S4Policy

Information File

Call for proposals 2024 -2025

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Submission deadlines
02/12/2024 @ 14h00 Expressions of Interest
09/01/2025 @ 14h00 Full Proposals

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PART I: GENERAL INFORMATION

1. S4Policy: Multi-year framework programme for research in support of the Federal departments and the federal state

For more information regarding the programme, please visit the S4Policy website

1.1. General information

On 9 February 2024, the Council of Ministers approved the launch of the S4Policy (Science for Policy) research programme, implemented under the responsibility of the Belgian Science Policy Office (BELSPO).

This programme aims to support cross-thematic research on societal issues within the priorities of Federal Departments and the Federal Government, to support decision-making based on scientific knowledge.

There are three different project types in the S4Policy Research Programme:

1. 'Flash' research
2. Policy Driven research
3. Policy Oriented (Thematic) research.

This call and this information document only concerns the call for Policy Driven projects

1.2. Organisation

BELSPO is responsible for the implementation and management of the programme, with a supporting role towards the Federal Departments and the Federal Government and assisted by the **S4Policy Programme Committee**.

Composition of the S4Policy Programme Committee:

- One effective and one substitute representative from each Federal Department.
- Four independent members of the Federal Council for Science Policy, appointed for the duration of the programme.
- One Belgian expert with a cross-cutting view on research and policy.

Mandate of the S4Policy Programme Committee:

- Advise on the long-term priority research and call calendar.
- The distribution of the budgets between the different project types
- The elaboration of the research priorities within the specific calls Policy Driven and Policy Oriented research

- Advise on the research projects to be funded within each call based on the peer-reviewed evaluation of project proposals.

Further information regarding the composition and Terms of Reference of the S4Policy committee is available on the website.

1.3. Policy Driven projects

The research priorities in this type of project are dictated by policy and respond to the specific needs of the federal departments and are proposed by the federal departments.

The research is targeted and aims to support the department(s) and/or government(s) concerned in the implementation and management of their public policies. The scientific deliverables of the projects will be used and implemented specifically by the department(s) concerned.

This type of research also includes projects in the framework of specific bilateral priority cooperation with specific partner countries or regions at the request of the concerned departments, for example on the basis of existing diplomatic agreements for R&D&I cooperation. Regular bilateral dialogue through joint committee meetings (± 3 years) for agreements on areas of common interest and applied cooperation instruments may continue if necessary, at the request of the concerned department(s).

1.4. Project partnership, roles, and eligibility for funding

Policy Driven projects can be carried out by (a network of) researchers from the entire Belgian research community: universities, colleges of higher education, FSI, other public scientific institutions and non-profit research centres.

Update 9 August 2025
If you're unsure whether your institution is eligible to apply for and receive funding, please email BELSPO at S4Policy@belspo.be with the following documents: (1) the completed Institution Request form, available on our website, and (2) a copy of your institution's statutes.

The Project partners are the research institutions. Projects may be implemented by a **single institution** or a **network** of institutions whether or not in collaboration with international research institutes.

Collaboration among research institutes is encouraged. Belgian research institutes may participate in projects receiving funding and/or contributing in-kind. International research institutes cannot receive funding and may contribute in-money and/or in-kind

	Role	Institution type	Receive funding?	Contribute in-money or in-kind?	Sign the project contract?
Belgian funded Partner	(C=P1) Coordinator	FSI, Belgian universities, colleges of high education, public and non-profit research centres.	Yes. Mandatory.	May also partially contribute in-kind	Yes.

	(P2…) Promotor	FSI, Belgian universities, colleges of high education, public and non-profit research centres.	Yes.	May also partially contribute in-kind	Yes.
Non-funded Partner	(O1…) Other	FSI, Belgian universities, colleges of high education, public and non-profit research centres	No.	Yes.	No.
		International research institutes.	No.	Yes.	No.
		Non-research organisation	No	Yes	No

Types of partners:

- **Belgian funded partner:** FSI, Belgian universities, colleges of higher education, public and non-profit research centres. They are funded within the project.
- **Non-funded partner**: (inter)national research institutes or non-research organisations not funded within the project but providing a substantial contribution (in-money or in-kind) to the project.

Partner roles:

- **Coordinator:** Researcher within the funded Belgian partner institution responsible for the initiation, management, and coordination of the project.
- **Promotor:** Researcher within the funded Belgian partner institution financed by the project.
- **Other:** person pertaining to an (inter)national research institute or non-research organisation that is not receiving funding within the project.

The projects may require specific or punctual expertise, which can be delivered in the form of subcontracting. The subcontractor is not an official project partner. Their specific expertise may be of scientific nature or not.

1.5. S4Policy indicative budget and budget distribution

The indicative budget of the programme for the 4 calls for proposals is distributed as follows:

Budget (€)	Call 1 **2024 – 2025**	Call 2 **2026 – 2027**	Call 3 **2028 – 2029**	Call 4 **2030 – 2031**	**Total**
Policy Driven	6.155.110	7.951.700	8.791.270	11.358.080	**34.256.160**

1.6. Calendar of the 2024 – 2025 call (updated 9 August 2024)

Period / date	Phase
2 December 2024	Expression of Interest deadline
9 January 2025	Full proposal deadline
January - April 2025	Evaluation of proposals
May 2025	Selection of proposals
June 2025	Start of projects

The specific deadlines and the indicative timing of future calls can be found on the website.

2. Contractual obligations for selected projects

2.1. Contracts

For the selected proposals, a contract is concluded between BELSPO and the funded partner(s).
This contract is composed of 3 parts:

- **Base contract:** This part of the contract contains general administrative information of the project, such as (but not limited to) the participating institutions, start and end dates of the project, budget. The Base contract is signed by the persons responsible for the institutions: BELSPO's president, General Directors of FSI, Rectors of universities...
- **Annex I – Technical annex:** This part of the contract contains the technical information of the project: objectives, methodology, impact, workplan and calendar, budget distribution, etc. The Technical annex is drawn up by the coordinator and the promotors of the selected proposals in consultation with BELSPO. The coordinator will be asked at the end of the evaluation and selection procedure to concisely write these specifications together with the other members of the project, considering the recommendations formulated by the evaluators and/or the S4Policy Programme Committee. Adaptations to the original proposal may relate, among other things, to the content of the research, the composition of the project partnership or Follow-up Committee, the budget, or the proposals for valorising research. The technical annex is signed by the programme manager in charge of the follow-up of the project at BELSPO, the coordinator and the promotors of the project.
- **Annex II – General conditions:** This part of the contract states the general conditions that apply to it. It does not require signing and is available on the website.

An annotated contract is available on the programme website. It is provided for information purposes only and is not intended to replace the binding legal contract itself. BELSPO cannot be held responsible for the use made of it.

BELSPO grants the selected projects the approved funds required for their implementation. BELSPO shall reimburse at most, and up to the amount specified in the granted budget, the actual costs proven by the partners providing these costs are directly related to the implementation of the project.

2.2. Project and progress reporting

The contract foresees the following **reporting** to be submitted to BELSPO via the online project management platform:

- **Initial report:** To be submitted by the promotor and – in case of a project network - each promotor within 3 months after the start of the project. This report provides a beginning status of the project for each research group.
- **Annual activity report:** To be submitted by the coordinator, at the times specified in the Technical annex. This report provides information regarding the state of advancement of the project, encountered problems and possible solutions.
- **Annual personnel report:** To be submitted by the coordinator and – in case of a project network - each promotor in case there are any changes in the staff working for the project.

This reporting is to be included in the project work plan and project budget.

Besides these standard reports, BELSPO can ask for a specific report or other input at any time during the project in order to provide scientific support to valorisation and/or service actions related to the programme.

The progress of project milestones and the status and delivery of project deliverables will be monitored via the online project management platform.

2.3. Meetings

Meetings on the project's progress must be organised - minimum once a year - between the project partner(s), BELSPO and the Stakeholder committee of the project. The organisation of these meetings must be included in the project work plan and the project budget.

2.4. Data, deliverables, intellectual ownership and open access

Foreground - the deliverables (including information) produced by the project - shall be the property of the institution carrying out the work generating this foreground, as mentioned in article 11 of the General Conditions (Annex II of the contract). As regards existing information and data, ownership remains the same. Each institution shall ensure that the foreground of which it has ownership, is disseminated as fast as possible and free of charge.

In accordance with the BELSPO Open Research Data Mandate, each Institution undertakes to make the foreground and background relating to research data, available as soon as possible and free of charge in an approved data repository (Open Research Data Repository). This relates to data that supports the research deliverables, with its metadata and other contextualised (curated) and/or raw data mentioned in the Data Management Plan (DMP) submitted by the grant applicant. The data must comply with the FAIR principle (Findable, Accessible, Interoperable and Reusable) and must be accessible according to the principle "As open as possible, as closed as necessary".

For research areas concerning the marine environment, the Antarctic, biodiversity and social sciences and humanities, researchers must transfer a copy of the analysis and measurement data and/or metadata to specific databases such as:

- BMDC (the Belgian Marine Data Centre).
  The Belgian Marine Data Centre, our federal NODC (National Oceanographic Data Centre), (bmdc@naturalsciences.be), can be contacted for assistance in the development of a DMP for marine applications and/or in choosing the right repository.
- AMD (Antarctic Master Directory). The Belgian representative of SCADM (the SCAR Standing Committee for Antarctic Data Management) (avandeputte@naturalsciences.be) can be contacted

for assistance in the development of DMP for Antarctica related applications and/or in choosing the right repository.
- GBIF (Global Biodiversity Information Facility). The Belgian Biodiversity Platform can be contacted for assistance in the development of DMP for biodiversity related applications and/or in choosing the right repository. See also the guidance document.
- For social and Humanities data, a copy of the data and/or metadata must be transferred to SODHA (Social Sciences and Digital Humanities Archive).
- The promoters of projects that include tasks in which biological materials are used, must ensure the preservation of this biological material by depositing it in a culture collection (Biological Resource Centre), and preferably one in Belgium. This does not apply to material that promoters can prove has already been deposited in a culture collection or for which existing agreements (Material Transfer Agreement) do not allow it to be deposited. Biological material includes cultivable organisms such as microorganisms, viruses, plants, animals and human cells as well as the replicable parts of these organisms, such as non-modified and recombinant plasmids (including those with cDNA inserts).

2.5. Research ethics

The "Code of Ethics for Scientific Research in Belgium" is a joint initiative of the Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique, the Académie Royale de Médecine de Belgique, the Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten and the Koninklijke Academie voor Geneeskunde van België, with the support of BELSPO.

All projects must take this code of ethics into account in their research. Applicants are required to fill out the **ethics form** with their proposal. If necessary, the Ethical Board of the institutions concerned by a project must be consulted before submitting a proposal.

The code of ethics for scientific research is available here:
http://www.belspo.be/belspo/organisation/publ/pub_ostc/Eth_code/ethcode_en.pdf

2.6. Gender

BELSPO is committed to gender equality. The term ‘gender equality’ refers both to gender balance in the research teams (choice of researchers) and to the gender dimension of the research (content and implementation) and should be considered as a transversal aspect of the project. All statistics produced, collected and commissioned are, where applicable, disaggregated by sex/gender, and indicators are established where relevant.

If the institution(s) applying to the S4Policy programme have developed a Gender Equality Plan, they are required to disclose it as a weblink in the appropriate sections of their project proposal. Otherwise, applicants are required to disclose the gender balance and the gender dimension of their project(s) in the appropriate sections of the proposal.

In any case, applicants are encouraged to consult the **gender check list** provided by BELSPO to ensure the gender aspect is correctly and fully considered throughout the entire proposal.

The gender check list is available on the website.

PART II: RESEARCH PRIORITIES OF THE CALL

3. Digital Transformation

The federal government sets out the need to understand digital transformations, particularly the challenges and opportunities of artificial intelligence, both for the proper and more efficient operation of the federal administrations and its relationship with its customers, and for Belgian society as a whole. This strategic priority will certainly be pursued in the future, and the research topics selected for the 2024/2025 call are as follows:

3.1. Impact of new technologies on the federal level: threats, opportunities and the way forward for implementing the use of AI in the federal administrations

FPS Policy and Support (BOSA) & Federal Audit & FPS Social Security

3.1.1. Scope

Recent **technological developments,** especially in Artificial Intelligence (AI), (will) have a large impact on government services. However, currently the impact of new tech developments on the (federal) government services, (type of) jobs, inclusion and sustainability is not adequately understood. On the one hand there is **no comprehensive impact analysis** available, on the other hand it is unclear how new technological developments can be beneficial to the Federal Public service (FPS). The FPS Policy and Support requests more scientific insight and evidence-based pilot projects in order to work towards sustainable & fair jobs in a fast-changing technological society. The project aligns with the strategic priorities of the federal government[1], and the results of the project will strengthen the analytical capacity of the federal administration greatly.

The research project will focus on tree key themes: impact on jobs, inclusion and sustainability.

1. Impact on jobs: A lot of jobs are in danger of disappearing or are changing radically. Certain skills are increasingly important, others less so. Currently there is no reliable overview **what type of jobs are at risk**, and little insight in how many employees will need reskilling and upskilling to transition into changed or new jobs. It is also important to evaluate which functions the FPS's ideally keep in-house, and which type of tasks can be outsourced. Considering the tight labour market, it is imperative that federal administrations are able to optimise internal *and* external workforce, to **ensure a long-term service**, without losing sight of the social impacts of technological development and pay attention to inclusivity.
2. Impact on inclusion: In addition, new technologies also offer **opportunities** to simplify processes, offer more flexibility to the way people work and collaborate better. How precisely this could be done **should be explored**, taking into account the well-being of employees and the performance of

1 As described in the federal governments' project "green and sustainable HR", the Ghent Declaration, the national recovery and resilience plan (NL, FR), the targets in the coalition agreement (2020), The National Circular Economy plan (NL, FR), the National convergence plan for the development of artificial intelligence, OECD recommendations, SIOD/SIRS's strategic plan Social Fraud (NL, FR).

organisations. It is important to maximise employee engagement and motivation in an inclusive way, moreover it is also important to take the end-user and their experience into account.

