This action is funded by the European Union

ANNEX 1

of the Commission Implementing Decision on the Annual Action Programme 2017 of the Republic of Armenia

Action Document for EU4Innovation in Armenia: Enhanced Education focusing on science, technology, engineering and mathematics

INFORMATION FOR POTENTIAL GRANT APPLICANTS **WORK PROGRAMME FOR GRANTS** This document constitutes the work programme for grants in the sense of Article 128(1) of the Financial Regulation (Regulation (EU, Euratom) No 966/2012) in the following sections concerning grants awarded directly without a call for proposals: 5.3.1.1 "Grant – direct award (direct management)" to Simonian Educational Foundation has been used.	
1. Title/basic act/ CRIS number	**EU4Innovation in Armenia: Enhanced Education focusing on science, technology, engineering and mathematics** CRIS number: **2017/040-530** financed under European Neighbourhood Instrument
2. Zone benefiting from the action/location	East Neighbourhood, Armenia The action shall be carried out at the following location: Armenia
3. Programming document	Single Support Framework for EU support to Armenia 2017-2020
4. Sector of concentration/ thematic area	Sector (2) – Economic development and market opportunities Sector (3) – Mobility and people to people contact
5. Amounts concerned	**Total estimated cost: 26 125 000 euro** **Total amount of EU budget contribution 23 000 000 euro** The contribution is for an amount of 23 000 000 euro from the general budget of the European Union for 2018 subject to the availability of appropriations following the adoption of the relevant budget. This action is co-financed in joint co-financing by the Simonian educational foundation ("TUMO") for an amount of 3 125 000 euro. Furthermore TUMO will donate land to the programme (15,000 sq.m) for an estimated market value of 6 000 000 euro.
6. Aid and implementation	Project Modality: • Direct management: grants (direct award to TUMO) and

modalities	procurement of services • Indirect management with World Bank			
7. DAC code(s)	Main DAC code: Education Policy and administrative management (11110) ; Education facilities and trainings (11120). Sub-codes: Teacher Training (11130); Educational Research (11182); Primary Education (11220); Secondary Education (11320); Higher Education (11420).			
8. Markers (from CRIS DAC form)	**General policy objective**	**Not targeted**	**Significant objective**	**Main objective**
	Participation development/good governance	☐	x	☐
	Aid to environment	x	☐	☐
	Gender equality (including Women in Development)	☐	x	☐
	Trade Development	☐	x	☐
	Reproductive, Maternal, New born and child health	x	☐	☐
	RIO Convention markers	**Not targeted**	**Significant objective**	**Main objective**
	Biological diversity	x	☐	☐
	Combat desertification	x	☐	☐
	Climate change mitigation	x	☐	☐
	Climate change adaptation	x	☐	☐
9. Global Public Goods and Challenges (GPGC) thematic flagships	Human development, incl. decent work, social justice and culture			

SUMMARY

This programme will support growth of Armenia focusing on the quality of STEM (science, technology, engineering and mathematics) education throughout different levels of education system. In particular, it will seek to (i) further develop the human capital, (ii) bridge the gap between the labour market needs and the output of country's education system, and (iii) pilot EdTech (education and learning technology) and modern teaching approach in a pilot region of Armenia.

First of all, **the programme will support the creation of a self-sustained EU4Innovation TUMO Centre** to provide a platform for STEM students of different tertiary education institutions to gain hands-on practical experience on their field of speciality. The Centre will offer hands-on workshops, project-based instruction and applied research facilities. It will also avail Academic Modules run by partner universities, offering instruction in specific disciplines with access to the shared hub The Centre will be coupled with Small Offices and Incubator facility, which will ensure the financial sustainability of the Centre. This Centre will be developed in partnership with TUMO building on the success of the TUMO Centre for Creative Technology.

Secondly, the **overall quality of education provided in the compulsory education will be improved and boosted through building capacity of the state institutions,** in particular the National Institute of Education (NIE), to regulate and apply quality standards in education as well as ensure effective coordination of the numerous initiatives and stakeholders in the education system. In addition, in line with the needs of the 21st century, support will be provided to further increase the quality of textbooks, pilot e-learning content, and teacher training.

Finally, **in a pilot region and in particular building on the "Dilijan Education Cluster", new teaching methods and EdTech approach will be introduced in all the 81 schools of the region** to increase the quality of STEM education. This pilot will have a special focus on rural areas, as well as a gender sensitive approach. The programme will be carried out through project modality (grant and indirect management) and will also be harmonised with those of the other Development Partners involved in the field: the World Bank, Asian Development Bank, TUMO, AGBU and IDeA foundation.

The Programme has been prepared in close collaboration with the Government of Armenia, in particular the Prime Minister, Deputy Prime Minister, Minister of Education and Science, Minister of Transport, Communication and Information Technologies, and Minister of Economic Development and Investments offices and the Presidential administration.

1 CONTEXT

1.1 Sector/Country/Regional context/Thematic area

Armenia is a landlocked country with limited natural resources and with a population of about 3 million. Based on OECD/DAC criteria, Armenia is classified as a lower middle-income country with projected GDP per capita 3,568 USD (2016). Armenia's economic performance has, according to the IMF, worsened from 7.1% GDP (Gross Domestic Product) growth rate in 2012 to expected 2.9% in 2017. The unemployment rate in Armenia is expected to increase from 17.7% in 2015 to 18.0% in 2017. The unemployment and more generally, the lack of economic opportunities have contributed to significant outflows of economically active population.

Increase of employment through creation of quality, high productivity, and value added jobs is one of the main objectives of the **Armenia Development Strategy** (ADS) 2014-2025. It sets a priority to **develop Armenia into a knowledge-based economy**, highlighting the creation of country's economy's competitive advantages based on science and high technologies as the primary precondition for development. According to the Global Competitiveness Report 2016-2017, however, Armenia ranks currently 100th out of 138 countries in the quality of scientific research institutions and 92nd in university-industry collaboration in R&D (Research and Development). Poor science-industry linkages and ineffective collaboration constitute also one of the weakest structural components of the Armenian national innovation system.

According to the 2013-2014 National Competitiveness Report of Armenia, **insufficient quality of human capital is one of the main binding constraints to the country's growth**. According to IT Skills Assessment in Armenia Report 2014, the current number and quality of students is not sufficient to meet the demand of the industry (current estimated gap of 300 IT specialists per year). Furthermore, the knowledge and skills currently provided by universities tend to be insufficient to obtain a job in this industry. The assessment of skills for graduates in IT and Engineering sectors by companies carried out by Enterprise Incubator

Foundation revealed that 73% of respondents estimate that the practical knowledge of the graduates is below expectation. Thus, many companies tend to organise additional trainings, courses, and internship programmes for the graduates, limiting their own growth potential. Some companies also decide to externalize their work to other countries of the region because of lack of qualified human resources. The root cause of workforce-related issues lies not only in the quality of higher education, but in the output of the country's whole education system. Despite the considerable progress, the quality of education at all levels is continuing to be an important challenge in Armenia. The 2016 Human Capital Report ranks Armenia in 75th place out of 130 countries in the quality of education. The general education has gone through various large-scale reforms since 1998. The first ten years of the reform process mostly targeted structural changes and improvement of the financing and management structures in the system. The main reforms included the creation of school governance boards, introduction of per student finance system, establishment of textbook rental system (25% of the textbook price is paid for one year rent); and from 2017, introduction of 12-year mandatory education.

1.1.1 Public Policy Assessment and EU Policy Framework

This programme is fully in line with the **Single Support Framework** for 2017-2020. Economic development and market opportunities through enhancing human capital, including through modernisation of the education system to supply labour market, is identified as the first of the four priority sectors for EU's cooperation with Armenia.

The review of the **European Neighbourhood Policy**, published in November 2015, confirmed that the EU will continue improving the employability of the local workforce. EU support will focus on the development of skills and competences, and the creation of opportunities particularly for young men and women through non-formal and formal education by ensuring the development of skills, apprenticeships and work-based training. The ENP review highlights the importance of (i) matching skills and labour market needs, (ii) improving academia-industry collaboration and (iii) development of students` employability skills for knowledge-based and sustainable jobs.

