

DEFRA Gathering

14 October 2024

DEFRA Gathering



Programme

- 13:15 Registration
- 14:00 General Introduction
- 14:15 DEFRA : context and objectives
- 14:30 Results of the survey
- 15:15 Q&A
- 15:30 Themes DEFRA Call 25
- 16:00 Closure and Reception
- 17:30 End of info day



Agenda

1

General introduction

2

DEFRA: context and objectives

3

Results of the survey

4

Q&A

5

Themes DEFRA Call 25



Housekeeping rules

1

Please mute your mobile devices

2

You can use SLIDO to interact with panellists and Q&A; code **#2961987**

3

Network reception will take place in the bar



Meet the DEFRA team

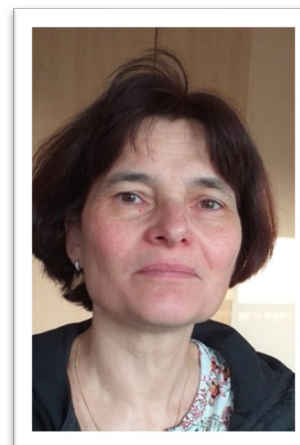
RHID Royal Higher Institute for Defence - Scientific & Technological Research of Defence

&

BELSPO Belgian Science Policy



Karen Pieters
Deputy Director STRD
Program Manager DEFRA



Marleen Bosschaerts
Dep. Director Research Programs
Coordinator BCCM – FED-tWIN - SEPRO



Silke Van Steelant
Program manager



DEFRA Context



Strategic Vision for Defence (2016) STAR-plan (2022)

A gradual increase of the R&T contribution for security and defence to reach 2% of defence spending in 2030.

Strengthening the Scientific, Technological and Industrial Potential



Policy Declaration Minister of Defence 31 Oct 2022

“... knowledge centres in Belgium, companies in general and Belgian SME’s, ...”

“...will flow back to society in the form of knowledge, technology and employment...”



Belgian Defence ‘Research, Technology & Innovation Vision 2030’

5 boosters for Defence Research, Technology and Innovation



Belgian Defence ‘Research, Technology & Innovation Vision 2030’

From an internal scientific and technological research programme to a research, technology and innovation policy within a national and European context.



Structurally reinforce the Belgian Defence R&T-capabilities
(Royal Military Academy, Defence laboratories, Military Hospital Queen Astrid)



Develop a broader knowledge and technological base



Stimulate and support collaborative research and development
(EDA, EDF, ESA, NATO)



Facilitate short-cyclic innovation projects for Defence



Create local ecosystems for research, development and innovation



DEFRA OBJECTIVES



Reinforce Belgian security and defence policy

Strengthening the Belgian defence-related industrial & technological base



Disclose and develop knowledge and technology for defence applications

Belgian Defence capability development;
Culture of innovation within Belgian Defence;



Triple Helix approach : promote systemic, multi/interdisciplinary and integrative approaches

Improve knowledge transfer between research institutes and industry
Introduce entrepreneurs' insight into research
Include potential end-users in research and innovation