3. Impact on sustainability: Finally, the extent to which new technologies are sustainable needs to be examined. The negative **ecological impact of technologies** such as AI is often very high. In addition, due the rapid nature of technological developments, it is not clear what solutions are adequate, and how they can be implemented in the **long term**. Finally, it is also important to look for technologies that are tailored to the users of the government services.

Ultimately, in due time, the research project should facilitate and improve cross FPS knowledge transfer and involvement of in-house experts and strengthen the analytical capacity of the FPS in order to be able to independently process and analyse data and support other governmental institutions and organisations.

The research project is embedded in multiple national and international initiatives, such as the agreed upon HR vision (2024-2029) by the federal personnel & organisation directors, and the EU Commission's flagship project "Public administration of the future", the OECD's "Flexible Public Service" Working Group and the Technical Support Instrument (TSI) project "Strengthening the strategic approach to Public Integrity in Belgium".

The research project will involve multiple federal public services (FPS), and (international) networks (e.g. AI4Belgium, Federal Network of Date Experts (FEDAX), "Community of Practice on Technology and Analytics for Public Integrity" (OECD), European Labour Authority (ELA)).

3.1.2. Requested Scientific Support

The research request consists roughly of two phases, *phase one* comprising systematic literature reviews, data gathering and analysis, and *phase two* comprising three user case studies (infra), pilot projects and the creation of new tools. Ideally, the research team consists of a multidisciplinary network of researchers, willing to collaborate with several federal administration and services.

We invite scientific teams to follow this outline:
Phase one: Firstly, (1) a systematic literature review of the existing challenges and opportunities brought forward by technological impact on jobs, within the scope of the user cases (infra) is expected. Secondly, (2) a systematic analysis of (policy) documents, existing practices, and other data is expected, followed by (3) gathering new data by conducting interviews, focus groups and surveys of civil servants, HR-professionals and policy makers employed in the federal government administrations. In addition, (4) the existing data (infra), such as function profiles is analysed.

More specifically, the following **research results** are expected:

- Recommendations on which jobs, functions and tasks in government are at risk and how employees can be reoriented.
- Strategy on insourcing and outsourcing jobs, based on sound criteria.
- Development of a tool to assess whether someone's job will disappear and make recommendations on what actions to undertake.
- Recommendations on how to use technological developments for simplification, flexibility and better collaboration.
- Analysis of the impact of new technological developments on sustainability.
- Action plan on how the government can lead the way in using new technologies in its citizens' services.

- Demystify AI and its potential by demonstrating concrete AI applications to employees.
- Establish a dialogue to find out what needs and concerns exist in order to improve the acceptance rate of AI tools and encourage human-centered development of services (e.g. use of chatbot as a service).
- Create a framework for in-house training on basic AI skills.
- Take advantage of AI in service development (e.g. through monitoring, surveys, a mapping exercise, mapping of existing projects and best practices, international benchmarking, etc.).

Phase two: In phase two the user cases will be studied, by (5) gathering user experience of new technologies, (6) testing user experience in pilot projects, and (7) developing new tools. Finally, (8) a set of practical recommendations is requested.

The following **three user cases** should be studied in the research project:

1. Audit in the digital world: Development of "Proof of Concept (POC) Data Driven Audit" and "AI based Auditing" for the Federal Audit.

   The ever-increasing digitalisation requires Federal Audit to take a different approach in carrying out its activities. For auditors, the use of automation and analytics is an important step in the digital journey towards AI-enabled auditing. Like digital advances, AI will perform repetitive tasks, provide more insights and improve efficiency and quality, allowing auditors to better use their skills, knowledge and professional judgement. What role does an auditor play in a world dominated by AI? How will the audit of the future change? What are the limitations of AI? In addition to exploring the benefits of AI-based auditing and how AI might transform auditing and the role of the auditor, this case study should also address the shift in mindset required to meet the challenges and take advantage of the opportunities. The case study will build on earlier initiatives and research commissioned by the FPS.

   The following **research results** are expected for user case one:
   - Overview of literature & report on use of AI in risk management and planning in order to improve the effectiveness of auditing.
   - Development of guidelines on ethics, safety and sustainability adapted to the use of AI in auditing.

2. Use of AI to gather scientific research on social security in Belgium and neighbouring countries.

   The FPS Social Security currently operates a knowledge tool that collects scientific information relevant to the future development of social security in Belgium and its neighbouring countries. However, the knowledge tool is too difficult to maintain due to excessive administrative overhead and because it requires the active cooperation of research institutions, resulting in delayed or incomplete data access. Because there is demand for such a tool, also by other governmental organisations (mainly public institutions of social security (OISZ)), therefore, a new tool would ideally be developed. This tool would gather scientific papers (which meet a set of conditions) and reports on the internet, using AI, would identify the researchers, draft a brief description and refer to the published full paper/report.

   The following **research results** are expected for user case two: development of an AI knowledge gathering tool.

3. Use of AI by the Labour Inspection

The use of AI has been growing at lightning speed for several years, including in labour market contexts. International research has shown that AI offers many opportunities, but also involves major risks. To successfully adapt to these new technologies, it is crucial that labour inspectorates, on the one hand, develop the necessary skills to deal with AI - and the ensuing risks for employees - and on the other hand, develop AI applications that facilitate and modernise the work of labour inspectorates. It is crucial that the federal government has sufficient scientific insight on the **impact of AI on employee conditions and monitoring** and on **the impact on privacy, data protection**, and the emergence of algorithmic management, in order to ensure that labour inspectorates will be able **to safeguard the rights of all workers**.

More specifically, the following **research results** are expected for user case three:

- Status Quo overview of impact of AI on the operations of the Labour Inspection.
- Recommendations on useful AI-tools for inspection services, how to use them, and how to minimize their risk.
- Overview and Development of (new) AI-tools that could modernise and strengthen the capacity of the Labour Inspection.

All involved federal departments will provide the necessary (access to) data sources, databases, documents and instruments such as the Crescendo database, data and reports collected by the Federal Audit, information on related initiatives in the federal administrations and access to data of inspection services (TSW, TWW, SIOD). Furthermore, the FPS's will provide logistical support, organise research days and facilitate science communication, provide points of contact, facilitate cooperation between administrations for specific user cases and will report and communicate the results of the research project.

3.1.3. Timing & Budget

We believe that a maximum budget of **855 000 EUR**, of which 750 000 EUR funded by BELSPO, 20 000 EUR by Federal Audit, 35 000 EUR by FPS Policy and Support (BOSA) and 50 000 EUR by FPS Social Security, will suffice to run this project. Ideally, the project would span over a period of 36 to 48 months, however applicants are free to deviate from this timing in their proposal.

3.2. How to make Artificial Intelligence an asset for the Belgian labour Market?

FPS Employment, Labour and Social Dialogue

3.2.1. Scope

The National Convergence Plan for the development of Artificial Intelligence, adopted by the Council of Ministers on 28 October 2022, aims to make Belgium a #SmartAINation.

This demand for a scientific contribution from the academic community relates to Objective 3 in the Plan (reinforce the competitiveness and attractiveness of Belgium with AI) and 8 (train better and all through life) and will support the work of the FPS Employment, Labour and Social Dialogue. Belgium wants to be an early adopter of AI to benefit maximally from the gains that AI can generate. A study by the EC (2020) shows that already 40% of European companies have adopted AI in their business processes.

AI has developed rapidly since a couple of years, including in the context of the labour market. Several international scientific studies show that AI offers many opportunities for employees and employers, but also comes with important risks. We lack insight into the impact of AI on the Belgian labour market, which can be both negative or positive, on the level of employment, the quality of work, the working conditions (including occupational safety and health), but also on productivity and hence on economic growth.

3.2.2. Requested Scientific Support

Policies should be informed by the best existing scientific evidence. Today, little is known about the impact of AI on workers, companies and the labour market. A state of play is needed of the **development of AI in the economy**, and its **impact on employment**, the **quality of jobs and working conditions**, specifically in Belgium. Which sectors are – and will be – most impacted, which types of jobs will be lost and which ones will be created? Which socioeconomic groups are most at risk in this respect? What recommendations can be brought forward to policymakers to maximise the positive impact and minimise the negative consequences. In this respect, aspects such as life-long learning, employment legislation and social dialogue need to be taken on board.

Researchers are invited to take these aspects into account in their project, to collect new data, and generate evidence-informed recommendations for the FPS Employment.

3.2.3. Timing & Budget

We believe that a maximum budget of **600 000 EUR** would suffice to enable a research network to develop its research over 2 to 3 years.

4. Strategic autonomy and Resilience of Belgium

The federal government intends to work towards monitoring, steering and relying on the Belgian academic community to support its decision-making with the general objective of guaranteeing the strategic autonomy of the Belgian economy and its resilience. The circular economy, the security and defence sector and Critical Raw Materials Act play an important role here. For this call, the following research topics are proposed:

4.1. Evaluating R&D support measures and investments in the Belgian defence technological and industrial base

Ministry of Defence

4.1.1. Scope

In 2021, it was decided that, in coordination with other relevant regional and federal actors, the Ministry of Defence will support the development, implementation and monitoring of a Defence Industry Research Strategy (DIRS). A project officer was designated at the Royal Higher Institute of Defence (RHID) to focus specifically on the development of this DIRS. The DIRS will guide the development and support of the national scientific, technological, and industrial potential in the field of security and defence in order to strengthen the industrial and technological base (cf. the European Defence Technological and Industrial Base, EDTIB) for a European defence strategy. The DIRS should allow our companies to strategically position themselves on the European and international market to support future Belgian and European military needs.

The Ministry of Defence will continue to ensure that investments in the domain of defence for capability development or research, return to society in the form of knowledge, technology, and employment, in accordance with applicable national and European legislation. Particular attention will be paid to collaborative projects related to the European Defence Fund (EDF) and Permanent Structured Cooperation (PESCO). These initiatives should intensify links between Defence, the research sector, and the industry to maximize added value for our national security and societal benefits. Attention will also be paid to Euro-Atlantic partnerships[2].

The department is currently primarily focused on the operational and practical issues of the DIRS, particularly the development and implementation of the DIRS and monitoring/supporting Research & Technology (R&T) projects. However, it lacks the necessary capacity and scientific support to conduct broad and in-depth impact analysis and impact forecasting. This analysis, however, is necessary to meet the Ministry of Defence's goal to maximize the added value to our national security as well as to ensure that investments in the domain of Defence for capability development and research will return to society in the form of knowledge, technology, and employment.

4.1.2. Requested Scientific Support

The Ministry of Defence is requesting scientific support for an **impact analysis** with multiple possible performance indicators (KPIs) to **analyse the success of support and investments** (public and private), thereby specifically focusing on the economic return of the support or investments (the Return of investment, ROI). On November 14, 2023, a resolution was submitted to the Federal Parliament at the Chamber of Representatives, on strengthening interfederal cooperation on security and defence regarding innovation and industry, leading to the focus of the impact analysis.

This research priority calls for **a study analysing the ROI in industry and innovation in the area of defence and security**. The findings of the study will then be consulted in order to use international support mechanisms more efficiently and to identify economic opportunities for the regions, for Belgian companies and for research institutions to increase their involvement in defence industry and innovation. However, we expect the study to look at several different indicators to analyse impact of support and investments. Firstly, it is important to look at whether the support measures were effective and thus achieved their goal. Secondly, it should be considered whether the measures achieved this goal in an efficient way and whether the measures were proportional. Finally, it is important to consider whether this was the most appropriate instrument and whether other policy measures were not more appropriate. Therefore, the study should include a descriptive section as well as quantitative and qualitative impact analysis.

This research priority concerns new research, but builds on the BELSPO- and RHID-funded BEPIDS project (Oct 22 - Oct 24), which aims, among other things, to map the Belgian Defence Technological and Industrial Base (BE-DTIB) and to provide insights into its composition and characteristics, mainly with a view to further developing the DIRS. The follow-up research would serve to analyse the effectiveness and efficiency of support and investment from different sources. To meet these goals, we consider dedicated scientific expertise necessary. In addition, part of the research consists of collecting necessary data, preparing the data structure, and displaying concrete insights using a business intelligence dashboard. This means that the support to defence also includes scientific strengthening of data infrastructures to support monitoring of ongoing projects, possible adjustments as well as new decision making. In addition, the data structure also facilitates subsequent ex-post evaluations.

2 More information: Policy Paper Defence, 29 October 2021, submitted to the Belgian Chamber of Representatives (in NL and FR). https://www.lachambre.be/FLWB/PDF/55/2294/55K2294008.pdf

In conclusion, an impact analysis is expected that uses a "mixed-methods approach", combining both a descriptive component, as well as quantitative evaluations of multiple KPIs (e.g., ROI, ROA, additionally obtained private investments) and qualitative analysis (e.g. social impact analysis, ecosystem impact analysis). Additionally, the data execution is expected to be collected and stored and presented in a "management-style" dashboard (e.g., PowerBi) with concrete insights.

To conduct this research within the scope determined by this research priority, preference is given to a supervisor who is part of a interdisciplinary scientific network within defence economics. In addition, it is necessary that expertise regarding the evaluation of support measures is present within the team and the network. The supervisor should preferably have an economic background (education and/or experience) and have a team and/or network with legislative and policy process expertise. The coordinator of the research is preferably closely linked to the Ministry of Defence, has experience with projects concerning the defence industry and therefore has a broad network in the sector (on scientific, policy, and industry level). To anchor the research findings within defence, it is recommended to include the Royal Military Academy (RMA) as a partner.