The **Joint Declaration of the Eastern Partnership Summit** of May 2015 in Riga stresses the importance of mobility and people-to-people contacts in the areas of education and research.

The programme is in line with the 2016 **Joint Staff Working Document on Eastern Partnership "Focusing on Key Priorities and Deliverables"** that recognises the necessity to enhance the quality and relevance of education in Eastern Partnership countries promoting reforms in line with the European Higher Education Area. Formal and non-formal education will be further improved to equip the beneficiaries with key skills for academic and professional development, increasing employability and promoting civic engagement.

Development of human capital will be further assisted with focus on labour market-relevant skills to ease labour market transformations. The coordination between the education system and the labour market will be enhanced by inter alia improving links between education and the world of work; promoting apprenticeships, traineeships and work experience; promoting the acquisition of core competences, including ICT (Information and Communication Technologies) and entrepreneurship, as well as soft skills (i.e. communication and interpersonal relations).

Finally, creating better links between research and innovation initiatives and results to market demand and opportunities would help accelerate the market uptake of research results and help improve competitiveness and innovation in economic development.

This Programme is also in line with the **ADS 2014-2025**, which identifies development of education and science as priorities of the country. Increasing the quality and effectiveness of education at all levels of the educational system to international standards and ensuring affordable/accessible education for all groups of the population are priorities for the development of the sector. The key strategic objectives are improving the quality of education and bringing it to international standards, strengthening the quality control of education, ensuring transition from 9 to 12-year education system, increasing enrolment in upper secondary education, and improving efficiency and management of education system.

In science, the ADS aims to ensure sustainable development of science and advanced technologies. Upgrading of scientific infrastructure, stable growth of highly qualified workforce in scientific and technical fields, attracting young scientists, strengthening innovation, and internationalizing science and innovation are among the key objectives of the ADS. The Strategy on Development of Science 2011-2020 as well as Science and Technology Priorities 2015-2029 envisage more specific targets and actions for the implementation of the strategic objectives and priorities in science (e.g. information and communication technologies, life sciences, efficient and safe energy, space science, sustainable use of natural resources, and Armenology).

While the above-mentioned strategic policy documents in the area of education, science, technology and innovation are coherent in terms of priorities and objectives, the implementation of this agenda should be further streamlined and enhanced. Various studies completed in the area of education and science, as well as professionals in the fields agree that both sectors – general and higher education, and science and technology – should focus on the development of skills and competences required for the needs of the current and future labour market. To achieve this, in the area of general education, there is a need to improve the quality of STEM education through modernised teaching and learning materials while further encouraging students to enrol in this sector. In higher education, there is a need to focus on high-quality targeted technology education, which will provide hands-on workshops, project-based instruction, and applied research facilities.

1.1.2 Stakeholder analysis

The **final beneficiaries** of the programme are Armenian citizens, in particular: **students** who will receive quality education in STEM in accordance to the labour market needs; **teachers** who will be able to apply modernised teaching instruction in line with new curriculum and to effectively use EdTech; **school principals** who will be able to appreciate the use and benefits of EdTech resources to better manage and monitor the quality of education in their school; **jobseekers** whose hands-on and practical skills will increase their employability; and **employers** who can choose from an extended pool of talents. The **key stakeholders** are the following**:**

Ministry of Education and Science (MoES)

MoES is responsible for developing the National Development Program on Education which is approved by the Parliament and forms the basis of education policy. It is also responsible for development, monitoring and assessment of long-term and mid-term educational

programs. Ministry approves the exemplary learning plans for all types of schools and before every academic year, it approves the list of textbooks and additional learning books. 109 high schools, private schools, and several secondary educational complexes are under direct management of the Ministry, while other schools report directly to regional authorities.

National Institute of Education (NIE)

NIE is governed by the Ministry of Education and Science and is responsible (i) for developing syllabus and subject standards, (ii) teachers' trainings and attestations (iii) coordination of development and publication of teaching-learning materials, as well as (iv) attestation tests. NIE is training 20% of Armenian teachers per year for attestations in Yerevan as well as in the 11 regional branches. All types of educational materials have to go through expertise of NIE and only after receiving approval can be used in schools. NIE is also responsible for ensuring the quality of educational programs initiated by NGO's and international organizations. Quality control of all non-public schools' syllabus is done by NIE. NIE also publishes several journals for school teachers, which are distributed free of charge to all schools of Armenia.

The National Centre for Education Technologies (NCET)

NCET was established in 2004 and it is the key agency providing access and distribution of the information and communication technologies in the sphere of general education. The centre coordinates all programs in the field of educational technologies. One of the main tasks of the centre is to provide computers, intranet and internet to all schools of Armenia. The centre has representatives in all regions, who provide technical and content support to schools. Once a year, the centre collects data from all the schools (including on the usage of ICT in schools), which is shared with the public via Educational Management Information System (EMIS) and NCET's website (www.ktak.am). In 2018, pre-school management information system will be finalised and added to EMIS. The NCET will be in charge of availing technologies and e-learning contents as well as providing backstopping support for schools to enable successful introduction of EdTech, in case it is financed from the state budget.

Furthermore, DASARAN is a foundation with a platform that connects all Armenian schools, teachers and students through a website that monitors education activities (grades of all Armenian students and absences), proposes gamified education, gives access to mentoring, and fosters exchange of experience between students and teachers. DASARAN website is Armenia's most visited website in terms of click and duration of connection (Google analytics).

Textbook and Information Communication Technologies Revolving Fund

The Fund was established in 1997 as the Textbook Revolving Fund NGO. In 2011, it was restructured into a Foundation and it was renamed into the Textbook and Information Communication Technologies Revolving Fund due to its expanded scope of activities. The main activities of the fund are currently the provision of textbooks to students in all institutions of Armenia implementing general education programs; implementation of innovative (including ICT) projects; conducting of trainings; implementation of grant projects supported by the international organizations, and conducting of studies to assess the impact of various projects. Since 2011, according to the MoES's order, the Fund has been involved in conducting trainings for the candidates who apply for the position of school director.

In the light of significant changes and developments in the education sector, a review of the core functions of the NIE as well as those of other agencies is envisaged through an ongoing

programme of the Annual Action Plan 2011. The functional review will allow better streamlining of the functions of the core government education agencies and successful implementation of this programme.

TUMO Centre for Creative Technologies (Simonian Educational Foundation)

Outside of the formal education system, the TUMO Centre for Creative Technologies is an independent foundation that trains every year 14,000 students (age 12-18) in a free of charge after-school programme that allows them to experiment with digital technologies and creativity. TUMO is assessed as a centre of excellence[1]. The proposed programme will build on its success, (i) to strengthen the link between the academia and the IT/engineering industry, (ii) to accelerate the transformation of Armenian higher education system, while (iii) providing shared research facilities and project based instruction open to all Armenian STEM students.

Dilijan Education Cluster

The Dilijan Education Cluster was created following the establishment of the United World College (UWC) in Dilijan by IDeA Foundation, through an agreement signed between IDeA and the Ministry of Education. The Dilijan Education Cluster is a public-private partnership aiming at piloting education initiatives. The proposed programme would build on this initiative for the benefit of Tavush region.

The Dilijan education cluster was included in UNESCO's Global Network of Learning Cities in 2016. A number of organizations have invested in the development of Dilijan as the Armenian city of knowledge, culture and recreation, including the Central Bank of Armenia (about $90M since 2011) and IDeA Foundation (together with over 50 partners - about $150M) and further committed to co-finance this project. The educational landscape of Dilijan consists of the most innovative Armenian institutions such as UWC Dilijan boarding school, TUMO Centre for Creative Technologies, Ayb School (Dilijan Central School), American University of Armenia and the Central Bank of Armenia Training and Research Centre, and Teach for Armenia.

1.1.3 Priority areas for support/problem analysis

One of the key growth constraints in Armenia is linked to education, not the shortage of highly educated people, but the supply of quality human resources and the relevance of their academic knowledge. In particular, in Armenia, more than half of the entire student body enrols in Arts and Humanities, and Business, Administration and Law. Such distribution does not correspond to the labour market needs, and thus the graduates face difficulties finding jobs. At the same time the ICT (Information Communication and Technology) sector is growing with an annual growth of 20% and faces a shortage of qualified workforce. The Government aims to double the number of employees in the ICT sector by 2019 in line with the targeted sector growth.

