

DEFENCE DATA 2022

Key findings and analysis

METHODOLOGICAL REMARKS

The European Defence Agency (EDA) has been collecting defence data on an annual basis since 2006, in line with the Agency's Ministerial Steering Board Decision of November 2005. The Ministries of Defence of the Agency's 27 Member States (MS) provide the data. EDA acts as its custodian and publishes the aggregated figures in its "Defence data" booklets and on its website¹. For the first time, following the Steering Board approval in October 2023, the 2022 defence data figures related to total defence expenditure and defence investment will appear de-anonymised in this year's edition.

EDA compiled the 2022 defence data figures² through the 2023 PESCO National Implementation Plans, the 2023 European Union Military Capability Questionnaire (EUMCQ), 2022 Coordinated Annual Review on Defence (CARD) Consolidated Information, and individual updates by Member States.

On 23 March 2023, Denmark joined the Agency, allowing for the first time EDA's Defence Data Publication to account for all European Union (EU) MS. Of note, this edition incorporates Denmark's defence data for 2022 only. Datasets of MS are available since 2006 on the Defence Data Portal on EDA's website.

More information on the European Defence Agency is available at www.eda.europa.eu

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1. EDA Defence Data Portal: <https://eda.europa.eu/publications-and-data/defence-data>

2. Defence expenditure figures are provided in constant 2022 prices, in order to take inflation into account and allow for a comparison across years. Source of GDP deflator: European Commission, DG ECFIN, Macro-economic database AMECO.

Main results

In the wake of Russia's war of aggression against Ukraine, MS have demonstrated their commitment to fulfilling the investment objectives outlined in the Strategic Compass, aligning closely with the recommendations of the CARD Report and the binding commitments of the Permanent Structured Cooperation (PESCO).

In 2022, total defence expenditure of the 27 Member States amounted to **€240 billion, continuing the positive trend of eight consecutive years of growth** – the inclusion of Denmark confirms that trend.

The 2022 CARD Report estimated defence expenditure to further grow by up to €70 billion by 2025 and MS are on track to match their pledges before that time horizon. The figures for 2022 will not yet reflect the full response of MS to Russia's war of aggression with most of the unprecedented share of increases being reflected from 2023 onwards³.

A record **€58 billion, or 24.2%** of MS total defence expenditure, **was allocated to defence investments**.

For the fourth consecutive year, this increase demonstrates the commitment of MS to meet and surpass the agreed collective benchmark of dedicating 20% of their defence spending to strengthening EU defence. The current security context has further enhanced the overall trend of prioritising off-the-shelf procurement of equipment in most MS, despite the general increase in research and development (R&D) activities.

In 2022, **MS allocated €3.5 billion to defence R&T** across the EU, a reduction of € 200 million compared to the previous year and significantly below the 2% benchmark. Coupled with uncoordinated defence investment, these trends pose a challenge to the coherence of the European Defence Landscape, increasing the risk of fragmentation.

MS should make full use of all EU Defence Initiatives and seize the opportunity provided by the approval of the 2023 EU Capability Development Priorities and the ongoing bilateral dialogues from the 2023-2024 CARD cycle framework to better coordinate defence investment plans across the Union, spend their resources more efficiently, reduce fragmentation, thus strengthening EU defence.



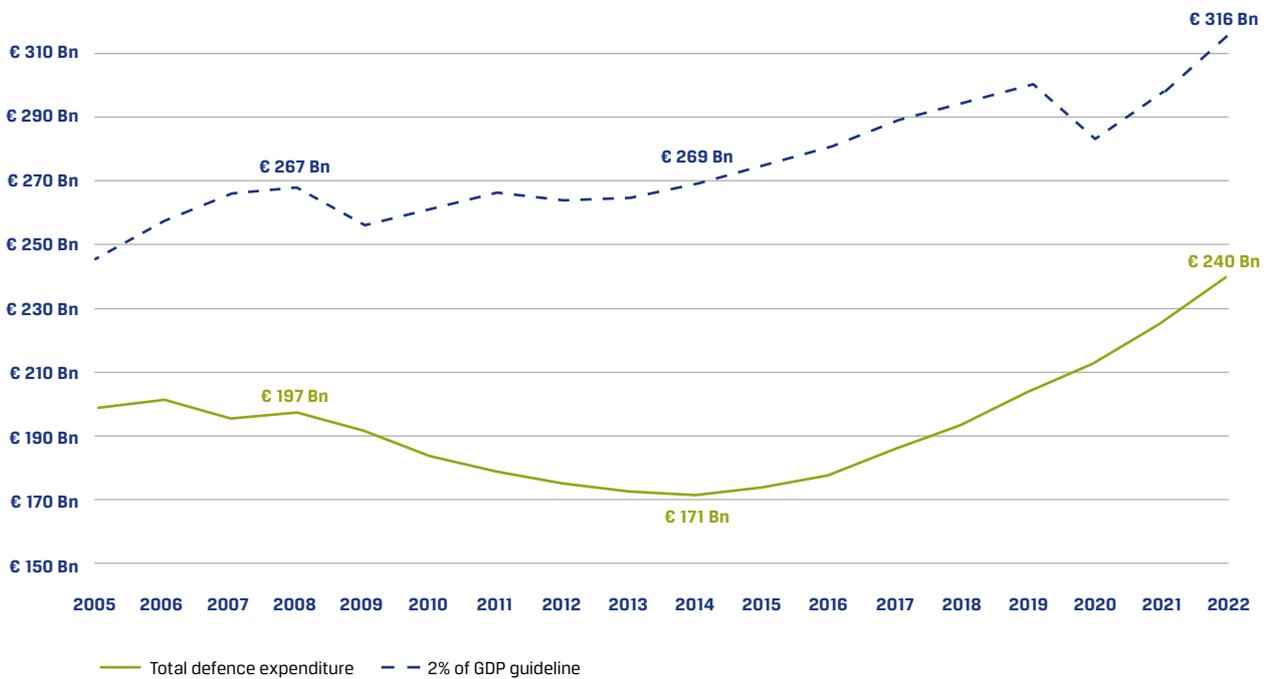
€240 billion
Total Defence Expenditure
of the 27 EU Member States

3. For some MS, it was not possible to determine the ad hoc authorised defence expenditure approved following Russia's war of aggression against Ukraine and, as such, they may not be accounted for in the reported data.

Total defence expenditure

In 2022, defence expenditure of the 27 MS increased for the eighth year in a row, amounting to €240 billion (Figure 1). As a percentage of the gross domestic product (GDP), defence expenditure reached 1.5%, a similar level as in the past two years. In real terms, defence expenditure grew by more than 6% compared to 2021, showing MS efforts to sustain the trend of increased overall defence spending across the Union. Compared to the historic low reached in 2014, defence expenditure has increased by €69 billion, or 40% in real terms. However, MS would still need to spend €76 billion more to reach the guideline of spending 2% of GDP on defence.

Figure 1. Total defence expenditure and 2% of GDP guideline (constant 2022 prices)