RESULTS OF THE SURVEY

1 Applicants survey

2 Evaluators survey



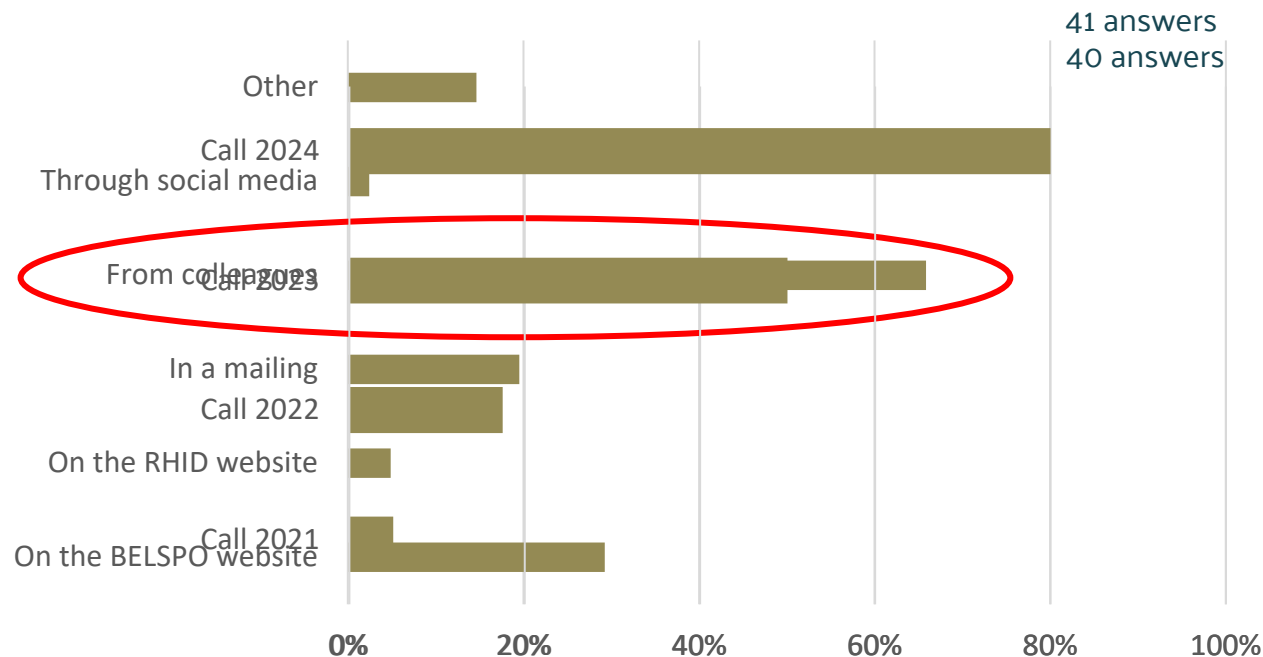
General information

42 respondents (out of 206)

Partners 45% × coordinators 55%

participants from different calls

66% knows DEFRA through colleagues





Info session & info file

Necessary info and documents easy to be found

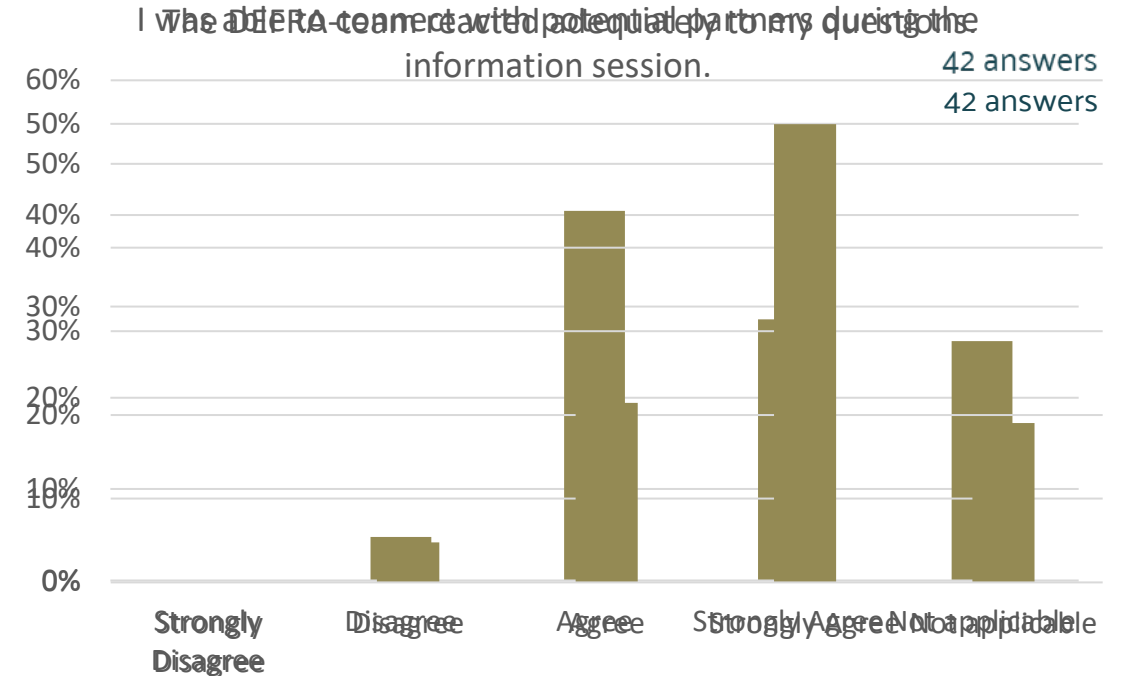
Clear information:

- eligibility criteria
- requirements for the partnership
- funding rules
- themes definition

Highest disagreement with possibility to connect with potential partners

→ Networking opportunities:
 introduction of DEFRA gathering
 Annual info day Call 202x