Bridging the gap between STEM higher education and market needs

[1] Cssr Moedas, 23 November 2016, SK presidency conference: "I visited the TUMO Centre for Creative Technologies in Yerevan[1]. TUMO is a drop-in centre for schoolchildren that allows them to experiment with digital technologies and creativity. No child is forced to go to TUMO. But they queue at the door to get in. The children do not receive any formal diploma but instead build a portfolio of their projects and capabilities. They create companies through the intersection of Arts, Sciences and their Passion. **The facilities and environment at TUMO are better than anything I have seen in Silicon Valley**. This experience reinforced my strong believe that **excellence** exists in every country."

As mentioned above significant gap exists between the quality and competence of the labour needed by the economy and what is actually supplied by the current educational system. This is particularly true for professions that require strong science, technology, engineering and maths skills, which in return are important for the sectors that have the highest potential to drive economic growth in Armenia.

In general, graduates are unprepared to work in their fields of study as they have low levels of both theoretical and practical knowledge. The education system in Armenia is overly concentrated on content-heavy and lecture-based learning methods, leaving very little room for interactive and engaging teaching approaches. Furthermore, universities are primarily focused on teaching and mostly do not engage in sizable and continuous practice of Research and Development.

In regard to the higher education, the university infrastructure (e.g. laboratories) is in most cases deteriorated and non-conducive for modern needs of effective teaching, research and other professional education needs. Instruction is predominantly theory-based with little reflection on practical aspects, implying that graduates are not properly prepared to enter the labour market. There are 5 technological universities in Armenia that are training more than 6500 students every year who have difficulties to adapt to the need of the ICT and Engineering sector and thus, fail to create tomorrow's workforce.

This issue is amplified by the fact that Armenia's higher education system has little government funding and majority of revenue of public and private universities is generated from tuition fees which vary from 1000 to 2000 euros per year. 2,000 euros is the maximum threshold that an average Armenian family can afford for enrolling their children in university.

With this amount institutions are able to balance their economic model only for inexpensive tertiary education such as Law, Management or Social Sciences that enable mass education and require very little infrastructure. This also plays a significant role in the saturation of the employment market in these particular sectors while other sectors are less populated.

This scheme is not viable when talking about scientific training and IT. In many European countries a quality university education costs between 15,000 and 20,000 euros per year per student. This amount mainly includes technological platforms, staff required for their operation, and the replacement of obsolete equipment after a few years. It is this price that allows the best technological universities to build their reputation and train the students on the latest innovative technologies expected by the labour market. This is one of the main reasons for the inadequacy between the graduates of Armenian universities and the needs of the IT sector.

Through the self-sufficient economic model of the Centre the students who enrol will benefit from the most advanced technologies and world-class project-based education while maintaining the financial level of involvement of their family below the maximum permissible threshold.

The coupling of industry with the academic sector will allow:

- To build, operate and invest over time in state-of-the-art technological platforms by capturing private financing resulting from the leasing of the facilities made available in the Centre.

- Conducting and running cycles of multidisciplinary and innovative projects for a whole student community in a transparent and free manner.
- Guarantee an academic level of excellence by universities who are partners in the project, including training courses which could lead to obtaining a double degree, but above all affordable tuition fees.

Enhancing education with better trained teachers

The teaching force is aging. In 2015, 44% of Armenian school teachers were above 50 years old, compared to 30% for the OECD average. At the same time, there is a lack of concerted efforts to attract young talented people to the field of education. Teachers' profession is not popular and the salary is low thus, graduates with higher academic achievement do not apply to pedagogical universities, which are not considered competitive enough in the market. Currently there are 38,690 teachers working in 1438 schools in Armenia. According to the Open Society Institute report, approximately 4,000 of them could be unqualified. An overwhelming majority of unqualified teachers works in rural schools, leaving the rural students at disadvantage.

In 2011, the Ministry of Education and Science introduced a new regulation on teachers' training policy. According to the policy, teachers working in public schools are required to complete mandatory attestation trainings every 5 years. Training courses have two options: simple and advanced. The simple option encompasses 80 academic hours training course, which includes content knowledge, pedagogical knowledge, legal knowledge, and ICT knowledge. The advanced option allows teachers to apply for a qualification degree leading to a salary increase.

Although efforts have been made to adapt **pre-service and in-service training** to teachers' needs, the training modules still tend to be overly theoretical and in a lecture format. In-service trainings themselves do not always take into account the specific needs of the participants, and thus often fail to offer new information to teachers with advanced skills in a given area. Travel and quality of training are particularly limited for teachers at the local (marz) level. Rural teachers' time commitment is especially challenging during the agriculture season, thus NIE has reduced training to one time per week for rural areas.

Furthermore, the teaching methods and curricula of STEM related subjects tend to be outdated and often based on knowledge stock inherited from the Soviet times. Since 2003, when Armenia first participated in "Trends in International Mathematics and Science Study" (TIMSS), students' scores have been declining, leaving Armenia among the countries below TIMSS Scale Centre-point. Compared to 2003, results in 2011 have declined in both Maths and Science.

The main document for the content of general education, National Curriculum, based on which subject standards are approved and textbooks are developed, was first developed for independent Armenia in 2004. It was last revised in 2011, establishing competence-based approach, reducing subject syllabi content by 20%, and revising standards. Currently the national standards and curriculum framework defined under the General Law on Education is in the process of being revised again and is planned to be finalised by September 2017 and followed by a review of subject standards in 2018. The review and renewal of the National Curriculum is supported by the World Bank's current Education Improvement Project.

Improving education through EdTech

Since 2015, all schools have computer equipment and Internet access. There is on average, one computer for every 17 students in Armenia and 14 computers per school. However, as equipping the schools has been a phased process which was launched already in 1999, the hardware in many schools is aging and is often no longer compatible with the available software. According to NCET study carried out in 2016, the main issue identified by 48 % of principals was lack of computers, and/or incomplete and outdated equipment. As many schools still use cable connection (not WiFi), not all the computers have internet access. Furthermore, the Internet speed in rural areas is often not sufficient. It is set by NCET to be 4 megabits compared to 10 megabits available to Yerevan schools. Other issues that were mentioned by school management were lack of furniture in the computer labs, electricity cuts, lack of specialists, high maintenance costs, and not enough e-learning materials.

However, technology will only contribute to improving the quality of education if in addition to the proper training of the teachers, the content material is developed (e-learning, gamification, blended learning) and textbooks are adapted.

Equal learning opportunities in STEM education for a pilot region

In line with the ADS and the growth objective of Armenia, the STEM sector benefits from a significant growth (20% per year for the IT sector) and this growth can only be sustainable with an increase of trained professionals. To ensure a balanced growth, and contribute to reducing emigration from the rural areas, students from the regions and girls in particular, should be further supported in attaining quality education.

Out of 1438 schools in Armenia, 574 are urban and 864 are rural schools. Quality of education in these schools depends greatly on the level of teachers. Overall, 63% of the students study in rural areas, whereas only 48% of teachers teach in rural schools. Furthermore, teachers in urban areas have higher level of education compared to rural teachers. This is further demonstrated by rather significant difference in graduation results of students from urban and rural places. In Mathematics, for example, the average score of students from big cities was 14.2 (out of 20), compared to the 12.0 of students from border areas and remote villages. To address these geographical differences and ensure equal access to quality education, the proposed action will focus on piloting introduction of EdTech and adapted teacher training programmes in a pilot region that will be selected at a later stage.

Indicatively, the Region of Tavush is selected as a pilot region for the following reasons: (i) size of the region with 81 schools with 495 STEM teachers, (ii) importance and difficulty to provide education of quality in border villages, (iii) presence of a credible partner with the required capacity in the marz, and (iv) opportunity to build on the Dilijan Education Cluster as regional piloting centre.

