ROYAL MILITARY ACADEMY

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DEFENCE

17 December 2024

The Belgian Economic Potential of the Industry of Defence and Security (BEPIDS)

PROJECT OUTPUTS

Funded by:

ROYAL HIGHER INSTITUTE 150-year think tank for DEFENCE

belspo

Researched jointly by:

VUB VRIJE UNIVERSITEIT BRUSSEL

RMA Royal Military Academy

Structure

- I — Background - What is the BEPIDS project and how does it relate to the DIRS?
- II — Mapping and HL analyses of the BE-DTIB (including deeper analysis from BE-DTIB survey data)
- III — How can the BE-DTIB be supported?
- IV — Suggestions for policy

Context: DIRS – Defence Industry & Research Strategy (2022)?

1.8 Billion EUR to support the BE-DTIB for Research, Technology and Development (22-30)

Goals: Support BE-DTIB to contribute to:

Multinational cooperation programs
(enter value chains)
(future capabilities)

Ensuring Security of supply

National edge
(domains/ specialties)
(where deemed necessary)

Knowledge base and R&D

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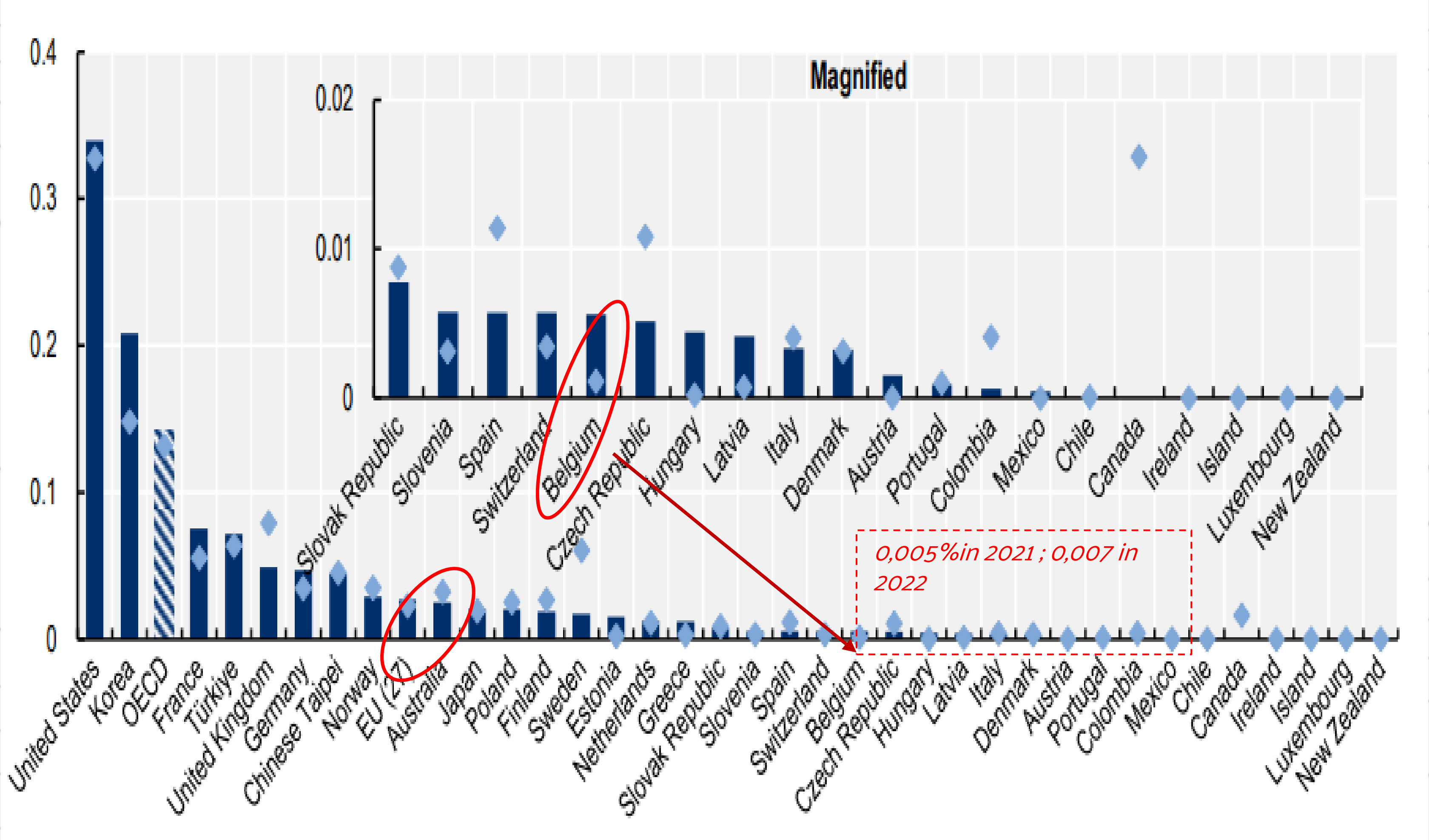
Context: Need for the DIRS?

Belgium lags under the EU average for Defence R&D funding as a % of GDP.

Belgian Defence R&D funding versus peers before initiation of the DIRS:



R&D Budgets for R&D Defence (GBARD in Defence) as a % of GDP for 2022 statistics
Source: OECD (2023) STI Report [LINK]

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Context: DIRS & BEPIDS?

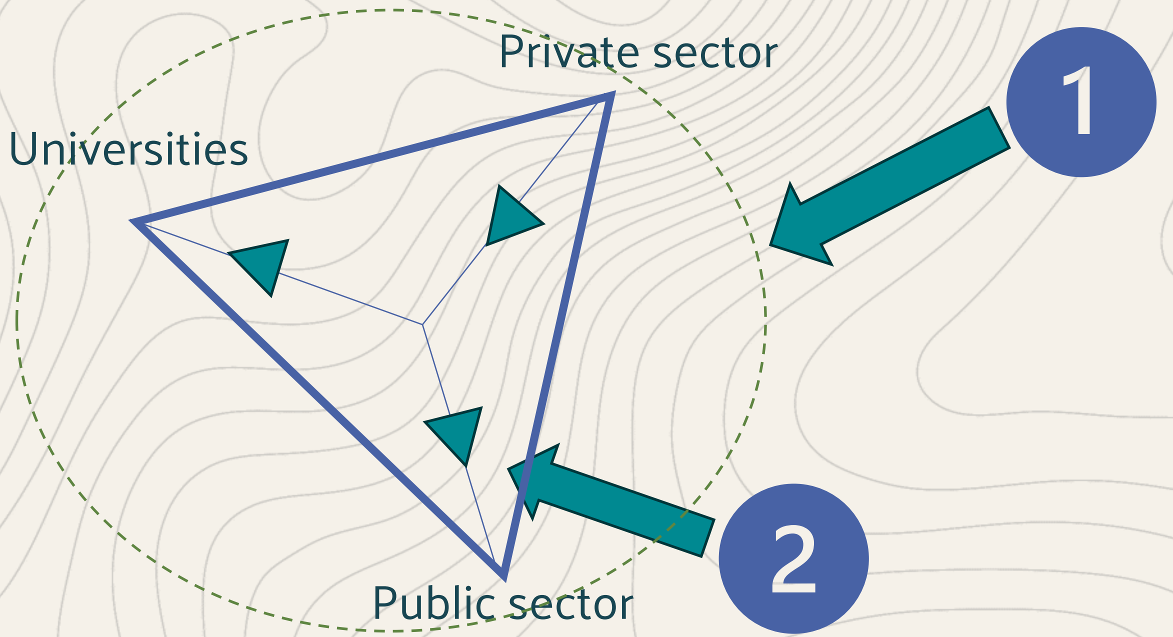
"What is the BE-DTIB and how can BE support it within the EDTIB?"

BEPIDS project research

→ Addresses some of the open points of the DIRS

1. Map the Belgian Defence Technological and Industrial Base (BE-DTIB) and develop a database*.

2. Development of policy toolkit and manual for support to research for the BE-DTIB in compliance with EU law



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**continued on the prior work of ACOS STRAT-NAD and FPS Economy. BEPIDS continues such cooperation and aligns with the parties on content and functionality.*

*BRAIN: Belgian Research Action through Interdisciplinary Networks.
** Depending on need/ requirement.
End of project: Dec24

Who is funding BEPIDS and Why?

100%

*0%-10% ***

BELSPO: Brain* 2.0, Pillar 3: Federal Societal Challenges

- ➢ *Scientific research to "support the competencies, strategic orientations and policies of the federal state"* (BE-DIRS)

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- ➢ Co-financing for further development of database & dissemination (post-project funding allocation)

This overview does not include all output.

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II. Mapping the BE-DTIB

1. DTIB Concept?
2. Mapping & Developing a database
3. HL Overview of the BE-DTIB
4. In EU Ecosystem – example: EDF & prec.

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Output

Kegels G., Du Bois C., Buts C. (2024) Defining and delimiting the BE-DTIB: a comparative case analysis [Working paper]

Also see: Kegels G., De Cock W., Buts C. and Du Bois C., (2023) Definition BE-DTIB: Preliminary findings. BEPIDS Report.

1. Concept of the DTIB

Output
Kegels G., Du Bois C., Buts C.. (2024) Defining and delimiting the BE-DTIB: a comparative case analysis [Working paper]
Also see: Kegels G., De Cock W., Buts C. and Du Bois C., (2023) Definition BE-DTIB: Preliminary findings. BEPIDS Report.

General understanding of DTIB concept?*

*= 'domestic'** sources that provide goods, services and technologies required by armed forces to fulfil their responsibilities, either directly or by being part of the value chain.*

- Any good, service or technology required by armed forces (either directly procured/purchased or indirectly required as an input within the value-chain) can be included.