Connection with DEFRA-team positive





Info session & info file

**For questions about
the call for proposals,
the call procedure and documents,
the submission and evaluation of
proposals**

defra@belspo.be

**For questions about the content of
the call and projects,
the conclusion of the contract for
selected proposals,
and everything related to the project
implementation:
questions about reporting, invoicing,
implementation, communication,
follow-up and valorisation of the project**

defra@mil.be



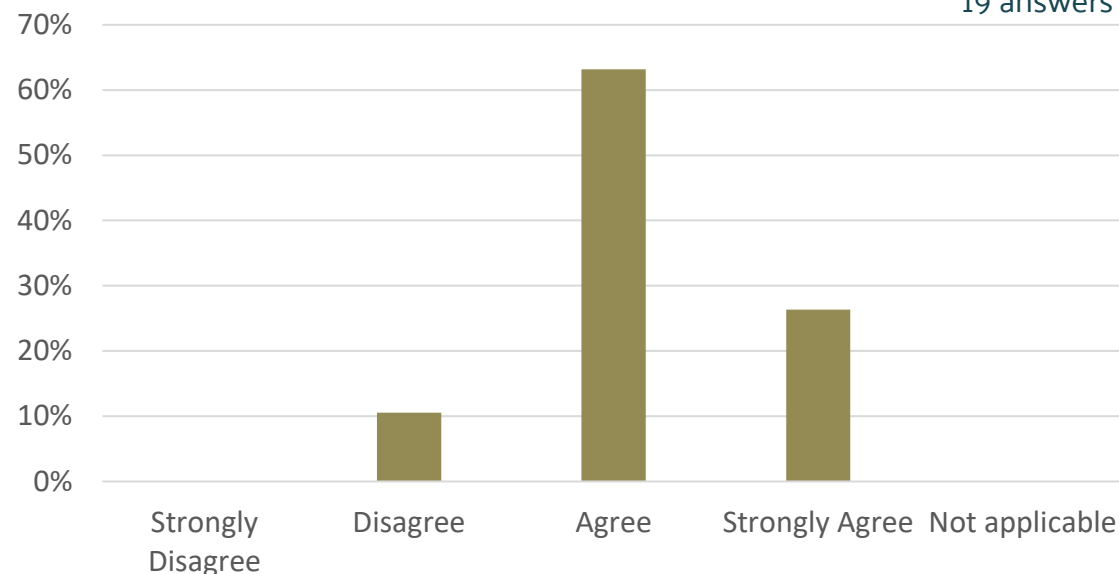
Timing call

Timing is reasonable but:

- Pre-proposal deadline too soon after info day
- Themes are presented during DEFRA gathering in order to start preparations (start organisation of consortia)
- Difficult to sync partners during the summer:
 - Answer to the remote questions
 - Prepare for the Scientific Experts Committee

Overall, the timing of the submission deadlines was reasonable.