4.1.3. Timing & Budget

The maximum overall budget is estimated to be **400 000 EUR** for ca. 24 months, of which 40 000 EUR will be funded by the Ministry of Defence and 360 000 EUR will be funded by BELSPO. This budget allows to appoint two project employees to cover the wide range of methodological expertise, as well as the scope of the project.

4.2. Strategic deployment of the personnel of Defence towards inclusion of different generations, civil personnel and reservist personnel

Ministry of Defence

4.2.1. Scope

The Ministry of Defence (or in short: Defence) is undergoing profound changes. The STAR plan (Security, Technology, Ambition and Resilience) is a large plan adopted by the Council of Ministers on 17 June 2022. This plan focuses on personnel with a view to rebuild a capacity of 29 000 people by 2030.

This ambition requires to have a larger, more diverse and more professional army, including more armed forces, more civilians and a larger reserve. Therefore, Defence is seeking academic support for the following three dimensions:

1) **Inclusion and diversity for the personnel of Defence**

Currently, policy is geared at a more inclusive organisational culture in the personnel of Defence. In this respect, the absence of scientific support can raise problems. For example, the coexistence of different generations carrying different values and aspirations, seeking a different work/life balance, might be an obstacle and could potentially impact the capacity of Defence to carry out its missions. In other words, these discrepant values can create obstacles to the inclusivity and effective functioning of the organization. The Ministry of Defence lacks data and scientific insights on this issue and the limited comprehension of the problem leads to difficulties in implementing efficient programmes and policies towards an inclusive and efficient organisation. These new policies, based on solid and scientific evidence and a deep understanding of the situation, can averse the risk of a high turn-over, job dissatisfaction and burnout.

The scientific community is invited to produce solid evidence on the values of different generations within the military and their visions on the work/life balance, using quantitative and qualitative methods of investigation. Policy recommendations that are expected from this first stage of the research should be informed by international and Belgian good practices (e.g. from the police, the fire department and other organisations where a high flexibility and cooperation are also pre-requisites for the job).

2) Inclusion of civil personnel

In line with the STAR plan, the inclusion of a large number of **civil personnel** is a top priority for the Ministry of Defence. The Ministry wants to increase this number by 15% by 2030. Sociological scientific support is needed to facilitate this large change in the organisation of Defence and to guarantee the long-term success of the STAR-Plan.

Via a qualitative and quantitative study, a detailed overview of the current situation regarding the inclusion of civil personnel could be made. The study could also look at the attractiveness of the civil status and the management of careers within the organisation.

3) A better inclusion and training of reservists

The Defence department calls upon many reservists for its mission. Due to geopolitical developments, there is a need to build a stronger and more robust reserve. Reservists are people who have a job (as independent worker or employee) outside the military but who work part time for Defence. Only a small part of reservists does not have a job outside of the Army. The majority of reservists work 20 workdays per year for Defence. This group is very diverse in terms of schooling (low-educated reservist are often soldiers, medium-educated reservists are non-commissioned officers and high-educated reservists are officers) and in terms of their sectoral background in the civilian labour market. Reservists can be deployed in a number of existing function profiles. Defence relies on their specific skillset but offers additional training.

Defence is searching for added value to balance the relationship with the employers of the reservists for the days that reservists are not working for their employer. An “Employer engagement and support” mechanism should be put in place to allow for a win-win situation for both employers and the army. For example, the trainings offered by Defence can be useful/necessary when working for Defence and the other employer. These so-called hard skills are therefore an added value.

4.2.2. Requested Scientific Support

The three dimensions developed above should form one large multidimensional research project led by a multidisciplinary scientific team.

1) Inclusion and diversity for the personnel of Defence

We expect from scientific applicants to develop a deep understanding of the challenges and opportunities that the human resources (HR) department of the defence personnel faces, and to identify efficient strategies to promote the wellbeing of all generations. In particular, we invite applicants to develop evidence-based recommendations for HR policies, informed by the research and by best practices in other sectors or in other countries. A common ground between generations should be emphasised in the results, that will enable a translation into policies and programmes to promote intergenerational collaboration within an efficient organisation.

The support measures to sustainably integrate the results of the research within the department, during and after the project, include several key stages. First, Defence will facilitate access to personnel for

conducting interviews and carrying out surveys in view of qualitative and quantitative analyses. Secondly, the Ministry of Defence will follow the scientific project closely via its Inclusion Platform which will be mobilised to follow up and implement the recommended policies. Finally, a detailed Action Plan will be designed for each recommendation or good practice, with the allocation of the necessary resources and a clear definition of all the steps to be taken. The working group diversity and inclusion will be in charge of monitoring progress with the scientific team and will provide the necessary support to the team to enable the research to be implemented in the best possible conditions. Altogether Defence will ensure that the results will be integrated in a sustainable and effective manner in its practices and policies.

We believe that a transdisciplinary approach is best fit for this topic as it touches profoundly the wellbeing of individuals and the organisation's dynamic.

2) **Inclusion of civil personnel:**

We expect:

1. A deep understanding of the current situation to enable decisionmakers to fully understand the challenges and opportunities linked to the inclusion of civilians in the military organisation.
2. The study will explore the attractiveness of the civil status and the management of careers, offering crucial information to elaborate recruitment and retention policies.
3. An overview of which professional skill-developments civilians need, in order to create life-long learning schemes.
4. An empirical basis to inform decisions with a view to reach 15% of civilians working for Defence.

Continuous feedback with the team will be provided and recommendations will be co-designed to ease implementation and strengthen impact. We favour a mix-method approach combining qualitative (e.g. focus groups, interviews on opinions and attitudes, expectations, cohabitation of civilians and army personnel ...) and quantitative (e.g. a survey) data collection. This rich data material will provide a solid evidence-base for elaborating recommendations that can integrate career developments and needs of civilian personnel.

3) **A better inclusion and training of reservists**

It is expected to:

- Identify the win-win trainings that Defence should prioritise, taking into account regional differences, the situation of the labour market and its tension fields (e.g., talent war, mismatch between supply and demand, shortage professions, the differences in education levels, etc). The identified trainings will allow the Ministry of Defence to budget, promote, and implement these win-win training schemes.
- Identify the profiles of reservists on the one hand, the training offered by Defence on the other hand and to prioritise the win-win training schemes in which Defence should invest for the mutual benefit of the reservist, his/her/their employer and Defence itself.

4.2.3. Budget and timing

We believe that a maximum budget of **800 000 EUR**, of which 720 000 EUR will be funded by BELSPO and 80 000 EUR by the Ministry of Defence, should suffice to run such a project over a period of around 30-36 months.

4.3. Strategic autonomy of the Belgian economy - scientific support for a better match between economic concepts and data

FPS Economy, SMEs, Middle Classes, and Energy

4.3.1. Scope

As set forth in the "Open Strategic Autonomy" framework, the European Union and Belgium [3] have prioritized economic security and resilience. Within this framework, it is expected that every EU Member State identifies its economic dependencies systematically, based on methodological guidelines constructed by the EU Commission[4]. Currently, the Federal Public Service (FPS) Economy is developing a methodology to identify the incoming strategic dependencies for Belgium, based on a combination of the best practices of other Member States (supported by Trade Economists' Network). Combining best practices has revealed that there is a **sub-optimal match between economic concepts and available datasets**. Therefore, this research' results will support the FPS in gaining more insight on concept definitions to support the identification of dependencies, and in developing new indicators. The project will also facilitate the analytical and policy evaluation capacity of the FPS, and the cooperation between federal administration and international partners.

To assess the level of dependency on certain goods, applying the **HS6 & CN8**-classification of goods, a set of **indicators** will be used:

- Import concentration indices on BE – EU level (Herfindahl–Hirschman Index)
- Net import value
- A binary (yes/no) definition of "strategic good"
- A binary (yes/no) definition of "critical raw material"
- Top trading partners by import volume
- (Political) classification of (un)friendly partner
- Variations of above-mentioned indicators

4.3.2. Requested Scientific Support

This research call requests (1) more insight in economic import dependency indicators, and (2) the development of new indicators. Firstly, insight is requested on:

- A detailed understanding of supply chains concerning indirect trade flows on product level, supported by available production data (PRODCOM (Eurostat)). The inclusion of indirect trade data in dependency analysis can misrepresent the actual dependency rate, therefore sufficient data, though challenging (i.e. correspondence between trade and production data), is crucial.
- Mapping of strategic sectors (as defined in the EU and Belgian Foreign Direct Investments laws and regulations), and their vulnerabilities.
- The economic statecraft of other countries i.e. (instruments such as loans, investment, sanctions and trade agreements used to advance their foreign policy priorities).

3 Beleidsnota Economie – Dermagne (blz 39), Voorstel resolutie strategische autonomie (dekamer.be), Updated in-depth review of Europe's strategic dependencies (europa.eu)

4 'SCAN' (Supply Chain Alert Notification) monitoring system https://single-market-economy.ec.europa.eu/publications/scan-supply-chain-alert-notification-monitoring-system_en & EU strategic dependencies and capacities: second stage of in-depth reviews, European Commission working document (SWD(2021) 352 final, DocsRoom - European Commission (europa.eu))

Secondly, it is expected that **new indicators are developed** on, among others, (1) the degree of centrality and clustering of both products and countries[5], and (2) composition indicators.
The research project is ideally supported by a **promotor**.

4.3.3. Timing & Budget

We believe that a maximum budget of **150 000 EUR**, of which 135 000 EUR funded by BELSPO and 15 000 EUR by FPS Economy, will suffice to run this project. Ideally, the project would span over a period of 12 months, however applicants are free to deviate from this timing in their proposal.

5. Inclusion, health and wellbeing

This theme includes projects that work towards an inclusive federal administration and a Belgian society that is better protected by federal policies on inclusion, health, well-being and diversity. The research topics within this theme include:

5.1. Optimizing ex ante redistribution impact measurements through improved indicators for non-take-up

FPS Social Security and FPP Social Integration, anti-Poverty Policy, Social Economy and Federal Urban Policy

5.1.1. Scope

Nowadays, only sporadic knowledge is available concerning the non-take-up of social rights. In a recent French study, it was shown that figures up to more than 50% are seen for the non-take-up (NTU) of the right to a minimum income. In Belgium, the results of the TAKE study (a collaboration between the University of Antwerp, the Federal Planning Bureau, University of Liège and SPF Social Security) show a NTU between 37% and 51%. Both the federal public planning service (PPS) Social Integration, anti-Poverty Policy, Social Economy and Federal Urban Policy and FPS Social Security are interested in better understanding this NTU.

The situation of NTU is problematic for policy implementation because social rights guarantee a dignified existence to all. However, we usually do not know how to reach the people who do not take up their rights, or which groups are most affected by this NTU. Nevertheless, we can assume that this situation damages the civilian's confidence in the social rights system. Additionally, the knowledge of the causes of this extensive NTU is incomplete.

Additionally, the PPS Social Integration is interested in the extent of NTU across the population, where the beforementioned TAKE study was limited to a particular group (households with low incomes). The existing research needs to be extended to the societal level. This is also because completely reducing NTU, would not completely eliminate poverty. This suggests that there are societal causes at play, which could be brought into the equations in the follow-up research. It is thus important to be able to monitor the societal causes and consequences of NTU.

5 See IMF report Assessing the Fragility of Global Trade: The Impact of Localized Supply Shocks Using Network Analysis (imf.org)

In the TAKE study, it was recommended to develop a system to monitor NTU since such data can be used for evidence-based policymaking. However, current methods for estimating and monitoring NTU fall short:

- The results from the TAKE research provide an estimate of the extent of NTU but are based on an unrepresentative sample and data from 2019. Furthermore, the methodology used does not allow for regular updates.
- An alternative way to estimate the extent of NTU is based on a comparison between simulated and observed welfare rights. This method leads to overestimation of NTU because available administrative data are incomplete for correct estimation.

One possibility to meet the problem of NTU overestimation is to further enhance the BELMOD simulation model with additional methodological developments. BELMOD is a microsimulation model developed by the FPS Social Security that allows the simulation of the social and budgetary impact of policy measures. It also allows to define Distributional Impact Assessments (DIA) of policy measures. BELMOD could be improved by, for example, using linked administrative and survey data (e.g. as done by DREES (France) and the Department of Work and Pensions (UK)). Additional methodological adjustments to take NTU into account would greatly improve the validity of DIA and greatly enhance its usefulness in policy preparation.

Additionally, the PPS Social Integration will conduct a study in 2024 to better understand why minimum income beneficiaries, known by the public social welfare centre, do not receive/take up their rights. The PPS will thus work with the Public Centres for Social Welfare (NL: OCMWs; FR: CPAS) and OCMS/CPAS-beneficiaries to, (1) see if there are derived rights that are not used and (2) indirectly probe for the reasons why the right to social integration would not be taken up. Since the PPS will be working with people known by the OCMW/CPAS, there remains a blind spot of people not known by the OCMW/CPAS.

5.1.2. Requested Scientific Support

There is a strong need for more scientific research on NTU and a concrete system to monitor NTU within the administrations. To set up this monitoring system, scientific support is needed. The research is needed on several levels:

- To define the extent of the different subgroups that are victims of the NTU.
- To investigate which knowledge exists on international level and to bring this together.
- To gather information concerning societal consequences (as of now there was a lot of focus on the individual, we also want to know about the societal consequences).
- To investigate how to reach people suffering from NTU (since the classic ways to reach them do not work).

To reach all these goals, both new research as well as a systematic overview of existing research is needed.

Furthermore, the construction of indicators is requested to set-up a continuous monitoring system of NTU in the different branches of social protection, especially in the social assistance for the elderly and active age, however applicants are free to include other social benefit systems. For this purpose, the expertise developed during the BELMOD project can be further built upon.

The requested scientific support is expected to be delivered by a promotor or a multidisciplinary network.

