



R4.2 ANNEX 4 – Final workshop on the ASSETs+ Strategy for developing skills and competences for the Defence Sector

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Table of Contents

List of tables and figures	3
Tables	3
Figures	3
Second workshop on the ASSETs+ Strategy for developing skills and competences for the Defence Sector	4
The idea behind the Workshop.....	4
The results of the Workshop	6
Responses to the questionnaire collected during the workshop	6

List of tables and figures

Tables

Table 1 - Average scores on Cost and Impact for each action.**Errore. Il segnalibro non è definito.**

Figures

Figure 1 - Framework for the ASSETs+ strategy: 5 points security seat belt.**Errore. Il segnalibro non è definito.**

Figure 2 - Space Cost-Impact for the distribution of the actions.**Errore. Il segnalibro non è definito.**

Figure 3 - Two-dimensional Space Cost-Impact for actions distributions.**Errore. Il segnalibro non è definito.**

Figure 4 - Interpolation line of the actions in the space Cost and Impact.**Errore. Il segnalibro non è definito.**

Fianl workshop on the ASSETs+ Strategy for developing skills and competences for the Defence Sector

The idea behind the Workshop

This workshop was set up to present the final **ASSETs+ Strategy for developing skills and competences for the Defence Sector** to validate the actions and to collect additional suggestions to implement it.

The insights emerged from the desk work of the first year (available in the [Annex 1](#)) and the analysis of the workshop of the second year (available in the [Annex 2](#)) and the workshop of the third year (available in Annex 3) let the ASSETs+ Consortium frame the following information:

- The **needs** of the sector
- The **goals** to fulfil the need
- The **pillars** to build on a strategic plan
- The **actions** to achieve the goals
- The **priorities** of the actions

The scope of the final workshop is therefore the validation of the actions with reference to the pillars of the strategy, represented in the seat belt in Figure 1 (additional details in the [main part of R4.2](#)).

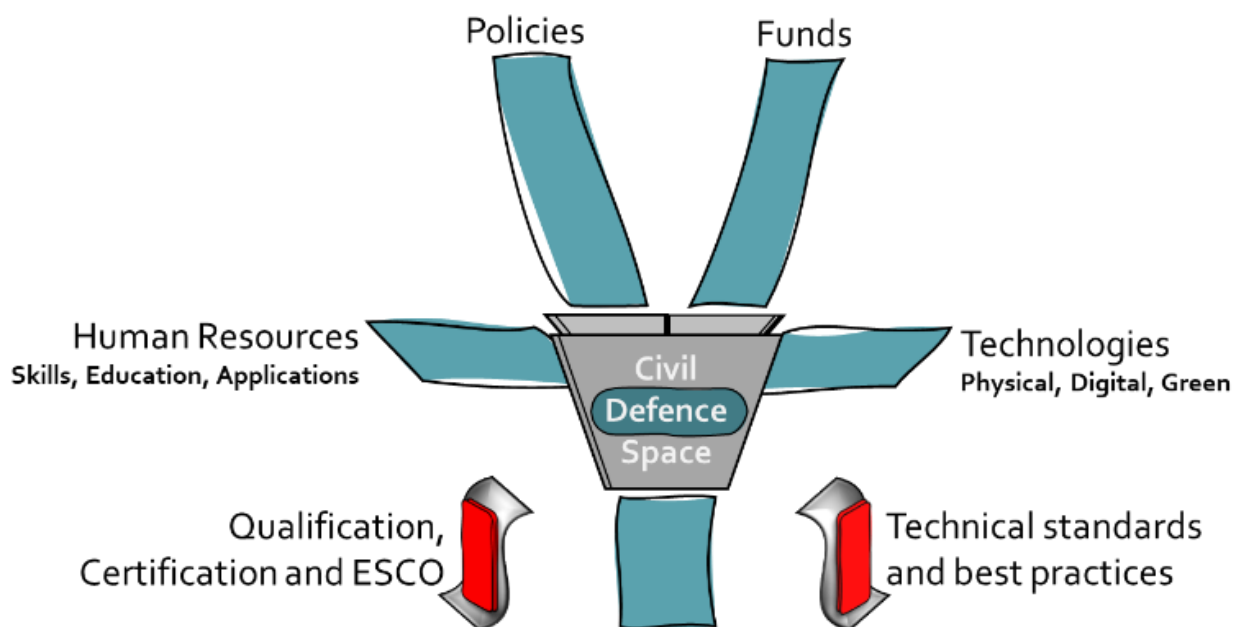


Figure 1 - Framework for the ASSETs+ strategy: 5 points security seat belt.

