TeaMe+

Euroopa Liit
Euroopa
Regionaalarengu Fond

Eesti
tuleviku heaks

Eesti Teadusagentuur
Estonian Research Council

SCIENCE COMMUNICATION STRATEGY 2020–2035

“Estonia knows”

Tartu 2019

Foreword

The summary of vision documents "Smart and Active Estonia 2035" states that "Research has several major and irreplaceable roles. Research is part of culture, providing a scientific way of thinking and understanding of how the world works. Research is the basis for research-based education, both in content creation and in shaping the educational process, and a precondition for innovation and economic competitiveness. The role of research and related innovation in the future will grow both in the economy and in other areas of life, including organising health and education. The major challenge soon is to turn the scientific mind-set and evidence-based world view into a universal value that actually guides us. Research-based, fact- and evidence-based approaches are essential for the development of society's competitiveness, health and welfare as well as education."[1].

"It is not enough for science to be advanced; the public should also know about it and believe in it. This task requires a common national science communication strategy, improved knowledge, skills, and attitudes, as well as greater commitment of everyone involved." (R. Rebane, Expert on Strategic Communication)

Science communication plays an important role both in ensuring the development of society, in implementing scientific achievements, in securing academic succession, and in ensuring that the state has the necessary workforce for sustainable growth and development.

Expert on strategic communication Raul Rebane emphasizes that the strategic advantage of small countries is education and speed. "Good education needs to be put into practice quickly. To avoid being taken over or trampled on, you need to run in front of the big ones as fast as possible. Without knowledge and research, this is not possible."

Analysing the present situation in Estonia, we see that there is solid research behind all the great success stories. Developing Estonia's research potential is a major national goal, and maintaining and developing the reputation of science is an extremely important task.

It is not enough for science to be advanced; the public should also know about it and believe in it. This task requires a common national science communication strategy, improved knowledge, skills, and attitudes, as well as greater commitment of everyone involved."

1 Valk, A. (2019). *Estonian Education and Research Strategy 2021–2035 "Smart and Active Estonia 2035"*. Ministry of Education and Research.

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Introduction

2019 is a year of planning for the future in Estonia. With the preparation of the strategy "Estonia 2035", RDI Strategy and Entrepreneurship Strategy, and Education Strategy, Youth Field Strategy, and Language Strategy are underway. The Science Communication Strategy supports the achievement of the objectives of the above-mentioned strategies and will serve as an input for planning the measures for the next European Union Programming Period 2021-2027. **The Strategy is a joint agreement between stakeholders on what they want to achieve with their science communication activities by 2035, and how to get there.**

The Estonian Research Council (ETAg), together with its partners, has been leading science communication activities. In the years 2009-2015, a STEM outreach programme "TeaMe" was implemented with the support of EU structural funds, since the year 2015, the activity has continued in the follow-up programme "TeaMe+", an open call for science communication and outreach projects is organised yearly, an Estonian Science Communication Award is given, etc.[2]. In 2016, a Task Force on Science Communication was established together with science communicators from universities, science journalists, and the Estonian Academy of Sciences to promote science communication in Estonia. As a result of this collaboration, activities, such as the Science Area at the Opinion Festival, the Science Films Special Program at the PÖFF film festival, and the "How Do You Know?" initiative, have been initiated and continued to help bring science closer to the people and make it understandable. In order to obtain an overview of the current situation in science popularisation in Estonia, surveys have been conducted in 2013 and 2018 to monitor the current state and developments in the field.

In 2019, ETAg convened stakeholder representatives to set future goals together. In February, in the validation seminar of the study "Mapping and Analysing Activities Promoting Science and Technology," policymakers and representatives of institutions of higher, general and extracurricular education discussed at the roundtable issues to be addressed in the coming years. A workshop at the Scientix Conference on Science Education in early March contributed by the representatives of general education schools, hobby schools and institutions of higher education discussed current concerns and future goals. To draft the strategy, science communication and science popularisation working groups were also convened, the members of which, on four occasions from March to June 2019, discussed the vision, objectives and measures of the science communication strategy. In addition to seminars and meetings of the working groups, stakeholder consultations were held in the summer, and a discussion in ETAg's management was held in September.

