Technical background notes
"An empowering, inclusive Next Generation Internet"

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This document is intended to provide background information and technical commentary on the Topic ICT-30-2019 of the ICT Work Programme 2018-2020 under H2020 programme. The official text of the topic (including the timeline and procedures for applications) has been published as part of the 2018-2020 H2020 work programme.


The official text is the only legally binding source of information on the topic ICT-30-2019. Should any inconsistency between the present explanatory document and the official text be detected it is always to be resolved in favour of the work programme text.

Motivation of the topic and scope of this document
Topic 30 of the work programme 2018-2020 is called “Better Next Generation Internet”. It includes two actions:

- a) Innovation Action: Digital Learning Incubator and
- b) Coordination and support action in the area of Digital Learning

The text of the work programme relating to Topic ICT-30-2019 states that:

"Every citizen, from all walks of life, should be able to fully take part in the Digital Single Market. This means that the Next Generation Internet will have to empower users, including its most vulnerable or disabled one, to have access to the same digital learning opportunities, in forms that are accessible, perceivable and understandable by everybody."

The scope of the topic is defined as follows:

"The objective is to support actions on smarter, open, trusted and personalised learning solutions to optimise digital learning and to allow learners to engage and interact with content and with peers."

The two actions called for under this topic are individually discussed in the next section of the background document ("Discussion of individual target outcomes"). It is essential to stress that target outcomes a) and b) are distinct from one other, even though synergies between the two actions are encouraged. It is therefore recommended that each proposal should address exactly one action and fully match its specific requirements.

In general, it is important to understand that proposals are evaluated on the basis of the work programme and their evaluation is based strictly on technical merit, management and impact potential.

**Discussion of individual target outcomes**

**a) Innovation Action: Digital Learning Incubator**

Action a) calls for:

- ‘The objective of this action is to advance personalised and inclusive digital learning through a fast-paced adoption cycle of technological and methodological solutions.’
The idea for this action comes from a stakeholder consultation organized in Luxembourg in December 2016. The link to the Workshop report 'Foresight workshop on EU’s future RDI priorities in learning technologies' can be found here: https://r3beccaf.files.wordpress.com/2017/01/finalreport-workshop-learntech-13-12-2016pdf.pdf and the proposers planning a submission under ICT-30-2019 are strongly encouraged to take note of the document and familiarise themselves with the original idea of the incubator as described in the Workshop Report. The instrument used for action a) is an Innovation Action and the proposers need to keep in mind that indeed the aim and focus of this action is on innovation rather than research. It also needs to be kept in mind that while the call text mentions specifically 'technological and methodological solutions' any advances planned by projects under a) 'should be designed based on “pedagogy first” and “technology second” principles, with the ultimate goal in mind to improve student outcomes and enhance learning. Also they should allow to involve learners and educators as co-innovators building on actual learning effects, practical trials and observations in real-life learning situations' (please see the Workshop Report). The action does not prescribe what kind of content should be addressed by small-scale projects funded by the incubator. It is up to the proposers to decide.

- The work will build on cross-links and advances in the various NGI technologies (such as machine-learning, AR/VR, AI) research fields and foster synergies between all the relevant market players, researchers and educational agents working on promising and innovative products.

It is important to stress at this point that the enumeration of the NGI technologies in the text of the work programme is non-exhaustive and could be expanded further. It should also be clarified that it is not obligatory for one proposal to utilise all of the mentioned technologies. The specification of ‘promising and innovative’ is really vital and the proposals are encouraged to provide an operational definition of what they understand as ‘promising and innovative products' in the context of their action.

- The action will be based on a "push and pull" strategy whereby the research actors push the best research projects to enter the innovation cycle and the market actors pull for the ideas with best market traction.'
The action is expected to bridge the gap between research on learning technologies and their take-up. It can be expected that some of the promising tools and technologies developed in the past with a high technology readiness level (TRL) could be taken up more widely and attract interest from the market actors.

- ‘The Incubator will allow fast-track experimentations in form of small scale projects, providing access to knowledge, research prototypes, learning resources and data to parties interested to conduct these experimentations.’ At this stage the coordinating entity should allow fast-track experimentations as a divergent phase for the best ideas to incubate. Interested parties should receive access to the resources mentioned in the call: knowledge, research prototypes, learning resources and data (the list is non-exhaustive) to be able to think broadly and make associations.