The validation event will be divided in two parts:

Before the event:

Set up the 6 working groups:

1. One working group per pillar: (1) Technology: innovation, research and development; (2) Technical Standards and Best Practices; (3) Human Resource: Skills, Education programs

- and Infrastructures, Workforce in Industry; (4) Qualifications; (5) Projects and Funds; (6) Policy.
2. Identify the co-chairs: one internal and one external.
 3. Identify the experts to involve: the target number is around 10 people per session, with from 3 to 5 (or more) external experts and around 5 internal per session.
 4. SHARE THE STRATEGY ONLY TO THE EXPERTS WHO CONFIRM THE PARTICIPATION.
 5. SHARE THE SCENARIO BEFORE THE MEETING (FEW DAYS BEFORE).

During the event:

The validation session is a blended event, the internal partners join in presence while the external experts can join in presence and online.

1. Presentation: The moderator presents the method to develop the Strategy and the achieved results.
2. Explanation: The moderator presents the rules for the validation procedure. The working groups will discuss on the application of the Strategy on a proposed scenario, evaluating the effects of the proposed actions in response to the presented event.
3. Engagement in the discussion: A video will be shown describing the event
4. Discussion: The chairs (one internal and one external experts) of each working group will lead a discussion on the plan of actions delineated for a given pillar in response to the scenario. The discussion aims at understanding whether the activities that we are foreseen in the Skills Strategy can be the ones to address this issue. Each session will focus on its specific actions connected to the pillar, but overall, the focus should be on employment and skills. Below three questions are provided to structure the discussion.
 - i. The formulation of the actions is complete or is there something missing?
 - ii. How could we operationalize the actions? How can we make the plan works?
 - iii. Who could be the right body or combination of institutions to implement the actions?
5. Summary: The chairs of the sessions (one internal and one external experts) of each working group will summarize the discussion.
6. Closing: The moderator will close the session.

The scenario presents an event related to the development of a Generative AI system. We chose this topic due to the fast growing of Generative-AI, especially after the release of Chat-GPT. This technology is currently being used in many applications and for many purpose. Our question is the following: is Defence able to keep the pace? There is an urgent need of understanding the impact of this technology on skills to properly exploit its potential and possible for defence industry to mitigate and anticipate the risk that this technology can bring to the sector.

The scenario, the instruction for the creation of the video, and the video have been generated with the support of the Generative AI system Chat-GPT.

The scenario

The video is available on the slide used during the workshop ([ASSETs+ strategy_extended.pptx](#)), here the script is reported.

A new technology has been developed which has the potential to revolutionize the defence industry in the European Union. It has been developed by a small company in one of the EU Member States and could significantly improve the speed and accuracy of communication systems.

This new technology uses generative-AI to develop highly advanced defence communication systems. It enables automatic optimization of textual, video, and audio messages, improving the accuracy and the effectiveness of information transmission during missions and daily operations. The generative-AI algorithms used in this technology are designed to analyse large amounts of data, so it can handle different types of data from different devices, smoothing the data fusion procedure. The optimization process also involves an automatic decision-making system, which delivers the action based on the information collected, actually guiding the deployment of the operation.

This technology has already been tested in a simulated environment and has shown promising results, but it may require further testing and development before it can be used and fully integrated into the current communication systems. The company that has developed this has been working closely with EU defence organizations and research institutions to test and refine the technology. What's more, they have already demonstrated successful results in developing prototype defence systems using this technology, which has led to a significant increase in interest and investment from the defence industry. At the same time, the potential benefits of this technology are not only limited to the defence industry. The generative-AI algorithms used in this technology could also be applied to other fields, such as healthcare, transportation, and energy, to optimize complex systems and improve their efficiency.

This has led to a need for a response involving different stakeholders to properly react. EU Member States, Research Organizations, Universities, Educational and Training Institutions, as well as EU Policy Makers, bodies and departments related to the field of Defence and Companies within the EU Defence Industry, have all come together to develop an action plan to tackle this issue including the need for re-skilling the workforce in the defence industry.

However, there are also concerns about the potential risks and implications of such generative-AI. As the generative-AI algorithms used in this technology analyse large amounts of sensitive data and generate new sensitive information, it can become the target of cyber-attacks, hacking, or possibly controlling the system itself. Any breach of the algorithm or data could lead to the theft of valuable information and the potential compromise of national security. This technology may even be used to develop autonomous systems, leading to the creation of autonomous weapons, posing a threat to human safety and security. The deployment of this new technology by a single EU Member State could lead to strategic advantages over other Member States or countries or could even spark an arms race. If one state were to gain an advantage in terms of defence technology, it could destabilize the balance of power within the EU and potentially lead to tensions, escalations, or conflicts. This could lead to moral and ethical dilemmas, as well as potential international criticism and condemnation.