Representatives of 88 organisations, including six institutions of higher education, one vocational school, 50 general education schools, 11 public sector institutions, and 20 organisations working in the field of science communication and science popularisation, participated in drafting the strategy. A list of the organisations that participated in the seminars, workshops, and consultations is provided in Annex 1, and a list of participants in the Science Communication Working Group and Science Popularisation Working Group is provided in Annex 2.

2 See more on the Estonian Research Council's website at https://www.etag.ee/tegevused/teadpop.

Definitions

Science Communication is communication on a science-related topic, the purpose of which is to introduce science to society and to create the conditions for its closer integration into society. Important topics to be addressed are, for example, the logic behind the operation of science, the peculiarities of a scientist's work, scientific achievements and their value, and so on.

Science communication can be either one-way (e.g., communication of science news and scientific achievements to the public) or multidirectional (e.g., dialogue between scientists and entrepreneurs, "a student asks, a scientist answers"). It is also possible to distinguish scientific communication with broader non-specialist target groups, where scientists or science communication professionals engage in dialogue with non-expert members of society. Science communication also involves communication between scientists from different disciplines.

The popularisation of science is a form of science communication aimed at making the scientific worldview generally comprehensible, well known and appreciated in society.

Science can be popularised by making science and research achievements more accessible to the general public, making the research career opportunities more appealing to young people and promoting the work of scientists and engineers, and raising interest into professions in science and engineering.

Comprehensive science communication, including science outreach, increases the social impact of science.

Citizen Science is the voluntary participation of people in scientific activities. This may include making observations, data collection, and analysis, including providing input into planning the research topics or other supporting activities. Often citizen science is related to hobbies, such as bird watching, insect collecting, or hobby astronomy.

Science Journalism is covering the scientific information in the media on the basis of journalistic principles – freely, independently, critically, truthfully, and honestly.

Background of the strategy

I. **The scientific worldview is not sufficiently widespread in society.** Politicians, policymakers, and individuals need research-based analysis and advice to make their decisions. This requires trust in science and an understanding of how science as a system works. Estonian people trust science[3,4,5] and scientists[6,7] but information about what is happening in science is scarce – only one-third of Estonia's population feels well informed about developments in science and technology[8], but little more than half of the population feels that they would like to learn more about science[9]. Less than half of the Estonian population has been actively seeking information about science[10]. The lack of information and insufficient spread of the scientific worldview is also supported by the fact that many scientists do not see science communication as an integral part of their work. The role of the scientist as a spokesperson for the field should be better recognised in order to improve the position of the scientific community and science-based thinking in society.

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3 European Commission (2015). *Public opinion on future innovations, science and technology. Aggregate report. Eurobarometer 2015*. http://ec.europa.eu/public_opinion/archives/quali/ql_futureofscience_en.pdf.

4 Gallup (2019). *Wellcome Global Monitor 2018. How does the world feel about science and health?* https://wellcome.ac.uk/reports/wellcome-global-monitor/2018.

5 European Commission (2014). *Public Perceptions of Science, Research and Innovation. Special Eurobarometer 419*. http://ec.europa.eu/public_opinion/archives/ebs/ebs_419_en.pdf.

6 Vihalemm, P., Lauristin, M., Kalmus, V. and Vihalemm, T. (Ed) (2017). *Eesti ühiskond kiirenevas ajas. Findings of the study "Me. World. Media" 2002-2014.* Tartu: University of Tartu Press.

7 Gallup (2019).

8 European Commission (2013). *Responsible Research and Innovation (RRI), Science and Technology. Special Eurobarometer*. Factsheet. http://ec.europa.eu/public_opinion/archives/ebs/ebs_401_fact_ee_ee.pdf.

9 Gallup (2019).

10 *Ibid.*

II. **The need for high-quality science communication is growing.** The development of information and communication technologies has led to major changes in people's information consumption. The speed with which information is shared and its simple, fast-paced form, which puts the quality and reliability of information in the background, are increasingly important. Therefore, in order to anchor the science-based worldview and highlight the quality of the scientific message, it is important that science communication be up-to-date both in content, form, and purpose.