5.1.3. Timing & Budget

To carry out this research project a total maximum budget of **800 000 EUR** is foreseen, of which 25 000 EUR is funded by the SPF Social Security and 775 000 EUR is funded by BELSPO. Ideally, the project would span over a period of 24 to 36 months, however applicants are free to deviate from this timing in their proposal.

5.2. Labour market integration of precarious groups: development of an instrument and framework for ex-post evaluation studies, including a case study on people with disabilities

FPS Social Security

5.2.1. Scope

In prospect of achieving an employment rate of 80%, in recent years, many measures have been taken to increase the labour market participation of precarious groups in Belgium. There is no doubt that the labour market integration of people in precarious situations will continue to be high on the political agenda in the upcoming years, to a great extent due to an EU Council recommendation on ensuring a fair transition towards climate neutrality (EUR-Lex – 32022H0627(04) – EN – EUR-Lex (europa.eu), which calls for additional measures for individuals and families who are likely to be affected by the green transition, by virtue of specific characteristics, such as their age, ethnic origin or disabilities. This recommendation requires further effort from the federal administration to ensure fairness.

However, currently there is little empirical insight into which measures are effective for each target group, and which are not, furthermore there is a lack of insight into the factors that determine the success of a measure. Therefore, the public administrations cannot rely on sufficient data and scientific evidence to propose policy adjustments to improve labour market integration. In order to shape future policy in this area, the knowledge and capacity to work in an evidence-informed manner must be developed.

The new rules on European Economic Governance provide an important additional framework for the development of such measuring tools. These rules provide for a 4-year path for Member States to move towards the debt and fiscal deficit targets. This 4-year path can be extended over time if Member States can present proposals on reforms and investments. These proposals will need to be sufficiently substantiated. The new regulation stipulates: *"Each of the reform and investment commitments underpinning an extension of the adjustment period shall be sufficiently detailed, front-loaded, time-bound and verifiable"*. In addition, the reform proposals will have to include: *"indicators, where relevant, to allow the assessment of their implementation and monitoring*."

In consideration of this political and legal context, it will be important that in the upcoming years, the federal administration builds the capacity to meet these requirements, and to be able to provide sufficient justification to comply with the framework of the European Administration (Commission, Council). In addition, monitoring and impact assessment capacities should be further improved, in order to document the social and economic returns of social investments and reforms, as such to support future policy development and strengthen the effectiveness of policy measures.

5.2.2. Requested Scientific Support

The aim of this research projects is to provide scientific support for the federal departments to analyse the policy impact of measures regarding the integration into labour market of precarious groups. More specifically, a coherent study on suitable data and methods for an ex-post evaluation should be made,

followed by a set of recommendations targeted towards federal administration and policy makers to improve their own analytical capacity. These results should then be applied to one or more case studies, as described below. When completed, the outcome of the research project should be equipped to, in due time, allow public administrations to independently map the impact of labour market measures on precarious groups, and as such provide empirical data to support proposals to improve policy & measures.

This research priority should also contribute to the valorisation of the data collected by the public social security institutions and will be collected by the KSZ (Kruispuntbank van de sociale zekerheid)/BCSS (Banque Carrefour de la Sécurité Sociale) in their datawarehouse, and will as such support evidence-based policy. In addition, when evaluating policies aimed at increasing the labour market participation of precarious groups, research projects are encouraged to examine whether the policies & measures take possible changes to these functions/jobs as a result of the green transition and climate crisis into account.

The following research results are expected:

Firstly, (1) an assessment of the required data and a proposal on how to make this data accessible to federal departments is requested. In both cases, a distinction should be made between short-term and long-term evaluation studies, taking into consideration the default duration of linking data. Secondly, (2) an assessment on which methods are most suited to carry out short- *and* long-term ex-post evaluations, equipped specifically as a policy support instrument are requested. These evaluations should consider both social and economic impacts. Lastly (3) comprehensible recommendations should be formulated on how an ex-post policy evaluation can optionally be carried out by the department.

Next, it is expected that the proposed method(s) are applied to at least two **case-studies**. The case-studies will provide evidence-based support to formulate policy proposals regarding the integration of precarious groups in the labour market.

The first case-study should concern the evaluation of the amendment of the *"income replacement allowance and integration allowance for people with disabilities"* (Koninklijk Besluit van 31 januari 2024 tot wijziging van het koninklijk besluit van 6 juli 1987 NL/FR), in which a new system is introduced to calculate the income replacement allowance for people with disabilities who are long-term inactive on the labour market, for the objective to encouraging them to start working again. Per regulation (Article 3, annex p. 54), it is required to evaluate the new system within two years of entry in to force of the regulation.

Other cases studies could study:

- Specific measures to engage people with disabilities, who are currently underrepresented, in sectors related to the green/climate transition, and promote their careers.
- How jobs can be created which are adapted/tailored to the skill-level and ability of people with disabilities (link with social economy and jobs in the circular economy).
- Upskilling and reskilling in function of the green/climate transition, specifically tailored to people with disabilities. Accompanied by assessment of measures to support fair employment for people in precarious situations, their process of recruitment, and of measures to ensure their employability and accommodate their access to green jobs.

5.2.3. Timing & Budget

We believe that a maximum budget of **900 000 EUR**, of which 875 000 EUR funded by BELSPO and 25 000 EUR by FPS Social Security, will suffice to run this project. Ideally, the project would span over a period of **18 to 30 months**, however applicants are free to deviate from this timing in their proposal.

5.3. Innovative and evidence-based strategies to improve the mental wellbeing of independent workers

FPS Social Security

5.3.1. Scope

FPS Social Security is tasked with addressing the challenges of the mental wellbeing of self-employed workers. From 2021 to 2023, at the initiative of Minister David Clarinval, The FPS Social Security, together with three social insurance funds, have supervised pilot-projects for primary and secondary prevention. These projects have been consolidated in 2023 with the creation of a structural budget, under supervision of the National Institute for the Social Security of the Self-employed (NISSE), allocated to all of the social insurance funds in order to provide additional services to the self-employed. Next to primary prevention, these funds also are in charge of providing assistance to accompanying independent workers (secondary prevention).

It seems necessary that the FPS Social Security goes beyond its role of coordinating and supporting the mental wellbeing initiatives that are delegated to external partners in the field. The complex interplay between mental health and public policies should be investigated. Some scientific studies (Lechat, Torrès, ...) and project results indicate that fiscal and administrative burdens, (e.g. certain specificities of social protection, certain pension policies, etc.) are aggravating factors for the mental wellbeing of independent workers. And the recent farmers' crisis has illustrated the need to deepen our understanding of this interplay. To overcome these obstacles and to find ways to sustain a healthy relationship between mental wellbeing and administrative/fiscal obligations, it is imperative to broaden our scope beyond existing academic research. It is essential to explore the link between work and mental health specifically for the self-employed, who, despite having some similar psychosocial risks to employees, face additional challenges linked to their status. Research furthermore needs to include individuals with pre-existing mental health problems, exploring their access to work as self-employed people, as well as the barriers associated with stigma, lack of awareness of available support and the specific risks associated with this status.

5.3.2. Requested Scientific Support

The academic community is invited to investigate how regulatory frameworks, existing policies - and the red tape they generate - weigh on the mental wellbeing of self-employed workers. Given the existing data, new and exhaustive research based on new data collection at a representative scale is required. The data collected should enable the scientific team to inform the FPS Social Security on the magnitude of the causal link (if a causality analysis is possible):

- to identify the policies that have the most adverse impact;
- to provide evidence-grounded policy recommendations co-created with the FPS and its partners;
- and to develop indicators that can be further monitored to measure the impact of policies on the wellbeing and mental health of independent workers.

In addition to this data collection, an analysis of good practices at transnational level is also a crucial dimension of the project.

The scientific team that will be selected to run this research will be followed-up and supported by the FPS Social Security. We will appoint one mental health expert from the FPS to be the contact person with the scientific team and who will ensure that access to existing expertise and data in the FPS are shared with the scientific team. Secondly, a follow-up committee will be put in place, as per contractual conditions from BELSPO. This committee will play a pivotal role to follow up scientific progress, discuss intermediary results, co-created recommendations and implement them in existing policies and practices. Thirdly, a collaborative Action Plan will be put in place, informed by the findings of the projects and with the support of the team. This plan will include specific initiatives conceived in partnership with key stakeholders (social insurance funds, The National Institute for the Social Security of the Self-employed, practitioners, ...). The action plan will focus on pilot projects, awareness campaigns and training initiatives, with regular monitoring and evaluation.

5.3.3. Timing & Budget

We believe a total maximum budget of **700 000 EUR** (of which 650 000 EUR is funded by BELSPO and 50 000 EUR is funded by the FPS Social Security) would enable to address the dimensions of the project. The team remains free to set the timing that their research will request but we believe that 36 months is a maximum.

5.4. Implementation of the definition of nanomaterials in (novel) foods by developing and applying optimized electron microscopy-based analysis methods

FPS Health, Food Chain Safety and Environment

5.4.1. Scope

In context of nanomaterials, the term "nano" is used to describe materials with at least one external dimension measuring 100 nanometres or less. Nanomaterials may occur naturally, be an incidental product of human activity or be deliberately manufactured and designed to have novel characteristics, such as increased strength, chemical reactivity or conductivity, compared to the same material without nanoscale characteristics. The fact that nanomaterials may have different characteristics as compared to their non-nano-conventional forms, may also indicate different behaviour in biological systems, leading to different hazard profiles and resulting risks, not only to human health but also to the environment. The issue of nanomaterials is therefore part of a One World One Health approach.

As a result, the European Union has introduced regulations to properly define nanomaterials and assess the health and environmental risks that may result from their use in various applications, particularly in food products. In addition, the European Union's risk assessment bodies and agencies have drawn up guidelines for assessing the risks associated with nanomaterials. Given the rapid deployment of nanomaterials in various fields due to their specific properties and the toxicological risks identified for some of them (e.g. risk of accumulation in the body), a strengthened European regulatory framework was needed.

Some nanoparticles are not broken down in the body, if at all. This is the case for nanoparticles of silicon dioxide, titanium dioxide, silver and gold. Titanium dioxide is a white colouring agent (E171) that contains nano particles and was present in products such as chewing gums or the white icing on cakes and

pastries. Following its re-evaluation by the European Food Safety Authority (EFSA) in 2021, it is now banned from being used in food products because of the risks it could pose.

Regulation (EU) 2015/2283[6] on novel foods provides a definition of engineered nanomaterials (cf. Article 3(2)(f)) which is applicable to novel foods falling within the scope of the Regulation (EU) 2015/2283 and to foods falling within the scope of Regulation (EC) 1333/2008[7] on food additives and EC Regulation 1169/2011[8] on the provision of food information to consumers ('nano' labelling)).

The European Commission's DG SANTE, assisted by a group of experts, has prepared a delegated act revising the definition of nanomaterials in food to take into account the technical and scientific progress and developments at international level. The intention was to transpose the technical elements of the general definition of nanomaterials set out in an earlier Commission Recommendation (2022/C 229/01[9]) to include within its scope the size limit (< 100 nm), applicability (external dimension and shape of the material), the exclusion from the definition of materials with a surface-to-volume ratio above a certain value, the definitions of "particle", "aggregate" and "agglomerate", and the default threshold value of 50% of particles being at the nanoscale for a material to be considered a engineered nanomaterial.

However, this draft revision has just been rejected by the European Parliament on the grounds that the 50% threshold was not strict enough. The Commission and the Member States had nevertheless deliberately chosen this threshold to remain in line with the general recommendation, and because a much lower threshold would have been difficult to implement and control from an analytical point of view. The European Commission is currently examining how to respond to Parliament's objection.

Be that as it may, the proposed research project remains highly relevant and a priority. One definition of engineered nanomaterials is already applicable and needs to be verified. Unfortunately, the technical limitations highlighted in the project (see below) are the same and will remain the same whatever definition is finally adopted. They will be all the more significant if a threshold of less than 50% is finally adopted.

It is clear that quantitative Electron Microscopy (EM) will play a central role in the implementation and monitoring of the new modified definition. While the technology itself exists, at methodological level, the analysis of manufactured nanomaterials in food products is characterized by a series of limitations which mean that the definition cannot yet be fully controlled. Consequently, in order to ensure that these new regulatory provisions are monitored, adequate analytical capacity and expertise in this complex area must be developed. The Federal Public Service Public Health, Food Chain Safety and Environment and the other competent authorities at national and European level (in collaboration with scientific institutions or a Belgian university) will have to monitor the extent to which the legal obligations associated with the regulatory definition (prior authorisation of ingredients, 'nano' labelling, registration, etc.) are respected by commercial operators, in order to ensure that consumer health is properly protected.

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6 Regulation (EU) 2015/2283 of the European Parliament and of the Council of 25 November 2015 on novel foods, amending Regulation (EU) No 1169/2011 of the European Parliament and of the Council and repealing Regulation (EC) No 258/97 of the European Parliament and of the Council and Commission Regulation (EC) No 1852/2001, (OJ L 327, 11.12.2015, p. 1).

7 Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives (OJ L 354, 31.12.2008, p. 16).

8 Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, amending Regulations (EC) No 1924/2006 and (EC) No 1925/2006 of the European Parliament and of the Council, and repealing Commission Directive 87/250/EECEC, Council Directive 90/496/EEC, Commission Directive 1999/10/EC, Directive 2000/13/EC of the European Parliament and of the Council, Commission Directives 2002/67/EC and 2008/5/ EC and Commission Regulation (EC) No 608/2004 Text with EEA relevance (OJ L 304, 22.11.2011, p. 18).

9 European Commission. (2022). Commission Recommendation of 10 June 2022 on the definition of nanomaterial 2022/C 229/01. Official Journal of the European Union.