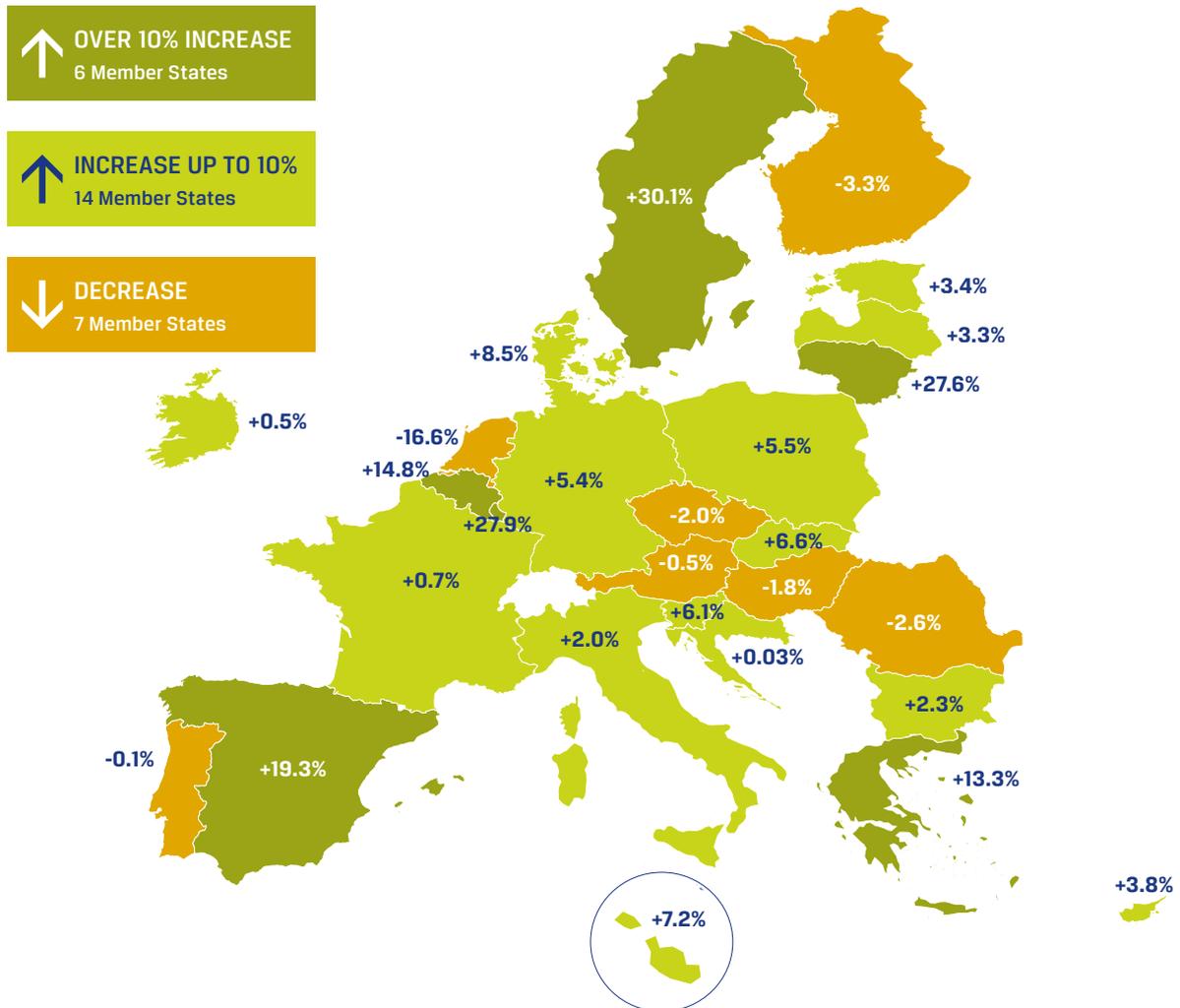
The inclusion of an additional MS in the dataset for 2022, contributes in part to the overall increase. Notwithstanding, MS total defence expenditure (TDE) for MS would still have experienced a rise exceeding 4%, even without the inclusion of Denmark in the dataset.

On an individual basis, variations exist in the share of GDP allocated to defence. MS actively engaged in efforts to achieve, uphold, or surpass the established 2% GDP guideline for defence expenditure, are considered as demonstrating a positive trajectory in meeting PESCO's binding commitment 1.

MS	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE	IT	LV	LT	LU	MT	NL	PO	PT	RO	SK	SL	ES	SE
TDE % of GDP	0.8	1.2	1.5	1.9	1.9	1.3	1.4	2.2	1.9	1.9	1.5	3.9	1.8	0.2	1.5	2.1	2.5	0.6	0.4	1.1	2.2	1.4	1.7	1.8	1.2	1.2	1.4

In 2022, a total of **20 MS increased their defence expenditure** compared to 2021, while seven MS decreased defence spending. Consistent with the pattern observed in 2021, six MS raised their defence expenditure by more than 10%. The highest increase in defence expenditure amounted to more than 30% in relative terms.

Figure 2. Individual MS Variations of Total Defence Expenditure (TDE), 2021-2022



Other international actors, namely the United States (US), Russia and China, have consistently allocated a larger portion of their economic resources to the defence sector⁴. The allocation of GDP towards defence by MS has fluctuated between 1.3% and 1.5% since 2008, with a sustained rate of 1.5% for the past three years. As a reference, the US has exhibited a wider range, with defence expenditure varying from 3.3% to 5.2% of GDP over the same period, averaging 3.5% in the past three years.

Russia has surpassed other international players in the share of GDP dedicated to defence, especially since its war of aggression against Ukraine in February 2022. The data indicates that in 2022, Russia increased its defence expenditure from 3.6% in the year preceding the conflict to 4.3% of GDP in 2022, maintaining an average of 4.0% of GDP for the past three years.

China's defence expenditure, in contrast, has remained relatively stable, ranging between 1.6% and 2.3% of GDP, which needs to be contextualised within the reality of its large and expanding economy. In 2022, China experienced a minor uptick of 0.1% in defence spending as a proportion of GDP from the previous year, averaging 1.7% of GDP over the past three years.

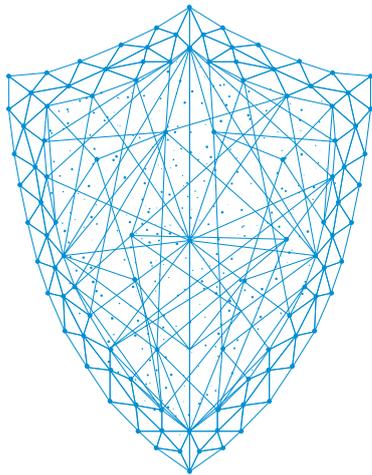
4. The data for the United States, Russia and China is taken from the IISS Military Balance+ online database.

In absolute figures, the US was by far the world's largest defence spender in 2022, allocating a substantial €794 billion for this purpose. China followed with €273 billion, while EDA MS boasted a collective defence spending of €240 billion and Russia €92 billion in defence.

Within Europe, a shift away from defence spending occurred following the end of the Cold War, primarily driven by socio-economic factors and relative stability in the EU's neighbourhood. The reduced allocation to defence spending had implications for the readiness and equipment of European armed forces, as well as for the health of the European Defence Industrial and Technological Base (EDITB). The impact from the deep cuts imposed during the financial crisis were keenly felt, with defence expenditure only returning to pre-crisis levels in 2019. The situation continues to evolve rapidly in response to Russia's war of aggression against Ukraine.

Due to the ongoing conflict, it is anticipated that Russia's defence expenditure as a percentage of GDP will continue to grow significantly compared to other international players. Within MS there is a clear trend emerging, as they rise to meet the strategic challenges in the EU's environment, demonstrating a renewed commitment to strengthening defence capabilities and the overall EU Defence Landscape.