III. **The innovativeness of the Estonian state and the succession of researchers are slowing down**. Science is the foundation for the development of society, and the functioning of a society creating the highest degree of added value requires a sufficient number of employees with research degrees[11]. Today, the number of graduates with doctoral degree is not sufficient to ensure the succession of researchers and university lecturers, neither is there enough scientific personnel to ensure the innovative capability of the country[12,13]. A problem that has already been acknowledged but needs to be resolved is the lack of a career model for a research scientist who favours succession. This may be due to the fact that students are not consciously choosing to pursue an academic career, which again leads to the need to make science and research careers more visible and prestigious in society. This urges researchers to assume a strong advocacy role and requires a good support system for science communication stakeholders to communicate science to the public.

IV. **There is a growing shortage of a workforce with backgrounds in science and technology (STEM).** In the coming years, the need for a workforce with backgrounds in science and technology will intensify in the Estonian labour market: more engineers, ICT specialists, technicians, and mechatronics will be needed[14]. Although promotion of these fields is considered important[15], young people in Estonia are not aware of STEM career opportunities, and their interest in this direction is low[16]. Behind this lack of knowledge is both what is going on in schools (lack of relevance of the studies to real life, late introduction of STEM career opportunities, limited knowledge of school career professionals of the opportunities in the field, low importance given to career information at school) and the lack of media coverage of the topic as well as modest efforts of companies and universities to promote career opportunities[17].

V. **There is a growing shortage of teachers and instructors in science and technology.** Teachers and coordinators of extracurricular activities play a key role in promoting science. Today we are facing a critical situation where there is a shortage of teachers of STEM in schools, and there is not enough succession of teachers or those in training to be teachers[18]. Much has been said about the low attractiveness of the teaching profession[19]; the shortage of coordinators of extracurricular STEM activities is also exacerbated by defining them as youth workers, whose pay grade is lower than those

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11 Mets, U. and Viia, A. (2018). *Tulevikuvaade tööjõu ja -oskuste vajadusele: haridus ja teadus. Study report*. Tallinn: Estonian Qualifications Authority.

12 Niinemets, Ü. (2019). Career models and job opportunities for the researchers in Estonia: where are we coming from, and where are we heading to? in publication Estonian Research 2019, pp 21–38. Tartu: Estonian Research Council. https://www.etag.ee/wp-content/uploads/2019/04/Estonian_Research_2019_veeb.pdf

13 Mets and Viia (2018).

14 Estonian Qualifications Authority (2018). *Eesti tööturg täna ja homme. Ülevaade Eesti tööturu olukorrast, tööjõuvajadusest ning sellest tulenevast koolitusvajadusest. OSKA study report*. Tallinn: Estonian Qualifications Authority. https://oska.kutsekoda.ee/wp-content/uploads/2018/12/Eesti-t%C3%B6%C3%B6turg-t%C3%A4na-ja-homme-2018.pdf

15 *Ibid.*

16 Kivistik, K., Veliste, M., Käger, M., Tatar, M., Persjonok, N., Väljaots, K. and Viilberg, T. (2019). *Teadust ja tehnoloogiat populariseerivate tegevuste kaardistamine ja analüüs. Study report*. Tartu: Baltic Research Institute and HeiVäl Consulting. https://www.etag.ee/wp-content/uploads/2019/05/Teadust-ja-tehnoloogiat-populariseerivate-tegevuste-kaardistamine-ja-anal%C3%BC%C3%BCs.pdf

17 *Ibid.*

18 Mets and Viia (2018).

19 *Ibid.*

of teachers and whose opportunities for training are more limited[20]. The knowledge and skills of teachers and youth workers also need to be developed to better apply the contemporary concept of teaching and learning[21,22], and peer-learning should be supported by networking activities, which are also scarce[23].

VI. **There is a need for better coordination of promotion and communication activities.** Collaboration between communication professionals, promoters, media and stakeholders, and reflection on popularisation and communication activities will support the research community in introducing research work. There is a need for better coordination and targeting of activities promoting science, for a clearer definition of the roles of the actors involved, and for an evaluation of the effectiveness of the implementation and quality of the activities[24].

VII. **Funding for communication activities is fragmented.** Effective and consistent science communication requires sustained and adequate funding. Today, many of the activities continue to be project based[25], but the short-term and inconsistent nature of such funding hampers development in these areas[26].