- ‘launch open calls for highly promising small scale projects to work on a topic/challenge set out in a roadmap.’ The topic does not prescribe what the process of drafting the open calls will be. It is left to the proposers to decide on how they envisage this process so they are given significant scope in this regard. However, the process of defining the content of open calls should be well described in the proposal.

- ‘The Incubator will allow fast-track experimentations in form of small-scale projects, providing access to knowledge, research prototypes, learning resources and data to parties interested to conduct these experimentations.’ At this stage the coordinating entity should allow fast-track experimentations as a divergent phase for the best ideas to incubate and the partnerships and alliances to form. Interested parties should receive access to the resources mentioned in the call: knowledge, research prototypes, learning resources and data (the list is non-exhaustive and may include other resources).

- ‘launch open calls for highly promising small scale projects to work on a topic/challenge set out in a roadmap.’ The topic does not prescribe what the process of drafting the open calls will be. It is left to the proposers to decide on how they envisage this process. They are therefore given significant scope for free decision-making in this regard. However, the proposals are expected to describe in significant detail their envisaged process of defining the content of open calls.
- It shall foresee suitable arrangements for organizing the corresponding competitive evaluation and selection'. The proposals are also expected to describe how they will organize the corresponding evaluation and selection procedures and how the evaluation criteria will be defined. Such evaluation and selection procedures should be fair, transparent and efficient not to put excessive burden on the interested parties. The coordinating consortium should demonstrate a sound operational capacity to handle the organization of competitive evaluation and selection. It should describe how many calls it foresees and how they will be scheduled (what frequency). Since organizing such evaluations is time- and resource-intensive, the consortium should describe what resources it will use.

- 'The action shall select these small scale projects through the use of financial support to third parties. Up to 90% of the EU funding of the action should be allocated to the financial support of these third parties, typically of the size of EUR 100 000 to 200 000 per third party[1] and a duration of about 9 to 12 months. This is a novel element in a call on Digital Education and constitutes a significant opportunity to stimulate innovation in many places in Europe through numerous small-scale projects. It allows the coordinating entity to allocate the financial support to third parties and stimulate innovation in many settings at the same time. The duration of small projects, set at about 9 to 12 months, clearly indicates the focus on innovation rather than research. 'Up to 90% of the EU funding' does not mean 90% exactly, and the consortia may somewhat change this proportion if justified, but this phrase should indicate that the major bulk of the funding should be dedicated to funding small-scale projects.


- 'The Commission considers that up to 1 proposal requesting a contribution from the EU of around 7 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.' The call text does not prescribe the duration of the overall action. However, due to the complex set-up the proposers should consider that duration is likely to bring greatest value.
The expected impact for target outcome a) includes:

- **Increase in the overall uptake of technology for personalised and inclusive learning for all, regardless of their age, gender or other socioeconomic factors.** This should be seen and kept in mind as an over-arching, global context of this target outcome (mentioned in the introduction and the main text). Large-scale uptake is a crucial success criterion for this action. The proposers are encouraged to provide indicators of how they will quantify this impact.

- **Increase in the number of distributed learning solutions for children with special educational needs:** the Incubator is an innovative set-up and can fund a possibly very wide range of innovation projects in the area of personalised digital learning. It can be expected that some of the calls will call for small-scale projects to address the impact of increasing the number of distributed learning solutions for children with special educational needs, while others will focus on different priorities.

- **Increase in the number of start-ups/SME’s deploying personalised and inclusive learning solutions to the market:** This desired impact stresses the need to involve research centres and market players and to think in innovation and business rather than research terms.

- **Innovation Action using cascading grant:**

  There may be a confusion between the **costs of financial support to third parties** and the costs of linked third parties, which are two completely different situations. In the case of linked third parties “(t)he reimbursement rate of a beneficiary does NOT condition the reimbursement rate of its linked third parties”, i.e. it is possible in an IA that a beneficiary is entitled to 70 % but it has a linked third party entitled to 100 %; in that case, the linked third party will have a reimbursement rate of 100 % — despite the lower reimbursement rate of the beneficiary to which it is linked (AGA p.30).