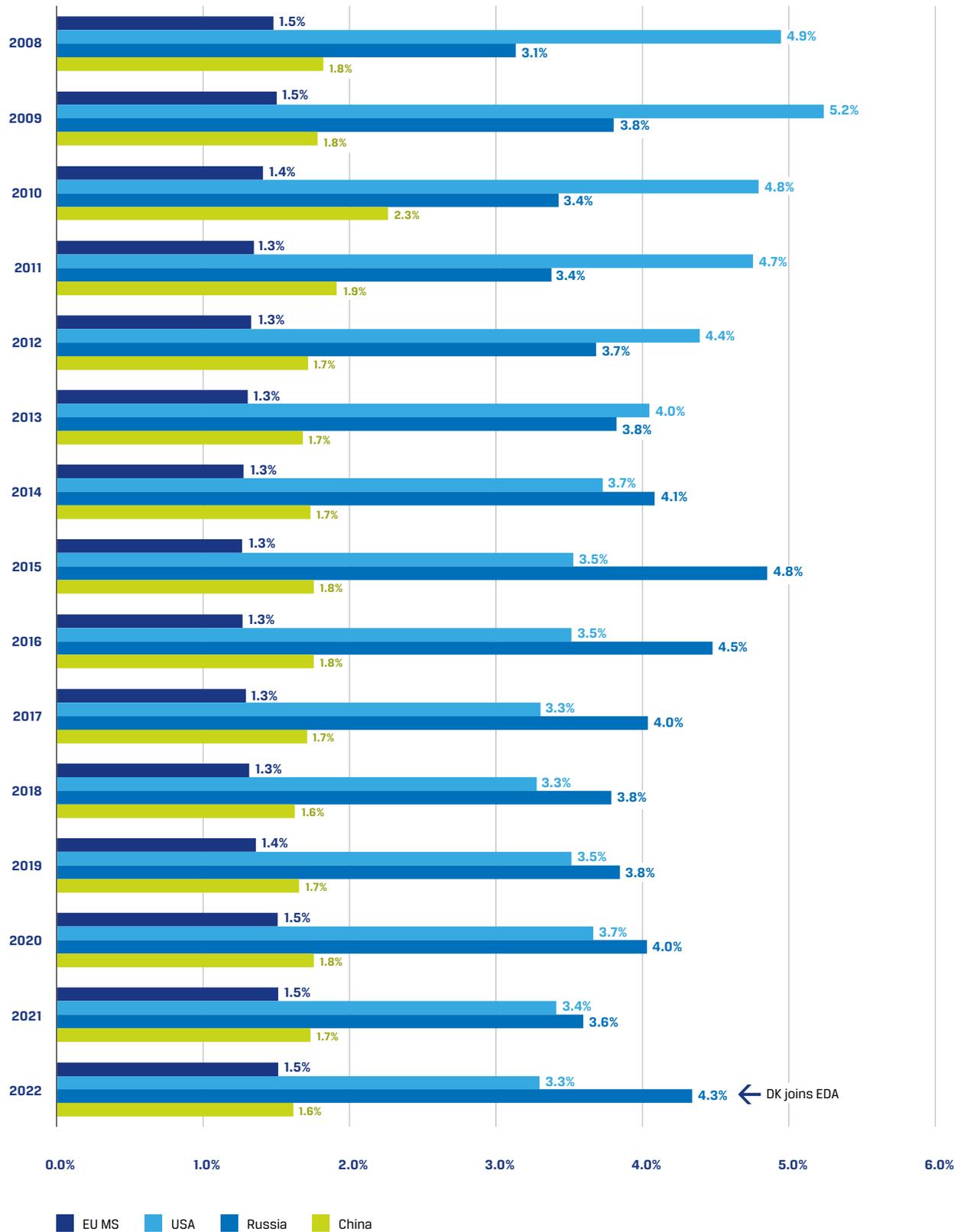
This publication acknowledges the difficulty in measuring the real level of output per euro invested when comparing the EU with other international players. Still, regardless of their expenditure figures, other international players will achieve more value for money with their defence expenditure due to the existence of a single unified capability planning and development structure. That differs from the EU reality, where capability development is fragmented across national lines, and little to no joint planning exists, besides some regional frameworks. This leads to unnecessary duplication, both in terms of structure and processes, culminating in a lack of interoperability, duplication of platforms and systems, making EU expenditure less efficient than other international players, and contributing to an overall less coherent and more fragmented European Defence Landscape.



1.5%

EU Member States total
defence expenditure as
% of GDP

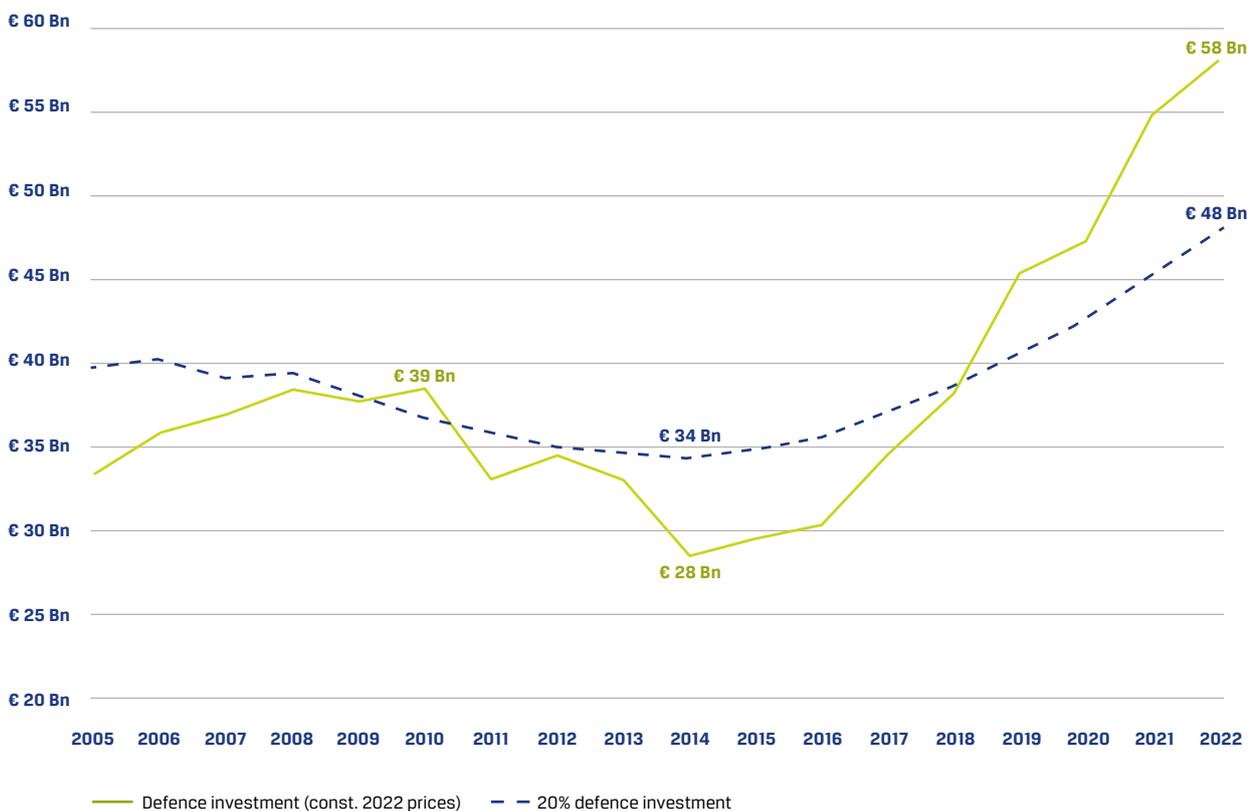
Figure 3. Total defence expenditure as % of GDP



Defence investment

Defence investment relates to research and development (R&D) and the procurement of defence equipment. In 2022, defence investment experienced a robust growth of 5.9% compared to 2021, reaching a total of €58 billion (Figure 4). The strongest growth rate was measured in 2019 when defence investment increased by 19% compared to 2018. Over the last four years, MS have consistently demonstrated their commitment to meeting the agreed benchmark for defence investment. This sustained effort in real terms represents a positive and encouraging trend. Nevertheless, it remains imperative to maintain the upward trajectory of defence investments to ensure that European armed forces are adequately equipped with cutting-edge capabilities and ensuring longstanding capability gaps are addressed effectively.