VIII. **Science communication is not valued as an essential part of a scientist's work.** Much of science communication today is based on the intrinsic motivation of those who do it, but it is not seen as an essential and integral part of the work of a scientist. While prominent figures are highlighted and recognized, it is important to value communication more. The message that science communication is important and necessary may, for example, be a requirement to promote science and make it known to the general public in accessing academic positions or receiving research funding; as well as the inclusion of a subject providing the skills to promote science in the university curriculum[27].

IX. **Activities popularising science and technology are not available to schools with Russian as a language of instruction, small schools, and remote schools**. Representatives of schools with Russian as a language of instruction complain about the lack of relevant Russian-language materials and the lack of Russian-language activities suitable for children. Exciting science communication activities rarely make it to schools far from centres, and it is too expensive to invite them or for schools to travel to science centres and museums themselves. The cost of inviting guests to schools or visiting museums is also a concern for smaller schools[28].

X. **The potential of external partners for schools, including companies, has not been sufficiently exploited to promote STEM.** To increase school students' knowledge of STEM career opportunities and to make science-related subjects more connected with real life and exciting, it is useful for schools to cooperate with enterprises and other external partners[29,30]. Although various measures are proposed to this end[31], the potential for cooperation today is severely underutilised and needs support and coordination[32].

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20 Kivistik *et al.* (2019).
21 *Ibid.*
22 Mets and Viia (2018).
23 Kivistik *et al.* (2019).
24 *Ibid.*
25 Haaristo, H.-S., Kirss, L., Nestor, M., Mikko, E. (2013). *Teadust ja tehnoloogiat populariseerivad tegevused Eestis.* Tallinn: Praxis Centre for Policy Studies. https://www.etag.ee/wp-content/uploads/2012/05/Praxis-2013-web.pdf
26 Kivistik *et al.* (2019).
27 *Ibid.*
28 *Ibid.*
29 *Ibid.*
30 Estonian Qualifications Authority (2018).
31 *Ibid.*
32 Kivistik *et al.* (2019).

XI. **Gender stereotypes in Estonia influence young people's educational and career choices, inhibit economic growth and reproduce gender gaps.** People in Estonia have very clear gender-stereotypic attitudes about the roles of women and men[33], and similar values are carried by the teachers who have impact on young people's world view and career choices[34]. The educational and career choices of young people in Estonia are gender-disaggregated – according to gender stereotypes, young men are more likely than girls to choose STEM related careers[35,36], however, these are the fastest-growing economic sectors in the EU and the drivers of innovation and economic growth[37]. Acute labour shortages in both areas are getting worse in the coming years[38,39]. Gendered education and career choices are detrimental to society in many ways – segregation inhibits economic growth, wastes human resources, diminishes the country's competitiveness, is costly for the state[40], and reproduces inequalities[41].

33 Market Research in Baltics, Ltd. (2016). *Soolise võrdõiguslikkuse monitooring 2016.* https://www.sm.ee/sites/default/files/content-editors/Ministeerium_kontaktid/Uuringu_ja_analuusid/Sotsiaalvaldkond/soolise_vordoiguslikkuse_monitooringu_raport_2016.pdf. Tallinn: Estonian Ministry of Social Affairs.

34 Papp, Ü.-M. (2012). *Kas õpilased või poisid ja tüdrukud? Uurimus Eesti õpetajate ja haridustöötajate valmisolekust sootundlikuks õpetamiseks ja kasvatamiseks. Tallinn:* Estonian Women's Associations Roundtable Foundation. http://www.enu.ee/lisa/468_Kas_opilased_voi_poisid_ja_tydrukud_Artiklikogumik.pdf

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36 EIGE (2018). Study and work in the EU: set apart by gender. Review of the Beijing Platform for Action in the EU Member States. Vilnius: European Institute for Gender Equality.

37 Ibid.

38 *Cedefop (2014). Rising STEM.* https://www.cedefop.europa.eu/en/publications-and-resources/statistics-and-indicators/statistics-and-graphs/rising-stems.