Therefore, it is crucial for the EU to establish clear guidelines and regulations in order to ensure that the technology is developed and deployed both safely and ethically.

The results of the Workshop

Around 20 experts participated in the sessions, all of them received a summary of the draft version of the strategy one week before the workshop and the script of the scenario. The following sections report the insights collected by the chairs of the parallel groups. The conclusions are drawn in the main report.

Session on Technologies

The session was organized as follows: the experts read the 12 actions to validate, then an open discussion on the formulation, actionability and stakeholders was conducted. Then the chairs framed the collected insights with the following scheme.

FORMULATION – what

- The actions are too long and so not easy understandable.
- Highlights keywords to clearly communicate the meaning.

ACTIONABILITY – how

- Steal from other sectors: to have a look in other sectors and domains can be useful to understand possible applications of a given technology. For example, Generative AI is used in Medicine to support decision making processes of doctors in the analysis of patients' data; in Finance Big Data and data/text mining technologies are adopted to analyse financial data and suggest investments; in Air Traffic Service AI is used to manage real time trajectory and possible evolution.
- Adopt different managements methods: Agile can be an option even if it could be difficult for the high level of standardization required in the sector.

STAKEHOLDERS – who

- Set up an ESA-like entity: overcome geopolitical barriers and tensions among member states to have an entity who foresee both the civilian and the defence applications of critical and emerging technologies.
- Think globally: international agreements are needed to cope with the development of digital technologies in cyber space (no physical boundaries). The EU regulations can be a first step for international policies.
- Involve who owns the data: where/what are the data that Generative AI systems can use? This can help in identify who should be involved in the implementation of the actions, considering the institutions that own the data. In this way it is possible to have fresh-hand information. Some examples can be: EU agencies, EU research institutions, Open Sources Repositories.

Session on Human Resources

The session was organized as follows: the experts read the 11 actions to validate, then an open discussion was conducted asking “How we can introduce the proposed actions to practice and who should do it?”. Then the chairs framed the collected insights as follows.

1. Focus on the projects. Currently it is difficult to secure employees' loyalty. Companies would like to develop a long-term employment relationship (but not in every instance) with young people at the start of their careers, but it is apparent that some young people are keen to move between employers and industries until they find a job which satisfies their particular needs. This can be a potential disincentive to invest in the skills of the workforce. The nature of defence employment and the opportunity to work on hi-tech, fancy projects, can increase the mobility of workers. They can take their skills to other employers in other sectors. Hence the need for defence employers to develop policies to attract and retain employees.
2. Transferability of knowledge and skills. Although defence skills are transferable, this can be used to attract young people to the sector. They need to understand that the knowledge and skills which they will gain in the defence industry are often sought in other industries. This is because in many cases employees in the defence industry work with dual-use technologies. Therefore, there is a need to clearly communicate the work undertaken in the defence industry and the benefits it can deliver to its employees (i.e. high level skills potentially of use in other industries).
3. Early contract with university students. Employers can encourage students in, for example, the first year of their studies at university, to sign an employment contract (presumably in return for a range of benefits in addition to a job waiting for them upon graduation) and then guide their

studies towards things of particular relevance to the company. It was observed that this is already happening across a range of industries.