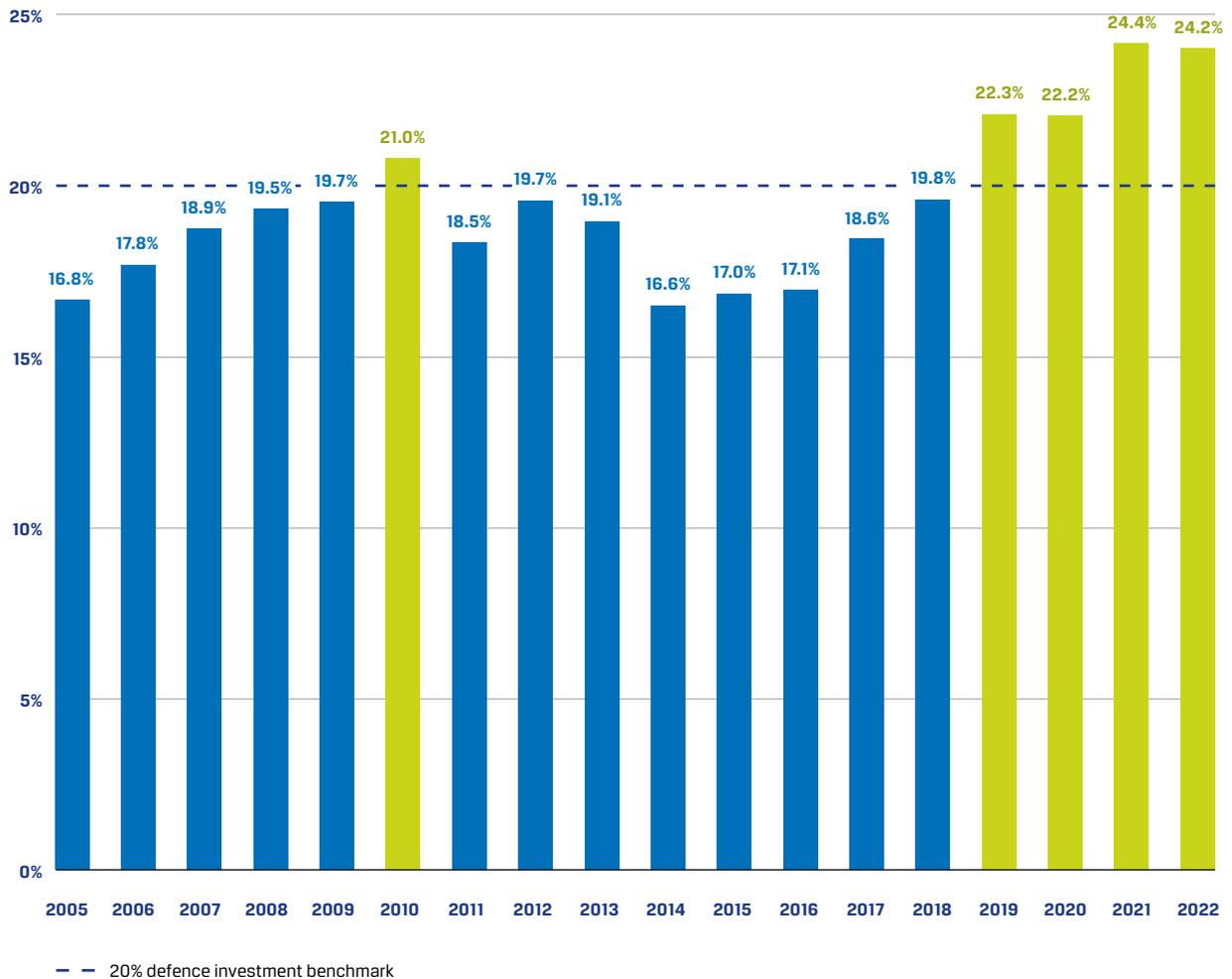
Figure 4. Defence investment (constant 2022 prices)



5.9%
 Defence investments
 compared to 2021

In 2022, MS collectively reported the allocation of 24.2% of their total defence expenditure to defence investment, a 0.2% decrease from 2021. Despite the slight change, this marks the continuation of a strong and sustained investment trend, maintaining a record-breaking streak for the fourth consecutive year, and once again surpassing the 20% benchmark (Figure 5).

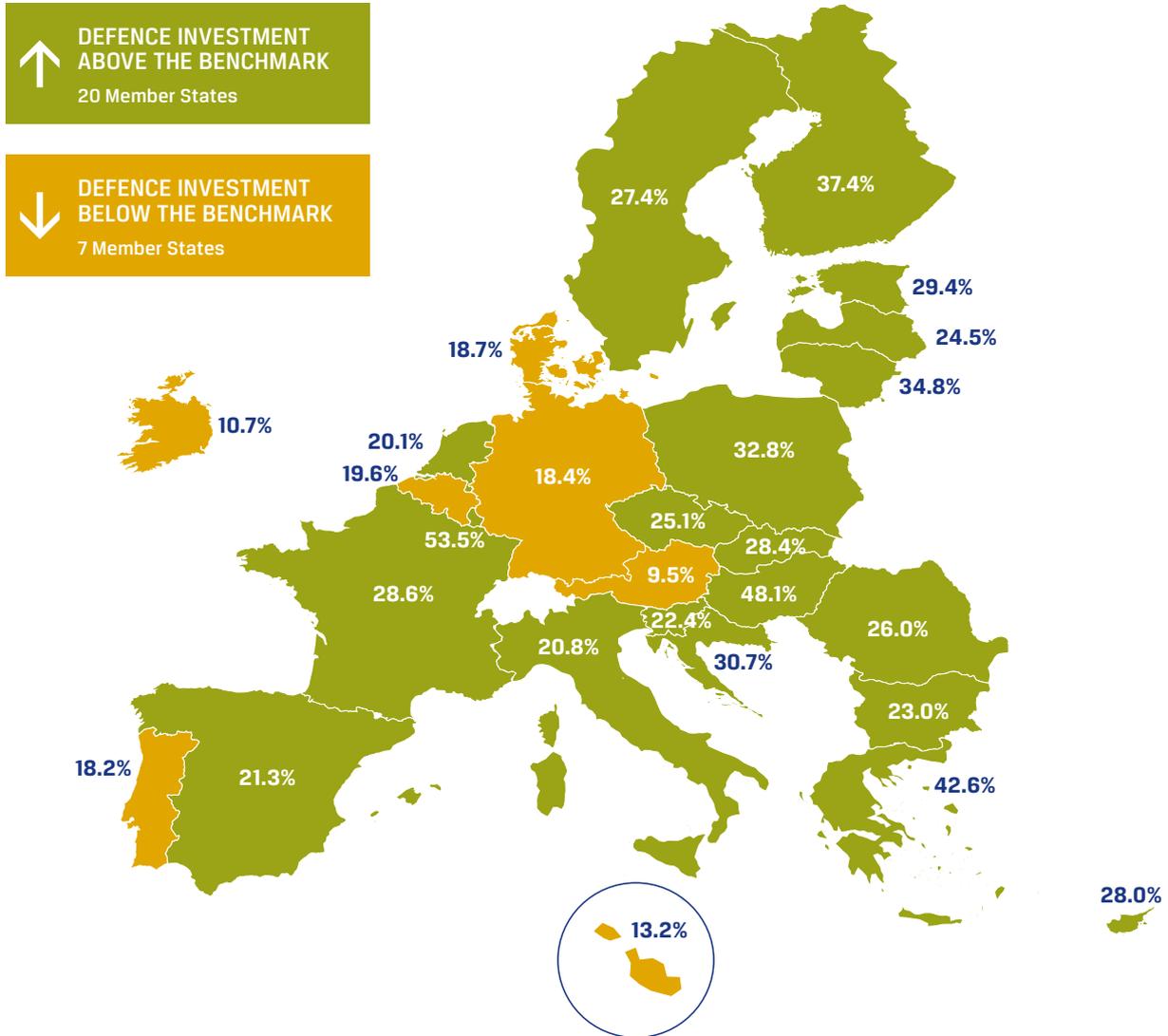
Figure 5. Defence investment as % of total defence expenditure



In 2022, a total of 20 MS reached the 20% benchmark for defence investment while the other seven MS need to take additional steps to meet this collectively agreed number, in line with the binding commitments undertaken in PESCO and the relevant CARD Recommendations. Overall, a total of 18 MS increased their share of defence investment compared to 2021, while nine MS reported a decrease, including two MS who were already spending below the 20% benchmark.