2 RISKS AND ASSUMPTIONS

Risks	Risk level	Mitigating measures
1. Geo-political tensions in the Caucasus, political instability within Armenia or a further downturn in the global economy diverts the government's focus and resources away from its reform agenda	M	- Continued political and policy dialogue with the Armenian government - Close monitoring of macro-economic and PFM policies together with IMF and WB - EU and other Development Partners' support to PFM and macro-economic reforms
2. Resistance of school management and teacher community to reform	M	- Capacity building for school principals and teachers - Central steering and communication on the reform by the MoES
3. Lack of experience and capacity of the MoES, NIE, NCET in EdTech introduction and implementation of pilots	M	- The programme will reinforce the capacity of the MoES, NIE and NCET
4. Unfeasibility of rural teachers to participate in the trainings	M	- Costs of training and logistics will be covered by the programme - Timing of the trainings will take into account the seasonal limitations of people living in the rural areas
5 – Difficulty to implement the pilot, build on the different ongoing programmes, and draw lessons learnt for the Armenian strategies	M	- Close collaboration between the World Bank, different stakeholders (including TUMO and IDeA) and the MoES is required - Selection criteria for the pilot marz includes the requirement of the presence of a credible partner(s) with the required capacity in the marz
Assumptions		
- The Government maintains or enhances its foreign policy objectives of strengthening the political and economic relationship with the EU. - The Government maintains its commitment to the Armenia Development Strategy 2014-2025 that aims at modernising the education system. - Foundations are willing to cooperate and partner for the implementation of the proposed action. - The Government is willing to pilot and test new approaches, and is committed to amend the regulatory framework if deemed necessary.		

3 LESSONS LEARNT, COMPLEMENTARITY AND CROSS-CUTTING ISSUES

3.1 Lessons learnt

EU has been involved heavily in the sector of education in particular through support to the Bologna process and the development of Vocational Education and Training (VET). Now, in Armenia, a three-cycle system of qualifications has been developed, and the system of accumulation and transfer of academic credits has been introduced in compliance with the European system. EU has provided technical assistance to 21 Universities through TEMPUS/ ERAMUS+ provided a Twinning to the Armenia National Centre for Professional Education Quality Assurance, and in particular financed the VET sector (governance, refurbishment of 19 schools, update of curricula) providing enhanced education to 4,500 students annually. This programme has been developed building on the successful cooperation, and targeting one of Armenia's key growth constraints.

Need of strategic coordination

During the last 15 years, many new institutions and initiatives were established in the Armenian education system, often leading to uncoordinated efforts and overlapping mandates. The reforms in general education sector were focusing on establishing national governance and financing structures and systems. However, despite being the priority for the Government, the funding of the sector remains relatively low, 3% of GDP, leaving space for private initiatives to fill the gaps.

At the same time, many private and donor funded initiatives aimed at modernising curriculum, teacher preparation and training, teaching and learning materials, including e-learning, have been implemented in Armenia. As a result, new private sector initiatives/foundations have emerged, including Step by Step Foundation, AYB Foundation, IDeA Foundation, TUMO, Dasaran.am, Teach for Armenia, etc.

All these initiatives have to be effectively coordinated and regulated to ensure that they all translate into a streamlined, coherent and sustainable national education agenda. MoES will be at the core of assessing, integrating, and managing these initiatives to be fully in line with national policy. Furthermore, since 2016, the Centre for Strategic Initiatives was established to facilitate the Armenian Government's efforts in implementing fundamental reforms, in particular in education.

Shortcomings in teacher training

In Armenia, there is a lack of quality and attractive programmes to enrol qualified school graduates into the Pedagogical University. Because teaching is perceived as a difficult job and salaries are low, graduates with higher academic achievement do not apply to Pedagogical University. According to NCET, average teacher salary in 2015-2016 was around 160 euro monthly, compared to the country's average salary, 315 euro. The main attraction for the school graduates are low entrance exam marks needed for Pedagogical University entrance, and non-expensive tuitions. Yearly tuition fees for sciences departments in Yerevan State Pedagogical University are around 500 euro, in comparison to most expensive fees at foreign language departments of 725 euro per year.

Since 2005, when Armenia officially joined the Bologna process, pedagogical education is provided on two levels: Bachelor's and Master's. However, there is no clear distinction on the difference between the two degrees. Both are considered as higher education degrees, so no

differentiation is made in the job market or in the salary of new recruits. This makes Master's level education less effective and less attractive.

During their studies, students have to participate in practical trainings in schools. Nonetheless, the preparation of future teachers is often criticised for paying insufficient attention to practical experience, and thus being out of touch with school reality.

In-service teacher training is considered as important as pre-school training. Many countries that have succeeded in popularising teaching as a profession have often done so not just through increase in salary, but by raising the status of teaching, offering real career prospects, and giving teachers responsibility as professionals and leaders of reform. This requires teacher education that helps teachers to become innovators and researchers in education, not just deliverers of the curriculum. Furthermore, the practice in Armenia has shown that the benefits of teacher training are not sustainable without continuous post-training support and guidance.

The importance of school managers in ensuring the conducive environment for teachers to implement modern teaching methodologies is often ignored, resulting in minimal impact of the in-service training. Thus, the proposed programme also envisions building the capacity of school managers as important stakeholders in the provision of quality education.

Risk and opportunity of EdTech

Various private and public programmes have been implemented aiming to equip schools with ICT equipment. Even though, teachers' ICT usage knowledge and skills have increased, modern education opportunities are not fully utilised due to lack of engaging e-learning content, and limited awareness of the potential benefits and availability of the variety of e-tools. There is a clear need for blended learning trainings, which will allow incorporating face-to-face and ICT learning approaches, as well as further involvement of the school management to promote the benefits of EdTech.

Lessons learnt from piloting EdTech in other countries show that it is unrealistic to expect the teachers themselves to modify the curricula to integrate technology; they will simply not have the time nor the appropriate training. As the selection of e-learning materials in Armenian is limited, the proposed pilot programme will aim to develop an online content that would better meet the needs of the students, integrate the renewed curricula, as well as utilise the existing initiatives (e.g. through National Centre of Educational Technologies, online e-learning platform Dasaran, Armenian Virtual College, etc.). The content will be available for all and will benefit in particular the rural schools where lack of qualified teachers, and also teachers, inhibits the quality of education.

According to the majority of EdTech practitioners, the key to success is to develop educational content, and ensure that the teachers are professionally prepared before any technology is introduced in the classroom. In Armenia, teachers receive basic IT training as part of the mandatory in-service teacher training programs. However, 90.4% of teachers wish to be retrained in ICT, despite the free courses they had attended. In the framework of the pilot programme, the STEM teachers in the region will be trained in blending the new e-learning content to their teaching plans and offered ongoing assistance during the implementation process. To ensure continuous support for modernisation and encourage the implementation of the new standards, the management skills at the level of school governance should also be improved in parallel through increasing their competencies and skills in modern education management methods.

3.2 Complementarity, synergy and donor coordination

EU programmes

The proposed programme will complement and seek for synergies with the existing initiatives implemented in the framework of **EU4Business** and **EU4Innovation**. Actions proposed in this programme will enhance the quality of human capital and thus, further support the growth and competitiveness of Armenia, complementing in particular, the assistance provided to SME development. Synergies will be sought with the following activities – linking research and business and providing finance for innovative start-ups. The SMEDA project (Annual Action Plan 2014) foresees support to state bodies and private sector to strengthen their capacity to benefit from the EU's support to innovation. In 2016, Armenia joined Horizon 2020 granting Armenia's researchers and innovators with full access to EU's funding; in light of which, further capacity building efforts are envisioned.

The proposed initiative is also complementary to the assistance provided by the EU in the framework of Erasmus+ and budget supports to enhance the Vocational Education and Training compatibility with the labour market demands. It will also build on the Armenian engagement in the Bologna process and on the European Higher Education Area integration process.

The proposed initiative will complement and synergise with the Twinning facility setup under the AAP 2017 Technical Cooperation Facility Action and more specifically with potential Twinning for the Ministry of Education and or the National Institute of Education.

