project summary, project manager and project consortium for publication at http://www.kunskapsformedlingen.se. Instructions and templates will be announced in close connection with the decision.
8. Of the total project budget, minimum of 2.5 percent shall be set aside in the form of packaging of project results for dissemination outside the consortium, for example in the form of technology workshops and / or training / further training modules.

Additional special conditions can be decided for individual project. Our recommendation is that the coordinator prepares the form for participant's approval well in advance of the project start [16]. If you do not follow Vinnova's term, you may be liable for repayment. This also applies if you have been granted funding incorrectly or with an excessive amount.

## 10 How to apply

To apply, please complete an online form in our Stakeholder Portal, which can be accessed via portal.vinnova.se. There you shall also upload the following appendices[17]:

- Project description
- Project summary (public)
- CV Appendix
- The appendices must be submitted in pdf format.

- The project description must include a maximum of 10 standing A4 pages with single-column 12-point black text. References to information on web pages and the like will not be considered in assessment.

[16] Guide and forms can be found on Vinnova´s website: https://www.vinnova.se/sok-finansiering/regler-for-finansiering/allmanna-villkor/
[17] 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/

- The project summary (maximum two pages) must be publishable freely and thus must not contain confidential or otherwise sensitive information. In direct connection with the proposal to Vinnova, the appendix Project Summary must also be sent to the program office for Produktion2030 via email to the address: cecilia.warrol@produktion2030.se. This step is mandatory for the proposal to be considered for assessment.
- The CV appendix must contain relevant CVs for the project manager and all key people in the project team. Every CV must be on a maximum of 1 A4 page with 12 point text. *We recommend that active project participants participate at least 5% of full-time*

**OBS! The proposal will be assessed by an international expert group, our recommendation is therefore to write a proposal in English.**

All of the above appendices are mandatory and templates provided by the call must be used. Deviating proposals will not be assessed.

Keep in mind that it takes time to make a proposal. You can start filling in information, save and continue later. When the proposal is ready, mark it as ready. You can unlock the proposal and make changes, right up to the last application day.

Prepare the proposal in good time before the call closes.

When the call is closed and the proposal registered with Vinnova, a confirmation will be sent by e-mail to you who are in charge of the user account, project manager and signatory / head of department. It may take a few hours before you receive the email.

If you have not received a confirmation by e-mail within 24 hours of the call closing, please contact us.

When the proposal period has expired, completion of the proposal can only take place at the request of Vinnova.

## 11 Who can read the proposal?

Proposals submitted to us are classified as public documents. However, we will not disclose any information about an individual's business or operating circumstances, inventions or research results if doing so could harm an individual.

Documents sent to the organization responsible for the strategic innovation programme are not subject to Vinnova's confidentiality rules.

# 12 Definition of Rechnolpgy Readniess levels

Definitions of Technology Readiness Levels:
https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf

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

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)