5.4.2. Requested Scientific Support

The practical implementation of the definition of nanomaterials is supported by guidance prepared by the European Commission's Joint Research Centre (JRC), as part of the implementation of the definition in Recommendation 2022/C 229/0112[4], and by guidance from the EFSA on the risk assessment of the application of nanosciences and nanotechnologies in food and feed: human and animal health[6]. These guidance documents consider electron microscopy to be the "gold standard" because 1) it covers a resolution of 1 to 100 nm, and beyond, 2) it makes it possible to measure the minimum external dimension of particles, taking into account their shape, 3) it can identify the constituent particles in aggregates and agglomerates meeting the particle measurement requirements of the European regulatory context[10,11], 4) it can identify the particles of interest in (complex) mixtures and 5) it provides quantitative data to establish a particle size distribution.

However, certain specific aspects limit the practical implementation of this methodology for the analysis of manufactured nanomaterials in food products:

1) For some (older) electron microscopes, the resolution (5-10 nm) is not sufficient to cover the entire nano range.
2) The preferential orientation of the particles on the electron microscope support limits access to the minimum external dimension of the non-axial particles.
3) Imaging and image analysis can be laborious and time-consuming (and therefore costly), and does not allow a high level of automation, which is necessary for routine analyses.
4) Conventional electron microscopy supporting contrast, size and shape may not be able to identify particles of interest in complex mixtures.
5) The lack of standardised reporting templates limits the easy interpretation of results, particularly in a regulatory context.

However, a standardised and validated methodology is essential to any control policy. Without it, the supervisory authorities risk being faced with a large number of appeals. To support the Federal Public Service Public Health, Food Chain Safety and Environment in the implementation and monitoring of regulation, scientific research is needed to overcome the beforementioned limitations, so that specialised expertise and infrastructure can be developed and validated.

This project will address these issues for a representative selection of (nano)materials covering the complexity of (nano)materials applied in food.

As the regulations in question are European, the project applicant will have to examine what already exists or is being developed at European level and see to what extent the project can fit into a wider research network. The main expected outcome is the **development of an optimised analysis method based on EM**, enabling the analysis of manufactured nanomaterials in food products. Current technology faces a series of limitations that prevent the competent control authorities from carrying out their duties. However, monitoring the legal obligations linked to the definition of manufactured nanomaterials is essential in order to guarantee consumer health.

The development of the analysis method should be accompanied by the following elements:

10 Bresch, H., Hodoroaba, V.-D., Schmidt, A., Rasmussen, K., & Rauscher, H. (2022). Counting Small Particles in Electron Microscopy Images—Proposal for Rules and Their Application in Practice. Nanomaterials, 12(13), 13. https://doi.org/10.3390/nano12132238.

11 Rasmussen, K., Riego Sintes, J., & Rauscher, H. (2024). How nanoparticles are counted in global regulatory nanomaterial definitions. Nature Nanotechnology, 1–7. https://doi.org/10.1038/s41565-023-01578-x.

- From the outset a summary including the objectives, methodologies and expected results must be communicated to the Commission's group of experts, where EFSA is also represented.
- A research report must be provided.
- The data obtained as part of this project for a representative selection of (nano)materials covering the complexity of (nano)materials applied in food, must be made available to the DG Animal, Plant, Food of the Federal Public Service Public Health, Food Chain Safety and Environment. These results should also be published in peer-reviewed scientific publications and shared with relevant international organisations.
- The methodologies must be standardised as standard operating procedures (SOPs) so that they can be implemented in international technical directives (at CEN or ISO level).
- A scientific symposium should be organised for all stakeholders, including national and international government bodies and research institutes.
- The results are to be presented at national and international conferences and at EFSA level.

5.4.3. Timing & Budget

The maximum overall budget is estimated to be **400 000 EUR** for 3 or 4 years, of which 360 000 EUR funded by BELSPO and 40 000 EUR is funded by the Federal Public Service Public Health, Food Safety and Environment.

5.5. Endocrine disrupting chemicals: Development of new test and chemical risk assessment methodologies for thyroid hormone system disruption in humans and the environment

FPS Health, Food Chain Safety and Environment

5.5.1. Scope

The DG Environment, from the FPS Health, Food Chain Safety and Environment, is the Belgian competent authority for European and international policy on chemicals. Among other things, the DG coordinates Belgian positions regarding the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH regulation) and is responsible for the EU's Classification, Labelling and Packaging (CLP) regulation. In the context of these activities and regulations, risk assessors from the FPS participate in the identification of chemicals as hazardous substances for a particular toxicological endpoint such as endocrine disruption. Endocrine disruptors are chemicals that disturb the hormonal system and induce therefore harmful effects on human health and/or the environment. They are present in food, in daily consumption products such as toys, cosmetics and textiles and in the environment, and we are exposed to a cocktail of several of them every day. Currently, 106 chemicals have been tested and identified as endocrine disruptors, but scientists estimated that several thousands of chemicals could be endocrine disruptors. Therefore, endocrine disruptors became a Belgian policy priority during the last decade.

So far, several steps have been taken to improve health policy in order to limit the impact of endocrine disrupting chemicals on human health and the environment. In 2018, the Belgian Senate published an informative report asking for more cooperation between Belgian authorities and more research regarding endocrine disruptors. In 2022, the Joint Interministerial Conference on Environment-Health approved the

first Belgian "National Action Plan on Endocrine Disruptors" (NAPED) in the framework of the "third National Action Plan on Environment-Health" (NEHAP3).

Furthermore, the DG Environment has been working with other leading EU countries for many years to urge the European Commission to establish harmonised criteria for endocrine disruptors. A joint website "Endocrine Disruptor List" was established to inform stakeholders about the status of substances identified as endocrine disruptors or under assessment for this purpose. Additionally, the Chemicals Strategy for Sustainability, published in October 2020 under the European Green Deal, put this topic higher on the European agenda as well. As a result, new hazard classes for endocrine disruptors were recently added to the CLP regulation, but good methods for identifying and regulating them are still lacking. Thus, to identify endocrine disruptors better and especially faster, new and quicker reliable methods are needed, preferably using fewer laboratory animals.

Additionally, the DG Environment is involved in coordinating the NEHAP3 policy working group and the national hub of the European Partnership for the Assessment of Risks from Chemicals (PARC). NEHAP facilitates both the Belgian activities in the context of this partnership, from 2022 to 2029, with the aim of ensuring Belgium's broad contribution, as well as bringing together Belgian participants from different levels (policy, science, academia and other stakeholders) and facilitating the Belgian science to policy interface.

The beforementioned NAPED is developed into three different axes, and among them, one is dedicated to the actions in relation with scientific research. This axis includes several action sheets, including one on the development of new scientific studies on thyroid-related effects and one on the development of new methods for the identification of endocrine disruptors. In addition, the development of new methodologies is included in some work packages (WP) of the PARC project as well. More specifically, the development of New Approach Methodologies (NAMs) is included in WP5 (Hazard Assessment) and the development of Integrated Approaches to Testing and Assessment (IATAs) is included in WP6 (Innovation in regulatory risk assessment).

With this project, the FPS Health, Food Chain Safety and Environment would like to contribute to the realisation of several NAPED action sheets. Furthermore, this project allows collaboration with the ongoing PARC project and to work together with other European researchers to advance knowledge within the domain of endocrine disruptors, thereby significantly improving Belgian research capacity within this domain. Additionally, this project allows to build bridges between Belgian policymakers, regulatory chemical risk assessors and academics. In this way, the FPS will be able to identify outputs of the research that advance their work on the identification of thyroid hormone disruptors and chemical risk assessment within the framework of the REACH and CLP regulation, as well as increase their capacity building through exchanges with the researchers.

5.5.2. Requested Scientific Support

The FPS Health, Food Chain Safety and Environment will financially support Belgian researchers for research on the new NAM (including Adverse Outcome Pathways (AOPs)) and IATA methodologies to identify endocrine disruptors affecting the thyroid hormone system, with an impact on humans or the environment, within the framework of the PARC project. This means that there will need to be a link to the European PARC project, which qualifies the project for European co-funding, as an affiliated entity of one of the Belgian grant signatories, either Sciensano or VITO. The researchers will need to join and contribute to the Belgian national hub. It is expected that the researchers involved in this project will collaborate with other researchers involved in PARC, so that the necessary data can be generated and shared to develop the new methodologies (which is impossible with only one research group or dataset).

The researchers thus need to work on their own NAMs, within their field of expertise, to fill data gaps, specifically for thyroid hormone system disruption. Preferably, in this project thyroid hormone system disruption should be studied in both humans and the environment, and in both vertebrates and invertebrates. With these gathered data and NAMs, together with the other data from the PARC project and beyond, the researchers will contribute to the development of new methodologies (such as AOP-networks and IATAs) and advance towards the next-generation chemical risk assessment.

5.5.3. Timing & Budget

The maximum overall budget is estimated to be **250 000 EUR** for 48 months, of which 175 000 EUR is funded by BELSPO and 75 000 EUR is funded by the FPS Health, Food Safety and Environment. This budget takes into account European co-funding of maximum 45%. The aim is to fund one or more PhD scholars that will work on this project and that will be supervised by a promotor. The participation and training of young scientists is highly encouraged within PARC.

5.6. History of the persecution and social exclusion of people on the basis of their sexual orientation at different periods in our history – *as of 17 July 24 TOPIC WITHDRAWN*

~~*State Secretary for Gender Equality, Equal Opportunities and Diversity, attached to the Minister for Mobility and Institute for the Equality between men and women*~~

IMPORTANT NOTICE (17/07/24)

*This topic **has been withdrawn** from this call. Our apologies regarding this late adjustment. Please direct any questions regarding this adjustment to S4Policy@belspo.be.*

~~5.6.1. Scope~~

~~A recent parliamentary question on the persecution of LGBTQIA+ communities during World War II led to a rapid survey by CegeSoma (The Study- and Documentation Centre for War and Contemporary Society of the State Archives). This report concluded that there were no sufficient sources of information (beyond the ones already largely documented) to substantiate new research on this topic within the period of World War II and its immediate aftermath.~~

~~We therefore invite the scientific community to investigate elements of discrimination in more recent periods of our national history.~~

~~5.6.2. Requested Scientific Support~~

~~Scientists could inform on persecution and social exclusion of people on the basis of their sexual orientation after World War II. Using historical sources, researchers are invited to inform on systemic persecution towards these groups.~~

~~5.6.3. Timing & Budget~~

~~A maximum budget of **150 000 EUR** will suffice to examine this topic in a 24-month period. Researchers can deviate from this timing.~~

6. Green and Societal Transformation

The many environmental crises (climate change, decline in biodiversity, chemical pollution, etc.) call for an in-depth transformation of society and therefore more research aimed at changing our behaviour in order to prevent, adapt to and mitigate risks. For this call, the following research topics are proposed:

6.1. Monitoring Circular Economy in Belgium: methods of data collection, development of Indicators and analyses of circular business

FPS Economy, SMEs, Middle Classes, and Energy

6.1.1. Scope

At the request of the Minister in charge of the economy and the Minister in charge of the environment, the Council of Ministers adopted a Federal Action Plan for circular economy 2021/2024. The Plan lists 25 proposals aimed at stimulating more circular consumption and production. The Plan is complementary with the actions of other federated entities and aims, among other things, to achieve better coordination within all responsible authorities via a better functioning of the intra-federal platform for circular economy.

Measure 22 of the Plan entails the monitoring of the circularity of our economy using the EUROSTAT methodology. Measure 23 of the plan involves the development a long-term strategy to monitor the transition to a circular economy using appropriate indicators. The pilot of both measures is the FPS Economy. Monitoring and reporting on the development of the transition towards a circular economy will increase awareness and could inspire a continuous growth of the circular economy.

Current methods that aim to measure, monitor and analyse the economy are often tailored to a linear economy (e.g. the NACE-codes), or tailored to larger enterprises, rendering them to a certain extent unfit. Therefore, the FPS Economy is hindered by insufficient data, suitable indicators and effective tools to measure, monitor and analyse the shift to circular economy in Belgium. At the Eurostat level, a circular economy framework exists but is focussed on raw material consumption, waste (production and management), etc. There is however a need to develop methods which are able to operate on an **intermediary level**, as an addition to the existing macro-economic analyses, and are able to **operate across policy areas and administrative levels**. With these methods the FPS Economy will be better equipped to evaluate, reprioritise and adjust policies. More scientific support is needed to improve the current monitoring system put in place.

6.1.2. Requested Scientific Support

This research fits into the broader (global) trend to develop novel methods to gather and process data, analytical tools and indicators to study the transition towards the Circular Economy. Our research will build on work currently being finalised by Flanders Circular (Vlaanderen Circulair) (September 2024) on the impact of Circular Economy in Flanders. The research will try to adopt a holistic and multi-disciplinary approach and will take into consideration the interlinkages between different policy areas in Belgium. There is scientific support needed in two key areas: data gathering and analysis.

The research is expected to result in:

(1) a **state-of-play report** on the currently used indicators and methodologies to measure the circularity of business;

(2) Contingent on the report discussed above, the development of **new methods to source and gather data**, along with, if necessary, new, **suitable indicators.** Specifically worth mentioning are the following:

i. economic indicators such as: type and size of company, turnover, profitability, year of establishment geographic distribution, position in the value chain and sector, dependence on raw materials, level of investment, innovation, access to financial markets, market share, choice of circular strategies (R-strategy), use of subsidies, tax exemptions, ...

ii. employment indicators such as education level, social economy, ...

iii. public health and environment indicators: product life and repairs; reuse and remanufacturing; recycling by sector; use of recycled materials by type; degree of dematerialization; degree of penetration of circular business models;

(3) the development of an approach to integrate the concept of circularity in existing databases or statistics.

