IOT 4 INDUSTRY

2ND CALL FOR COLLABORATIVE PROJECTS

GUIDE FOR APPLICANTS

INDEX

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1 Guide for applicants

1.1 Background and general objectives

The European manufacturing industry is constantly undergoing a modernization process. The Internet of Things (IoT) technologies have already entered into manufacturing and this trend will increase, towards a so-called "Industry 4.0". Europe's manufacturing industry is investing continuously in its modernization, which includes the massive introduction of new ICT technologies and in particular IoT, Big Data, Artificial Intelligence and Cybersecurity. In the future, all forms of advanced industry will have to become more data-driven and more "intelligent" in order to compete effectively. This intelligence will also rely on advances through IoT, since data and intelligence will come from advanced connected objects that provide sensing, measurement, control, power management and communication, both wired and wireless. This process has already started in large companies which have the potential to fully involve ICT and research departments but requires facilitations in smaller companies in order to keep them competitive and exploit their full potential, creativity and flexibility.

The general objective of this call is to enhance the productivity, profitability and innovation capacities of European manufacturing SMEs by enabling their access to IoT technologies.

It also seeks to accelerate the access to the market to new products and services provided by technology SMEs, strengthening innovation and growth in Europe.

This is the 2nd call foreseen by IoT4Industry project and will open on April 1st 2019 and close on June 11th 2019 at 17 CET.

1.2 Scope and expectations

The call is focused on the application of IoT technologies in the manufacturing environment. It will finance small and market-oriented projects involving SMEs, consisting of the integration and the use of IoT technologies (including Big Data, Artificial Intelligence and Digital Security) into machines, robots, manufacturing tools, industrial processes, and factories environments.

Projects shall gather at least one entity representing the **"IoT" side** (technology offer) AND another entity representing the **industry side** (demand) which could be a machine or tool

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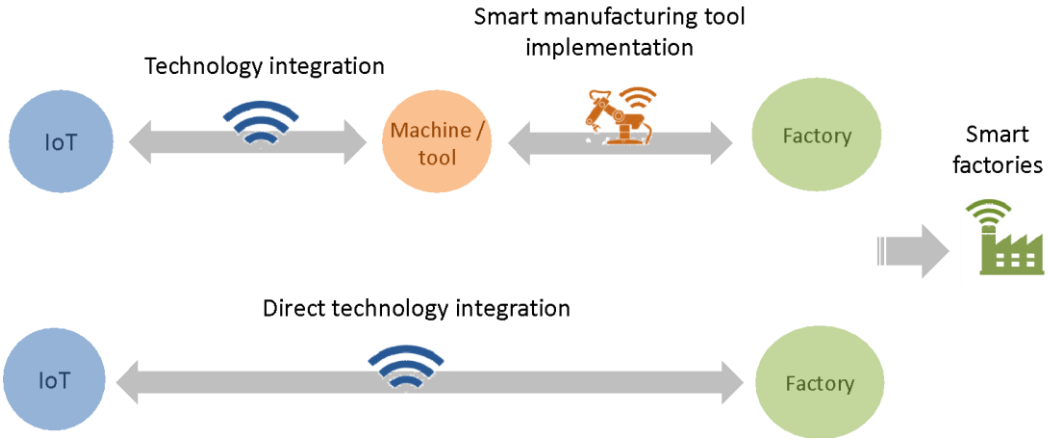
manufacturer or a factory, as shown in the figure below. At least one of these entities shall be a European SME (see 1.5 Eligibility conditions for more detail).



Projects shall have a strong **international dimension**, involving entities from at least two different NUTS 1 regions of Europe (see 1.5 Eligibility conditions for more detail).

Projects are expected to be **innovative**, i.e. going beyond the state-of-the art in terms of technologies used and the use cases addressed.

A clear **industrial application** which involves a final customer/end user.

The final user (industry/factory) must be involved in the consortium.