4. Industrial PhDs. This kind of initiative gives benefits for both industry (it will have professional support to conduct scientific research) and universities (they will have insight into current defence industry challenges and solutions at least to some extent). It provides a further means of connecting companies with people who possess the skills and know-how the sector needs, in addition to providing solutions to complex defence related problems.
5. Best practices to retain employees. Because defence related skills are potentially transferable, defence companies need to develop the policies and practices to retain their employees. It is not only about salary, but the wider set of human resource policies which provides a high degree of job satisfaction.
6. Early contact with defence industry. If defence companies focus their recruitment strategies solely on attracting university graduates, this is probably too late. Contact with students needs to take place earlier – such as in secondary school – when they are making decisions about the careers they would like to pursue and the skills they will need to acquire to do so. Only in this way will students fully understand the potential for the defence industry to provide them with the career they want. It can, however, be difficult for defence companies in some countries to engage with schools because of the perceived nature of its activities. There is a need to present defence as an industry concerned with security and thereby provides protection to European society. Presenting defence in this way may make it more attractive to young people thinking about their career options.
7. Defence related case studies. The defence industry is a closed one. Companies are unwilling, for security reasons, to share information about their activities. This can limit its engagement with the education providers. It is now possible to use anonymized data or synthetic data. In this way, students can be provided with defence related problems to solve using anonymized data provided by companies. In this way engagement between universities and industry can be improved. It would also make it easier for experts in the defence sector to deliver guest lectures in schools and universities. Inviting experts working in defence industry to give lectures to the student during which they can present the defence related case studies has the potential to engage students with defence related problem solving.
8. Utilising the skills of ex-defence industry personnel. Universities potentially have the opportunity to make use of the skills of those who have retired from the defence industry to confer their skills on students.
9. Upskilling of SME employees. A large share of employment in the defence industry is concentrated in SMEs. It is not always easy for SMEs to organize training or engage with educational institutions such as universities. Industrial clusters provide one means by which SMEs can be assisted to obtain support from universities, amongst other institutions, to acquire the education, training, and skills they require. Means need to be found for embedding SMEs in defence company clusters / ecosystems.

Session on Qualification

The session was organized in the following way:

Presentation of participants	2 min
Pillars goal & needs presentation - 01 Strategy.pptx	5 min
Introduction to the forms/quiz - Link e QR Code	8 min

Discussion based on the quiz results ASSETS+(1-8) (1).xlsx (discussion action by action): - Action 25 - Translational digital framework . - Action 26 - Modular education and training programs linked to engaging pedagogical approaches . - Action 27 - Design and implementation of defence qualifications .	30 min
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The chairs framed the results in the following comments. Below the results of the quiz are included as well.

- ✓ In the overall the **formulation of the actions is complete**. Still, it would be relevant to consider a few adjustments:
- ✓ add additional factors when describing action 26 “Modular education and training programs linked to engaging pedagogical approaches”, as the design and implementation shall consider the recognition by employers (e.g. introduction linkage with microcredentials); sharing knowledge; common understanding of content from different levels to be delivered (to consider having the harmonized contents;
- ✓ to include a priority of criteria to follow, in action 27 description about “Design and implementation of defence qualifications”.
- ✓ **Several examples** were given on **how to operationalize the actions**. Please refer to example for each specific action. It might be worth including these sub-actions as examples to describe each action. Thus, adding more clear understanding on their meaning.
- ✓ Globally, the **combination of institutions** balancing from defence industry, academia and VET was given as example **for the overall actions**.

Action 25	RESULTS: Q1: According to ASSETS+ strategy, the Transnational digital framework is virtual Educational environme... 8 ... the confident, critical and res... 1 ... applied only for professionals... 1 ... an ecosystem aiming at enga... 2 ... other (please detail below) 0 
	Q2: How can we implement the <u>Transnational Digital framework</u>? Through regular activities ASSETS+ website/ mobile app could be interesting - Like international exchanges between EU students and universities have been promoted by Erasmus, have a specific "defense-application" open course in engineering curriculum - Actively promote internship/training in defense industries for young students Website + collaboration Regular activities and establish a link with a more permanent activity By dissemination activities and involvement of external stakeholders Have a dedicated section on ASSETS+ explaining what it is, how it works, and how institutions can be part of it. Share it with universities within and outside the partnerships by disseminating at local, national and EU level. By dissemination activities and involvement of external stakeholders website Q3a: Who are the institutions to implement the action?

	VETs and Centres of Excellence. ASSETS + coordinator Erasmus+ Universities Training Centres, applied research, education, industry All educational entities, companies ...to align the needs HEIs, VET providers, labor market representatives HEIs HR departments, training centres and companies Q3b: How to monitor the implementation of the action? Through regular contact and feedback Nb of exchanges Measure EU universities that propose "Defense related applications" courses Collaboration, exchange experiences and personnel, Establishing indicators By a management structure National Education Ministries should be responsible for monitoring the impact and successful of the action. feedback among workers and students
	COMMENTS: - In the overall the description of the action is clear, as the majority (8) of the participants selected the correct option. Still 2 participants considered the Transnational digital framework could be understood as "an ecosystem aiming at engaging HE and VET students in defence activities". Some suggestions were given to include reference to "job adverts". Continuous activities are required, using the project website as the main channel of diffusion and dissemination. - Some concerns were expressed on how to keep the digital framework sustainable (after the project).
Action 26	RESULTS: Q1a: Identify the advantages of delivering training in a modular using conventional pedagogical approaches (e.g.: lectures; presentations...) Allows specific modules and dedicated trainers To adapt to all type of needs Depending on interest one can follow 1 or different modules Easy to learn and to combine the different competence units you need to acquire the needed skills It is good for a first exploring of the subjects According to needs of trainees but not engaging /so effective Q1b: Identify additional advantages of delivering training using engaging pedagogical approaches Allows systematic and organized teaching and training content. More practical issues are learned Interest and awareness of young people More attractive learning modules, It is good to engage the audience Increase the ability to put in practice the practical learning after the training According to the needs of the trainees, and more effective as it can reply on his /her experience Q1c: Which additional factors, apart from the innovative pedagogical approaches and modular courses, can facilitate the engagement of students/trainees?