The support received from the results of this research project would overall improve the analysing capacity of the FPS Economy and support the development of a Belgian circular economy monitoring framework, sourcing data from all administrative levels while fostering cooperation and exchange. The FPS Economy will support and follow-up with the research team as the new data and indicators will be implemented in the routine work of the FPS.

6.1.3. Timing & Budget

We believe that a maximum budget of **150 000 EUR** (of which 135 000 EUR will be funded by BELSPO and 15 000 EUR will be funded by FPS Economy) will suffice to run this project. Ideally, the project would span over a period of 12 to 18 months, however applicants are free to deviate from this timing in their proposal.

6.2. The transition towards climate neutrality in Belgium: how to activate psycho-sociological levers to foster "sobriety" options? Scoping analysis and sectoral deep-dives

FPS Health, Food Chain Safety and Environment

6.2.1. Scope

2050 scenarios - Since 2013, DG Environment's Climate Department has been working on decarbonisation scenarios for 2050 with the support of various research teams. In 2021, new scenarios were published (see www.climat.be/2050). These identify, in quantitative terms, the levers that will enable us to achieve zero net greenhouse gas emissions by 2050. These levers include the 'resources' dimension, the circular economy and the economy of functionality, as well as the dimensions of agriculture, soil, etc. and, in so doing, aim to make a link with biodiversity issues. These scenarios are widely and regularly presented in Belgium and abroad. They have been presented to the government and broadly debated in the Belgian federal parliament. They help to provide a clear framework to the transition for public and private decision-makers.

Scenario impact analyses - In addition to these quantitative scenarios, several analyses have been carried out and continue to be carried out from different angles. For example, from the point of view of employment, with a view to identifying the macroeconomic and training challenges in various sectors, or

from the point of view of the role of biomass in these transition scenarios, particularly when it comes to fully integrating the bioeconomy. The need for additional investment, including investments to be made by the public authorities in various sectors, is also analysed. All these elements are intended to inform public policy decisions in all the areas concerned, as well as investments and other strategic choices made by the private sector, including the financial sector.

"Sobriety" levers – or: carbon emission frugality. Most of the transition levers are characterised by technical and economic factors: energy consumption and production, land use, investment costs and prices of energy and materials, number of electric vehicles to be deployed, etc. These factors make it possible to define the means of action and policies to activate these levers (such as subsidies, taxation, standards, etc.). However, the means of activating the transition levers relating to what we call "sobriety" elements are much less well identified (see for example Taylor and van Steenberghe, 2023[12] for a definition of sobriety in this context). The literature, both academic (cf. IPCC WGIII[13]) and "grey", is relatively silent on the **psychological, social or cultural obstacles to large scale transitions in societies**, such as, a massive shift towards collectivised means of transport, a move towards smaller housing or a significant reduction in the consumption of animal proteins. Admittedly, such transitions must necessarily be brought about by public (and private) investment, by financial support or redistribution policies, or by standards (obligations) relating to spatial planning, for example. But these changes must also go hand in hand with, and will only be possible with, **changes in psycho-social factors within the population as a whole**. For example, the IPCC states that:

> *"Just like infrastructure, social and cultural processes can 'lock in' societies to carbon-intensive patterns of service delivery. They also offer potential levers to change normative ideas and social practices in order to achieve extensive emissions cuts (high confidence)*". (IPCC, WGII, p.555)

The need to study psycho-social factors and levers - Given their importance for the concrete implementation of transition scenarios, in particular scenarios based more so on "sobriety" options, rather than solely on the massive deployment of technology, these psycho-social factors of transition absolutely must be the subject of more research, otherwise a large part of the transition will be ignored, even though it is likely to make a significant contribution to achieving the objectives of sustainable development. In February 2024, the European Commission brought together European authors of the IPCC's latest assessment cycle to identify topics for further study and research priorities. These include the need for a better understanding of the social dynamics and psychological aspects of climate change, particularly in order to activate these social dynamics[14]. A better understanding of these factors should *ultimately* make it possible to define new public policies or adapt existing ones in such a way as to encourage this transition.

6.2.2. Requested Scientific Support

The aim is to obtain an exhaustive and detailed understanding of the psycho-social levers of the transition from the perspective of sobriety. The aim is to carry out an analysis by explicitly studying the links between, on the one hand, the technical transition scenarios characterised by sobriety (see above)

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12 E. Taylor and V. van Steenberghe (2023), *Scénarios d'investissement à l'horizon 2050 : une approche multi-systèmes qui intègre les options de sobriété est requise*, Contribution au 25ème Congrès des Economistes (see https://www.congresdeseconomistes.be/commissions/#commission1).

13 IPCC, 2022*: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926, p.1-52-55.

14 European Commission, Directorate-General for Research and Innovation, Bednar-Friedl, B., Berndes, G., Drabicka, K. et al, *The next frontier for climate change science - Insights from the authors of the IPCC 6th assessment report on knowledge gaps and priorities for research*, Drabicka, K.(editor), Mousson, M.(editor), Ruiz Ramos, M.(editor), Markowitsch, R.(editor), Pirani, A.(editor), Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2777/34601, p 73

and, on the other hand, the concepts, research and results of psycho-sociology that can be mobilised in this context.

The ultimate question is: ***"What policies could be implemented in Belgium to activate psychological and sociological levers to support the implementation of sobriety measures as part of the climate transition?"***

The research question is oriented towards the role of policies in empowering citizens (i) in the context of evolving and changing systems and (ii) in a long-term perspective. The question is not, or at least not directly, oriented towards the analysis of potential current and everyday behavioural changes.

Potential sub-questions to be studied include:

1. Identification of the scope of the issues to be examined:

- Definition and choice of the options to be studied, possibly grouped by "sectors" or "systems" such as housing, mobility and consumption (for example: in housing, reduction in the surface area of housing; in transport, reduction in the demand for mobility, increase in the share of public transport or use of shared cars; in diets, changes towards diets with a low impact on the environment and a reduction in waste; in the consumption of goods, evolution towards new modes of consumption, including reparability). The "Scenarios for a climate-neutral Belgium by 2050" (FPS Health, 2021) will provide a solid basis for this. This material will be made available to researchers.

2. Identification of the common or specific psychological and sociological factors influencing these changes, from a long-term perspective and in interaction with changes in systems.

- Characterisation of the psycho-sociological aspects at play in each sector/system or a selection of sectors/systems in the context of sobriety options.
- Then, for example, characterise the identity of different groups, in terms of how they identify with climate change, and identify the obstacles that prevent these groups from taking action or switching to a sober lifestyle. Identify which aspects of their identity need to be satisfied in order to remain intact. Finally, deduce how sobriety options and climate action can be framed to fit in with this identity and need.
- Exploring the dynamics between these aspects and the evolution of the system(s) analysed (interaction).

3. Identification of potential actions to be taken by public authorities and public institutions at all levels to mobilise or counter these factors.

There are two stages to consider. The first stage consists of a scoping analysis, based mainly on existing literature. The second stage consists of a series of in-depth analyses at sectoral level.

1st stage: scoping analysis (One year)

Initially, the methodology could consist of a review of the systematic literature, with a view to identify:

- the aspects that are best understood/known, for which a large body of research exists and whose conclusions point in the same direction;
- aspects that have been little studied and for which there are still grey areas;
- and uncertain aspects, which have been the subject of various studies but for which the conclusions may be divergent or inconclusive.

This first stage will be the subject of a specific report and will aim to identify areas for action that can be rapidly implemented by the public authorities.

2nd stage: deepening/deep dive of the sector (approx. two years)

Secondly, specific analyses by sector (or by system) could be carried out. Various methodologies may be used, such as surveys of target groups.

This stage should result in a detailed report on the issues at stake in the various sub-sectors analysed and, as far as possible, specify the related public actions.

6.2.3. Timing & Budget

We estimate that a maximum budget of around **600 000 EUR**, of which 540 000 EUR will be funded by BELSPO and 60 000 EUR will be funded by the FPS Health, Food Chain Safety and Environment, would be required to complete this project. We believe that a three-year period would be appropriate, with the first stage being completed after one year.

6.3. Research into the interactions between planetary boundaries and their evolution in preparation for risk analyses for Belgium

FPS Health, Food Chain Safety and Environment: Center for Risk Assessment of Climate Change (CeRAC)

6.3.1. Scope

The Climate Change Risk Analysis Centre (CeRAC) (hereafter 'the Centre') is an independent research centre established in 2023[15]. Its responsibilities and research priorities are aligned with the National Security Strategy[16], National Adaptation Plan[17] and Federal plan for Sustainable Development[18]. The aim of the Centre is to enable Belgium to have an adequate and up-to-date risk analysis on climate change and, by extension, on all planetary limits (cf. the model developed by the Stockholm Resilience Centre) at its disposal, at all times. To achieve this, the centre is responsible for: analysing and assessing all the determinants of risk (hazard, vulnerability, exposure), linking this analysis to all aspects of policy, and formulate recommendations to strengthen the resilience of our country concerning to climate change related issues and, by extension, all global limits.

The scientific field of *climate risk analysis* is well developed, the research on planetary boundaries is still developing. The Centre has identified gaps (infra) relating to the **risks associated with exceeding planetary boundaries** and has started two large scale research projects. It is within this larger research context the call for additional scientific support is requested. The first study concerns the **adaptation of the concept of planetary boundaries at the Belgian level**, by translating the *globally* defined boundaries into *national* boundaries. The Centre will analyse Belgium's fair share of the global total within planetary boundaries, and additionally define national environmental impacts based on production and consumption in relation to this fair share. Overall, the project aims to link the planetary boundaries framework to the social dimension by analysing the relations between the *social effects* as a result of

15 Following a decision by the Council of Ministers on 20 October 2021
16 National Security Strategy (EN)
17 Plan 2010-2020 Nationale_Adaptatie_Strategie.pdf (klimaat.be) (EN) & 2023-2026 measures Towards a climate change resilient society by 2050 - Federal adaptation measures 2023-2026 - Adapt2Climate.be (EN)
18 Site NL & FR Le Plan Fédéral de Développement Durable | IFDD (developpementdurable.be)

exceeded boundaries, and the *political measures* aimed at the transition to a society respecting planetary boundaries. The second study will lay the foundations for a risk **analysis focused on climate risks and risks related to biodiversity loss**. On the one hand, the aim is both to assess and prioritise the tangible risks related to climate change and biodiversity loss for Belgium based of existing studies and define the concept "transition risks"[19] in the Belgian context.

The gaps (infra) identified hinder the Centre to carry out a national scale risk analysis. In order to fulfil its responsibilities, the Centre is therefore requesting additional scientific support to strengthen their analytical capacity. The gaps can be summarised as follows: While *climate risks* have been identified, using the planetary boundary model, risks related to *other environmental components* (e.g. land-use) have not yet been systematically identified, resulting in unreliable fragmented analyses. In addition, the interactions between environmental components, their interdependencies and in addition, their cascading effects on the social, political and economic sphere have not been studied extensively (in the Belgian context).

The aim of this requested research project is (1) to understand the complex interactions between different environmental components**,** identify their cascading effects on different societal spheres, and estimate the intensity of their interactions, see for example the visualisation of these complexities in figures1 & 2 below. The planetary boundaries model is adopted most often in such studies, however the researchers are invited to rely on other models[20] they consider to be more suitable, (2) to narrow the unit of analysis to Belgium and find correlations between relevant environmental factors and their cascading effects/consequences on various Belgian sectors (e.g. health, economy, agriculture)**,** and (3) to make a priority list of risks, posed by (interactions between) environmental components, that should be addressed most urgently in Belgium. The identification of **hazards** (for each environmental component) as a constituent element of risk analyses should also be addressed (for example: for the environmental component "climate change", the hazards are "temperature increases, floods, ... »). The study currently being conducted on the downscaling of the concept of planetary boundaries at the Belgian level will be provided to the researchers.

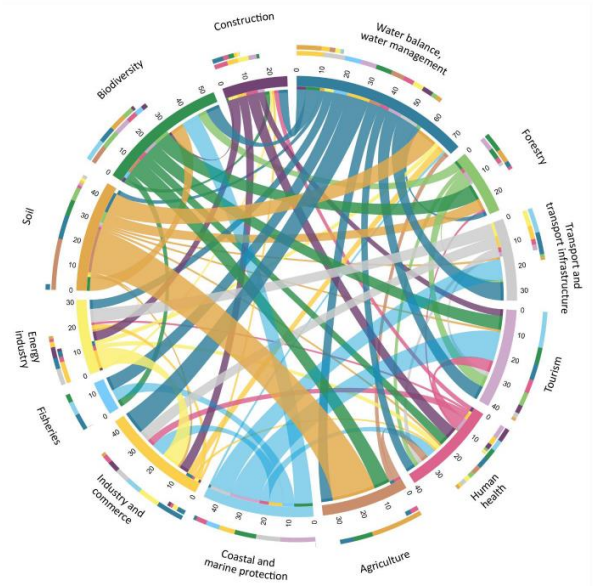


Figure 1: Climate Impact and Risk Assessment 2021 for Germany, German Environment Agency

19 Transition risks are risks related to the measures put in place for the transition to a net-zero economy.
20 For example, the concept of "Earth system boundaries" could be used(cf. Safe and just Earth system boundaries | Nature).

The results of this requested research will allow the Centre to draw up a **framework for a national scale risk analysis on climate change & biodiversity loss,** and in the future, other planetary boundaries, in order to derive policy measures and recommendations related to these risks, but also **to identify gaps in knowledge and data in Belgium**.