1.2.1 Technologies

The technologies addressed in this call are:

sensors and data acquisition (including big data and analytics), cybersecurity, robotics and automation (including communication technology), simulation and modelling (including virtual reality and augmented reality), batteries and energy harvesting, chips and electronic components, smart systems, embedded software, low-energy, RFID, communication protocols & networks, gateways, cloud/fog/edge computing, High Performance Computing, Artificial Intelligence (machine learning, deep learning, neural networks …), biometry, human-machine interaction, cognitive computing, mobility and wearables.

1.2.2 Industrial applications

The expected industrial **applications** addressed **in this call** are predictive maintenance, logistics & supply chain, track and trace, monitoring applications, process analysis, data analysis and

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management, assets management, re-configuration, quality control, safety & security, energy saving and sustainability smart advice, decision support, smart elaboration, process/product improvement, ergonomic, product life cycle management, smart packaging, additive manufacturing.

1.2.3 Vertical sectors

The targeted **vertical sectors** include – electronics, nanotechnologies, automotive, mechanicals, aerospace, defence, medical & pharmaceutical, construction, energy & utilities, marine (naval industries), metal working, chemicals, food & beverage, logistics, print, textile, luxury, cosmetics, wood, paper, furniture, consumer products, etc.

1.3 Impact

Projects shall demonstrate that the integration and application of IoT technologies can improve the market competitiveness of the involved SMEs. In particular, projects must demonstrate:

- the increase in efficiency of the production means of the manufacturing company, improving its competitiveness on the international market;
- the growth opportunity for technology providers of the implementation of their technology into a machine or a factory and the replicability and scalability of the same solutions in other industries and use cases;
- by means of KPI (employment, turnover, market share, environmental impact …) the sustainability and scalability of the approach and the business perspective for both technology providers and manufacturing actors

1.4 Type of proposals and maximum financial contribution

This call shall provide support to three types of actions, namely:

- **Feasibility studies** will target companies having an idea of the intended project a purpose but with needs for further analysing the technical aspects, the intellectual property issues, the design study and the feasibility. Actions of this type target Technology Readiness Levels (TRL) 4–5.
- **Prototyping instrument** will target companies having already carried out a feasibility study, and need to develop a prototype, spend efforts in designing prototypes, miniaturization and testing. (TRL 6).

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- **Demonstration/pilot** instrument will target companies that have already developed and tested a prototype, but need to demonstrate its efficiency on a larger scale (TRL 7–8) and in real environment.

The table below shows the corresponding TRL, timing, maximum amount per SME and maximum amount per project, according to these three instruments:

	Feasibility study	Prototyping	Demonstration/pilot
TRL of envisaged project	4–5	6	7–8
Maximum financial contribution per beneficiary (SME)	EUR 25,000	EUR 45,000	EUR 60,000
Maximum financial contribution per project	EUR 50,000	EUR 90,000	EUR 120,000
Funding rate	Lump Sum[1]		
Project duration	Up to 6 months	Up to 12 months	Up to 12 months

1.5 Eligibility conditions

Proposals will only be eligible if they meet all of the conditions below:

1. Applicants are legal entities located in an EU Member State (list here: https://europa.eu/european-union/about-eu/countries_en) or an Horizon 2020 associated country (list here:

   http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf)

[1] A lump sum is a fixed amount of money which can be used by beneficiaries for several purposes related to the achievement of the project objectives. It is necessary to provide an explanation in the proposal on how the lump sum will be used (personnel, subcontracting, travels, equipment) but detailed reporting of the spending, cost statements and time sheets are not requested after the end of the project. Since the granting of a lump-sum doesn't foresee the delivering of a cost statement, the use of the project budget will be controlled considering the technical advancements by the technical reviewers.
We discourage any use of subcontracting higher than ⅓ of the budget.
The final technical evaluation will assess the coherence of the spent money with the achieved results.