- Contrary to the general understanding of the *defence (equipment) market* concept, a product does not necessarily need to be intended or designed/adapted for military use to be considered part of the DTIB

- While in most cases this overlaps with products offered in the *defence market*, also products designed and intended for security-use or critical materials and common goods for security of supply are essential to fulfill the requirements of the armed forces.

Based on analysis of the concepts, see: 'definition analysis'
(Dissemination as pre-print/working version – will be used as Chapter for doctorate)

** While this is the general understanding we derived, there are differences in the use of the concept.*
*** 'Domestic' can be replaced by other geographical delimitations: EDTIB, NATO-DTIB, GlobalDTIB*

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[See more detailed delimitation for dataset in BU slides]

** ? Scope 'potential BE-DTIB' for BEPIDS*
→ Do provide, but have potential to increase the impact.

Actual vs Potential BE-DTIB

Actual BE-DTIB:
domestic sources that provide goods, services and technologies required by armed forces to fulfil their responsibilities, either through direct supply or by being part of the value chain.

Potential* BE-DTIB
domestic sources that **<u>have the potential to</u>** provide [...]
i.e. have the *technological innovation capabilities and/or industrial capacity to contribute, but do not do so currently OR which currently do provide goods, services and technologies but have the potential to increase their impact.*

! 'Potential' is context dependent

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**Continued on the prior work of ACOS STRAT-NAD and FPS Economy. BEPIDS continues such cooperation and aligns with the parties on content and functionality.*

Project Output:
- BE-DTIB_MAIN_FILE
- BE-DTIB_PowerBi (draft - final delivery post project based on requirement)

[Internal output: cannot be shared externally]

2. Mapping & Developing a database*

Key sources for mapping of entities

*[a] *e.g. EDF and its precursor programs EDIDP, PADR, PP; (EDA projects); EDIRPA; ASAP; DEFRA; RMA/RHID projects; DIANA.*
*[b] *e.g.: BSDI; Skywin; FLAG; EWA; Pole Mecatech D&S; Belgospace; BAG*
*[c] *Via open source: export control does not share this info.*
*[d] *e.g.: Flemish Peace Institute studies*
*[e] 'Self-assigned "LinkedIn" sector (& if needed check via 'about' and/or website for relevance)
*[f] *e.g. D&S association days; EUROSATORY*

(1) Defence and Security Procurement contracts

(2) EU, NATO, and Belgian Defence (R&D) programs: *[a]

(3) Already listed in the GRIP database of the Belgian 'armaments industry'. (limited)

(4) D&S or relevant business associations *[b]

(5) 'Defence-related' or 'dual-use' products exports (e.g. CERTIDER) *[c]

(6) Existing reports *[d]

(7) DG HOME list of EU security market.

(8) Known via FPS Economy or NAD

(9) Defence-relevant NACE codes (limited)

(10) LinkedIn (self-identified 'D&S related') *[e]

(11) Mentioned in newspaper articles, other open source as DTIB-relevant activities

(12) Business days & events *[f]

List of Legal entities

BE-DTIB_MAIN_FILE

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Data schema for PowerBi (simplified)*

Main sources for linking:
- Crossroad bank of Enterprises (open data)
- Belfirst / Orbis
- National Bank of Belgium (open access data)
- BEPIDS developed files
- RSZ ("Werkgeversrepertorium" Open data)

PowerBi

BE-DTIB_MAIN_FILE

Link to datasets using common identifiers, <ENTERPRISE_NUMBER

- Financial Data
- Ownership
- Shareholders
- Establishment units
- BE-DTIB Survey !
- Etc.

= 'Manual' updating file with key data:
- *Domain*
- *CapTech (EDA)*
- *Sector*
- *Specialty/product*
- *D&S Business association*
- *Links (website/ linkedin/ etc.)*
- *DTIB proportions*
- *Etc.*

Project Output:
BE-DTIB_MAIN_FILE
BE-DTIB_PowerBi (draft - final delivery post project based on requirement)

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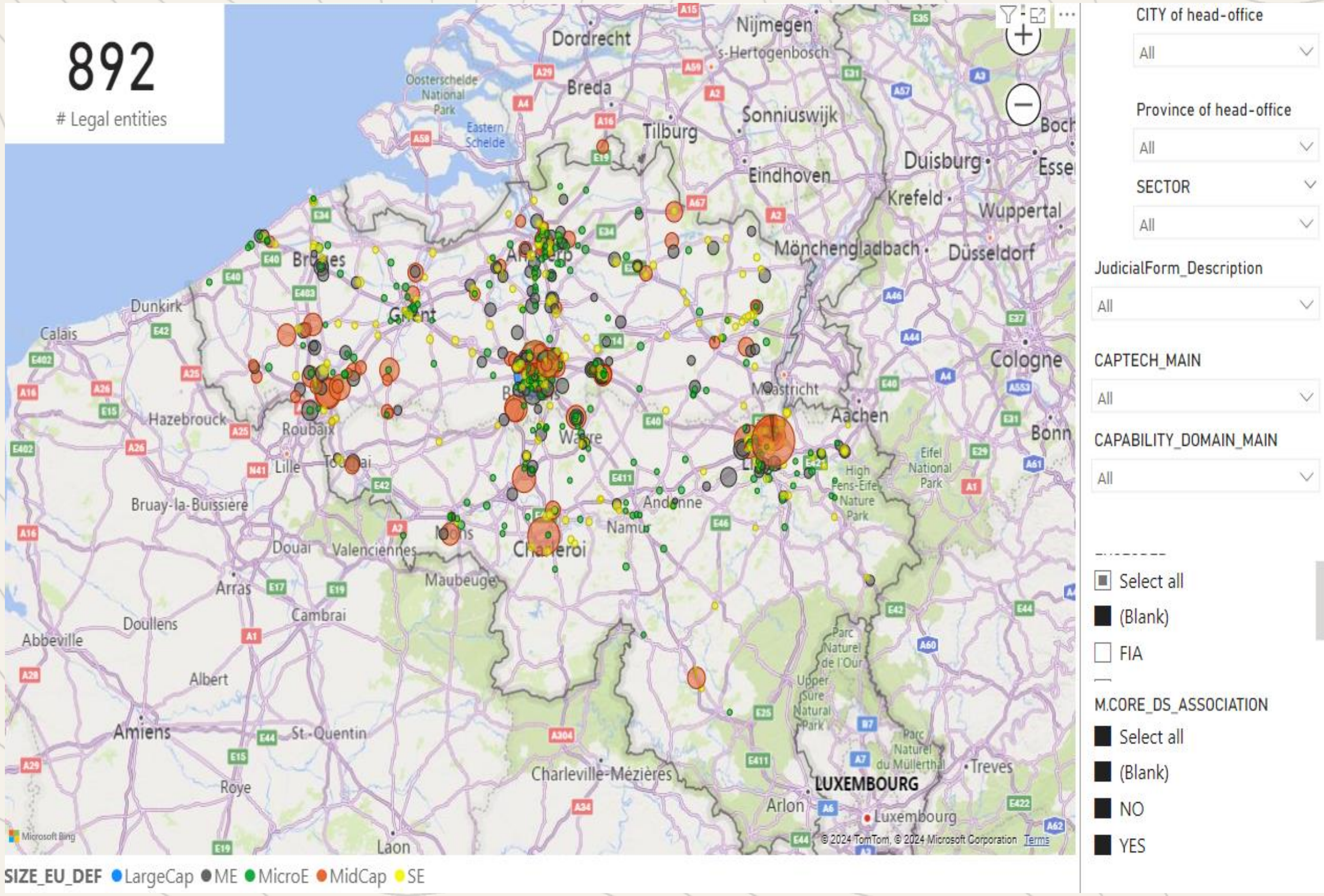
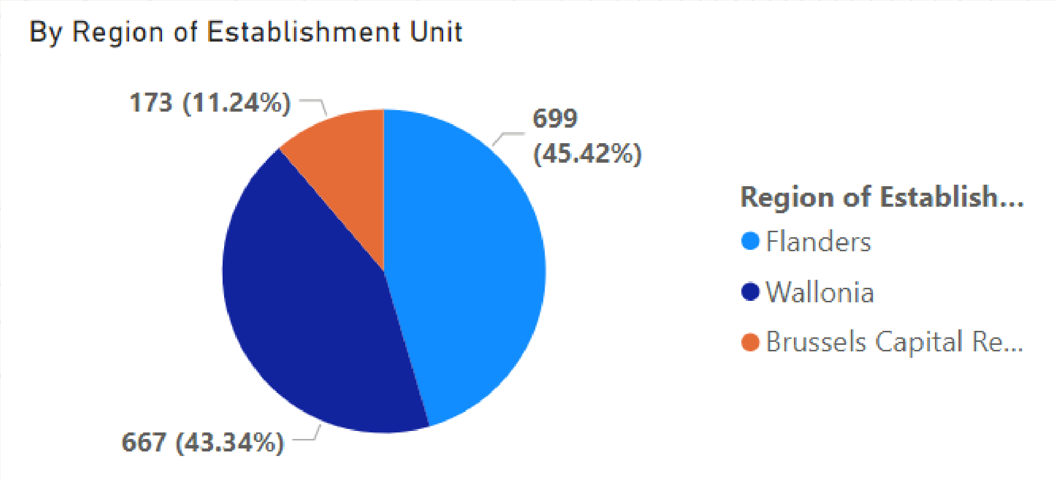
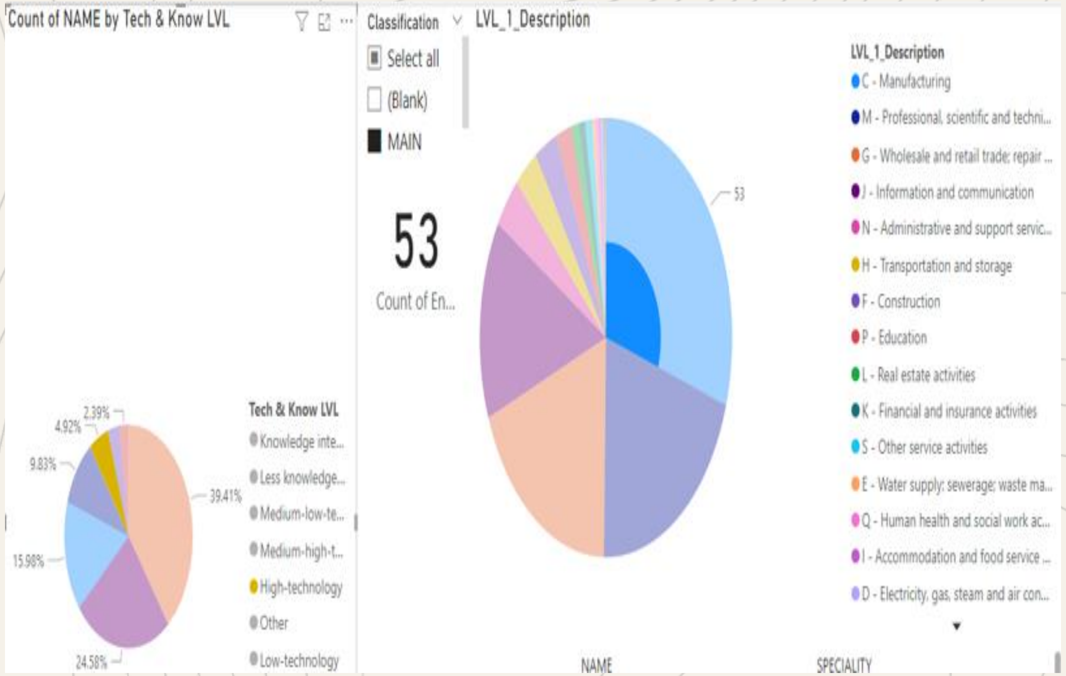
PowerBi – e.g. of draft.