	Incentives and recognition from employer.
	Propose different languages
	/
	Hands on workshops
	Alignment with real industrial needs and cooperation of industries in the training
	Scholarships
	Peer learning. Personal presentation in relation to a specific topic. Share with others their knowledge in the field.
	recognition of knowledge and skills
	Q2: How can we implement the modular courses and the pedagogical approaches?
	Through regular training
	On a platform
	/
	Online and physical courses
	Combining the different capabilities of a network of validated trainers
	By an open dialogue and agreement with the labour market representatives
	By cooperating with other institutions
	capacitate the training organisations, in particular the trainers
	Q3a: Who are the institutions to implement the action?
	VETs and Centres of Excellence
	Course providers
	/
	Schools and training centres
	RTOs, educational establishments, companies
	Assets+ partners and external stakeholders
	Partners from ASSETS+ and other interested institutions
	All training providers
	Q3b: How to monitor the implementation of the action?
	Feedback
	Number of participants
	/
	Qualification of school/training centre
	-
	By a management body
	Committee created for this specific task.
	feedback of trainees
	COMMENTS:
	- It was recognized that using modular approach when designing training programmes linked to innovative pedagogical approaches is crucial to enable the motivation, skills mobility and transfer, but additional factors shall be considered too, such as: - the recognition of employers; - sharing knowledge - ensuring the common understanding of content from different levels to be delivered (to consider having the harmonized contents) - All relevant stakeholders can implement a design, although the quality of those organisation and content delivered must be ensured)

Action 27	Q1: Prioritize by importance the elements needed to define to design & implement a defence qualification?					
	1st	2nd	3rd	4th	5th	6th
	Alignment with industry needs	Quality assurance system	Educational pathways	Harmonised assessment	Access requirements	Forecast of future trends
	Alignment with industry needs	Forecast of future trends	Educational pathways	Quality assurance system	Harmonised assessment	Access requirements
	Alignment with industry needs	Forecast of future trends	Educational pathways	Quality assurance system	Access requirements	Harmonised assessment
	Alignment with industry needs	Quality assurance system	Educational pathways	Forecast of future trends	Harmonised assessment	Access requirements
	Alignment with industry needs	Access requirements	Forecast of future trends	Harmonised assessment	Quality assurance system	Educational pathways
	Access requirements	Harmonised assessment	Alignment with industry needs	Forecast of future trends	Educational pathways	Quality assurance system
	Alignment with industry needs	Harmonised assessment	Access requirements	Educational pathways	Quality assurance system	Forecast of future trends
	Q2: How can we design & implement a defence qualification?					
	By consulting with both trainers and trainees as well as defense sector representatives					
	On an lms platform					
	- Highlight defense applications of technologies taught in engineering.					
	- Propose actively internships/courses in defense industries					
	- Exchanges between civilian and military universities					
	Based on input industry					
	Involving the ecosystem: both military forces and defence industry					
	By a partnership agreement					
	Cooperating with industries and Universities					
	Involving industry and education providers in designing the programmes					
	Q3a: Who can we design & implement a defence qualification?					
	Stakeholders including the defence industry, companies, ministries, VETs.					
	Industrials and course providerd					
	All higher education schools					
	Industry + training centres					
	Same as before , establishing the different roles					
	Awarding bodies					
	HEIs and HR managers experts in the field					
	industry and education providers					
	Q3b: How to monitor the implementation of the action?					
	Feedback					
	Nb of participants					
	/					
	Collaboration					
	-					
	By a management body					
	External committee					
	based on surveys and desk reserach					
	- Consensus about the priorities when designing and implementing defence qualification: 1st position the "Alignment with industry needs", 2nd position equally important "forecast of future trends", "quality assurance" and "Harmonised assessment"; 3rd "access to different educational pathways". The remaining elements vary in the relevance according to participants. - Different stakeholders shall be involved in the design and implementation. Cooperation is needed					