  However, in this particular case we have to do with financial support of 3rd parties. “(T)he reimbursement rates apply to all forms of costs (actual, unit, lump sums and flat-rates costs) and all budget categories”. In practice, indeed, this means that in an IA (including, of course, ICT-30-2019-2020) a for-profit beneficiary/linked third party will be funded at 70% and the same reimbursement rate will apply to its FSTP costs (including the financial support to 3rd parties); on
the other hand, in an IA a non-profit beneficiary/linked third party will be funded at 100% and the same reimbursement rate will apply to its FSTP costs. It is up to the consortium to determine which type of coordinator is best suited to grant financial support to third parties.

Action a) has a budget of EUR 7 mln.

b) Coordination and support action in the area of Digital Learning

Action b) calls for:

- *'The action will stimulate the collaboration between all EU-funded FP7 and H2020 projects on digital learning, analyze the outcomes and best practices carried out in these projects, support the dissemination of their results as well as ensure their integration within the Next Generation Initiative and link with other support measures.'*


In one of the networking sessions, the coordinators of the running projects stressed the need for community-building and consolidation of outcomes from the funded projects. A better overview of the accomplishments and obstacles encountered by others and a systematic mapping of all major scientific insights and technological outputs and components produced in research and innovation projects so far could be an important stepping stone for further progress. The CSA aims at consolidating the past research and innovation projects in the area of digital learning. The inter-linking and pooling of know-how is important also to take stock also of the contribution of single projects to the field of digital learning and reflect on their impact. Therefore the action under b) should address as many projects as possible from the current (H2020) and past (FP7) project portfolios. It may also include reflection on other (non EC-funded) projects in the area of technology-enhanced learning (TEL). Proposals should demonstrate effective and fruitful community-building, knowledge-sharing and networking mechanisms.
• 'identify: a) emerging research challenges, notably those arising from digital certification of learning outcomes and blockchain technologies and their uptake for a more inclusive and personalised learning; b) address legal, organisational and technological challenges underpinning the uptake of the proposed solutions, notably in relation to their scalability; c) make policy recommendations in view of the priorities of the next programme for research, innovation and deployment.’

• At the stakeholder consultation in December 2016 already mentioned under action a) the potential of block-chain for education was widely discussed. Therefore this technology is mentioned specifically in the call text, however, other digital tools and technologies should also be considered. The proposers should be aware of other related initiatives, such as EU Blockchain Observatory and Forum. The call text specifically mentions scalability and addressing legal challenges and the proposals are encouraged to pay close attention to this aspect. The proposal should make policy recommendations for the next programmes for research, innovation and deployment in the field of digital education. Innovation and deployment are likely to be in the focus of EC programmes on digital innovation. The proposals should carefully consider and propose what type of innovation and deployment actions are likely to achieve the greatest impact in the European scale in the education field if launched. The proposals submitting under b) may come up with additional elements and activities they will provide in their action, not specifically mentioned in the call text, to add value to their proposition in the spirit of the call.

The expected impact for target outcome b) includes mainly:

• Increase in the overall uptake of technology for personalised and inclusive learning for all, regardless of their age, gender or other socioeconomic factors. This should be seen and kept in mind as an over-arching, global context of this target outcome. The proposals are expected to map the landscape of opportunities that may present themselves over the next years and propose a strategic European roadmap within this landscape. The proposers should make clear that they are aware of the relevant initiatives in the field and clearly outline what the added value of their recommended actions will be for digital education.

• Addressing to some extent the two other impacts is of advantage.

The budget for action b) CSA amounts to EUR 1 mln.
"The reimbursement rates apply to all forms of costs (actual, unit, lump sums and flat-rates costs) and all budget categories" (AGA V5.1–06.12.2018, Article 5.2, p.30 & Article 28(6) of the Rules for Participation). Consequently, the reimbursement rates apply to the costs of financial support to third parties, regardless of the FSTP form (to be noted that FSTP can take several forms, i.e. it can be reimbursement of the costs incurred by the recipients, or unit cost/lump sum etc. –see also Art. 5.2(c) MGA and AGA p.156). This is illustrated also in the budget table (MGA, model annex 2 p.117), where category [e] (direct costs of financial support) falls under the total costs, on which the reimbursement rate is applied.