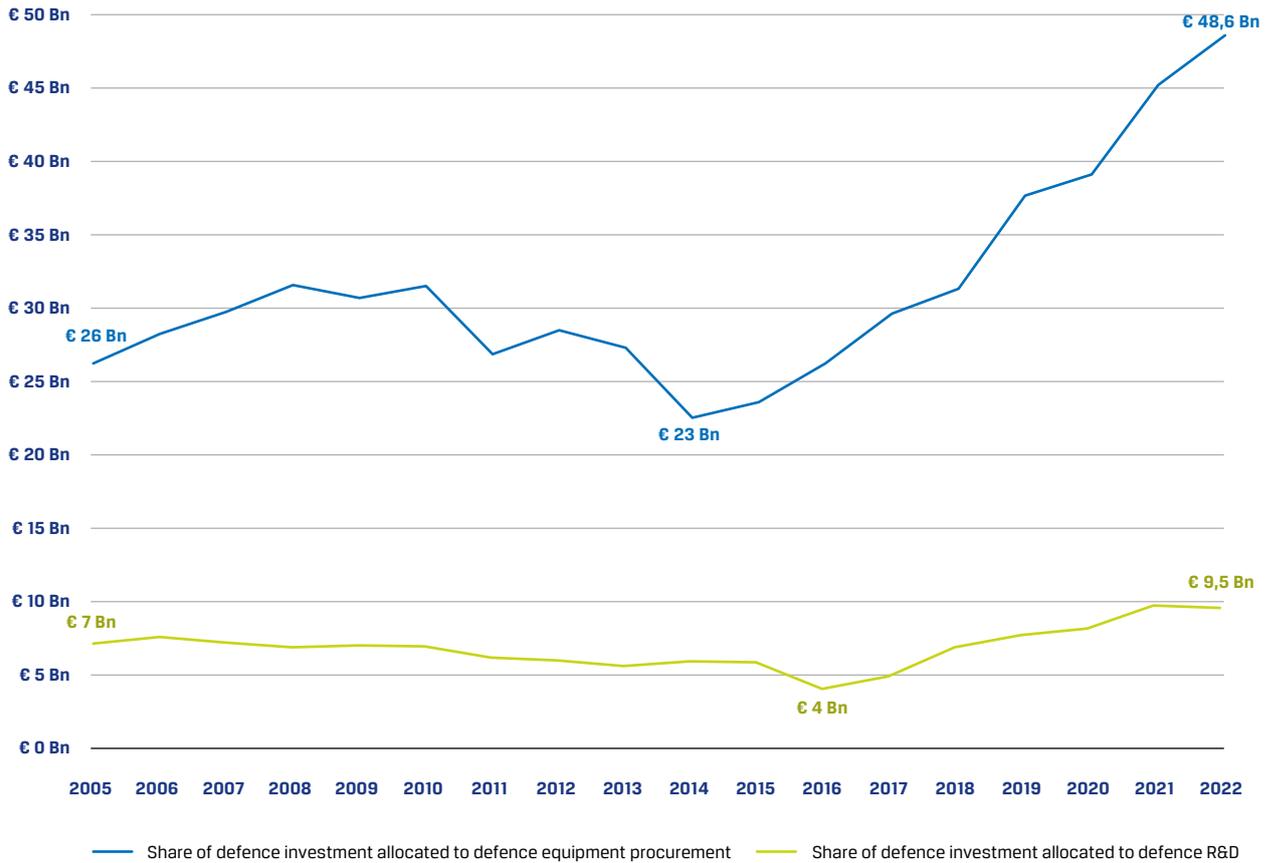
The highest share of defence expenditure allocated to defence investment is 53.5%, with 14 MS surpassing 25% share, while only one MS spent less than 10% of total defence expenditure on defence investment (2020: three MS; 2021: one MS).

Figure 6. Regional and Individual MS Variations of the 20% benchmark on Defence Investment, 2021-2022



In 2022, as in previous years, MS dedicated €48.6 billion to the procurement of new equipment, amounting to 83.7% of defence investment expenditure, while a significantly minor part, 16.3% or €9.5 billion, is dedicated to defence R&D (Figure 7). Compared to 2021, investments in the procurement of new equipment increased by 7%, while spending for defence R&D⁵ is down by 1.9% compared to 2021.

Figure 7. Defence equipment procurement expenditure and defence R&D expenditure (constant 2022 prices)



The variation in the allocation towards defence equipment procurement and defence R&D by MS remains from 2021. In total 25 MS dedicate more than 90% of their defence investment to the procurement of new equipment. Only two MS spent more than 20% of their defence investments on defence R&D. Hence in most MS there is an overall strong trend in preferring off-the-shelf procurement of equipment, mostly from non-EU countries⁶, which is further reinforced by the current security context.

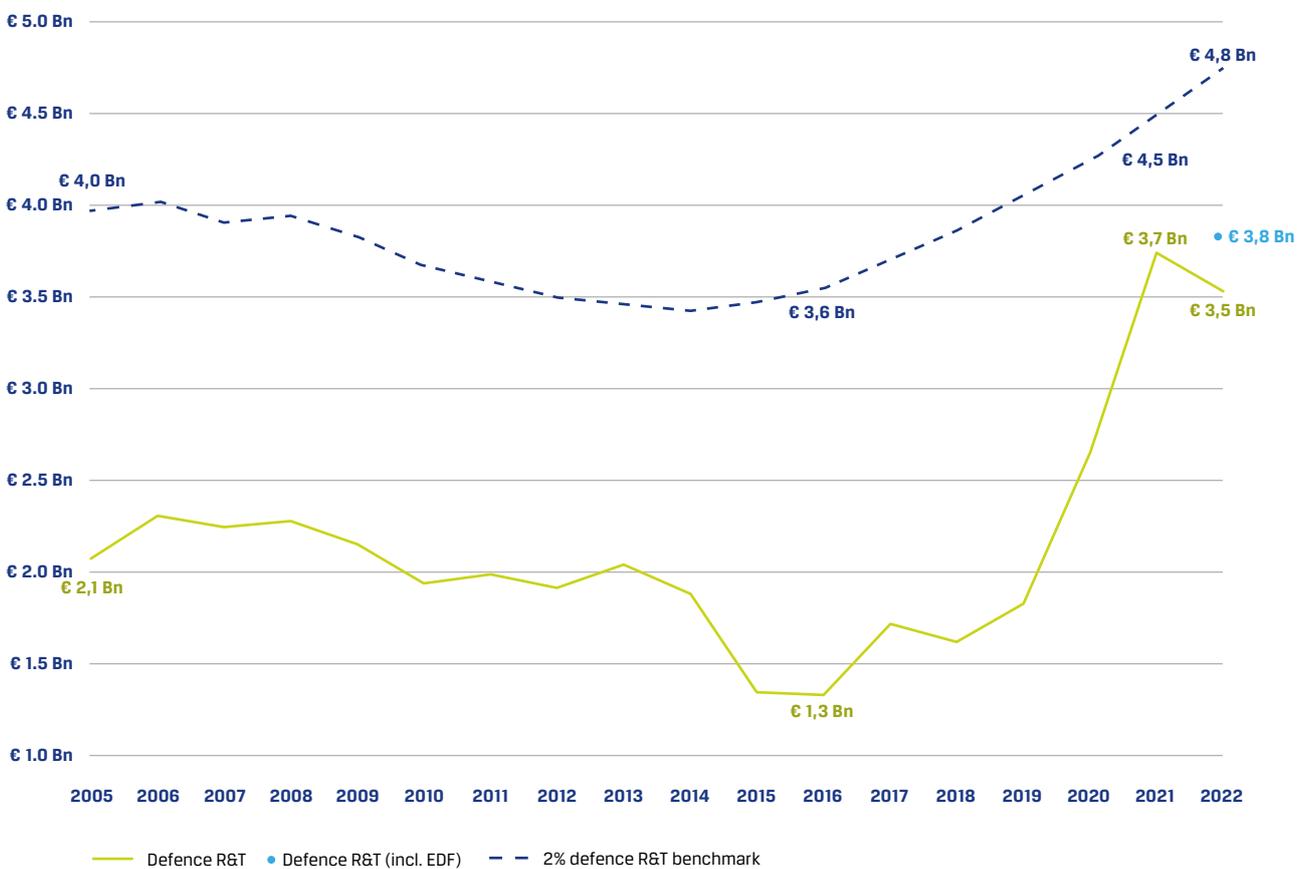
5. Due to diverging MS accounting methods, it is difficult to provide the exact figure for Research and Development (R&D).

6. https://www.iris-france.org/wp-content/uploads/2023/09/19_ProgEuropeIndusDef_JPMauly.pdf

Defence R&T

In 2022, MS allocated €3.5 billion to defence Research and Technology (R&T) expenditure, a lower amount when compared to the €3.7 billion posted by MS in the previous year (Figure 8). Compared to 2021, defence R&T spending decreased by 5.7%, contrasting with the strong 41% increase registered from 2020 to 2021. Compared to the historic low in 2016, expenditure for defence R&T remains €2.2 billion above. However, to reach the 2% R&T benchmark, MS would need to spend a minimum of €1.3 billion more.