19 answers





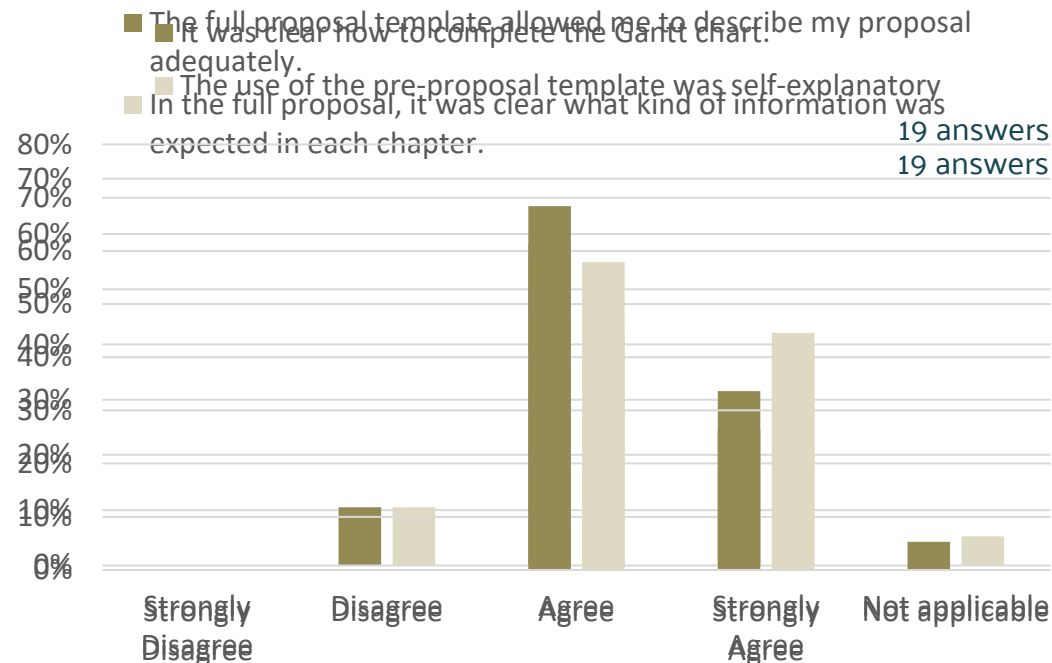
Proposal templates

Room for improvement in Full Proposal template:

- Some sections too short
- Overlapping sections
- One requested deliverable per task ≠ realistic
→ should be at WP-level.

→ To be investigated during review of the template

Pre-proposal template & Gantt chart are easy to complete





Submission platform

All agree that submission is straightforward and intuitive, and that the submission guidelines are comprehensive.

BUT

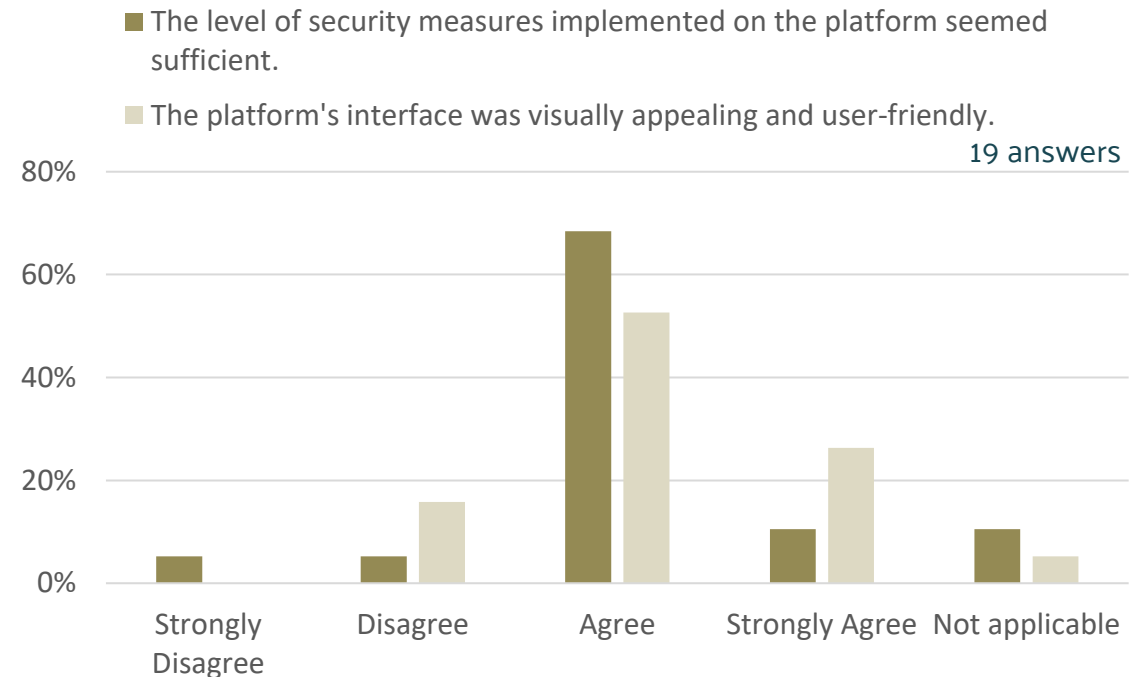
16% don't find the platform's interface visually appealing or user-friendly

11% find security measures insufficient

21% of coordinators encountered technical difficulties when using the submission platform

→ NEW platform under construction !