Donor coordination

Preliminary coordination meetings have been organised to ensure that the planned activities are complimentary to other interventions and will build on the results achieved. World Bank (WB), Asian Development Bank (ADB), USAID and GIZ are the main donors active in the sector. In compulsory education, WB is supporting the review and improvement of the curricula and standards for all grades. The WB is also supporting the National Centre of Education Technology. Interventions by other donors include ADB's loan for renovating and retrofitting around 46 schools for seismic safety, ADB's planned Education Policy framework loan and GIZ's support to the Vocational Education and Training sector.

In addition to donor support, various initiatives launched by foundations are playing a significant role in the education sector in Armenia. The Government, in collaboration with the AYB Foundation, has launched in 2016 the National Programme for Educational Excellence (NPEE) and the Araratian Baccalaureate Programme for Armenian schools (3 today and 20 in the coming years), aiming to raise the general education level by reviewing the curricula and teaching methods in the high school level (grades 10-12). IDeA Foundation has initiated the development of the Dilijan Education Cluster with the aim to improve the level and quality of education and employing innovative practices meeting international standards of the general education system in Tavush region. Dasaran educational platform is present in all 1438 schools in Armenia and connects all the teachers, students and parents through the most visited website in Armenia, all categories included. TUMO Centre for Creative Technologies which concentrates on non-formal education for teenagers, teaching animation, video game design and web development, and COAF which is planning to establish a smart centre in Lori and to open smart rooms in close villages promoting the use of state-of-the-art technology in education. AGBU has created the Armenian Virtual College platform which is providing e-courses in humanities and social sciences, however, their courses are not accredited.

During the consultation process with the donors and other relevant stakeholders, harmonisation of the planned activities was sought, existing and planned capacity development activities were taken into account and the gaps were identified. Synergies foreseen under this action will build on all the existing larger-scale initiatives and contribute to create stronger coordination and collaboration between the different actors.

Need for enhanced coordination

To enhance coordination, the programme foresees to work together with the WB as an implementing partner and to benefit from its technical input. The action will liaise closely with the ADB that is preparing Education Policy framework loan, and to build a consensus of all key private actors in the sector (IDeA, AYB, AGBU, TUMO, etc.) under the leadership of the Government through a governance board.

3.3 Cross-cutting issues

The programme aims at enhancing the quality of human capital with special focus on labour market needs. In its implementation phase, gender sensitive approach will be assured. In particular, the programme will further contribute to increasing the girls' and women's skills and knowledge in STEM, as well as facilitate their entrance to the labour market as currently the majority of specialists employed in the Armenian ICT sector are males (63%). The proposed action will also address the widely-spread gender stereotype issue in the textbooks. All efforts will be made to ensure the environmental sustainability of the action.

The programme will also contribute to addressing equity and inclusiveness in education by ensuring the same quality of education to students in rural, remote, mountainous, and boarder regions by means of EdTech, improved textbooks, and teacher training.

Furthermore, through the activities of Centre and better STEM teaching the programme will support the growth of ICT sector in Armenia which is today one of the fastest growing industries in Armenia (according to Government data, IT sector grew 38% in 2016 compared to 2015). There are about 500 IT start-ups and companies, mostly small and medium, in Armenia with a turnover of 550 billion USD in 2015.

4 DESCRIPTION OF THE ACTION

4.1 Objectives/results

The **overall objective** of the programme is to support shared and balanced growth through addressing constraints linked to innovation and education with focus on STEM.

The **specific objectives** and results of the programme are:

Objective 1	**Increased the number and quality of engineers and technology professionals in Armenia in line with the labour market demand**
Result 1.1.	Governance board of the Public Private Partnership Centre established
Result 1.2.	Self-sustainable Centre created
Result 1.3.	Hands on workshop and project based instruction provided free of charge or at affordable cost to STEM higher education students and young professionals
Result 1.4.	Research and Development facilities in place and accessible to all technological universities of Armenia

Result 1.5. EdTech content, teacher training materials developed, and pilot region teachers trained to enhance STEM education

Objective 2 Increased number of students from regions graduating with quality STEM knowledge

Result 2.1. Increased capacity of relevant governmental institutions to ensure quality control of compulsory education

Result 2.2. Modernized teaching methods developed and piloted in a region

Result 2.3. Pilot region's high and middle schools equipped with functioning IT classrooms to roll out EdTech STEM enhanced teaching

4.2 Main activities

Component 1: Creation of EU4Innovation - TUMO centre

The main activities include the creation of a **Centre** which will address the existing shortcomings by offering a high-quality technology education which will provide hands-on workshops, project-based instruction, and applied research facilities. To ensure the compatibility between the education and labour market needs, the Centre will be a mixed-use facility with academic units run by educational institutions and corporate partners. To further strengthen the link between research and industry, the centre will offer incubator facilities to start-ups and small technology companies, which will also generate income and guarantee self-sustainability for the Centre. Through these activities the Centre will contribute significantly to increase the quality of technical degrees and to strengthen the linkages among academia and industry. It will also facilitate connections between local and regional initiatives such as the planned Kutaisi University City in Georgia, and global networks. To manage the Centre, a **Governance board** of the Centre will be established. . Specific activities will include policy dialogue with Government, other Development Partners, private sector stakeholders, and universities to ensure a coherent and robust legal, governance, and policy framework for the design and implementation of priorities and activities of the Centre on a public-private basis.

Component 2: Strengthening STEM teaching/learning in the regions

One of the activities under this component will include **capacity building for both the MoES and the NIE**. Apart from needs assessment, capacity building will take into account the recommendations of the functional review of the NIE. In addition, the programme will assist the **development of technological support for education (EdTech)**. In particular, it will contribute to further development of modern teaching methods and EdTech content**.** The programme will also **develop new teacher training methods** through introducing blended learning and EdTech. New **textbooks will be developed** to equip teachers with new and modern teaching tools. The developed materials will be refined through **a pilot project** in one of the regions of Armenia, and all middle and high schools of a pilot region will be equipped to allow in the introduction of EdTech. Policy dialogue with the Government will be carried out to ensure a robust framework for the sustainability of the programme results after the piloting stage.

4.3 Intervention logic

The evidence basis for the envisaged action is substantive. According to the Armenia National Competitiveness Report, the top two constraints to business growth in Armenia based on a survey of businesses are (1) small market size and (2) a lack of highly qualified workforce. The "Armenian ICT Sector 2015" report by the Enterprise Incubator Foundation estimates that 2,000 specialists in IT or related fields graduate from Armenian universities each year. But only a minority of these graduates is employable upon graduation due to a lack of applied skills and hands-on experience. According to the EIF's annual accounts, about 300 new high-paying jobs in ICT and high-tech sector were not filled last year and remain open.

The first component of the programme will aim at creating a self-sustainable **Public-Private Partnership EU4Innovation Centre for Engineering and Applied Science in Armenia**. The Centre will contribute to increasing the number and quality of engineers and technology professionals by (1) partnering with and establishing new degree-granting institutions, (2) working with university students and recent graduates who are in fields other than engineering in order to train them in engineering and technology so that they can enter the corresponding job markets, and (3) working with existing degree-granting institutions in order to increase the quality of their education and provide access to the latest innovative technologies. The Centre will address the existing gap by offering a high-quality technology education which will provide hands-on workshops, project-based instruction, and applied research facilities. To ensure the compatibility between the education and labour market needs, the Centre will be a mixed-use facility with academic units run by educational institutions and corporate partners. The sustainability will be further ensured by transferring the assets to the beneficiary of the grant in the end of the programme, whilst keeping in mind that the co-financiers maintain ownership over their investments. To further strengthen the link between research and industry, the centre will offer incubator facilities to start-ups and small technology companies, which will also generate income and guarantee self-sustainability for the Centre. The Centre will contribute significantly to increase the quality of technical degrees and to strengthen the linkages among academia and industry. It will also facilitate connections between local and regional initiatives such as the planned Kutaisi University City in Georgia, and global networks.

The second component of the proposed action will focus on the capacity building of the relevant education institutions, teacher training and pilot STEM enhanced teaching approach in selected region. The EU will work together with the World Bank on the implementation of the second component.

In order to **concentrate EU Support** in Armenia to increase the **visibility** of the EU support in the country and to strive for a cross-sectorial approach with future actions in a pilot region, it is proposed that the programme pilots new teacher training methods with the usage of EdTech in the region of Tavush. The action will build on an existing education cluster in the region. If opportunities for extending the piloting of new training teacher methods in more than one region exist, Tavush should be part of the regions selected for the action.