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2. The consortium is composed of at least two legal entities based in two different NUTS 1 regions of European member states and Horizon 2020 associated countries (definition here: http://ec.europa.eu/eurostat/web/nuts/nuts-maps-.pdf-);
3. At least one of the two or more legal entities of the consortium must be based in a country of one of the consortium partners, i.e. France, Italy, Germany, Belgium or United Kingdom;
4. At least one of these entities is a for-profit SME. "For-profit SMEs" means micro-, small- and medium-sized enterprises, as defined in Commission Recommendation 2003/361/EC. Definition here: http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en
5. Proposals shall gather at least one entity representing the **"IoT" side** (technology offer) AND another entity representing the **industry side** (demand)
6. Proposals respect the conditions described in section 1.4 Type of proposals and maximum financial contribution, namely; the type of action is indicated, the TRL envisaged, the maximum financial contributions per beneficiary and per project and the project maximum duration.
7. Proposals must be submitted through the Funding Box platform (https://iot4industry-call-for-collaborative-projects.fundingbox.com/) before 17:00 CET of the deadline indicated in section 1.7 Calendar of the present call.
8. Proposals must be written in English, **in scope** and all sections of the template complete within the 10 page limit (for section 1-2-3).

9. The SME proves its financial capacity satisfying the following formula:

   NET WORTH>= (A+ B)

   Where:

   - Net Worth is the total capital of the SME in the last year: total value of all the assets owned by an institutional unit or sector including bank accounts, minus the value of all its outstanding liabilities.
   - A is the requested Lump sum
   - B is the sum of all public fundings active at the time of the call

European Union's Horizon 2020 Programme
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FOR startups funded in 2018: they should indicate the NET WORTH calculated in one year from their establishment . Startups that operate from less than 1 year cannot participate.

10. The company declares not to be and "undertaking in difficulty" which definition is given in article 2.2 of the *Communication from the European Commission on Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty* (p.9 of this document: http://ec.europa.eu/competition/state_aid/legislation/rescue_resctructuring_communication_en.pdf)

1.6 Funding conditions

Reminder**: only for-profit SMEs are eligible to receive funding. The maximum contribution that individual SMEs can receive is applicable to the whole duration of the IoT4Industry project. The cumulative contributions received by individual SMEs taking part in the two calls of the IoT4Industry project cannot be higher than EUR 60,000. If the requested budget of the organization is over the value, it will be automatically reduced.**

Successful proposals shall receive the requested financial contribution in the form of a lump sum according to the following timeline:

- A pre-funding payment of 20% of the requested financial contribution will be provided after signature of the grant agreement, at the beginning of the project.
- A final payment of 80% of the requested contribution will be provided after the approval of the final technical report by the IoT4Industry consortium. The approval process will check that all the technical[2] KPIs (defined by the applicants in section 1) are 100% met and demonstrators and deliverables are satisfactory. Furthermore a physical or virtual meeting with an interactive session will be organised to better verify the quality of the technical results. Should the technical check be unsatisfactory, IoT4Industry Steering Committee can decide to revoke part or all the funding.

1.7 Calendar

- 1st April 2019: Opening of the call
- 11th June 2019: Deadline of the call at 17:00 CET

[2] Business KPIs defined in Section 2: Impact of the proposal will not be considered for project results approval

European Union's Horizon 2020 Programme
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- 12th June 2019–14^{5h} June 2019: Eligibility assessment (administrative check)
- 17th–21st June 2019: Expert Assignment
- 24th June -5th July: Expert contracts
- 8th – 20th July: Evaluations
- 22nd -25th July: Ranking
- 25th -30th July: ESR sending
- 2nd-15th September: Grant Agreement signature
- 16th September: Projects Start

1.8 Application process

Funding Box, an online tool, is used for the submission of applications. Funding Box is a tool created especially for publishing, managing and evaluation of projects calls.

Proposals shall be submitted to the following web address https://iot4industry-call-for-collaborative-projects.fundingbox.com/.

The published link leads to the call front page which lists all information and application conditions with respect to the call.

Guide for applicants and the template for proposal preparation can be downloaded from IoT4Industry website: https://www.IoT4Industry.eu

Clicking the “Apply” button leads to a questionnaire where all the required information is entered as text box or drop down menu or similar.

The proposal text, inserted on the template, must be uploaded in pdf format, as well as other pdf attachments if available (letter of interest or similar).