→ operational : DEFRA Call 2026





Pre-proposal evaluation

Evaluation criteria & how assessed :

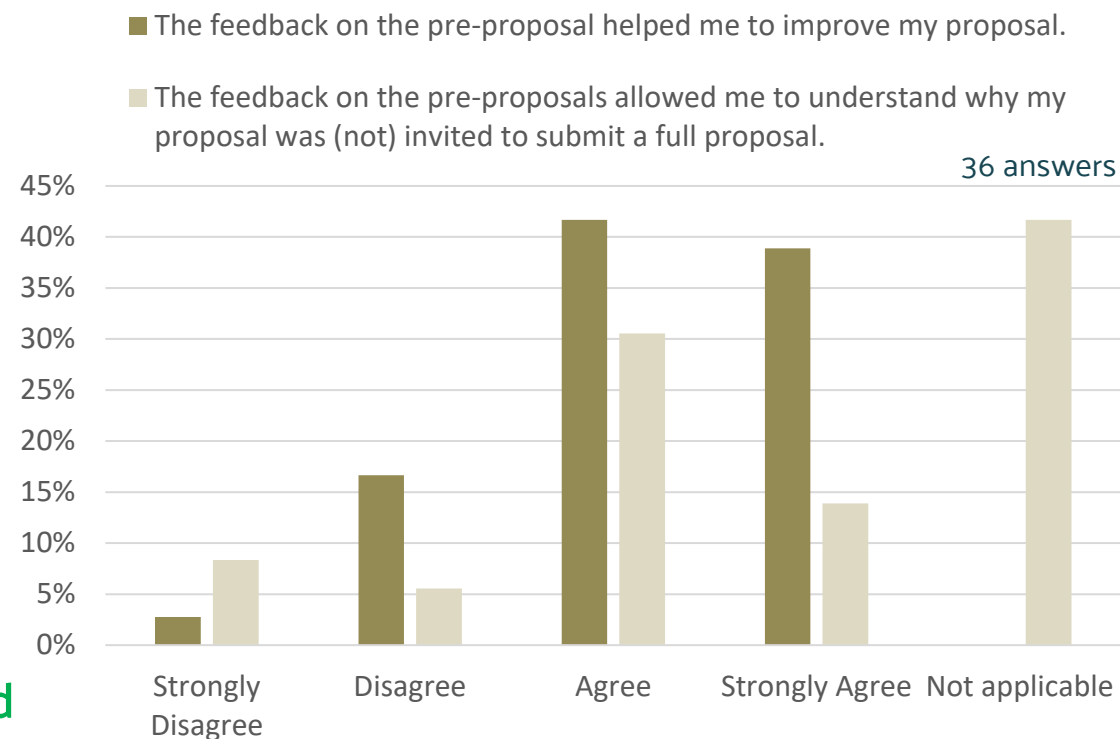
- Not clear for everyone

Transparency of the evaluation process

- Evaluation matrix provided on the website
- Process explained in info file & during annual info day

General wish for more extensive feedback

- More extensive feedback per criterium will be provided in next call





Full proposal evaluation

Remote evaluation

Clear criteria

Good consensus report with clear and advanced questions

→ Evaluation matrix provided on the website

→ Process explained in info file & during the annual info day

Scientific Expert Committee interviews

Enough time to prepare (but difficult in summer period)

Constructive exchange

For most respondents the feedback received, allowed to understand why the proposal was selected or not
BUT some did not receive any feedback.

→ Feedback is provided to the coordinator. It is the coordinator's role to communicate this feedback to the partners



Contracts

Overall, smoothly
Sometimes too little time for internal process

82% indicated that their judicial and/or financial department need extra time to go through the contract

- Annex II (e.g. IP-rights) is available on the website from start of the call
- Future: Deliver contract template one month before uploading the contract to the eSign platform, allowing more time to the consortia to analyse the contract



Reporting & follow-up

Overall satisfied with follow-up:

- Follow up of realisation of objectives
- Steering committee
- Assistance with valorisation

Activity report templates are easy to complete

Somewhat unclarity on financial reporting & payment procedure

- Provide a template for financial analysis
 - Objective : Automating the process
- Note for the consortia :
- Attentively follow the instructions to request (advance) payments e.g. references to be used





Suggestions & remarks

“Funding levels are good; process is clear and administrative overhead is acceptable”

“Clear call, clear themes and objectives, the managers are reactive”

“Good way of doing R&D targeted at Military and humanitarian services”

“The framework is clear and highly relevant for defense. The submission process is a good balance between effort and chances of success. A duration of 4 years would be more efficient in the long term and makes sense for this level of research projects.”