There are numerous successful but scattered initiatives in the field of education, which could have a great impact on the overall quality of the education system if they were properly mapped and well-coordinated. In light of this, MoES will be supported in its regulating and coordinating role. A functional review of the NIE and other government educational institutions is foreseen (ongoing cooperation), which will provide the basis for further capacity building. The areas which are currently under the responsibility of NIE - textbook

policy, teachers' training and accreditation, as well as development of education standards and programmes, will be further reinforced by the proposed action. The programme will **support capacity activities both for the MoES and the NIE**, and it will also support the development of technological support for education (EdTech).

To decrease the inequality stemming from the geographical location of schools, and to bring the general education up to the international standards, the proposed programme foresees further development of **modern teaching methods and EdTech through a pilot project** introducing innovative teaching aids and tools, e.g. e-learning, gamification and distance-learning. Even though, use of IT lessons in schools is encouraged by the Government and various organisations, the potential of the EdTech is not fully utilised. Integrating technology into the learning processes requires more than hardware and basic ICT course for the teachers.

The number of students from regions receiving quality education, in particular in STEM subjects, will increase through addressing the key constraints of the current education system in Armenia both in regards to quality and equity. As a result of the lessons learnt from the pilot project, the teaching methods and contents are envisioned to be rolled out throughout the country, in particular through the promotion of EdTech to ensure the equal distribution of quality education across the regions.

5 IMPLEMENTATION

5.1 Financing agreement

In order to implement this action, it is foreseen to conclude a financing agreement with the partner country, referred to in Article 184(2)(b) of Regulation (EU, Euratom) No 966/2012.

5.2 Indicative implementation period

The indicative operational implementation period of this action, during which the activities described in section 4.1 will be carried out and the corresponding contracts and agreements implemented, is 60 months from the date of entry into force of the financing agreement.

Extensions of the implementation period may be agreed by the Commission's authorising officer responsible by amending this decision and the relevant contracts and agreements; such amendments to this decision constitute technical amendments in the sense of point (i) of Article 2(3)(c) of Regulation (EU) No 236/2014.

5.3 Implementation modalities

5.3.1.1 Grant: direct award to Simonian Educational Foundation (TUMO) (direct management)

(a) Objectives of the grant, fields of intervention, priorities of the year and expected results

The main objective of the direct management grant is to increase the number and quality of engineers and technology professionals in Armenia in line with the labour market demand as envisioned by Objective 1 of the proposed programme.

With the expected result of an improved innovation ecosystem through the creation of self-sustainable Public Private Partnership Centre. The centre will be made up of a (1) Shared Hub offering hands-on workshops, project-based instruction and applied research facilities; surrounded by (2) Academic Modules run by partner universities and companies, offering

instruction in specific IT disciplines with coordinated access to the Shared Hub; and closely coupled with (3) Small Offices and Incubator facilities offering low-cost offices and venture acceleration services for start-ups and small technology companies ensuring the sustainability of the action. Infrastructure, equipment, running costs (including staff and teachers) will be the main costs to be funded by the action.

(b) Justification of a direct grant

Under the responsibility of the Commission's authorising officer responsible, the grant may be awarded without a call for proposals to the Simonian Education Foundation (TUMO Centre for Creative Technologies).

Under the responsibility of the Commission's authorising officer responsible, the recourse to an award of a grant without a call for proposals is justified because this action has specific characteristics requiring a specific type of beneficiary for its technical competence and specialisation in accordance with Article 190(1)(f) of Commission Delegated Regulation (EU) No 1268/2012.

TUMO has been running a highly successful non-profit technology education centre since 2011, with tools, procedures and assets that are uniquely relevant to the planned Centre. Thus, they have specific experience and assets needed to implement the actions proposed in this programme, including (1) unique expertise in running a large scale shared hub, (2) proprietary software tools for managing the centre, (3) specific expertise in managing self-sustainability, (4) an existing network of co-located IT industry players, and (5) specialized access to global IT professionals and academics, as explained below.

(1) Unique expertise in running a large scale shared hub: The Simonian Educational foundation (TUMO) has specific expertise in running a synergistic hub of education and technology since 2011. The Centre has been a forerunner in promoting 21st century skills in Armenia. It has provided thousands of students aged 12-18 (14 000 all over Armenia in any given time) with a conducive environment for learning how to use the latest digital tools through access to state of the art technology and a chance to learn directly from the world's leading professionals.

(2) Proprietary software tools: Furthermore, TUMO has developed proprietary software tools that will be essential in running the shared hub of the centre. These tools make it possible to work with students attending a diverse range of educational intuitions and with varying schedules and personalized learning plans. Self-paced, individual and team activities alternate with hands-on workshops, which encourage students to collaborate on project-based learning.

(3) Specific expertise in managing self-sustainability: In addition, to TUMO's own contribution and availability of land and existing facilities, TUMO has a successful track record in leveraging self-sustainability. The students of TUMO's Yerevan branch (10 000 students) attend the classes free of charge and their costs are covered by revenue generated locally by TUMO, a model that would be used in the planned Centre as well. Furthermore, start-ups founded by TUMO students or alumni are offered space in the Centre as well as institutional support.

(4) Existing network of co-located IT industry players: The planned Centre will be located adjacent to TUMO, creating an integrated education, research and development neighbourhood, linked to Armenia's ecosystem of technology companies and universities. A number of leading IT enterprises are located on the TUMO premises, a concentration that is

unique in Armenia: Siemens, Synaptics, Epygi Labs and PicsArt all have offices in the TUMO campus and would contribute immediately to the Centre's mission of establishing academia-to-industry links. Based on its high visibility, remarkable reputation and capacity to maximise the existing synergies, TUMO has a great advantage in attracting diverse participation in the Public Private Partnership Centre, which will be a valuable asset in ensuring successful implementation of the proposed programme.

(5) Specialized access to global IT professionals and academics: An important aspect of the planned Centre is the mobilization of global technology leaders to lead project-based workshops linking teaching with real-world practical experience. TUMO has a pre-existing network of such technology leaders which it has built up since its inception in 2011 and which it currently utilizes to bring close to 100 workshop leaders per year to Armenia, many of them from leading companies and academic institutions. This network would be leveraged immediately for the Convergent Centre.

In addition, to TUMO's own contribution and availability of land and existing facilities, TUMO has a successful track record in leveraging self-sustainability.

Based on its high visibility, remarkable reputation and capacity to maximise the existing synergies, TUMO has a great advantage in attracting diverse participation in the Public Private Partnership Centre which will be a valuable asset in ensuring successful implementation of the proposed programme.

(d) Essential selection and award criteria

The essential selection criteria are the financial and operational capacity of the applicant.

The essential award criteria are relevance of the proposed action to the objectives of the call; design, effectiveness, feasibility, sustainability and cost-effectiveness of the action.

(e) Maximum rate of co-financing

The maximum possible rate of co-financing for this grant is 80%.

In accordance with Articles 192 of Regulation (EU, Euratom) No 966/2012, if full funding is essential for the action to be carried out, the maximum possible rate of co-financing may be increased up to 100 %. The essentiality of full funding will be justified by the Commission's authorising officer responsible in the award decision, in respect of the principles of equal treatment and sound financial management.

(f) Indicative trimester to conclude the grant agreement

Q1 2018

(g) Exception to the non-retroactivity of costs

The Commission authorises the eligibility of costs prior to the submission of the grant application as of 1 January 2018 linked to recital (12) of the Financing Decision body.

5.3.1.2 Procurement (direct management)

Subject in generic terms, if possible	Type	Indicative number of contracts	Indicative trimester of launch of the procedure
Evaluation and communication	Service	3	2018 Q3
Audit	Service	2	2018 Q1 2021 Q1

5.3.1.3 **Indirect management with World Bank**.