39 Estonian Qualifications Authority (2018).

40 EIGE (2017). Economic Benefits of Gender Equality in the EU: EU and EU Member States overviews. Luxembourg: Publications Office of the European Union.

41 EIGE (2018).

Vision

By 2035:

- science is a self-evident foundation of social and personal well-being for all;
- evidence-based thinking is well established in Estonia and supported by the entire educational system;
- the profession of a scientist and an engineer has emerged as one of the desirable choices for young people;
- politics have respect for facts and scientific knowledge, and society in general understands the world through science;
- scientists act as active advocates of science.

Objectives and measures for furthering science communication

1. In the minds of Estonian people, science is valuable and useful, and it plays a key role in decision-making

Estonian people value science and the scientific way of thinking as a guarantee of sustainable social, economic and personal well-being. Estonians are guided by evidence-based worldview both as individuals and as decision-makers, are active supporters of science, and are actively involved in citizen science. Science communication helps to increase the impact of research on the economy and society. Science is close to the people.

Measures:

1.1. Regular production, publication and broadcasting of science news and science programs (including entertainment) in a format and channel appropriate to the intended different audiences.

1.2. Development of science news platforms (e.g., science news portal ERR Novaator, the portal etis.ee), keeping in mind also young people as a target group.

1.3. Encouragement and support to the dialogue between scientists and politicians, including through the involvement of science advisors from different ministries.

1.4. Development and support to citizen science.

1.5. Making the results of research projects (both funded by Estonian state and internationally) publicly available.

1.6. Communication of the benefits and impact of science to politicians, entrepreneurs, and taxpayers.

1.7. Conducting a regular survey on public attitudes towards science.

2. Science communication is an integral part of research

Scientists are motivated and supported to share information on the results of their work both within Estonia and internationally. They actively participate in public debates and give advice to politicians and policymakers. Research institutions support and recognise the science communication activities of scientists.

Measures:

2.1. Offering practical science communication studies in universities, both as elective modules, as part of master's and doctoral programs, as well as in-service training for researchers, journalists, and others.

2.2. Motivation and support for scientists in science communication.

2.3. Support for and encouragement to scientists to participate in public debates.

2.4. Increasing the science communication capacity of universities, other research institutions, and ministries.

2.5. National, institutional, and societal recognition of scientists, research institutions and science communicators.

2.6. Amendment and complementation of the organisation of research and development act, higher education act, and universities' acts with science communication activities.

3. Clear and meaningful messages from science are visible in the public space

The media and press play a key role in conveying and disseminating messages beyond the scientific community, especially towards politicians and decision-makers, but also towards society at large. Journalists, editors and media executives possess scientific literacy and have a scientific understanding of the world. Fact-checking and critical evaluation of information is the foundations for reliable communication. New digital technologies and media are effectively creating new opportunities to reach the audience.

Measures:

3.1. Organising training for journalists (both at national and regional level) on science communication and research-based coverage of science issues in the media and support journalists.

3.2. Substantial encouragement and support to science communication in the media both through joint projects and with longer term commitments.

3.3. Increasing the capacity of media production in cooperation with research institutions.

3.4. Supporting and increasing cooperation between journalists and scientists (including joint training).

3.5. National recognition of science journalists.

3.6. Hindering the spread of false news and pseudoscience through collaborative projects (e.g., "How do you know?" initiative).

3.7. Following and participating in (when appropriate) discussions in the media, including social media.

4. Shaping the scientific worldview is an important part of education at all levels and types

Learning and teaching are evidence-based, shaping the scientific worldview, and providing insights into career possibilities in STEM.

Measures:

4.1. Supporting all educational and youth work institutions (including kindergartens, general education schools, vocational schools, and extracurricular STEM schools and clubs) in organising promotional activities and in cooperation with external partners, including business sector (e.g., training, pooling of best practice, etc.).

4.2. Establishment of a national funding system for participation in programs in open learning environments (museums, science centres, companies, nature centres, research institutions, etc.).

4.3. Making science communication activities accessible to all children and young people at all levels of interest: creating interest, deepening interest and developing it into a career choice (including in developing and supporting extracurricular STEM education, the career services system, etc.).

4.4. Raising awareness among teachers, career specialists (including adult educators and specialists of Eesti Töötukassa (the Estonian Unemployment Insurance Fund) and youth workers about STEM career opportunities, gender stereotypes, and supporting stereotype-free career choices.