“DEFRA needs to make the programme more known in the academic world”

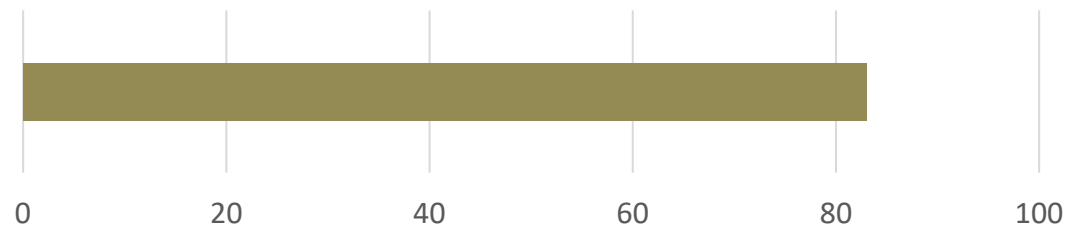
“Match making on the information day or in an earlier stage could be helpful to create a consortium”

“Everything is transparent”

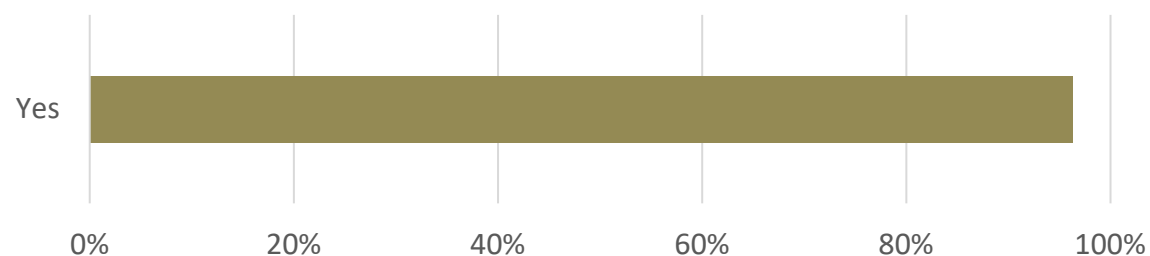


Overall satisfaction

83% would recommend the DEFRA programme to colleagues/collaborators



96% intent to (re)submit a proposal in a future call





Evaluator survey (52 (out of 145), of which 75% remote, 27% SEC)

Remote evaluators

- Complete & clear information
- Evaluation criteria & how to assess them was clear
- Enough time
- Good communication
- Issues with payment

→ Objective : Automating the process

- Same opinion on the DEFRA platform as the applicants:
 - Not really visually pleasing
 - Some had technical difficulties
 - Suggestion to improve security

→ New DEFRA platform call 2026



Evaluator survey

Scientific Experts Committee evaluators

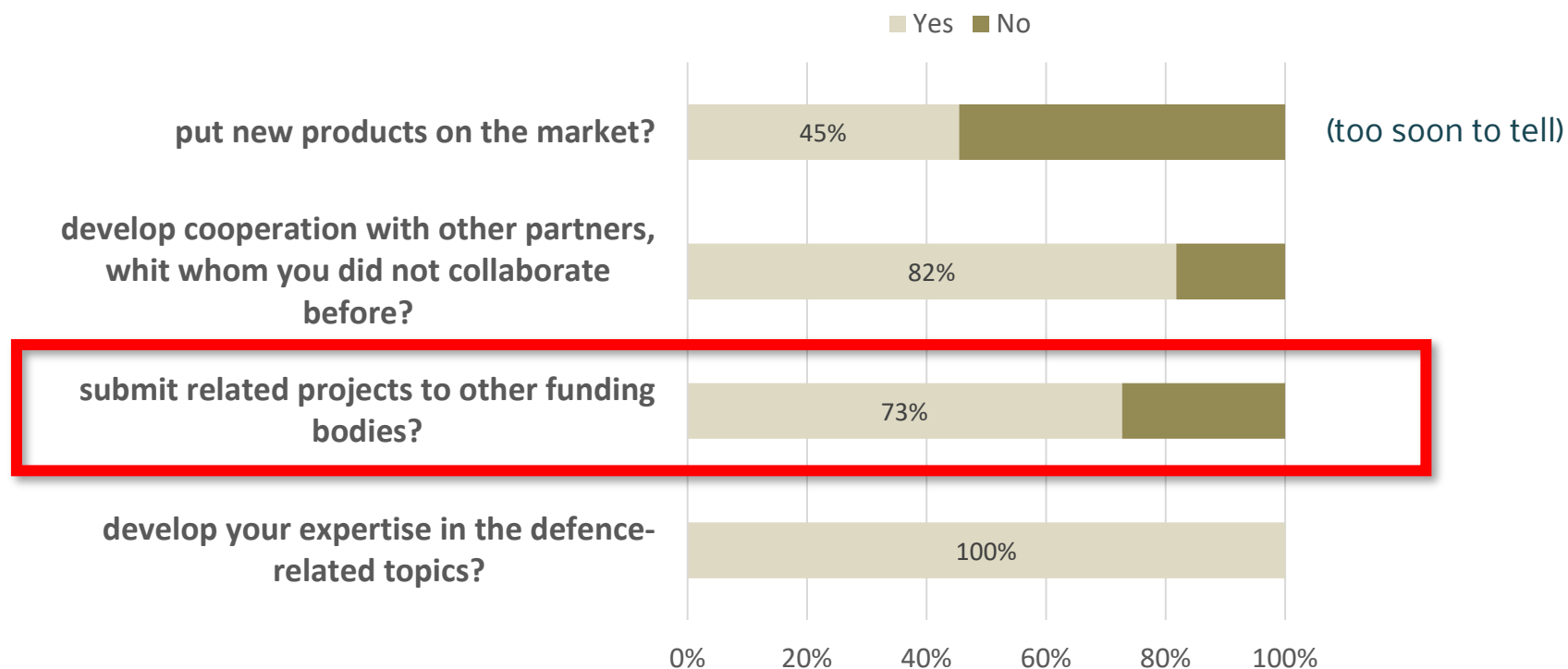
- Complete & clear information
 - Evaluation criteria & how to assess them was clear
 - Good communication
 - More time for the interviews during the scientific expert committee
- Rescheduling timeline/project during scientific expert committee with more attention to questions asked by experts