Objective 2 of this action may be implemented in indirect management with World Bank in accordance with Article 58(1)(c) of Regulation (EU, Euratom) No 966/2012. This implementation entails the increase of the number of students from regions graduating with quality STEM knowledge (objective 2), in particular through building the capacity of relevant educational institutions and implementing pilot programme in a region of Armenia. The expected results are an (i) increased capacity of relevant governmental institutions to ensure quality control of compulsory education, (ii) modernized teaching methods piloted in a region, and (iii) pilot region's high and middle schools equipped with functioning IT classrooms to roll out EdTech STEM enhanced teaching. This implementation is justified because of the significant role World Bank (WB) plays in enhancing quality of education in Armenia, and the WB's pioneering role since 2002 in supporting the innovation ecosystem that has allowed Armenia's technology sector to flourish, through creation of the Enterprise Incubator Foundation and related tech sector incubator investments across Armenia. Up to date most of reforms in Armenian education system have been undertaken with loans from the World Bank, except in the sector of Vocational Education and Training. Currently the WB is in the process of revising and improving the National Curriculum, which is the basis for enhancing textbooks, developing EdTech content and teacher trainings. WB has also been supporting strengthening the NCET for monitoring the school network and providing adequate ICT coverage, as well as developing EMIS. The WB's extensive experience in the areas, which directly corresponds to the proposed programme's objectives, will be a great asset in the successful implementation of the action. In addition, the WB has the necessary human resources and institutional capacity to implement programmes with multiple and diverse components.

The entrusted entity would carry out the following budget-implementation tasks result (ii) and (iii) aiming at piloting EdTech and teaching methods all the pilot region's high and middle schools that have to be equipped with functioning IT classrooms.

The entrusted international organisation is currently undergoing the ex-ante assessment in accordance with Article 61(1) of Regulation (EU, Euratom) No 966/2012. The Commission's authorising officer responsible deems that, based on the compliance with the ex-ante assessment based on Regulation (EU, Euratom) No 1605/2002 and long-lasting problem-free

cooperation, the international organisation can be entrusted with budget-implementation tasks under indirect management.]

5.4 Scope of geographical eligibility for procurement and grants

The geographical eligibility in terms of place of establishment for participating in procurement and grant award procedures and in terms of origin of supplies purchased as established in the basic act and set out in the relevant contractual documents shall apply subject to the following provisions.

The Commission's authorising officer responsible may extend the geographical eligibility in accordance with Article 9(2)(b) of Regulation (EU) No 236/2014 on the basis of urgency or of unavailability of products and services in the markets of the countries concerned, or in other duly substantiated cases where the eligibility rules would make the realisation of this action impossible or exceedingly difficult.

5.5 Indicative budget

	EU contribution (amount in EUR)	**Indicative third party contribution, (amount in EUR)**
Objective1: **Increase the number and quality of engineers and technology professionals in Armenia in line with the labour market demand** composed of		
5.3.1.1 – Direct grant TUMO (direct management)	12,500,000	3,125,000
5.3.1.3 – Procurement (direct management)	N.A..	
Objective 2: **Increase the number of students from regions graduating with quality STEM knowledge** composed of		
5.4.1.1. – Indirect management with World Bank	10,150,000	N.A.
5.3.1.3. – Procurement (direct management)	N.A.	
Procurement – total envelop under section 5.4	N.A.	
5.8 – Evaluation, 5.9 - Audit	**250,000**	**N.A.**
5.10 – Communication and visibility	100,000	N.A.
Total	**23,000,000**	**3,125,000**

5.6 Organisational set-up and responsibilities

The action will be managed by the EU Delegation in close collaboration with key stakeholders involved in the implementation of the Action.

A governance structure will be set up and shall be composed of the implementing partners mentioned in section 1.1.2. as well as the one mentioned in section 5.3

A mechanism of regular coordination with other donors active in the area of civil society has been established and will be maintained.

5.7 Performance monitoring and reporting

The day-to-day technical and financial monitoring of the implementation of this action will be a continuous process and part of the implementing partner's responsibilities. To this aim, the implementing partner shall establish a permanent internal, technical and financial monitoring system for the action and elaborate regular progress reports (not less than annual) and final reports. Every report shall provide an accurate account of implementation of the action, difficulties encountered, changes introduced, as well as the degree of achievement of its results (outputs and direct outcomes) as measured by corresponding indicators, using as reference the logical framework matrix (for project modality) or the list of result indicators (for budget support). The report shall be laid out in such a way as to allow monitoring of the means envisaged and employed and of the budget details for the action. The final report, narrative and financial, will cover the entire period of the action implementation.

The Commission may undertake additional project monitoring visits both through its own staff and through independent consultants recruited directly by the Commission for independent monitoring reviews (or recruited by the responsible agent contracted by the Commission for implementing such reviews).

5.8 Evaluation

Having regard to the nature of the action, a final evaluation will be carried out for this action or its components via independent consultants through a joint mission contracted by the Commission.

It will be carried out for problem solving, learning purposes, in particular with respect to the pilot project in the regions and the construction of infrastructures.

It will be carried out for accountability and learning purposes at various levels (including for policy revision), taking into account in particular the fact that the overall action is piloting new educational approaches.

The Commission shall inform the implementing partner at least 2 months in advance of the dates foreseen for the evaluation missions. The implementing partner shall collaborate efficiently and effectively with the evaluation experts, and inter alia provide them with all necessary information and documentation, as well as access to the project premises and activities.

The evaluation reports shall be shared with the partner country and other key stakeholders. The implementing partner and the Commission shall analyse the conclusions and recommendations of the evaluations and, where appropriate, in agreement with the partner country, jointly decide on the follow-up actions to be taken and any adjustments necessary, including, if indicated, the reorientation of the project.

Indicatively, one contract for evaluation services shall be concluded under a framework contract in 2018.

5.9 Audit

Without prejudice to the obligations applicable to contracts concluded for the implementation of this action, the Commission may, on the basis of a risk assessment, contract independent audits or expenditure verification assignments for one or several contracts or agreements.

Indicatively, two contracts for audit services shall be concluded under a framework contract in 2018 and 2021.

5.10 Communication and visibility

Communication and visibility of the EU is a legal obligation for all external actions funded by the EU. As this particular action has great potential for high visibility, an extensive and detailed communication strategy will be elaborated in the early stages of the implementation. In particular, to ensure the visibility of the Centre, it will be named "EU4Innovation - TUMO Centre" (provisional name), and the programme implemented in the pilot of region of Armenia "EU4Education initiative".

This action shall contain communication and visibility measures which shall be based on a specific Communication and Visibility Plan of the Action, to be elaborated at the start of implementation and supported with the budget indicated in section 5.5 above.

In terms of legal obligations on communication and visibility, the measures shall be implemented by the Commission, the partner country, contractors, grant beneficiaries and/or entrusted entities. Appropriate contractual obligations shall be included in, respectively, the financing agreement, procurement and grant contracts, and delegation agreements.

The Communication and Visibility Manual for European Union External Action shall be used to establish the Communication and Visibility Plan of the Action and the appropriate contractual obligations shall be included in the financing agreements or delegation agreements.

With regards to the Neighbourhood East, all EU-supported actions shall be aimed at increasing the awareness level of the target audiences on the connections, the outcome, and the final practical benefits for citizens of EU assistance provided in the framework of this action. Visibility actions should also promote transparency and accountability on the use of funds.

Outreaching/awareness raising activities will play a crucial part in the implementation of the action, in the case of budget support the national government shall ensure that the visibility of the EU contribution is given appropriate media coverage. The implementation of the communication activities shall be the responsibility of the implementing organisations, and shall be funded from the amounts allocated to the Action.

All necessary measures will be taken to publicise the fact that the action has received funding from the EU in line with the Communication and Visibility Manual for EU External Actions. Additional Visibility Guidelines developed by the Commission (European Neighbourhood Policy and Enlargement Negotiations) will be strictly adhered to.

Where relevant, the provisions of the Financial and Administrative Framework Agreement concluded between the European Union and the selected international organisations shall apply.

It is the responsibility of the implementing organisation to keep the EU Delegations and, where relevant, DG NEAR, fully informed of the planning and implementation of the appropriate milestones specific visibility and communication activities.

The implementing organisation shall report on its visibility and communication actions, as well as the results of the overall action to the relevant monitoring committees.