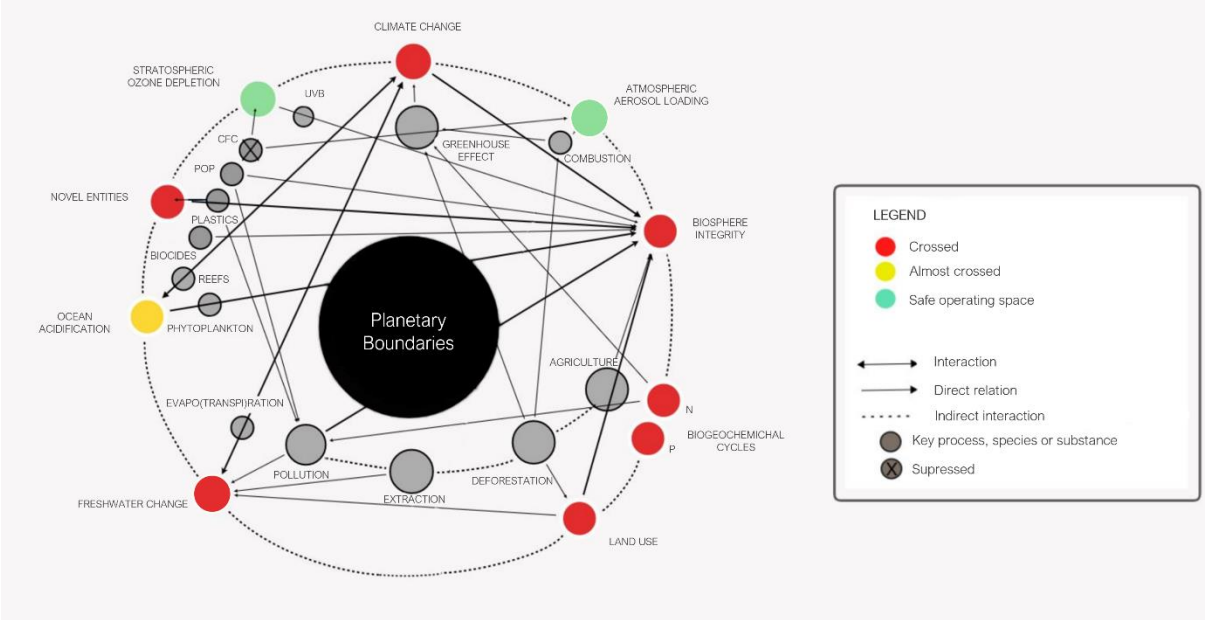


Figure 2: Interactions between planetary boundaries on a global scale, Boutaud et Gontran (2020)

6.3.2. Requested Scientific Support

The following **deliverables** are expected: (1) a systematic review of the literature on the global level and further in-depth analysis on identified risks in Belgium, (2) recommendations and (3) a visualisation tool. The research requested can roughly be divided into three phases, this particular division serves merely as indication, and researchers may deviate from this outline:

(1) Literature review & analysis finalised in a comprehensive **research report**:

a. Defining environmental components: Analysis of the current situation and **definition of the environmental components**, starting from the concept of planetary boundaries and drawing on other concepts when relevant. Followed by literature overview on the interactions and cascade effects between environmental components at the global level at the present time, and a study on their impacts on Belgium.

b. Narrow Unit of analysis to Belgium: Identification and analysis of the interactions between the (disruptions) of various environmental components in Belgium, and their cascading effects on various Belgian socio-economic sectors. Accompanied by a literature review of existing knowledge on the identified interactions, and their evolutions (e.g. evolution of soil properties (past and future) and the consequences on other environmental components).

c. Identification of hazards & prioritisation of risks: Identification of the cascading effects ("hazards") of **risks** linked to the correlations between environmental components and **their consequences on the different Belgian (socio-economic) sectors. And a prioritization of risks**, paying particular attention to the links to security aspects as the Centre must report to the National Security Council. Additionally, **Quantified data** is requested to allow an initial

estimation of the interactions' intensity (for example: if biodiversity decreases by X%, the impact is X% on this or that other environmental disturbance). This should make it possible to identify the strongest interactions as well as their evolution on global and Belgian level, and prioritise defining their hazards and interactions.

d. Prospective analysis: identify and process **existing research on the evolution of these environmental components and their disruptions (natural or human) in Belgium** at different time horizons, for example in 2050 and 2100, in scenario's. The time horizons will be defined with the Centre in order to align with other projects. Researchers will be asked to **propose the most relevant scenarios** based on the existing literature and the policies put in place;

(2) Recommendations: The researchers will propose a methodology or guidelines on how to account for these interactions in future risk analyses and how to measure their impact on various societal sectors;

(3) Interactive visualization tool: In parallel with the **research report**, an interactive tool should be developed to **visualise the evolution and interactions between planetary limits**[21]. This tool would, for example, make it possible to visualise the evolution and impact of possible changes in land-use (e.g. slight/strong/irreversible change of land-use in Belgium/worldwide on other environmental components such as biodiversity).

It is essential that this research will be carried out by a **multidisciplinary network**. Generally, the research project will be one of collaboration, in line with CeRAC's collaborative Way of Working. The researchers will collaborate with a various stakeholders and key players in relevant sectors, and with regional and federal organisation, institutions and experts. The Centre invites the researchers to suggest and collaborate with other experts as well.

The Centre will provide logistic support and cover necessary expenses, if approved. The Centre will also appoint one of its team members to follow-up the research project closely and monitor the different phases, in order to swiftly integrate the (intermediary) results of the research project into the day-to-day work of the centre.

6.3.3. Timing & Budget

We believe that a maximum budget of **800 000 EUR**, of which 680 000 EUR funded by BELSPO and 120 000 EUR by FPS Health, Food Chain Safety and Environment, will suffice to run this project. Ideally, the project would span over a period of 36 months, however applicants are free to deviate from this timing in their proposal.

21 See for example the tool for experts Expert tool (climat.be) (EN).

6.4. Development and validation of an operational model to assess the dispersion of sand extraction plumes in the Belgian part of the North Sea

FPS Economy, SMEs, Middle Classes, and Energy

6.4.1. Scope

It is increasingly difficult to find sand mining sites on dry land. Therefore, sea sand is an interesting alternative, in Belgium as well as in the neighbouring countries. In Belgium, the percentage of sea sand production in relation to total sand production has continued to rise since the 1970s. Sea sand is both used in the **construction sector** as well as to **protect the Belgian coast**. Therefore, sea sand is of growing social and economic interest: in the past 40 years, it has become one of the basic raw materials for the construction sector.

However, sand extraction on sandbanks in the Belgian part of the North Sea generates various **impacts on the marine environment**. The direct effects on the near-field in the areas where extraction takes place have been regularly monitored for more than two decades and are well understood. Nevertheless, a number of important questions remain concerning the far-field impact associated with the dispersion of sediment plumes generated during dredging operations. In the long term, these plumes of suspended particles could significantly alter the integrity of the seabed and damage the ecologically valuable habitats bordering the exploited sandbanks.

Currently, there is a lack of dedicated scientific tools. It is difficult to measure the dispersion of the sediment plumes at sea and to monitor their granulometric composition. Therefore, the impact of sediment plumes on the environment remains ignored and is not taken into account in the sustainable management of sand extraction in the Belgian part of the North Sea.

6.4.2. Requested Scientific Support

This research priority requires scientific support for the establishment of **an operational model** that can be used routinely by the Continental Shelf Service of the FPS Economy. The model should provide a real-time estimate of the distance, direction, granulometric content and concentration of suspended particles in sediment plumes generated during each sand dredging operation at sea.

The scientific support requires:

1. A state of the art.
2. The establishment of a dispersion model by integrating sedimentological and hydrodynamic data and information obtained from monitoring the extraction done by dredgers.
3. The validation of the operational model by measurements at sea, including the detection of plumes by acoustic and optical sensors and their characterisation by water sampling.

During the project, in collaboration with the sand extraction sector, FPS Economy will provide registration data of dredging vessels, such as position, speed, and pump status, for modelling purposes, and participate in the acquisition, quality control, and analysis of acoustic data dedicated to the final validation of the operational model.

This scientific operational model of the dispersion of sediment plumes generated by sand extraction will be used to estimate the far-field impact of each dredging operation. As a final product, this model and its necessary inputs must be conceived in this regard and delivered to the FPS Economy.

Furthermore, the complexity of the scientific issues surrounding the dispersion of sediment plumes requires a multidisciplinary approach. Therefore, a multidisciplinary promoter and even a multidisciplinary network can be envisaged, but this is not an absolute requirement for the success of the project.

6.4.3. Timing & Budget

The maximum overall budget is estimated to be **240 000 EUR**, of which 40 000 EUR will be funded by the FPS Economy, SMEs, Middle Classes, and Energy and 200 000 EUR will be funded by BELSPO. We believe that this budget allows to appoint one employee for 2 years.

6.5. Renewable energy in the transport sector in light of the new EU regulation: potential of Belgium to reach the targets (in 2035) and potential of renewable energy sources within Belgium

FPS Economy, SMEs, Middle Classes, and Energy & FPS Health, Food Chain Safety and Environment

6.5.1. Scope

Recently adopted European laws introduce new or updated obligations related to the supply and use of renewable energy in the transport sector. The recently revised Renewable Energy Directive (**REDIII**[22]) introduces not only a heightened national renewable energy target for the transport sector, but also the option to choose between an energy-content based compliance or a GHG emission reduction-type compliance. Other recent regulation focus on specific transport sectors (such as **ReFuelEU Aviation**[23] and **FuelEU Maritime**[24]), by imposing obligations to economic actors (fuel suppliers, aircraft operators, ship owners). The revised **gas market package, currently** under negotiation[25] might introduce additional fuel types (such as "low carbon hydrogen") that will influence the compliance options of maritime and aviation sectors under ReFuelEU and FuelEU.

A brief overview of the legal context relevant to the use of renewable energy in the transport sector on the short- and medium-term is given in Annex.

The year 2030 is no longer long-term and we lack a concrete and clear vision for Belgium that should support the further development of Belgian legislation, specifically concerning the enlarged scope of the transport sector, in accordance to/compliant with the above mentioned European regulations and national legislations. Currently, calculations are made with the information available to us today. However, we often lack:

- **Projections** taking into account different scenarios on the **size of sectors expressed in energy quantities** (projections of energy consumed per type of energy carriers per subsector).

22 REDIII: Revised Directive (EU) 2018/2001, version of 20.11.2023 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02018L2001-20231120

23 ReFuelEU Aviation : Regulation (EU) 2023/2405 of the European Parliament and of the Council of 18 October 2023 on ensuring a level playing field for sustainable air transport https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R2405

24 FuelEU Maritime: Regulation (EU) 2023/1805 of the European Parliament and of the Council of 13 September 2023 on the use of renewable and low-carbon fuels in maritime transport, and amending Directive 2009/16/EC https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1805

25 Revised gas market package [Procedure 2021/0425/COD]. Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on common rules for the internal markets in renewable and natural gases and in hydrogen https://eur-lex.europa.eu/legal-content/EN/HIS/?uri=CELEX:52021PC0803

- Information on future **sector innovation and market potential** of different energy technologies in the different vehicle types
- Information on the **environmental impact of the production and use of energy carriers** (material flows and GHG emissions), taking into account existing studies on **sustainable availability of raw materials**, in particular for **biomass-based fuels**.
- Influence of and **interactions between (European) legal frameworks** (see Annex) relevant for the development of **national implementation strategies**.

All relevant federal administrations use the European and Belgian legislation as a framework to define research priorities, and to define their needs for scientific support. The FPS involved will also **provide the applicants existing data, evaluations and assessments**, in particular:

- A forthcoming evaluation of **renewable energy use in the transport sector and compliance** to REDII, national REDIII-transposition, FuelEU Maritime and ReFuelEU Aviation (SIA Partners, Q3 2024[26])
- The FPS Economy, department of Energy will provide detailed information on **volumes of energy released for consumption per transport sector and per energy carrier** in recent years, current size of the subsectors, types of energy carriers, existing evaluations, etc.
- FPS Public Health will provide information on **environmental parameters of the released biofuels**, such as biomass categories, reported GHG (greenhouse gas) and ILUC emission intensity, countries of origin, etc.

The registry of renewable energy in the road transport sector was launched on the 3rd of January 2024, and will be further extended to include the shipping and aviation sectors in the upcoming years. In the course of, and after the project, **insights and calculations will be used to influence the policy evaluation and policy development**, regarding renewable energy in the transport sector, in particular:

- The policy on the processing of technical files (for each renewable fuel with a multiplier > 1, a technical file needs to be submitted and to be approved for use of the multiplier).
- Approval of renewable fuel for use in the registry based on technical and scientific information of the fuel and its production.
- Sustainability assessment (sustainability criteria, respect for the biomass cascade principle, impact on the materials market) informing the development of related legislation.
- Evaluation of the impact of the use of different energy carriers, the impact of European and national legislation and the relationship between national and European objectives.

6.5.2. Requested Scientific Support

Scientific expertise is requested in the areas of:

1) **Technical expertise on energy carriers** (supply chain technologies and emissions, energy carrier products and expected innovation, …) related to the **production and use of energy in the different transport sectors** (road, rail, aviation, maritime), in particular related to:

- Biofuels (more specifically 2nd generation including innovative biofuels and biomass)
- Renewable fuels of non-biological origin (including but not limited to hydrogen, ammonia and methanol)
- Recycled carbon fuels
- Electricity

26 SIA Partners. Étude de faisabilité : Déploiement des énergies renouvelables dans le secteur des transports [forthcoming]

2) A study on **Environmental impacts** related to the production and use of different energy carriers, in particular:

- **Sustainable availability of raw materials** used for energy carriers, in particular related to biomass-based fuels (for example biofuels, recycled carbon fuels or methanol), taking into account existing assessments of sustainable available quantities of biomass[27,28] for the transport sector according to the **biomass cascade principle** (prioritizing use of biomass in technologies and sectors where no other mitigation options exist and with minimal total environmental impact)
- **Emission impact** (supply chain impacts, certified emission factors according to applicable legislation, etc.)
- *Not required but a plus*: **other environmental impacts such as deforestation and biodiversity impacts** related to the production and use of renewable energy[29].