The last step in the application process is clicking the final submission button. Until that very last step, applicants are able to modify their proposal data. Once, applicants have finally submitted their proposal, they receive an automated e-mail stating that the submission has been entered successfully.

1.9 Template for proposal preparation

Proposals will be submitted in a document of 4 section in which section 1-2-3 must stay in a maximum of **10 pages**, section 4 is beyond the 10 pages limit. The proposal template is explained in detail in Annex.

The sections will be completed filling the template and uploading it on Funding Box in PDF format.

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1.10 Evaluation and selection process

Two independent experts will evaluate each proposal according to the following criteria:

1. Excellence:
    - Soundness and pertinence of Objectives with the scope of the call
    - Credibility of the technological KPIs to measure the results
    - Concreteness of the technical approach
    - Coherence of the TRLs and scope with the type of proposal applied for (feasibility, prototype or demonstrator)
    - Innovativeness of the proposed solution (*compared to the current situation in the considered vertical sector*)
2. Impact:
    - Industrial and individual relevance
    - Credibility of targets for business KPIs
    - Quality of the exploitation, IPR and knowledge protection strategy
3. Implementation
    - Soundness of the work plan, including relevance of the tasks described, and the timing of the activities
    - Appropriateness of the consortium: evaluate completeness (IoT Technology providers and industrial users are present) and complementarity (the provided solutions match with the needs of the final users)
    - European dimension (in terms of transnational dimension of the consortium and exploitation intentions towards European countries)
    - Cost-effectiveness of the work plan
    - Operational capacity (evaluate the technical capacity of the proposers related to the proposed work, see also Section 4)

A score from 1 to 5 **including half scores** will be assigned to each the 3 criteria.

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The meaning of the marks is as follows:

- 0: The proposal fails to address the criterion under examination or cannot be judged due to missing or incomplete information.
- 1: Very Poor – The criterion is addressed in an inadequate manner, or there are serious inherent weaknesses.
- 2: Poor – While the proposal broadly addresses the criterion, there are significant weaknesses.
- 3: Acceptable – The proposal addresses the criterion, although significant improvements are possible.
- 4: Good – The proposal addresses the criterion well, although certain improvements are still possible.
- 5: Very Good – The proposal successfully addresses all relevant aspects of the criterion in question. Any short-comings are minor.

The final mark given to each criterion will be the average of the scores given by the two evaluators.

In order to be successful, proposals shall score at least 3 in each criterion and have an overall score of at least 10 points.

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In order to be successful, proposals shall score at least 3 in each criterion and have an overall score of at least 10 points.

Successful proposals (i.e. above threshold) are funded in descending order until the available sum for the call is totally assigned.

A Selection Committee composed of one representative of each IoT4Industry project's partner will reserve the right to modify the ranking of successful proposals (in case of equal scores) in order to balance the list of selected projects according to geographical coverage and vertical sectors represented. Allowing a better reflection of the diversity of the industrial sectors and countries covered in Europe.

An Evaluation Summary Report (ESR) will be sent to applications after the evaluation has taken place. The ESR will contain the scores and comments of the independent evaluators, as well as any comments from the Selection Committee.

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1.11 Grant signature

Coordinators of proposals selected for funding *(IoT4Industry beneficiaries)* will be invited to sign a grant agreement with SCS cluster, coordinator of the IoT4Industry project. This grant agreement contains the obligations of the SME funded in the framework of IoT4Industry call and payment process to be proceeded by SCS.

1.12 Reporting

A report is to be produced within 2 weeks after the end of the project: this is after 6 months for Feasibility studies and after 12 months for Prototypes and Demonstrators. In addition to this, an intermediate report is required after 6 months for Prototypes and demonstrators.