Impact

The DEFRA project allowed participants to....

11 answers



(too soon to tell)



Q&A

SCAN THE QR CODE TO JOIN AT

[slido.com](https://www.slido.com)

Code: **#2961987**



THEMES DEFRA Call 2025

1

Overview

2

Short description



Overview themes Call 25

Theme
Theme 1 – AI in support for operations
Theme 2 – CYBER
Theme 3 – Medical Casualty Evacuation
Theme 4 – Demining Technologies
Theme 5 – Biotechnologies and Human Enhancement/Augmentation (BHEA)
Theme 6 – Sensor Technologies
Theme 7 – Counter-Unmanned Aerial Systems
Theme 8 – Critical Maritime Infrastructure Protection
Theme 9 – Open call: Defence relevant research





Theme 1 : AI in support for operations

- AI systems : play a vital role in military decision-making and effectiveness.
- Multi-agent AI systems, composed of autonomous agents, handle complex issues by breaking them down, collaborating, and adapting in real time. These systems excel in logistics, strategy optimization, and generating well-informed decisions.
- A multi-agent AI system framework allows to research the value of this approach, allowing for the exploration, development, and testing of use cases in controlled and realistic environments.
This framework provides a standardized, flexible platform where different configurations of AI agents can be deployed.
 - Will be designed to enable users to tailor it for specific use cases, ensuring maximum flexibility while adhering to industry standards,
 - Will serve as a versatile foundation for proof of concepts and scalable implementations,
 - Will be instrumental in enhancing the role of the smart specifier within the procurement process,
 - Will be used to demonstrate its application on concrete use-cases identified by Belgian Defence



Theme 2 : CYBER

- Cryptographic mechanisms are used for the protection of critical information
→ paramount to achieve the highest assurance in their implementation
- Security of cryptographic protocols and algorithms : compromised e.g. due to flaws introduced in their implementation.
- This theme seeks project proposals in the following areas :
 - Cryptographic designs that mitigate the potential of implementation vulnerabilities (e.g. threshold schemes, homomorphic encryption),
 - Methodologies to produce high assurance implementations (e.g. certified compilation),
 - Methodologies to evaluate implementation vulnerabilities (e.g. side-channel leakage assessments),
 - Methodologies to assess attack potential (e.g. remote timing attacks).



Theme 3 : Medical Casualty Evacuation

- Evacuation of casualties is critical in saving lives. Currently : no existing off-the-shelf solutions for e.g.:
 - Adaptation and integration of medical equipment on dual-use platforms.
 - Development of real-time patient physiological monitoring systems that can function in different transport environments.
 - Innovative patient care support systems during transport.
 - Medical logistics and documentation systems.
 - Communication systems for coordination and information exchange.
- Focus : developing a long-range evacuation option that can be mobilized quickly, using existing civilian means such as trains, busses, and/or civilian ships.
- Special attention :
 - patient care support during transportation, logistics, patient tracking, documentation,...
 - safety and regulatory standards outlined by national and international bodies.