4.5. Making activities in the field of STEM communication available for students in smaller schools and schools in smaller settlements.

4.6. Providing schools with Russian as a language of instruction with access to STEM study materials and promotional activities (including methods, trainings).

4.7. Integration of non-formal learning with formal education and dissemination of good practice on synergy effects by cooperation approaches.

5. Effective stakeholder collaboration supports science communication activities, and the collaboration itself is well supported

Science communication activities are purposeful, integrated, of high-quality, effective, and efficient. There is regular cooperation between the actors and all stakeholders in the planning and implementation of activities, including international cooperation.

Measures:

5.1. Continuing and improving the networking activities of science popularisers, supporting cooperation between different stakeholders and fields. Getting to know international trends and best practice, and sharing knowledge (including at annual conferences, seminars, etc.).
5.1. Development and implementation of a system to assess the quality and effectiveness of the activities popularising science and of science communication; on this basis, the development and implementation of a base-line financing system for high-quality regular activities.
5.1. Conducting open calls for proposals to support science communication activities. Supporting the launching of new activities, in particular in areas that have as yet not been fully covered (e.g., materials science, electrical engineering, mechanics, space science, biotechnology or chemical technology[42]).
5.1. Encouraging new actors (including companies, vocational schools, university students, school students, etc.) to contribute to science communication.

Managing and funding the implementation of the strategy

Management and coordination

1. The implementation of the strategy is coordinated by the Estonian Research Council, involving all stakeholders.
2. To implement the strategy, stakeholders will draw-up a joint action plan and monitor its implementation.

Financing

1. The activities of the strategy are funded by stakeholders from their own budgets and from EU structural funds.

42 Kivistik *et al.* (2019).

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Annexes

Annex 1. Organisations involved in strategy development

Institutions of higher education

1. Estonian Academy of Arts
2. Estonian University of Life Sciences
3. Tallinn University of Technology
4. Tallinn University
5. Tartu Health Care College
6. University of Tartu

General education schools

1. Audentes Sports Gymnasium
2. Gustav Adolf Grammar School
3. Haljala School
4. Hugo Treffner Gymnasium
5. Imavere Basic School
6. International School of Tallinn
7. Jakob Westholm Gymnasium
8. Jõhvi Gymnasium
9. Jõhvi Basic School
10. Järveküla School
11. Jüri Gymnasium
12. Kadrina Secondary School
13. Kohtla-Järve Järve Russian Gymnasium
14. Kohtla-Järve Maleva Basic School
15. Kurtna School
16. Lasila Basic School
17. Luunja Secondary School
18. Narva Soldino Gymnasium
19. Nõo High School
20. Palupera Basic School

21. Pärnu Mai School
22. Ylejoe School of Pärnu
23. Pühajärve Basic School
24. Raasiku Basic School
25. Rakke School
26. Rakvere Gymnasium
27. Rannu School
28. Rapla Kesklinna School
29. Saku Gymnasium
30. Sindi Secondary School
31. Tallinn School No 21
32. Tallinn European School
33. Tallinn English College
34. Tallinn Lilleküla Gymnasium
35. Tallinn Mustamäe School of Humanities
36. Tallinn Pae Secondary School
37. Tartu Annelinna Gymnasium
38. Tartu Forselius School
39. Tartu Jaan Poska Gymnasium
40. Tartu Karlova School
41. Tartu Kivilinna School
42. Tartu Kristjan Jaak Peterson Gymnasium
43. Tartu Tamme Gymnasium
44. Tartu Veeriku School
45. Valga Gymnasium
46. Valga Basic School
47. Valtu Basic School
48. Vastse-Kuuste School
49. Viimsi Gymnasium
50. Viimsi School

Vocational schools

Tartu Vocational Education Centre

Members of the Network for Science communication and outreach

1. Collegium Eruditionis
2. Cultural Endowment of Estonia
3. Estonian Museum of Natural History
4. Estonian Association of Media Enterprises
5. Estonian Youth Work Centre
6. Estonian National Museum
7. Estonian Public Broadcasting
8. Estonian Association of Science Journalists
9. Estonian STEM Education Union
10. Estonian Academy of Sciences
11. Eesti Töötukassa (Estonian Unemployment Insurance Fund)
12. Ministry of Education and Research
13. Information Technology Foundation for Education (HITSA)
14. Ida-Viru Enterprise Centre
15. Innovation Centre INNOKAS
16. Estonian Association of Engineers