Figure 8. Defence R&T expenditure and 2% R&T benchmark (constant 2022 prices)



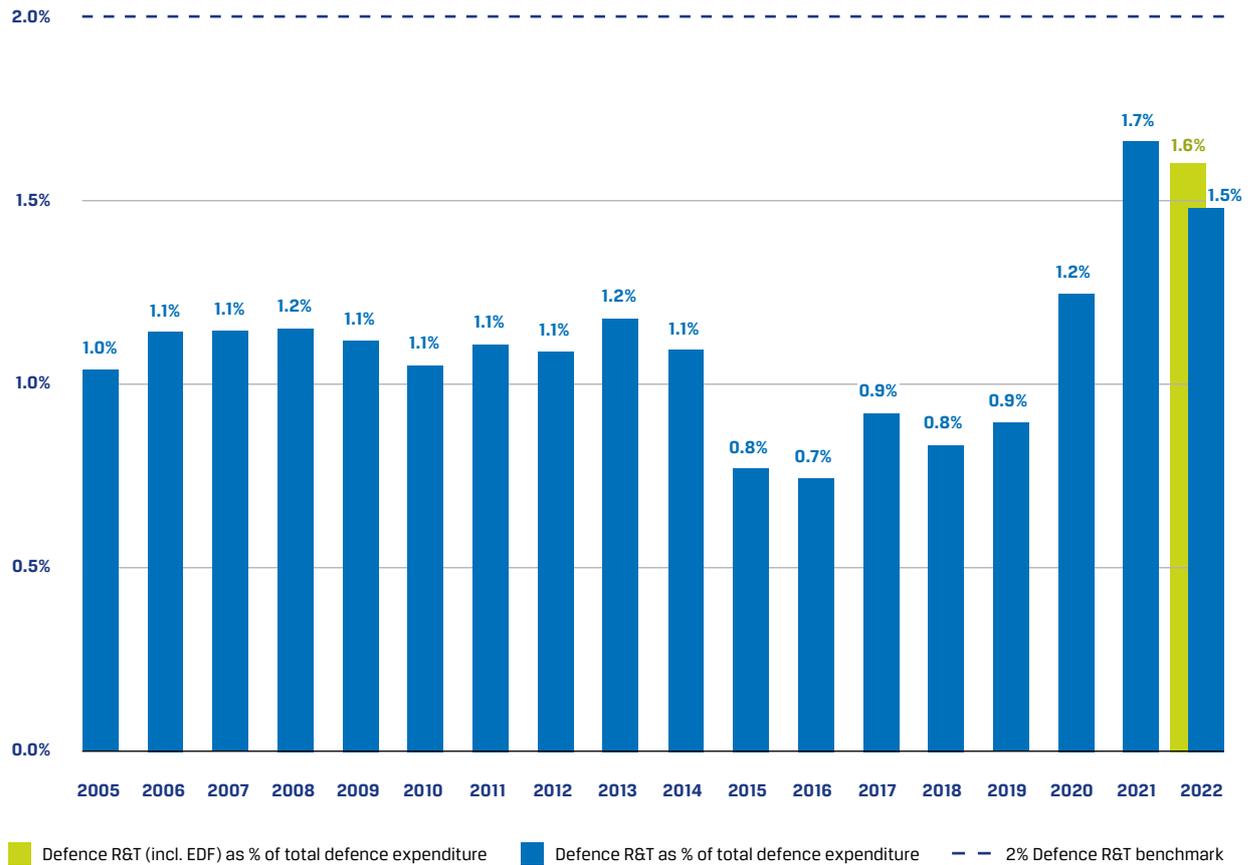
The European Defence Fund (EDF), substantially scaled up the funding for collaborative efforts in R&D and launched the first call for proposals in 2021, allocating €309.5 million for research activities. If all 2021 EDF research funding had been awarded by the end of 2022⁷, the EU would collectively have been closer to achieving the benchmark for defence spending allocated to R&T activities (Figure 8 and Figure 9).

In preparation for next year’s edition, EDA will work closely with MS to evaluate the optimal approach for incorporating EDF funding into the defence data indicators. We will consider potential revisions to the definitions and parameters governing the defence data indicators.

7. The EDF’s funding decisions are taken in the year following the opening of the calls.

The share allocated to defence R&T expenditure has also recorded a slight decrease, after the record level of 2021. In 2022, MS allocated 1.5% of their total defence expenditure to defence R&T, a drop of 0.2%. Therefore, MS moved away from the benchmark of spending 2%, after three consecutive years of R&T expenditure growth (Figure 9).

Figure 9. Defence R&T as % of total defence expenditure

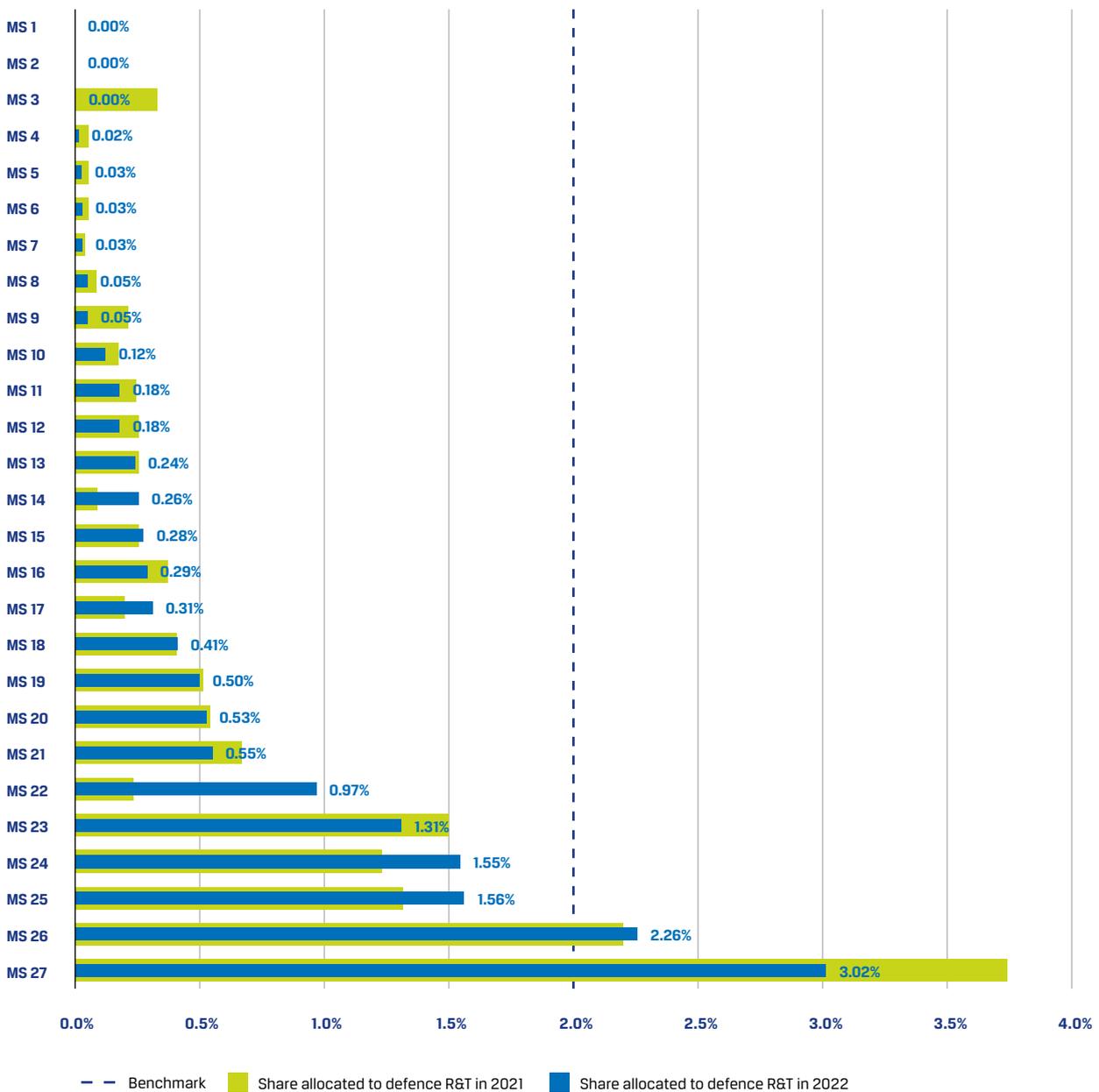


€ 3.5 billion
 MS investments
 in R&T in 2022

The individual snapshot shows a more nuanced picture (Figure 10). As in the previous year, two MS continue to reach the 2% benchmark. Together these two MS represent over 81% of the total defence R&T expenditure within the Union. Individually one MS reported a decrease of 0.07%, while the other increased by 0.09% compared to their 2021 share of total defence expenditure allocated to R&T.

Compared with 2021 figures, 13 MS have increased their allocated share between 0.01% to 0.76%, while a total of 11 MS decreased the share of R&T spending in 2022 ranging from 0,7% to 0.01%. Additionally, three MS have not reported relevant figures for this indicator in 2022. To better prepare for the future, it is recommended that most MS increase their R&T expenditure at the same pace as they increase their total defence expenditure as a minimum.