Draft: The UI is finalized post-project with input from the stakeholders.

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Database - Long term view: BE-DTIB → BE-DTIB + DSB-BE data

Manual DTIB excel file (current)
- ➢ *General data parameters*

Manual DTIB database and UI *(PowerBi UI through Excels in SharePoint backend structure). (current/ in process)*
- ➢ *Manual filling of main file, other files linked in backend*

Integrate BE-DTIB and gDSB-BE* in same structure.
- ➢ *DSB-BE available via ILIAS*

Automate:
- ➢ *Automated APIs calling data via common identifiers (e.g. Legal entity number) + future Survey(s) to legal entities automatically updating file in backend + integrate more internal sources*
- ➢ *AI-driven websearch directly integrated in file to aid or replace scaping (already possible, but data security needs to be confirmed before including this method)*

Down-the-line (potentially): AI-supported predictive analysis

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3. Overview and analysis of the BE-DTIB

3.1 Entities and impact

How many entities are included in the BE-DTIB mapping and what is their estimated impact?

Project Output:
- Seminar paper: Preliminary mapping and key insights of the BE-DTIB (2023).
- Main dataset file and linked files in draft PowerBi database.

HL overview of the BE-DTIB (2023 data)

Registered entities	Turnover	Employment	Value added
892	37 B	103 k	12.7 B
(949 for mapped)	(91 B for mapped)	(162k B for mapped)	(21.3 B for mapped)
	~5.01 B (for DTIB)**	**~16.3k** (Direct for DTIB)**	**~2.02 B** (for DTIB)**

Employed inference method and limitations?

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** Estimations based on available %DTIB info (~180 entities) obtained from the DTIB survey and open source, which were used for data inferences (via CapTech, size and association membership of a core Defence-focused association). Currently running survey to update for 2024.*

Proportional impact of BE-DTIB on BE GVA (2023 data)

Direct DTIB jobs

~0.33%

of BE Employment*

(0,28% BXL; 0,29% FL; 0,42% WL, based on location of primary activity)

DTIB Gross Value Added

~0.34%

of BE GVA**

** Source: Statbel – Employment 2023 [Link].*
*** Source: NBB – Regional and National accounts for 2023 [LINK]*

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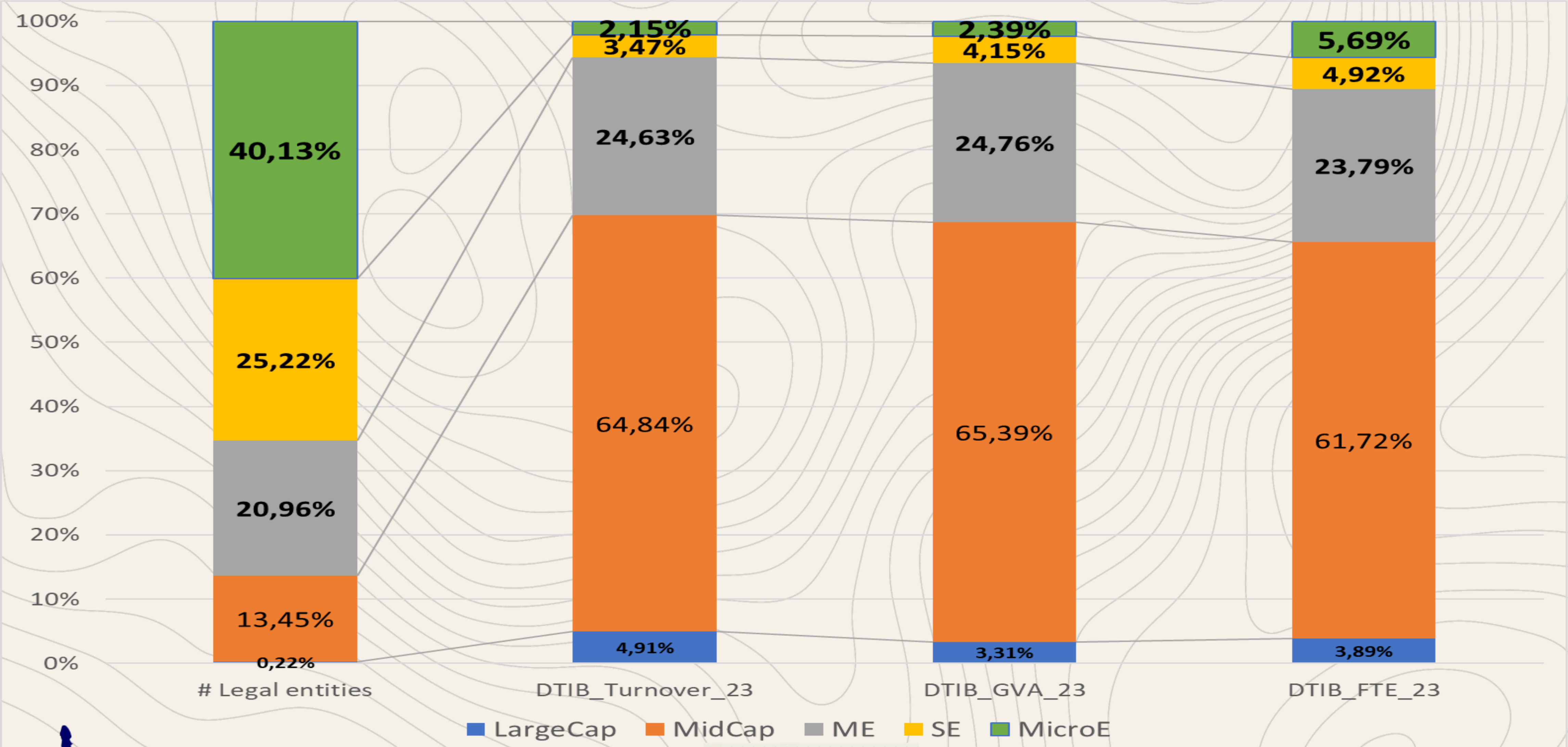
of Legal entities by Size type and impact



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3.2 Breakdown per main CapTech

In what CapTechs do we find the most entities and in what CapTechs is the estimated impact the highest?