17. Association Etalon
18. Ministry of Economic Affairs and Communications
19. NGO Eesti 2.0
20. NGO Estonian Talent Centre
21. NGO Estonian Association of Technology Education
22. NGO Robootika
23. Government Office
24. Estonian Research Council
25. Foundation Innove
26. Estonian Qualifications Authority
27. Tallinn Technology and Science Centre Foundation
28. Tartu Environmental Education Centre
29. University of Tartu Natural History Museum and Botanical Garden
30. University of Tartu Youth Academy
31. Science Centre Ahhaa

Annex 2. Members of working groups

Science Communication Working Group

1. Helen Biin, Estonian Research Council
2. Priit Ennet, Estonian Association of Science Journalists
3. Marju Himma, Estonian Public Broadcasting
4. Karin Jaanson, Estonian Research Council
5. Epp Joala, Tallinn University of Technology
6. Aire Koik, Ministry of Education and Research
7. Randel Kreitsberg, University of Tartu
8. Kertu Kula, Tallinn University
9. Kristina Kurm, University of Tartu
10. Anna Lindpere, Estonian Academy of Arts
11. Liis Livin, Estonian Research Council
12. Risto Mets, Estonian University of Life Sciences
13. Anne Muldme, Tallinn University of Technology
14. Arko Olesk, Tallinn University
15. Katrin Pihor, Ministry of Education and Research
16. Liina Raju, Estonian Research Council

17. Mart Raudsaar, Estonian Association of Media Enterprises
18. Raul Rebane, Meediaekspert
19. Tarmo Soomere, Estonian Academy of Sciences
20. Piret Suurväli, Estonian Academy of Sciences
21. Krista Tamm, Estonian Research Council
22. Julia Tisler, Estonian Public Broadcasting
23. Terje Tuisk, Estonian Research Council
24. Liisa-Lotta Veiken, Estonian University of Life Sciences
25. Kersti Vähi, Tallinn University of Technology

Science Popularisation Working Group

1. Heilo Altin, NGO Robootika
2. Helen Biin, Estonian Research Council
3. Signe Granström, Ministry of Education and Research
4. Arvi Hamburg, Estonian Association of Engineers
5. Imbi Henno, Ministry of Education and Research
6. Karin Jaanson, Estonian Research Council
7. Andres Juur, Science Centre AHHAA
8. Kairi Järv, Estonian Research Council
9. Terje Kapp, University of Tartu Youth Academy
10. Virve Kinkar, Foundation Innove
11. Kristi Kivilo, Estonian STEM Education Union / Ministry of Economic Affairs and Communications
12. Pilvi Kolk, Science Centre AHHAA
13. Karin Käär, Tallinn University of Technology
14. Margit Lehis, Estonian Research Council
15. Angela Leppik, Innovation Centre Innokas
16. Kristi Mumm, Tartu Forselius School
17. Kristina Orion, Eesti Töötukassa
18. Elina Peekmann, Information Technology Foundation for Education
19. Pille Pikker, Ministry of Education and Research
20. Kristi Ploom, Ministry of Education and Research
21. Eva Pruusapuu, Estonian Research Council
22. Gerly Põder, Estonian Research Council
23. Veljo Runnel, University of Tartu
24. Janika Ruusmaa, Tartu Environmental Education Centre / Estonian STEM Education Union
25. Marja Saarmaa, Eesti Töötukassa
26. Katrin Saart, Estonian Research Council
27. Kertu Saks, Cultural Endowment of Estonia
28. Viire Sepp, NGO Estonian Talent Center
29. Peeter Sipelgas, Collegium Eruditionis / Viimsi School
30. Sirli Taniloo, Estonian Research Council
31. Terje Tuisk, Estonian Research Council
32. Virve Tuubel, Estonian National Museum
33. Marit Valge, Estonian Qualifications Authority

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