We are particularly interested in proposals that relate to the following types of evaluations and outputs:

- **Projections of expected demand** and of sustainably available **quantities** of different **renewable energy carriers** (in the different transport sectors) towards **2035** and **2040** as well as the **associated CO2 emissions and intensity reduction** (calculated according to the applicable legislation and complementary methodologies).
- **Trade-offs between policy strategies** to achieve national and European policy targets that are in place, in particular related to:
  - **Environmental impacts**, such as the evolution of GHG emissions from the Belgian transport sector
  - **Relative distribution of biomass use** within the transport sector compared to other sectors (biomass cascade principle)
  - **Socio-economic impacts**, such as impacts on the materials market, agricultural sector, …

Based on the context, problem statement and contribution from the administration, the candidate is invited to propose specific research proposals and research outputs based on the personal interests of the candidate.

6.5.3. Timing & Budget

Based on previous studies, at least 1 FTE will be required for the estimated duration of two years. The total maximum budget foreseen is **200 000 EUR**, of which 180 000 EUR will be funded by BELSPO, 10 000 will be funded by the FPS Economy and 10 000 EUR will be funded by the FPS Health, Food Chain Safety and Environment.

27 Valbiom, Climact, VITO, ILVO. Décarbonation et bioéconomie : Potentiel de la biomasse pour la transition vers la neutralité climatique en Belgique à l'horizon 2050 [forthcoming]

28 Anne van den Oever en Daniele Costa, 'D4.4: *Model Insights on biofuel and feedstock demand for the future Belgian transportation fleet.*', AD-LIBIO ADvanced Liquid BIOfuels for advanced engine concepts enabled by advanced wood breeding and catalysis. Project funded by FOD Economie, K.M.O., Middenstand en Energie (VUB, 3 august 2021).

29 Chris West e.a., 'Assessing tropical deforestation and biodiversity risk in Belgium's agricultural commodity supply chains', TRASE, November 2022. https://www.health.belgium.be/sites/default/files/uploads/fields/fpshealth_theme_file/assessing_tropical_deforestation.pdf

PART III: PRACTICAL ASPECTS

7. Documentation

The following information documents are available to applicants:

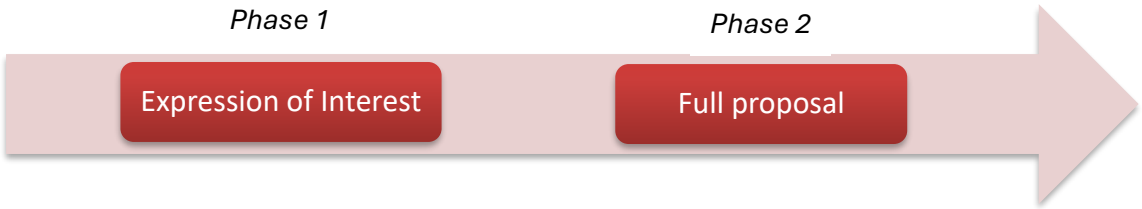
- Information file (this document)
- Budget rules
- Gender checklist
- Evaluation criteria
- Eligibility of evaluators
- Institution request form

The following proposal submission templates are available for information. Submission of the EoI & Full Proposal is done through the platform.

- Expression of Interest
- Full Proposal
- Budget table
- Gantt chart

These documents are available on the website.

8. How to submit a proposal



8.1. Submitting a proposal (Phase 1 & 2)

The programme S4Policy follows a 2-phase submission process: (1) Expression of Interest and (2) Full proposal.

Expression of Interest (Phase 1)

Prior to submitting a Full proposal, applicants must first submit an Expression of Interest (EoI) via the online Submission Platform.

The eligibility of the EoI will be evaluated by BELSPO. If the EoI does not comply with the submission rules, i.e. the EoI is not complete or has not been submitted in time, it will be impossible to create and submit a Full proposal. EoIs do not constitute a step in the evaluation process; they will be used by BELSPO to seek foreign experts for the evaluation of the research proposals.

At this stage applicants are required to provide general indicative information regarding the proposal: title and acronym of the project, call priorities, budget range of the proposal, duration, a brief description of the intended project, keywords and the name and contact details of the partners. Accompanying the Expression of Interest (EoI), applicants will provide the name and contact details of 4 – 6 scientific experts capable of assessing their proposal, and a max. of 2 non-grata scientific experts that will be automatically excluded from the evaluation. EoI are not evaluated, they are used by BELSPO to compose the evaluation teams of the research proposals.

The description of the project at this point is understood as an early stage of reflexion. The title and the summary of the Full Proposal may vary from that of the EoI to some extent. However, it cannot diverge to the point that the expertise mobilised for the evaluation of the proposal will become irrelevant. The acronym, call priorities, indicative budget, partners and keywords must remain the same.

Updated 9 August 2024

Changes to the funded partners are not possible from the Expression of Interest to the Full Proposal. Funded partners added to the EoI will only have access at the stage of the Full Proposal submission after BELSPO verifies they are eligible, to fill out their budget form.

If the funded partners were to change due to unforeseen circumstances after the EoI has been submitted and during the Full Proposal submission period, please contact the secretariat (S4Policy@belspo.be) **as soon as possible**.

Deadline for Expressions of Interest:
Monday 2 December 2024 @14h00

Full proposal (Phase 2)

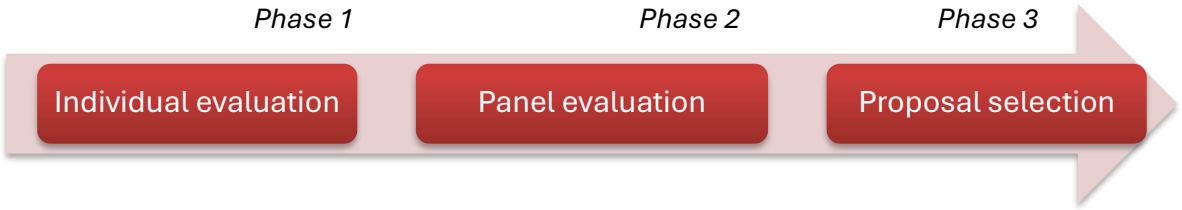
Applicants must submit the Full Proposal via the online Submission Platform. Both the Coordinator and the Funded partners will receive access to the online platform to fill-out the Full Proposal form. Note that if the Full Proposal does not comply with the submission rules, i.e. the Full Proposal is not complete or has not been submitted in time, it will not be considered for evaluation.

The full proposal is the ensemble of information and documents describing the intended research activity, its implementation and impact. At this stage, the title of the proposal and partner information will have to be confirmed, and applicants will introduce a detailed description of the intended project, including duration, workplan and calendar, budget, data management plan and ethics form.

Deadline for Full Proposals:
Thursday 9 January 2025 @14h00

9. Evaluation and selection of proposals

The selection of proposals is based on an international peer-review evaluation of the Full Proposals that guarantees scientific excellence and the alignment of the projects with the project call. The procedure, organised by BELSPO, develops as follows.



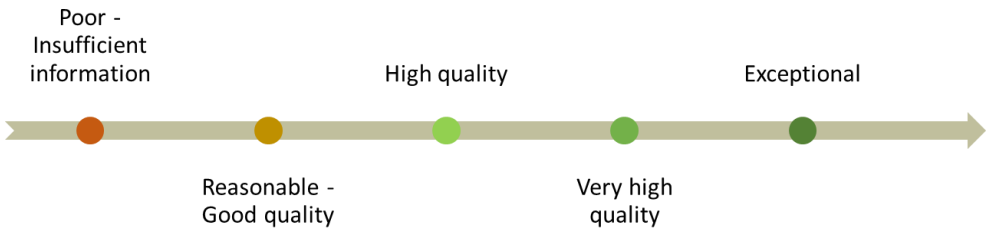
9.1. Written evaluation (Phase 1)

For each Full Proposal, an individual written evaluation will be performed by a set of 3 international (non-Belgian) independent experts having an adequate combined expertise to evaluate the research proposal. BELSPO is responsible for composing this remote 'written evaluation team' with experts from BELSPO's own database and experts suggested by the applicants.

The written evaluation takes place remotely, via the **online Evaluation Platform**. During this assessment, the experts will only have access to the proposals they will evaluate. They will not know who the other 2 reviewers are for that proposal, nor will they have access to each other's evaluations.

Each reviewer will assess the proposal and provide comments considering a variety of (sub)criteria, in the categories of Scientific quality, Quality and efficiency of the implementation and Impact.

The individual **evaluation criteria** are detailed in a separate document available on the website. Evaluators will assess these aspects of the proposal using the following scale**.**



Evaluation criteria is available on the website: https://www.belspo.be/belspo/P4Science-S4Policy/call/S4Policy_2024/S4Policy_Evaluation_criteria.pdf

! The individual evaluations are **neither communicated to the members of the Programme Committee nor to the applicants**.

9.2. Panel evaluation (Phase 2)

BELSPO will compose a **Panel of experts**.

The Panel will be composed of experts having the broadest possible expertise on the subjects addressed in the Call. These will have not participated to the remote evaluation in the Call[30]. The number of experts in the Panel will depend on the topics and expertise that need to be covered.

Step 1: Pre-drafting of Consensus Report

The individual evaluations for each proposal will be compiled and transmitted to the Panel members.

Each panel member will be tasked to prepare one or several draft consensus reports.

Step 2: Panel meeting

In preparation of the panel meeting, BELSPO will rank the proposals:

1. Translate the appreciations given to each sub-criterion in the draft consensus into numeric scores (from 1 for "poor-insufficient" to 5 for "exceptional")
2. Add the scores of the sub-criteria to obtain a total for each criterion
3. Add these scores over the three categories: Science quality/implementation/impact
4. Perform a weighted sum of the criteria in the following way:

CRITERIA WEIGHT[31]	
Scientific quality	50%
Quality and efficiency of the implementation	20%
Impact	30%

This ranking serves as input to the discussion in the panel. The outcome of this discussion is a finalised ranking (**Panel Funding Scenario**).

Prior to the meeting, each panel member will have access to:

- the Full proposals
- the Compiled individual evaluations (anonym)
- the pre-drafted Consensus Reports

During the meeting, the panel member who has pre-drafted the Consensus Report will present the proposal, followed by a discussion. Panel members reach an agreement regarding the

[30] In case of need and as a last resource BELSPO may call upon Panel members to perform remote evaluations, in the same way that if some Panel member finds him/them/herself unable to attend, BELSPO may invite a remote expert to the Panel.

[31] In/out of scope serves only to discard proposals that are not within the scope of the Call, and will not be counted as criterion for the 'scientific ranking'.

position of the proposal in the **Panel Funding Scenario(s)** and the content of the **Consensus Report**, based on the documents provided.

- Panel Funding Scenario

  The **Panel Funding Scenario**, based on the pre-drafted document which ranks the proposals according to their score**,** will classify all proposals according to the individual evaluation criteria, and considering the panel evaluation criteria:

  - Budget availability
  - Complementarities and/or overlaps between proposals

  The **Panel Funding Scenario** will be accompanied by a **Panel Report** explaining the ranking.

  The **Panel Funding Scenario** will classify the proposals into:
  - Highly recommended for funding
  - Recommended for funding
  - Not recommended for funding

  The Panel may list the proposals by order of preference for funding or put them in alphabetic order within each category.

- Project Consensus Report

The **Proposal Consensus Report** will consist of appreciations and comments for the different (sub)criteria. It will be based on the information extracted from the Compiled evaluations, pre-drafted by one of the panel members, and the discussions held in the panel meeting.

At this stage, the **Proposal Consensus Report** is definitive. It will not be modified in the subsequent steps of the proposal selection, and it will be used as feedback for the applicants once the final selection of proposals has been made.

For the sake of transparency and to provide the opportunity to improve their proposal(s) in the future, **applicants will receive an anonymised version of their Consensus Report(s)**

9.3. Project selection (Phase 3)

The **Programme Committee** will receive the following documents:

- Summary of the proposals
- Panel Funding Scenario
- Panel Report explaining the Panel Funding Scenario
- Consensus Report of each proposal

Based on these documents, and on the criteria and the rules explained hereunder, the Programme Committee will perform a strategic selection of the proposals, delivering a **Programme Committee Funding Scenario**.

The following aspects will be considered, when formulating a **Programme Committee Funding Scenario** to be transmitted to the **Secretary of State**:

- Added value of the proposal to the research strategies of the Federal departments
- Amount of Co-funding provided by one or more Federal departments

The Funding Scenario will be formulated considering the following rules:

- In NO case will proposals deemed 'out of scope' be considered
- In NO case will proposals deemed 'not recommended for funding' be considered
- In NO case will proposals deemed 'highly recommended for funding' be put aside

The decision on the final selection of projects to be funded is made by the **Federal Secretary of State** in charge of **Science Policy** based on the **Programme Committee Funding Scenario**.

10. CONTACTS

Further information can be obtained by contacting the **secretariat**: S4Policy@belspo.be.

11. COMPLAINTS

BELSPO places great importance on the quality of its service and on improving the way it operates. A special form to handle complaints has been created.

The complaint form is available at the following address:
http://www.belspo.be/belspo/organisation/complaints_en.stm

Complaints submitted anonymously or which are offensive or not related to our organisation will not be processed.

A complaint is handled as follows:

- Once your complaint has been filed, a notification of receipt will be sent
- The complaint will be forwarded to the relevant departments and individuals and will be processed within one month
- An answer will be sent by e-mail or letter
- The complaint will be treated with strict confidentiality.

If you are dissatisfied by the initial response to a complaint, you can always contact the Médiateur Fédéral/Federale Ombudsman, rue de Louvain/Leuvenseweg 48 bus 6, 1000 Brussels (email: contact@mediateurfederal.be/contact@federaalombudsman.be).