BE-DTIB overview per mapped Legal entity (#)

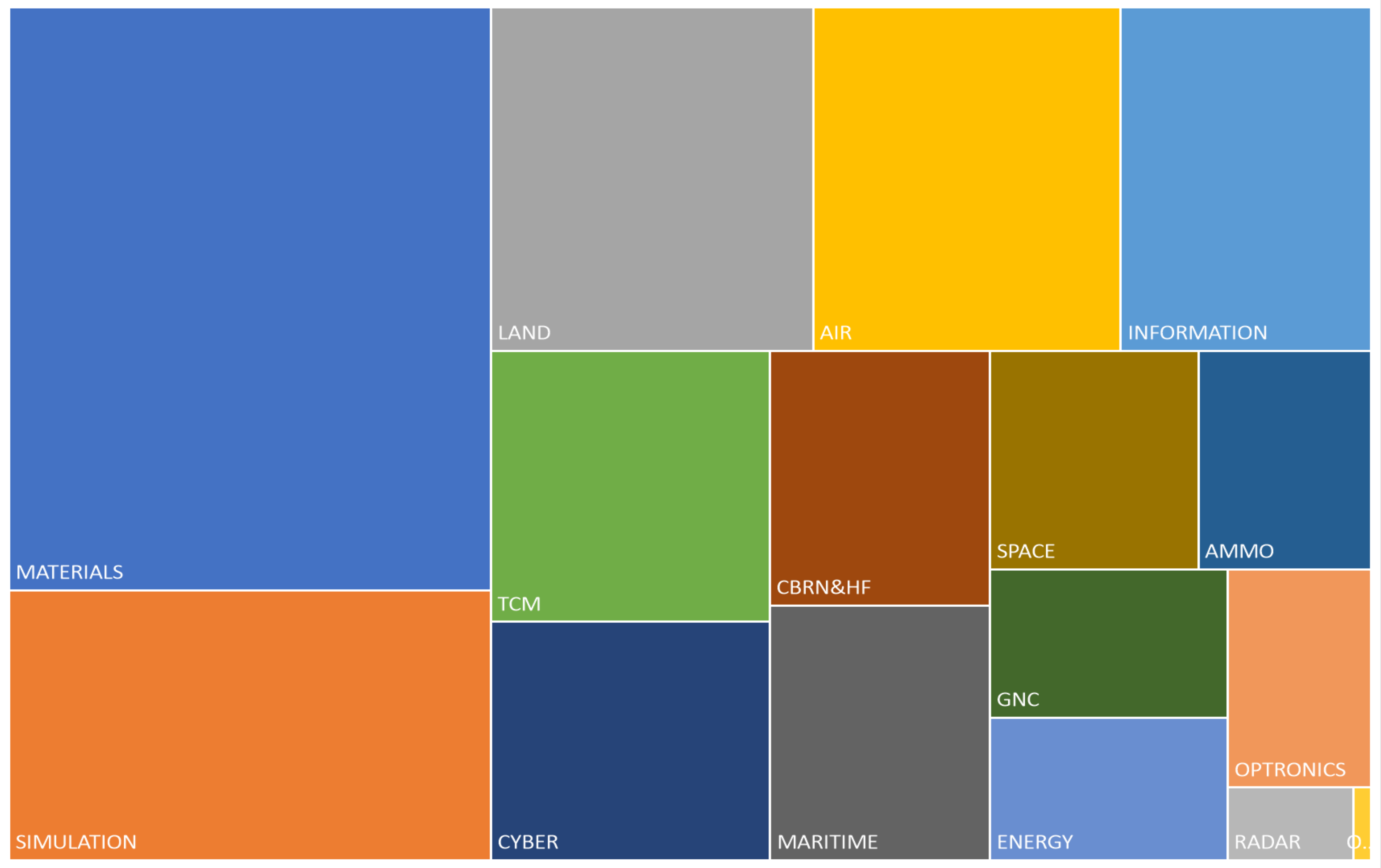
Why not use NACE-(BEL) codes?

Why CapTechs?

How do we allocate it?

EDA CAPTECH areas	CAPTECH Abbr.
Technologies, components and modules (Semiconductors, photonics, electronics)	TCM
Radio Frequency Sensors Technologies	RADAR
Electro Optical Sensors Technologies	OPTRONICS
Communication Information Systems and Networks	INFORMATION
Materials and Structures	MATERIALS
Missiles and Munitions (and weapons)	AMMO
Aerial Systems	AIR
Ground Systems (& logistics)	LAND
Guidance, Navigation and Control	GNC
Naval Systems	MARITIME
Experimentation, System of Systems, Battlelab, and Modelling & Simulation	SIMULATION
Medical response, CBRN and Human Factors	CBRN & HF
Cyber Research & Technology	CYBER
Energy and Environment	ENERGY
Space-related technologies	SPACE

BE-DTIB overview per mapped Legal entity (#)



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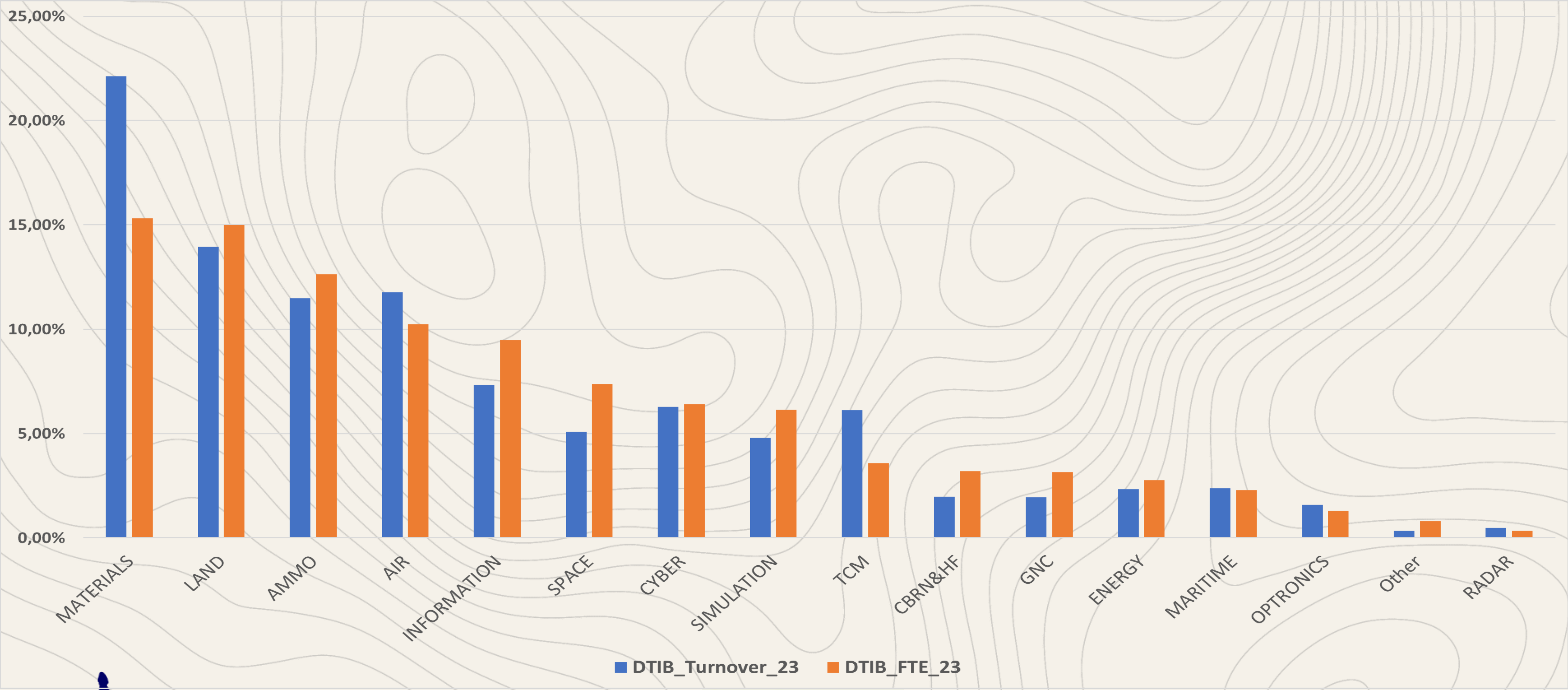
BE-DTIB overview - DTIB impact