The reports will have the following structure:

1. Executive summary ready for dissemination
2. Description of the achieved results
3. Description of the implemented activities
4. Status of technical KPIs (defined in the proposal to measure the achieved technical results)
5. Description of dissemination material and exploitation actions
6. Plan for remaining activities (only for intermediate report)
7. Evaluation of the following impact KPIs (only for final report) in feasibility study they should provide a forecast after the implementation end:
    - Employment created/safeguarded due to the Project (stating also the number of IoT4Industry Beneficiary employees before the Project as well as forecasts for 2020 and 2021)
    - Impact on turnover due to the Project (stating also forecasts for 2020 and 2021)
    - Market share acquired due to the Project (stating also forecasts for 2020 and 2021)
    - Environmental impact (if applicable), (water consumption, energy …) generated by the Project (stating also forecasts for 2020 and 2021)
    - Contribution of the Project to new or significantly improved products launched (stating also forecasts for 2020 and 2021)

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- Contribution of the Project to new or significantly improved methods and processes (stating also forecasts for 2020 and 2021)
- Contribution of the Project to introduction of patents
- Contribution of the Project to changes in the innovation practices
- Advancement of TRL due to the Project
- Other forms of finance, such as risk capital or public funds, raised by the Project

A final meeting (physical or virtual) will be organised for the end of the project to better check the quality of the final results, through an interactive session.

1.13 Helpdesk and FAQ

The helpdesk is provided by the contact page of the project's website:
https://www.iot4industry.eu/contact-2367

A FAQ section is also available on the Funding Box website:
https://iot4industry-call-for-collaborative-projects.fundingbox.com/pages/FAQ

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2 Annexes

2.1 Template for proposal preparation

The applicant will find the template on line on the Funding Box tools and need to fill it in all its parts.

Here we report in bold the template chapters or paragraphs that need to be kept in the proposal, *in italic the explanations on how to fill the chapters, to be removed in the proposal text.*

The maximum length of section 1 + section 2 + section 3 is 10 pages (minimum font 11)

Section 4 (maximum 1 page for each partner description)

Acronym

Title of Proposal

Type of Proposal *(Feasibility Study, Prototyping or Demonstration/Pilot)*

Industrial sector (specify the vertical sector to which the proposal refers to – list of vertical sectors : electronics, nanotechnologies, automotive, mechanicals, aerospace, defence, medical & pharmaceutical, construction, energy & utilities, marine (naval industries), metal working, chemicals, food & beverage, logistics, print, textile, luxury, cosmetics, wood, paper, furniture, consumer products, other).

List of participants

Participant No	Participant organisation name	Country	Region NUTS1 *(if applicable)*	SME/Large Enterprise/RTO
1 (Coordinator)				
2				
3				

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Section 1: Excellence

1.1 Objectives

- *Describe the specific objectives for the project, which should be clear, measurable, realistic and achievable within the duration of the project.*
- *Explain the industrial/economic/social problem to overcome, or the business opportunity to be taken advantage of, that has not yet been solved/offered and can be solved/offered through your project; Explain how your solution solves the stated problem or avails of the business opportunity;*
- *Indicate how your project addresses the scope of the call, in particular the application of IoT technology.*
- *Describe the expected results of your project and provide a set of (technical) KPIs to measure them.* ***These KPIs are very important because they will be checked in the end of project execution (if funded) to approve the project results.***

1.2 Technical Approach

- *Explain the current stage of development of the project and the key milestones that have led to it (e.g. proof of concept completed, early field trials under way), or similar indications of results and describe the positioning of the business innovation project, e.g. where it is situated in the spectrum from 'idea to application', or from 'lab to market'. Refer to Technology Readiness Levels where relevant.*
  https://ec.europa.eu/research/participants/portal/desktop/en/support/faqs/faq-2890.html
- *Describe and explain the concept and the activities that you will implement during this project (e.g. feasibility study, demonstration, testing, prototyping, pilot lines, scale-up studies, miniaturisation, design, performance verification, market replication encouraging the involvement of end users and potential clients, research etc.). Pay attention to the coherence with the type of proposal you are applying for.*
- *Describe which technologies, architectures, processes and methodologies you will use to obtain the results and how you will use them according to the objectives.*