Theme 4 : Demining Technologies

- Purpose : to develop innovative solutions to address the critical challenges of mine-breaching and mine-clearing in post-conflict environments.
- Improvised Explosive Devices (IEDs) and Unexploded Ordnances (UXOs) are responsible for a substantial portion of casualties
 - development of efficient, reliable, and cost-effective demining technologies is of paramount importance.
- Focus :
 - ➔ Research of advanced detection systems, including novel sensing modalities and multi-sensor data fusion integrated with Artificial Intelligence (AI)
 - ➔ To encourage the exploration of unmanned platforms, nanotechnology, drone swarms, and electromagnetic countermeasures capable of safely and effectively neutralizing explosive threats



Theme 5 : Biotechnologies and Human Enhancement/Augmentation (BHEA)

- One of the eight Emerging and Disruptive Technologies (EDT) identified by NATO
- Synthetic biology enables the modification or creation of biological systems by combining microbiology and genetic engineering techniques with the principles of systems engineering
- Its exploitation will advance defence capabilities through applications in :
 - ➔ Medicine (e.g., development of vaccines and therapeutics),
 - ➔ Human performance augmentation (e.g. development of wearable/body-worn biosensors designed for pathogens and chemical threats),
 - ➔ Chemical and Biological defence (e.g. development of detection and identification systems).





Theme 6 : Sensor Technologies

- Limited situational awareness in armoured vehicles : a tactical handicap, especially in urban conditions. Situation is becoming worse because of hard-to-detect threats from above such as UAVs.
 - ➔ Electro-optical sensors allow to enhance the field of view and the range of detectable wavelengths.

!! A real continuous omnidirectional surveillance, including the sky, is lacking.

!! It is not possible to continuously display a fully omnidirectional view inside the vehicle

!! The human operator cannot continuously monitor all the output of these sensors to extract important information.

- In addition, existing surveillance systems are not able to extract information regarding the distance from the system to the potential threat.
- Focus on solutions that :
 - include electro-optical based omnidirectional SWaP-C surveillance which automatically presents important information to the crew.
 - are able to acquire information on the distance between threat and observer



Theme 7 : Critical Maritime Infrastructure Protection

Call 2024 : focus slightly on **underwater** challenges;

- The challenges in the domain of critical maritime infrastructure (including cables, wind turbines, artificial islands, and pipelines within Belgian waters, the North Sea, and beyond) still exist.

➡ Call 2025 : focus to the aerial domain, especially in the face of evolving **aerial threats**

- The growing threat from the air, e.g. potential attacks by unmanned aerial vehicles (UAVs) demands :
 - increased vigilance
 - (very) short reaction times.
- Implementing (1) physical barriers , (2) access control mechanisms , and (3) air defense systems around these assets can help deter unauthorized access and mitigate airborne risks.
- To further enhance these defenses, deploying aerial surveillance systems and integrating autonomous aerial vehicles (AAVs) can ensure regular monitoring, identify potential aerial threats, and provide real-time situational awareness to authorities like the Maritiem Informatiekruispunt (MIK).



Theme 8 : Counter Unmanned Aerial Systems

- The Ukraine war : breakthrough of a new era of aerial warfare: unmanned aerial systems (UAS)
➔ an indispensable part of any military operation
- Small, inexpensive, and readily available : used by maleficent actors, in different environments and contexts, such as terrorism or drug smuggling.
- Increasing need for the development of effective counter unmanned aerial systems (C-UAS).
➔ in order to better protect personnel, assets, and critical infrastructure both domestically/ international contexts.

Focus on :

- the critical challenges in C-UAS technology development along the whole kill-chain (Detect, Track, Identify, Neutralize)
- not only on technological advancement but also consider the broader implications of C-UAS deployment and use, including legal, ethical, and environmental factors.



Theme 9 : Open call: Defence relevant research

This call is “open” to any research relevant for defence across a broad spectrum, focusing on two domains :

•Technology domain

To realize innovative and cost-effective solutions for defence applications, ground-breaking or novel concepts, new promising future technological improvements

To improve readiness, deployability and sustainability across all spectrums of tasks and missions e.g. operations, equipment, infrastructure,...

•Human Factors domain

To explore new solutions towards optimised functioning and integration of human beings in complex organisations such as defence, from an economical, legal, psychological, sociological, historical, or ethical point of view.



Save-the-date :
DEFRA Call 25 infoday
22 Jan 25 !