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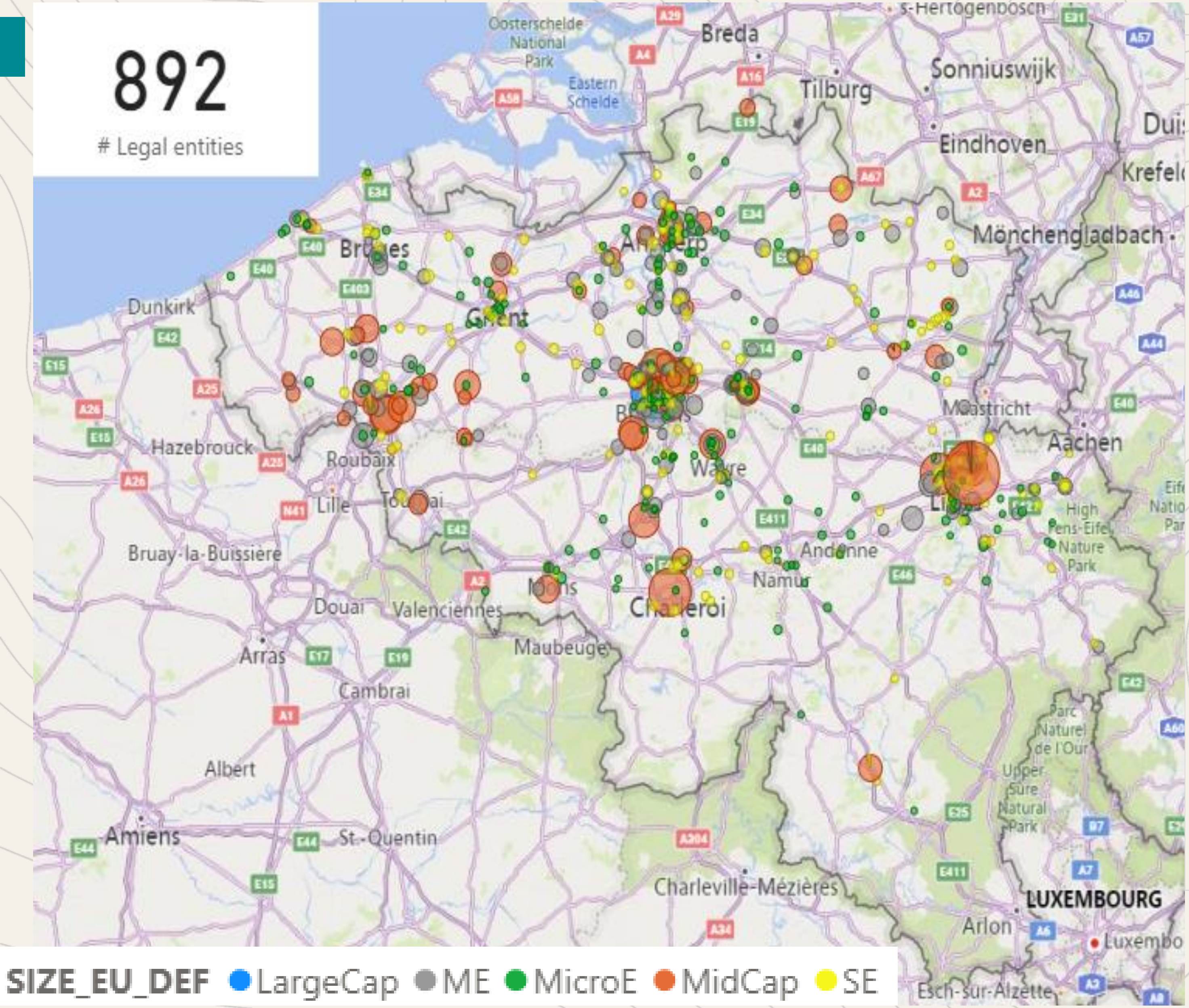
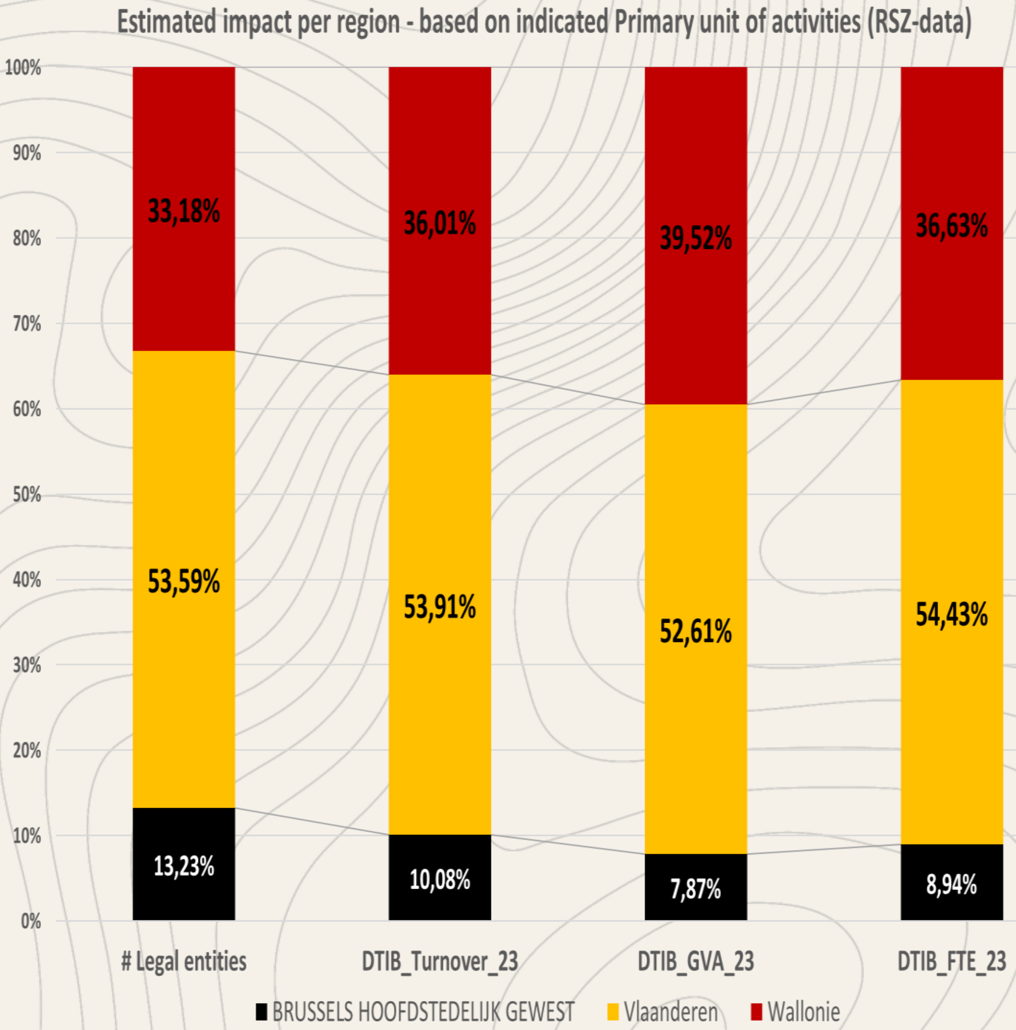
3.3 Regional spread

What is the regional spread of the BE-DTIB?

Map of the BE-DTIB mapping

"legal entities with their "Primary unit of activity" elsewhere than the HQ are remapped to this location. (via RSZ/SS data) Overall, this causes a shift from entities in BXL to Flanders for the impact assessment.





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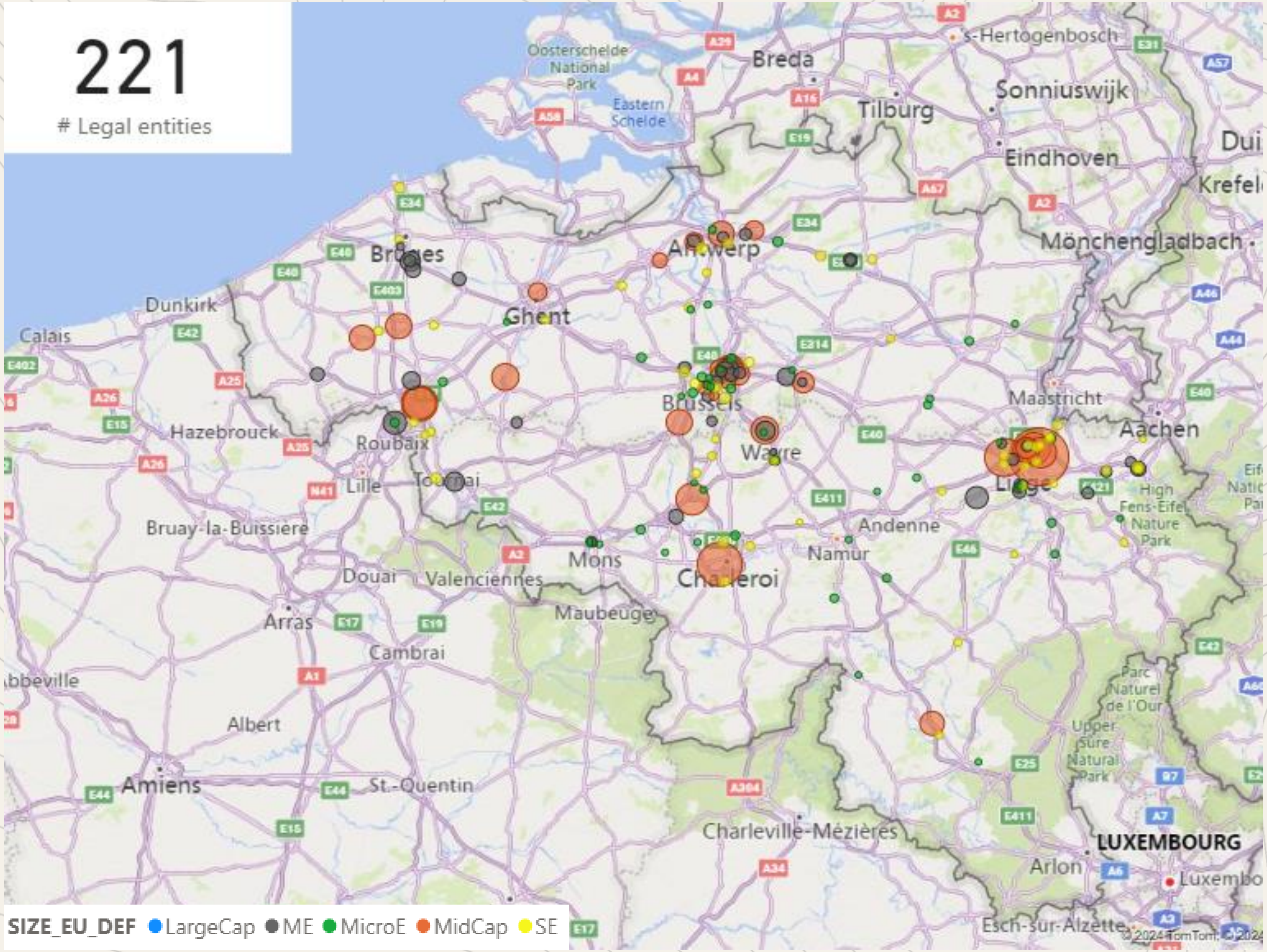
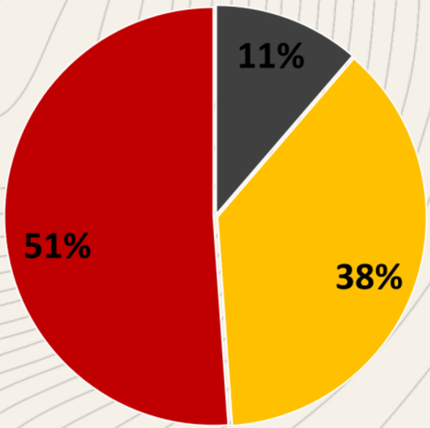
What is the distribution of “self-identified” defence-focused entities”?