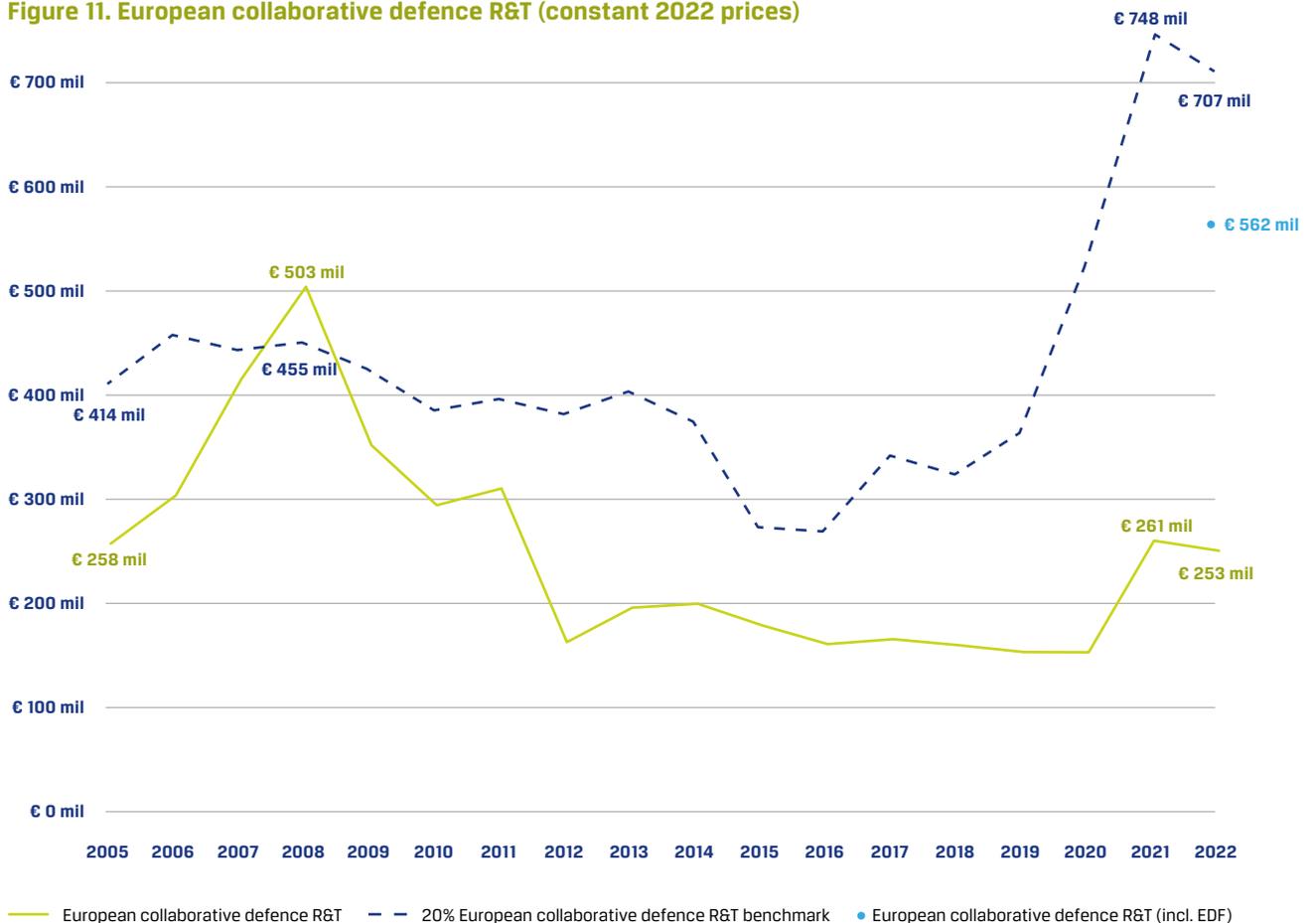
Figure 10. Share allocated by Member States of their total defence expenditure to defence R&T in 2021 and 2022



European collaborative defence R&T

Due to limited availability of data, EDA is unable to provide a fully detailed picture on European collaborative defence R&T. Based on the reported data to EDA, **European collaborative defence R&T expenditure reached €237 million in 2022** (Figure 11). After a record-breaking year in 2021, European collaborative defence R&T saw a **€ 24 million decrease** in 2022. To reach the 20% European collaborative defence R&T benchmark, MS would need to spend €467 million more. The low number registered in this defence data indicator highlights the importance of EDA, amongst other frameworks, to promote and facilitate collaborative research and technology projects, allowing MS to spend their defence R&T budgets more efficiently to prepare a coherent future European defence landscape by jointly investing in cutting-edge defence technologies.

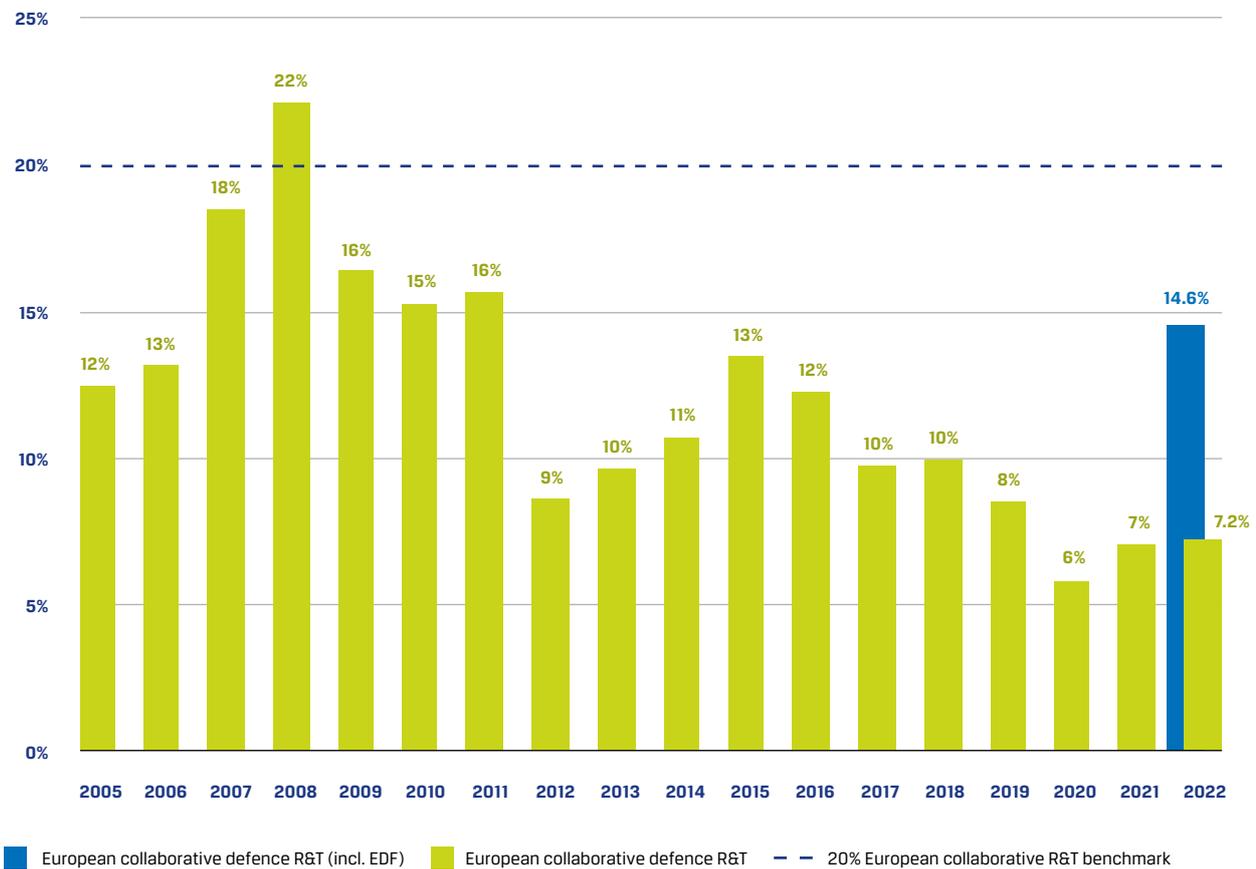
Figure 11. European collaborative defence R&T (constant 2022 prices)



The 2022 defence data figures are consistent with the conclusions drawn in the 2022 CARD cycle. To address and reverse this ongoing downward trend, MS should actively embrace the recommendations put forth in the 2022 CARD Report. These recommendations emphasise the need to strengthen the use of research and technology cooperation platforms and frameworks to ignite innovation within the European defence sector. One of the key recommendations is to actively participate in collaborative research projects, such as leveraging the EDA Ad Hoc Framework, CapTechs, and the Hub for EU Defence Innovation (HEDI) to their full potential.