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1.3 Innovation

- *Explain the innovations of your project compared to the current situation in the considered vertical sector (e.g. automotive) at SME level.*
- *Describe the expected key market application(s) of the results of your project, which differentiates it from competitors and provides the highest added value for potential customers.*

Section 2: Impact

2.1 Industrial and Individual relevance

a) Industrial relevance

- *Explain which industrial needs have been identified and will be met upon completion of the project.*
- *Describe the main economic benefits for manufacturing SMEs and for technology providers.*
- *Describe the type of market (e.g. a niche market or high volume market) addressed by the proposed solution. What is the estimation of total available market size and growth rate? What are the market trends? Describe if and how your project addresses European and/or global markets.*
- *Describe the targeted users of the final solution. In which market segment/geographical areas do you see these potential users, and how do you intend to reach them?*

b) Individual relevance

- *Describe the relevance, rationale and alignment of the innovation business project with regard to the business strategy of the participating SME(s).*

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- *Estimate the potential funding requirements to reach the commercialisation stage. Envisaged financial mix: percentage or relevance of own funds, other external funding.*

c) KPIs for impact measurement

- *Identify a set of (economic/social) KPI to measure your impact and potential targets.*

2.2 Exploitation Strategy

- *Describe the dissemination material you will provide to the IoT4Industry partners for promoting the product or service during the period of the grant (pictures, presentations, not confidential descriptions of the project and its results).*
- *Provide exploitation intentions for the project results by each partner.*

2.3 Intellectual Property, knowledge protection and regulatory issues

- *Outline the strategy for knowledge management and protection as well as current IPstatus.*
- *Explain the regulatory and/or standard requirements to be fulfilled for the exploitation of the technology/product/solution or concept: how they are to be met.*

Section 3: Implementation

3.1 Work plan – Work packages, deliverables and milestones

In order to keep the project with a lean structure, a single workpackage will be described in several tasks according to the following table:

1) Timing of the different tasks (Gantt chart or similar)

Work Plan

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Objectives: Describe the objectives that will be achieved from the following activities

Description of work *(where appropriate, broken down into tasks), lead partner and role of participants* **Task 1.1 Management -Duration: - Lead Participant: - Other participants:** **Description:** **Role of participants:** **Task 1.2…x** *Technical/Demonstration/Feasibility Study/Validation tasks* **-Duration: - Lead Participant: - Other participants:** **Description:** **Role of participants:** **Task 1.y Dissemination/exploitation -Duration -Lead Participant: -Other participants:** **Description:** **Role of participants:**

Deliverables *(brief description and month of delivery)* **1.1 Intermediate report** **1.2 Final report** **1.3 Feasibility study/Prototype/Demonstrator** *1.4 Additional deliverables can be added if necessary*

3.2 Consortium as a whole and international dimension

⚠ *The individual members of the consortium are described in a separate Section 4: Description of the Consortium. There is no need to repeat that information here.*

- *Describe the consortium. How will it match the project's objectives and bring together the necessary expertise? How do the members complement one another (and cover the value chain, where appropriate)? In what way does each of them contribute to the project? Show that*

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each has a valid role and adequate resources in the project to fulfil that role. Indicate also how subcontractors will be used

- *Describe how the consortium has an international approach to the development or exploitation of the results*

3.3 Budget Allocation

Budget (in EUR)

Participant No[3]	**Participant organisation name**	Type of organisation (SME, Large Enteprise, RTO)	Personnel	Subcontracting	Equipment	Travels	Other	**Total Lump Sum**
1								

Section 4: Description of the Consortium (maximum 1 page per partner)

Provide for each partner of the Consortium:

- *A description of the proposing organisations (no more than 1 page)*
- *A CV or description of the profile of the persons who will be primarily responsible for carrying out the proposed activities. (no more than 10 lines per CV)*
- *A brief description of relevant products, services (including widely used datasets or software) or other achievements (which may also include previous projects or activities connected to the subject of the proposal).*
- *A description of any significant infrastructure and/or any major items of technical equipment relevant to the proposed work.*

3 Only SMEs can claim for a Lump Sum, Large Enterprises and RTOs should write N.A..

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