221

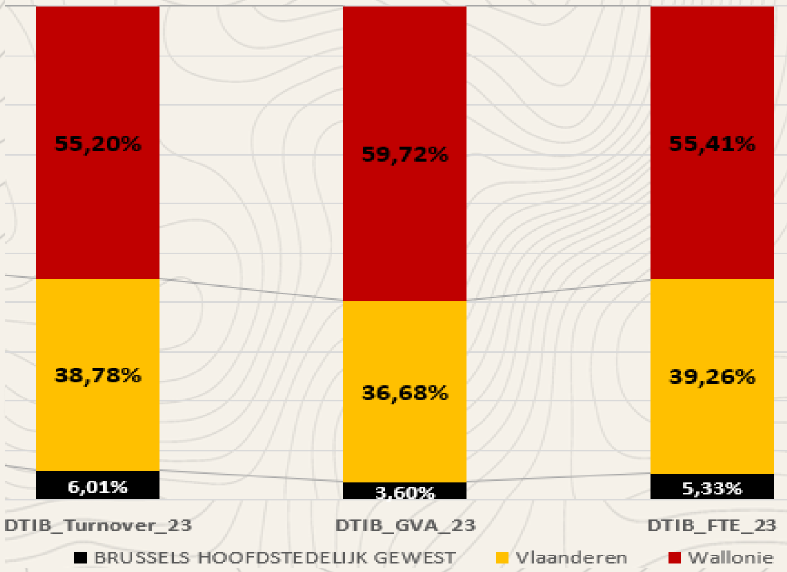
Legal entities



Legal entities per Region
(Based on location of primary activity - RSZ)



Estimated impact per region
- based on indicated Primary unit of activities (RSZ-data) -



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3.4 Association coverage

What is the coverage of the BE-DTIB mapping by Belgian (defence-relevant) associations?

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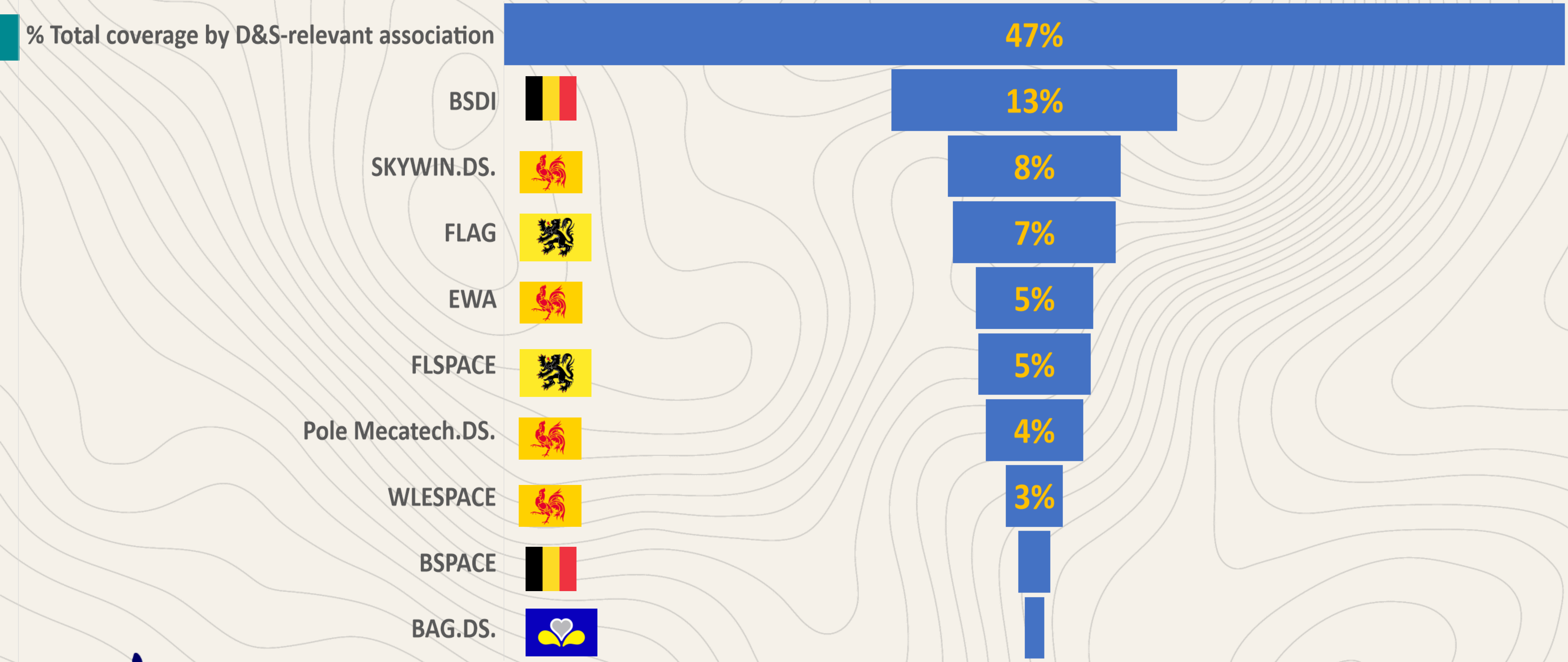
COVERAGE BY D&S-RELEVANT ASSOCIATION



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Universities are excluded in the impact analysis and hence in the figures in the table on this slide.

Business associations

	# Members	Coverage % national DTIB	Coverage % regional	%DTIB FTE	%DTIB Turnover	%DTIB GVA
Coverage by D&S-relevant association	423	47%		77%	82%	82%
BSDI.24&23	114	13%		37%	33%	41%
SKYWIN.DS.24	69	8%	23%	17%	16%	19%
EWA.24	47	5%	16%	16%	16%	19%
PM.DS.24	39	4%	13%	15%	14%	18%
FLAG.LA	65	7%	14%	12%	18%	15%
FLSPACE.24	45	5%	9%	11%	10%	12%
WLESPACE.24	23	3%	8%	6%	4%	6%
BSPACE.24	13	1%		7%	5%	6%
BAG.DS.24	8	<1%	7%	2%	2%	2%
None	469	53%		23%	18%	18%

3.5. Ownership or control of BE-DTIB mapping

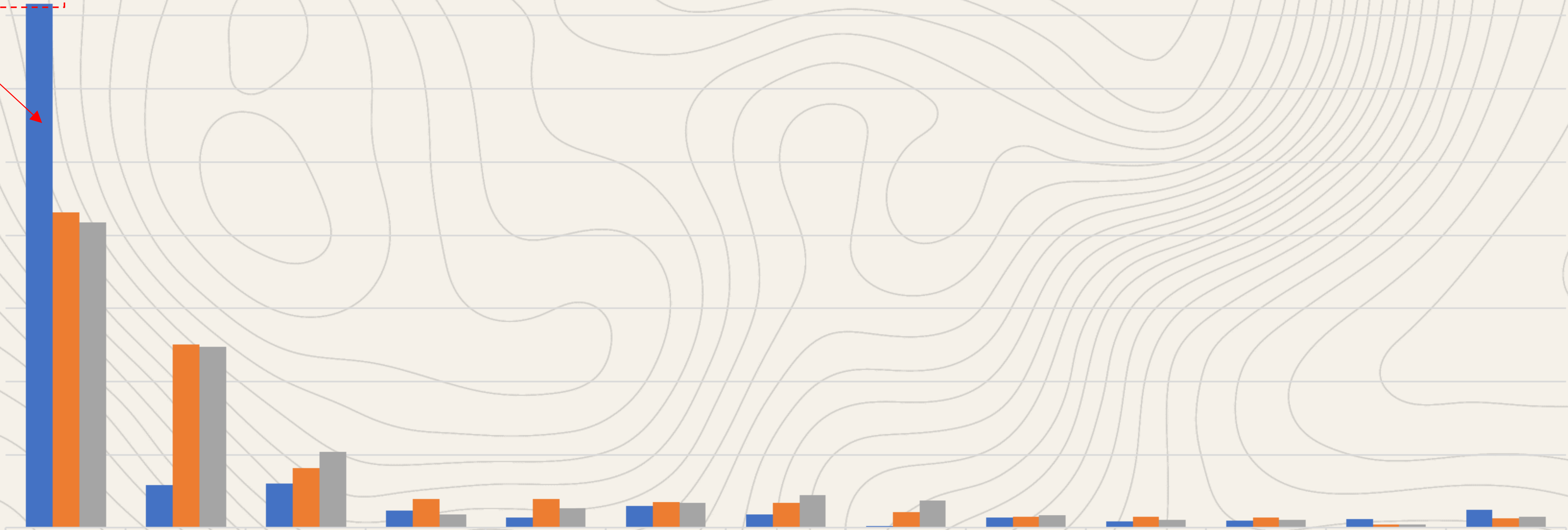
What countries are most represented in the foreign ownership or control of the BE-DTIB?

What countries are most represented (# & impact)?

"Next best" ownership-level (mixed method)). Update with UBO register should be added post-project.

Foreign ownership and control ("next best" method)

39% → For 39% (N=253) of these, no further ownership or control were identified, the legal entity is considered as independent and allocated as "BE" control.



	BE	FR	US	GB	SE	NL	DE	FI	JP	LU	CH	Other EU or NATO	Other non-EU
# Legal entities	71,6%	5,8%	6,1%	2,4%	1,5%	3,0%	1,8%	0,2%	1,5%	0,9%	1,0%	1,2%	2,5%
DTIB_FTE_23	43,1%	25,1%	8,2%	4,0%	3,9%	3,5%	3,4%	2,1%	1,5%	1,5%	1,4%	0,5%	1,3%
DTIB_GVA_23	41,7%	24,8%	10,4%	1,8%	2,6%	3,4%	4,5%	3,7%	1,7%	1,1%	1,1%	0,5%	1,5%

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3.6. Export estimations for the BE-DTIB

What is the estimated export focus for DTIB activities and to what countries?