This action will be communicated externally as part of a wider context of EU support to the country, and where relevant to the Eastern Partnership region in order to enhance the effectiveness of communication activities and to reduce fragmentation in the area of EU communication.

The implementing organisation shall coordinate all communication activities with EU Delegations as well as regional communication initiatives funded by the European Commission to the extent possible. All communication strategies developed as part of this action shall ensure they are in line with the priorities and objectives of regional communication initiatives supported by the European Commission and in line with the relevant EU Delegation's communication strategy under the "EU4Armenia" umbrella initiative.

6 PRE-CONDITIONS

Before awarding any grant to the Simonian Educational Foundation, the EU will launch an independent system audit of this foundation and ensure that all the weaknesses (if any) are resolved.

APPENDIX - INDICATIVE LOGFRAME MATRIX

The activities, the expected outputs and all the indicators, targets and baselines included in the logframe matrix are indicative and may be updated during the implementation of the action without an amendment to the financing decision. The indicative logframe matrix will evolve during the lifetime of the action: new lines will be added for listing the activities as well as new columns for intermediary targets (milestones) when it is relevant and for reporting purpose on the achievement of results as measured by indicators.

	Intervention logic	Indicators	Baselines (incl. reference year)	Targets (incl. reference year)	Sources and means of verification	Assumptions
Overall objective: Impact	To support shared and balanced growth through addressing constraints linked to innovation and education with focus on STEM.	a) University-industry collaboration in R&D: place of Armenia out of 138 countries* b) Quality of education: place of Armenia out of 130 countries*	a) 92nd place out of 138 countries (2016/2017) b) 75th place out of 130 countries (2016)	a) Improved ranking (2020/2021) b) Improved ranking (2021)	a) Global Competitiveness report b) Human Capital Report	
Specific objective(s): Outcome(s)	SO1. Increased number and quality of engineers and technology professionals in Armenia in line with the labour market demand.	a) Number of students graduating from STEM professions* b) Percentage of filled positions in ICT sector*	a) 3229 graduates (2016) b) 85% (2014)	a) Increased number of graduates (2021) b) Increased percentage (2021)	a) National Statistics Service b) IT Skills Assessment in Armenia (EIF)	The ICT sector continues to grow (baseline 2016 annual growth of 20%).
	SO2. Increased number of students from regions graduating with quality STEM knowledge.	Average score of graduation exam in maths of 12th grade students in selected region(s)*	13.4 (out of 20) (2016)	Improved scores (2021)	Armenia Assessment and Testing Centre reports	Pilot has been successfully implemented and rolled out nation-wide.

Outputs Objective 1	1.1. Governance board of the Public Private Partnership EU EU4Innovation TUMO Centre established.	a) Steering Committee comprised of Government, private stakeholders, and universities established* b) Number of partnership established with technological universities and/ or private IT education provider to support the academic cluster*	a) No steering committee b) 0 – Negotiation on going with the UFAR, Synopsis and FAST	a) YES (2018) b) 3 academic modules developed in partnership and running (2019)	a) TUMO report b) TUMO report	Different stakeholders are committed to the establishment of the Centre.
	1.2. Self-sustainable EU4Innovation TUMO Centre created.	Construction rate of the Centre (%)*	0%	100% (2020)	EU4Innovation TUMO Centre reports	Land provided by TUMO, and Construction takes place without delays.
	1.3. Hands on workshop and project based instruction provided free of charge or at affordable cost to STEM higher education students and young professionals.	Number of higher education students and young professional enrolled in the developed modules*	0 - (Today 14,000 high school students are enrolled in TUMO Centre for Creative Technologies)	350 (2018); 2,000 (2020)	EU4Innovation TUMO Centre reports	Workshops and project based instruction courses developed, with trainings starting before the end of the construction of the Centre through facilities provided by TUMO.
	1.4. Applied research facilities developed and accessible to all technological universities of Armenia.	a) Number of shared R&D facilities responding to the need of the market and complementing academic facilities accessible to all technological universities created* b) Governance of the shared facilities agreed with Armenian technological universities under the responsibility of TUMO*	N/A N/A	a) 1 (2020) b) Memorandum of Understanding signed by stakeholders and endorsed by the steering committee (2018)	a) EU4Innovation TUMO Centre reports b) EU4Innovation TUMO Centre reports	Decision by the steering committee of the type of shared R&D to be installed.

	1.5. EdTech content, teacher training materials developed, and pilot region teachers trained to enhance STEM education.	a) Number of subjects per class level covered though e-learning/ smart learning/ and gamification developed in line with Armenian curricula (2018) and international standards* b) Percentage of STEM teachers of pilot region trained (EdTech) and satisfaction survey*	a) 0 b) 0% (495 STEM teacher in the proposed pilot region 2016); NA	a) All Math, Sciences and English EdTech content developed for class age 14-17 (2019) b) 80%; positive for 80% (2019)	a) EU4Innovation TUMO Centre reports b) EU4Innovation TUMO Centre reports	EdTech content developed based on the best existing EdTech content and adapted to Armenia. Training provided to teachers (output 2.3) and all schools of the pilot region have facility to enhance STEM education through technology (output 2.3).
Outputs Objective 2	2.1. Increased capacity of relevant governmental institutions to ensure quality control of compulsory education.	a) Implementation rate of recommendations of functional review of National Institute of Education* b) Percentage of NIE staff who have received training* c) Number of STEM new textbooks developed in line with the new curricula and international standards*	a) N/A (Functional review in progress) b) 2.0% c) None (new curriculum is finalised in 2018)	a) 80% of the functional review recommendations implemented (2019) b) 95% (2019) c) 10 new editions of STEM textbooks developed (2021)	a) NIE accountability report b) NIE accountability report c) NIE accountability report	MoES willing to implement recommendations. The new curriculum has been finalised by 2018.
	2.2. Modernized teaching methods piloted in a region.	a) Average score of graduation exam in maths of 9th grade students in the pilot region* b) Regulatory environment developed and in place to implement Dilijan Education Cluster allowing experimentation/ piloting of	a) 10.82 (out of 20) in the proposed pilot region b) Regulatory framework in development process and no partnership	a) Increased (2020) b) Government Decrees to enable piloting in selected region adopted and partnership	a) Armenian Assessment and Testing Centre reports b) World Bank	School managers and teachers are committed to implementation of the pilot. Middle and High schools in the pilot region are equipped to be able to provide STEM EdTech

		new teacher training approach (learning by doing) and partnership agreement signed between the Centre for Learning Excellence in Dilijan and the National Institute of Education to implement pilot training* c) Pilot training module (personality, skill development and teachers' practice) for in service teachers and recent graduates with pedagogical and non-pedagogical domain expertise willing to build a career in education developed* d) Percentage of STEM teachers of a pilot region trained (skill development and teacher practice) and satisfaction survey** e) Development of Leadership education programme for senior school administrators* f) Percentage of senior school administrators of the pilot region trained through leadership programme and responses from satisfaction survey** g) Develop quality assurance framework to measure impact of the programme and with lessons learnt from the pilot programme to inform strategies	agreement c) N/A d) 0% (495 STEM teachers in the proposed pilot region); NA e) N/A f) 0% g) The existing monitoring system does not allow to measure impact but only input into the education system and students grades; N/A	agreement between Centre for Learning Excellence and NIE signed (2018) c) Pilot training module developed and adopted and/ or certified by the NIE (2019) d) 100%; positive for 80% (2020) e) Developed (2019) f) 100%; 80% positive (2019) g) NIE and /or MoES decision on the Pilot monitoring system adopted (2019)	report c) NIE accountability report d) World Bank report e) World Bank report f) World Bank report g) NIE accountability report	enhanced education.

		of NIE and MoES*				
	2.3. Pilot region's high and middle schools equipped with functioning IT classrooms to roll out EdTech STEM enhanced teaching.	Percentage of schools equipped to be able to provide EdTech enhanced STEM education	0% (81 compulsory schools with 11 700 students in Tavush, 2016)	100% (2019)	World Bank report	This component should build on existing IT facilities and internet access and test low cost and impactful IT solutions (tablets) with a system in place in schools to share this equipment.