

CHAPTER 5

CITIZENS



1

SCIENCE COMMUNICATION

Since 1994 the popularisation of science, technology and innovation is considered an essential part of the STI policy in Flanders and is implemented in a Science Communication Policy Plan. The objectives are to strengthen the scientific and technological potential of all citizens, and in particular of youngsters. Too few young people opt for science and technology disciplines in education and in labour. Increasing the scientific literacy of society at large is also an important goal.

A number of **science information actors** contribute to the science communication policy: the Science Centre Technopolis (www.technopolis.be), the Science Communication Expertise

Centres at the Universities and Colleges, RVO-society (www.rvo-society.be), and several others are involved. Their specific activities are posted on the Science Communication Agenda hosted by Eos Wetenschap (www.eoswetenschap.be).

Media actors such as the Flemish Radio and Television Broadcasting (VRT), the science popularisation publisher EOS (www.eos.be), Journalismfund.eu are also involved.

The general public can meet with scientists, science educators and science communicators and interact with them in several ways at **science festivals**, Science shops, Science bars etc.



2 CITIZEN SCIENCE

Since 2018 **calls for Citizen Science project proposals** are launched regularly in collaboration with Scivil, the knowledge centre for Citizen Science. Scientific projects rely on the active participation of citizens for data gathering and data processing.

Researchers from universities, universities of applied sciences and arts and research centres initiate the projects. They collaborate with trained science communicators to reach and to engage the general public.

In 2018 the FWO and the Royal Academy of sciences launched a comprehensive project “**Science Agenda: people’s questions to scientists**”. They collected 10,559 questions which were categorized in 5 clusters: society, science and technology, biology, health and medicine and culture. From 2019 onwards these themes were further elaborated both in science policy (artificial intelligence, cybersecurity, personalised medicine) as in new science communication initiatives: science podcasts, video’s “Science figured out”, blogs etc.

New approaches will be explored whereby sandbox environments will be created by opening up data from knowledge institutes and companies, so that entrepreneurial citizens and small companies can develop and test new solutions.

In 2021, SciMingo, one of the science policy actors launched with support of the Flemish Government a science communication academy where young PhD students and scientists can acquire the necessary science communication skills.

3 STEM- INITIATIVES

Even though the figures are going in the right direction, attracting more people towards STEM-careers still remains a challenge for Flanders. In 2021, 28.67% of the total number of degrees awarded in higher education were degrees in mathematics, science or a technological discipline. In 2022 the STEM Monitor (an annual report the Flemish government uses to monitor the popularity of STEM courses of study) for school year 2020-2021 was published, reporting an increase in the number of pupils in STEM courses of study in the second and third grades of secondary education. In the entire secondary education system we notice that gradually more young people are entering courses of study centered around STEM (36.65% in school year 2019-2020 as compared to 33.50% in school year 2010-2011). Around 45 percent of all pupils leaving secondary education have a STEM diploma, which is almost 1.5% higher than in 2010-2011.

To stimulate youngsters to choose for STEM-careers, a **STEM Action Plan 2012-2020** was implemented. Under the current government, a STEM Agenda 2030 has been developed. The STEM Agenda 2030 is focusing on attracting more people towards STEM courses and careers, on STEM specialists and on the general strengthening of STEM competences in society at large: ‘STEM literacy’. Concretely, the STEM Agenda 2030 is structured around 4 strategic objectives:

1. Society is aware of the importance of STEM competences.
2. Everyone with an interest and talent in STEM can find the way to a suitable STEM study program.
3. STEM education and training responds to the evolutions and transitions in business, research and society.
4. STEM competences are deployed as much as possible according to the needs, developments and transitions in business, research and society. The implementation of the Agenda will be realised on the basis of a biennial list of projects, linked to a biennial monitoring.

To coordinate STEM-initiatives and encourage knowledge sharing among companies and between companies and education, a STEM-HUB was set up at VLAIO.

4

SCIENCE CAREERS

Working as a researcher could be made more attractive by the development of **more transparent career paths and specific programmes to attract foreign talents or externally active Belgian (Flemish) researchers** that offer perspectives. Flanders' ambition to be a successful knowledge society can only be realized if it continues to invest in high-level research and good researchers.

Apart from the regular funding channels, such as the Special Research Fund (BOF) or the grants, fellowships and research projects from the Research Foundation Flanders (FWO), several **specific initiatives** were developed to encourage excellent researchers and support these in a long-term career path. These include budgets for the "tenure track mandates" that lead to a position within the ZAP (Senior Academic Staff) and Methusalem (long term support for excellent researchers), worth a total of about 31,7 million euro in 2023, as well as the Odysseus programme, a multi-annual brain gain initiative. Moreover, the Flemish government supports the training on career development and transferable skills of PhD students and other young researchers through funding of the Doctoral Schools at the Flemish universities within the framework of the OJO-support (support of young researchers), worth 5,5 million euro in 2021.

5

QUADRUPLE HELIX MODEL

In line with the ambitions to implement the quadruple helix model, the current government has asked VARIO for advice on a method for better involving citizens and civil society in the development and deployment of policy initiatives. VARIO has addressed this question in its advisory report 16 'Involving citizens in science and innovation policy' and the accompanying background report. It thus goes further than involving citizens in science and innovation, to which Flanders is already highly committed (see above).

In comparison, Flanders has been investing less in involving citizens in policy. VARIO has emphasized that good communication about government decisions and initiatives to the general public is pivotal for that. Furthermore the council has pointed out the importance of evidence-informed policy as a way to let the general interest of citizens take precedence and thus strengthen support and confidence in the policy. The 'data' for evidence-informed policy can be collected via studies, in a broad sense of the word or via co-creation, such as in living labs or in citizen science. VARIO advised to stimulate co-creation in the quadruple helix, and to take away existing hurdles.

VARIO is not in favor of a last form of involving citizens, as providers of direct input for science and innovation policy. This should happen only exceptionally, with expert citizens or citizens organised in Civil Society Organisations (CSOs). The latter is already done in Flanders as CSOs are traditionally represented in advisory councils, mainly on a local level, and more recently for example also in the sounding board group of the Moonshot and the Climate leap (Klimaatsprong) programmes. In this context VARIO asked to look beyond the 'usual suspects', and also at newer forms of civic organisations.

I GOVERNMENT ACTORS

- Department EWI
- Research Foundation Flanders (FWO)
- Flanders Entrepreneurship and Innovation (VLAIO)

IV CIVIL SOCIETY

- Citizen & Open Science
- STEM
- Flemish Advisory Council for Innovation and Entrepreneurship (VARIO)
- Flanders Technology & Innovation (FTI)

II KNOWLEDGE INSTITUTIONS

- 5 University Associations (5 universities + 13 universities of applied sciences and arts)
- 4 strategic research centres: imec (nano & digital technology), VIB (life sciences), VITO (cleantech), Flanders Make (industry 5.0)
- > 15 scientific institutes

III BUSINESS

- 6 spearhead clusters in domains:
- Sustainable Chemistry
 - Agro-food
 - Specialised logistics
 - Energy & Smart grids
 - Medtech
 - Blue economy