*Extrapolated from survey data. Weighted means calculations based on turnover size.
** Comparison to ML-list export license values suggests mapping can be expanded.

***Export Ratio comparable to the NL-D(S)TIB study: 43% export ratio for 2023 [LINK]

Estimated export focus of the BE-DTIB mapping

~47%

Estimated DTIB-export rate (2023)*
[39-56%] Confidence interval 90%

~€ 2.4b

Estimated export values (2023) of mapped entities**

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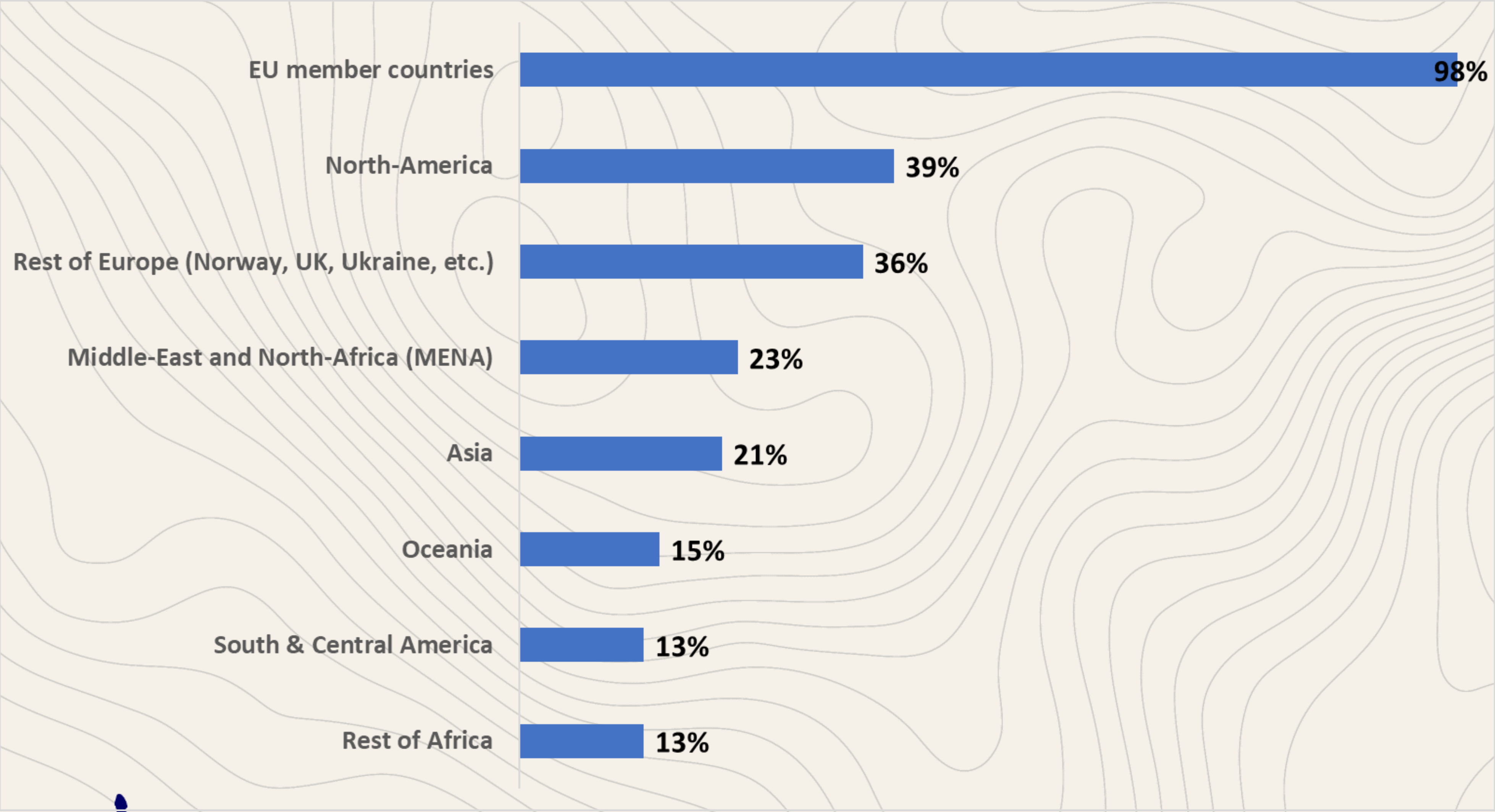
Export Regions of survey respondents (Global Regions)

Does not concern export values. Respondents were only asked to indicate the top countries they export to.



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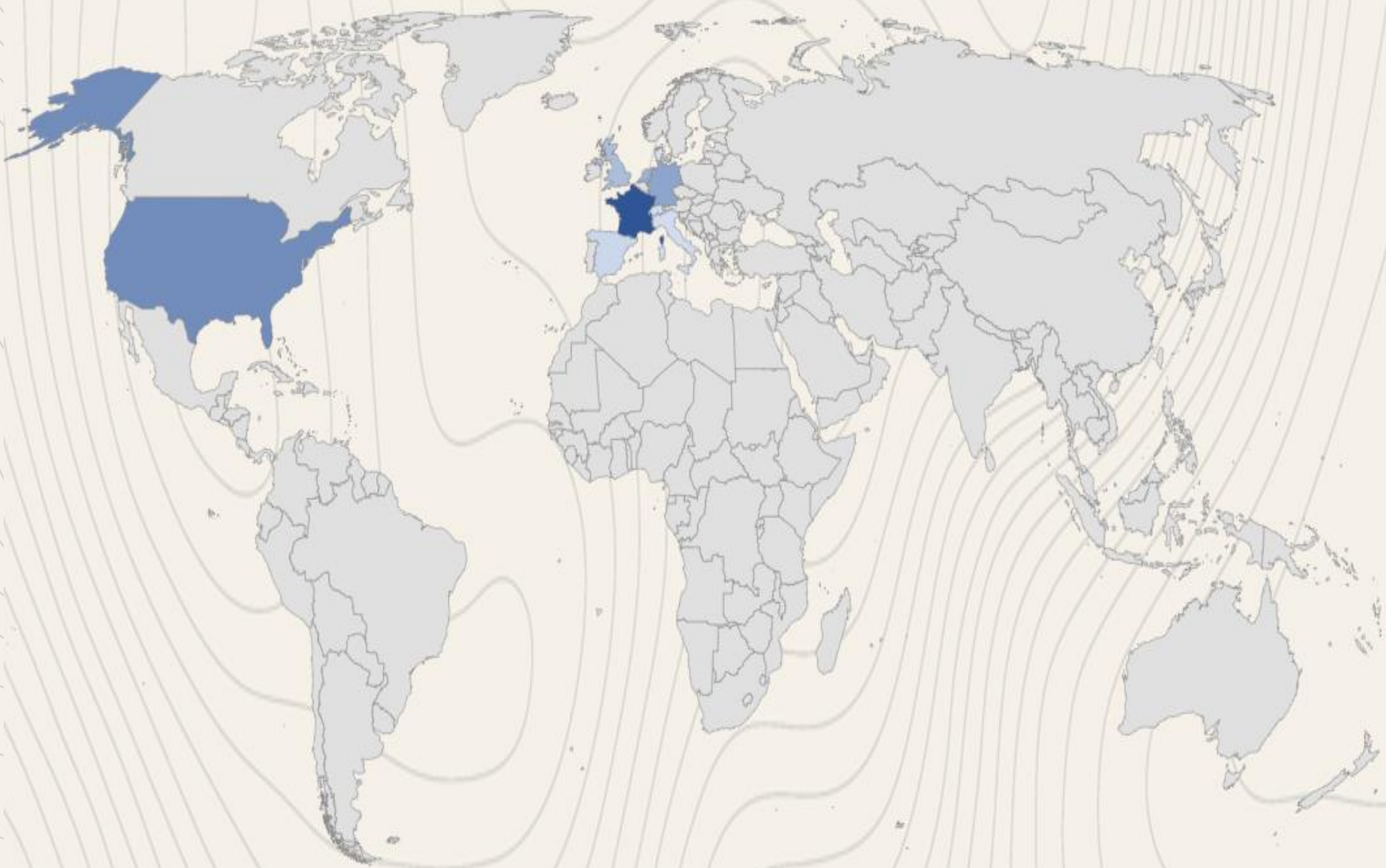
Export distribution of survey respondents (Top10 countries)

Does not concern export values. Respondents were only asked to indicate the top countries they export to..

As the response rate here was low per respondent (many chose to skip this question), we do not deem this sufficiently representative for further extrapolation.. The figures here are only added as an indication. ML-list and dual-use export figures are preferable for estimations compared to these figures.



COUNTRY	% of answers
France	27,91%
USA	17,44%
Germany	12,79%
The Netherlands	10,47%
the United Kingdom	8,14%
Luxembourg	5,81%
Spain	3,49%
Switzerland	2,33%
Italy	2,33%
Denmark	1,16%

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3.7. R&D estimations for the BE-DTIB

What is the estimated export focus for DTIB activities and to what countries?

"Extrapolated from survey data. Weighted means calculations with weighting based on turnover size.

Estimated R&D focus of the BE-DTIB mapping (expenditure)

~18%

Estimated DTIB R&D expenditure vs DTIB turnover (2023)*
[12-25%] Confidence interval 90%

~€ 917 m

Estimated DTIB R&D expenditure (2023)

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"Extrapolated from survey data. Weighted means calculations with weighting based on turnover size.

With a confidence interval of 90%, the range is between 16 to 33%.