In line with the previous findings, the share allocated to European collaborative defence R&T expenditure as a percentage of total defence R&T expenditure remains limited, as it has for most of the previous decade. In 2022, MS spent 7.2% of their total defence R&T expenditure on European collaborative defence R&T projects, a slight increase from the 7% recorded in 2021. Since the series began in 2005, the lowest figures were recorded from 2019 onwards, continuously falling below the 20% collective benchmark (Figure 12).

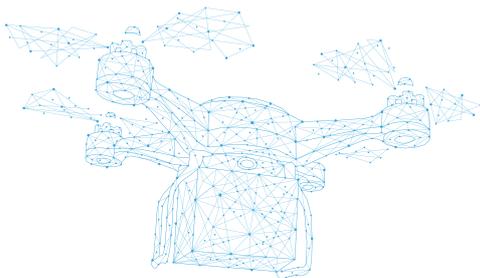
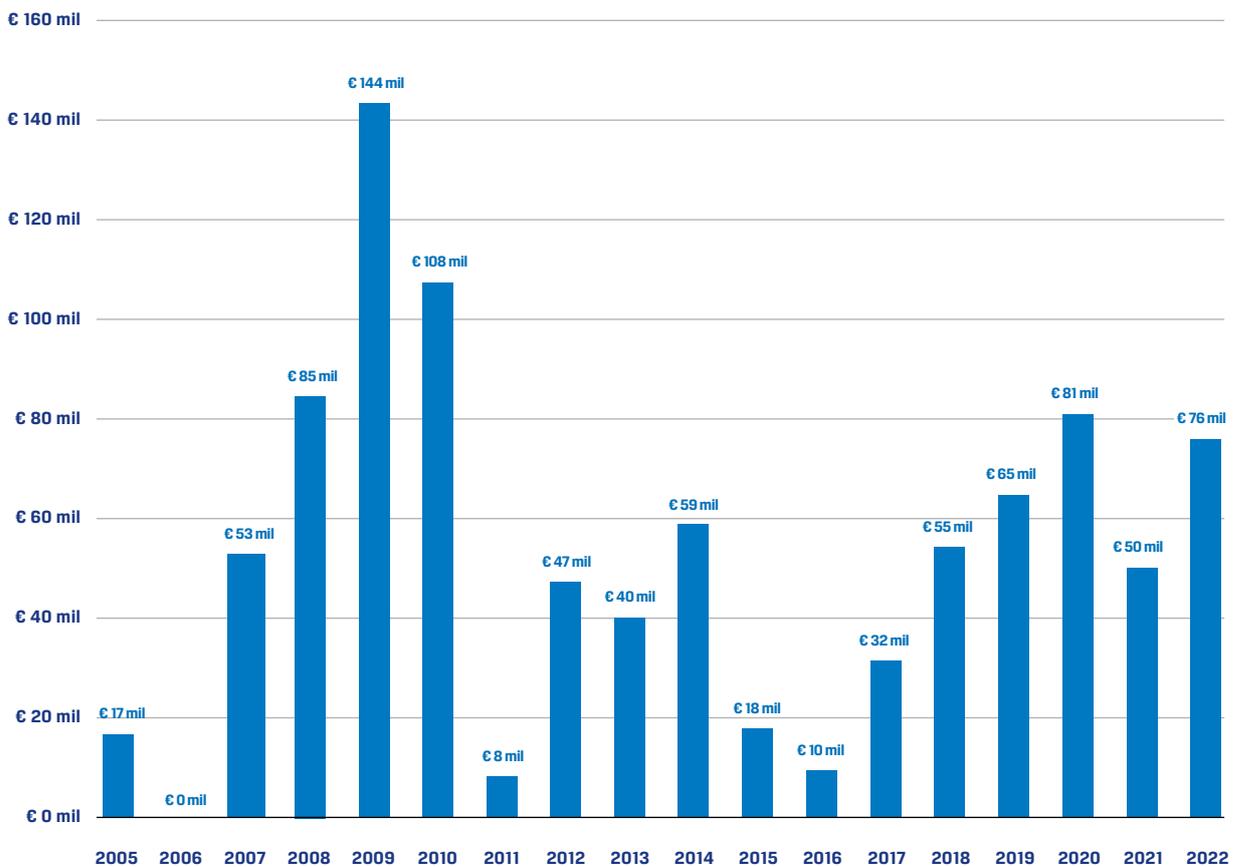
Figure 12. European collaborative defence R&T as % of total defence R&T



While there is a systematic trend across MS to underreport figures for European collaborative indicators, accounting for the EDF funding reveals that collectively, MS would significantly approach the 20% benchmark for European collaborative R&T activities (Figures 11 and 12). Once again, if all 2021 EDF research funding had been awarded by the end of 2022, this would have represented a bigger share of investment in European Collaborative R&T activities than the one reported by MS, attesting to the importance of EU funding in collectively reaching the agreed benchmarks.

As tomorrow's defence depends on today's investment in new capabilities, EDA strives to contribute to the joint R&T and innovation activities of MS, to provide them with a preferred framework for collaborative defence research projects at European level. Since 2016, R&T activities at EDA have been on a growth trajectory, demonstrating MS' commitment to seek synergies and cost benefit of collaborative projects at European level. By the end of 2022, EDA was managing on behalf of MS 46 R&T Ad Hoc projects under execution for a combined value of € 250 million, with 18 of these projects that started in 2022, worth more than € 76 million (Figure 13).

Figure 13. EDA R&T Ad Hoc Projects and Programmes



46 R&T Projects
 Managed by EDA on
 behalf of Member States,
 with a combined value of
€250 million

European collaborative defence equipment procurement

In 2022, figures for European collaborative defence equipment procurement were only provided by 9 MS, which is a decrease from both 2020 and 2021 when 11 and 14 MS, respectively, contributed data. The Agency currently faces challenges in conducting a meaningful analysis of this indicator due to the limited data available.

In preparation for next year's edition, EDA, together with MS, will conduct a thorough examination of the underlying causes of this data deficit. If deemed necessary, we will consider potential revisions to the definitions and parameters governing the defence data indicators to enhance their accuracy and relevance.



Conclusion

In 2022, Member States have further demonstrated their commitment to increasing defence expenditure as well as fulfilling the defence investment objectives. This allocation provides MS with an opportunity to make collaborative investments in more and better defence capabilities and innovative technologies, closing long-standing capability gaps and collectively enhancing the coherence of the European Defence Landscape.

With the approval of the 2023 EU Capability Development Priorities, MS are in a unique position to capture those next generation capabilities, vital to bolstering European military capabilities across all operational domains, addressing both operational realities and future threats and challenges enabling MS to strengthen EU defence, while maintaining coherence with NATO and other frameworks' activities.

MS recognise that investing more in collaborative capability development ensures greater efficiency. Nevertheless, the risk remains that MS use growing budgets to only accelerate the procurement of needed capabilities and the replenishment of stocks, turning to off-the-shelf non-EU procurement in search of immediate solutions. This trend is further reinforced with the reported decrease of R&T expenditure.

If off-the-shelf procurements are conducted in an uncoordinated manner, or rely mainly on non-EU solutions, this could curtail European cooperation in the future. To avoid further fragmentation of the European Defence Landscape, MS need to use the announced budget increases efficiently and coordinate their defence investments through joint European defence R&D and acquisition frameworks such as EDA Ad Hoc framework, collaborative joint procurement initiatives, the EDF, and PESCO. To ensure coherence of effort, the 2023 EU Capability Development Priorities shall serve as the central reference for defence planning EU-wide and the baseline for all defence related initiatives and instruments such as CARD, PESCO, the EDF and any future EU defence supporting tools.

Leveraging the ongoing third CARD cycle, its bilateral dialogues, and the 2023 EU Capability Development Priorities, MS have the opportunity to better align their defence planning, launch projects in cooperation, thus progressively matching the high level of ambition set out in the Strategic Compass.

European Defence Agency

Rue des Drapiers 17-23
B-1050 Brussels - Belgium

www.eda.europa.eu



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