! Universities (except for the Royal Military Academy) are not included in the impact assessment.

Estimated R&D focus of the BE-DTIB mapping (FTEs)

~24%

Estimated DTIB R&D-focused FTEs vs total DTIB FTEs (2023)*

~ 4124

Estimated DTIB R&D-focused FTEs (2023)

*See preliminary impact estimations based on export position in backup slides. More data needs to be gathered for analysis.

Future research

Analyze estimated impact of potential investment/support in the BE-DTIB via input-output tables, supply-and-demand tables and export position.*

Track the impact of funded projects going forwards (longer term tracking of impact analysis).

Continue updating the BE-DTIB dataset.
→ Consider branching out to include the STIB and critical infrastructure.
→ Ramp-up capacity and constraints?

Research on ESG and access to finance within the BE-DTIB.

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Project Output:

- Kegels G., Du Bois C., Buts C., (2024) Analysis of the BE-DTIB within the *competitive* portion of the cooperative EU defence ecosystem. BEPIDS project presentation at the 2024 Bordeaux Defence Working Group.
- Kegels G., Buts C., Du Bois C. (2024) "Belgium within the European defence ecosystem" BEPIDS project [Working paper]
- BEPIDS_EDF_and_Precursors_Dataset "EDF+" [Internal Output]

4. In EU Ecosystem – EDF & precursor Example

- How?
- Some insights

Approach

- ➢ EDF and its precursor programs as a proxy to assess the *(comparative)* success for Belgium in the ***competitive*** **EU cooperative defence ecosystem** and its *alignment* success to Belgian-specific characteristics.

EDF22-21, EDIDP, PADR, PP * (*competitive* 'Research action' & 'Development action')

Excludes non-competitive direct awards (MALE-RPAS & ESSOR)**, framework partnerships (RESILIENCE) and support actions (EOA).

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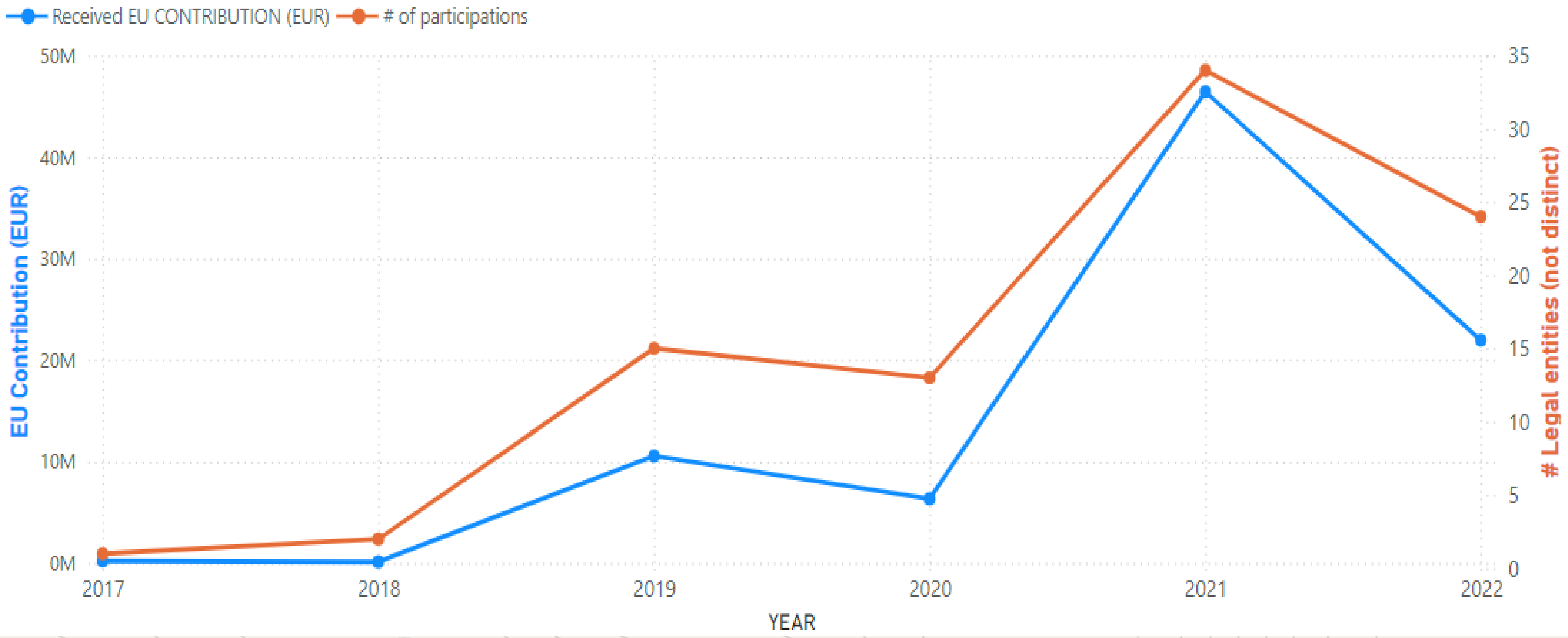
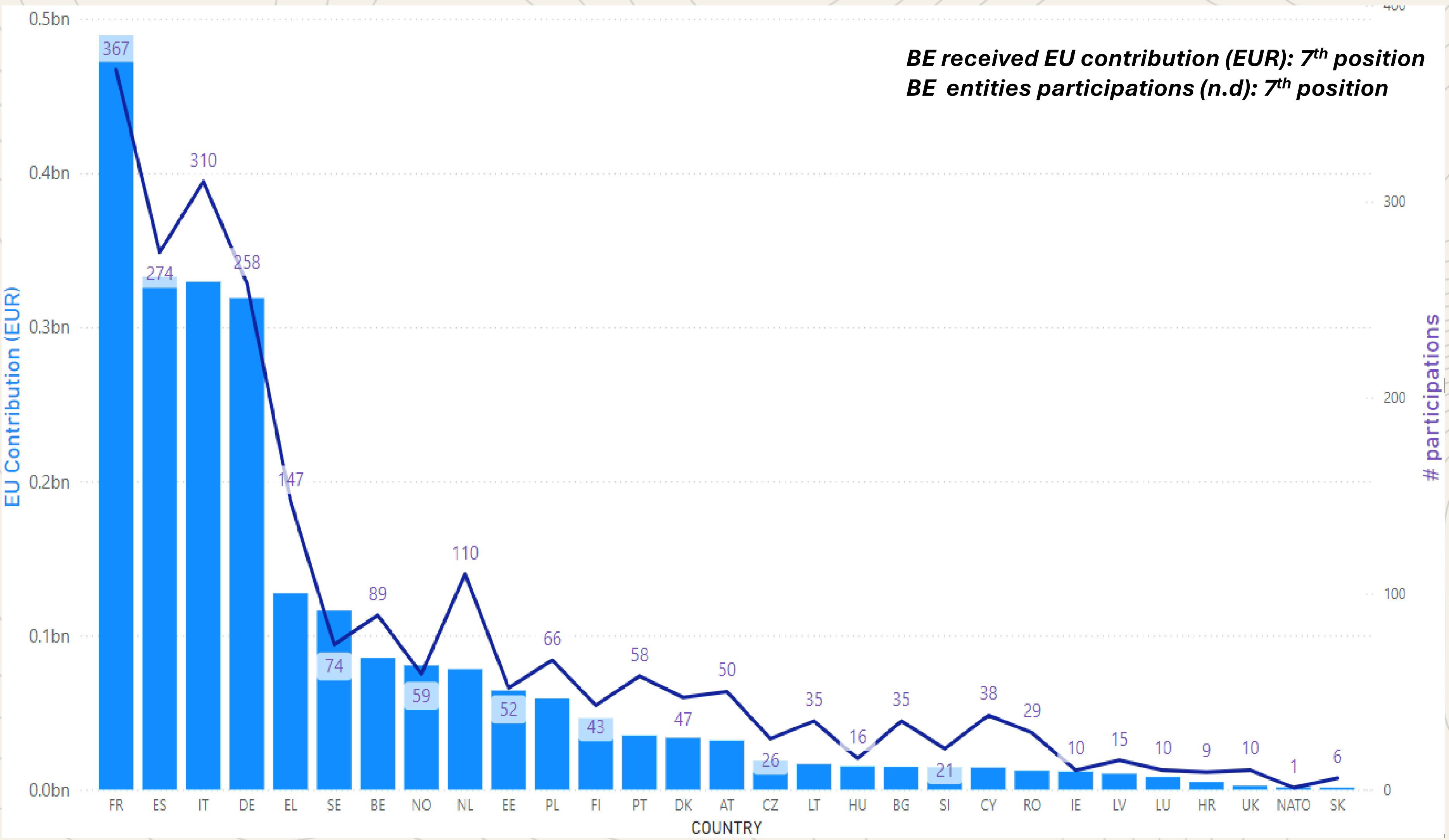
What is the presence of BE-DTIB entities? (PP to EDF22)

Legal Entities (Distinct count)	# of participations	# of projects	EU contribution for projects (EUR)	Participation rate (# of LE per project)
44	89	59	85.65M	1.51



(Based on values per members of the consortium. Sub-suppliers involved in these projects through contracts with the members are not included as this information is not published for all projects and when it is, often only partial)

How does it compare to other member states? (# ; €)



At first glance, *this supports the often-heard critique that France receives a disproportionate amount of EU funding.*

However, *these insights do not account for relevant burden sharing.*

Received contribution should be compared to *the most applicable burden sharing indicator to the case, i.e.* ***defence investment.***

(Based on values per members of the consortium. Sub-suppliers involved in these projects through contracts with the members are not included as this information is not published for all projects and when it is, often only partial)

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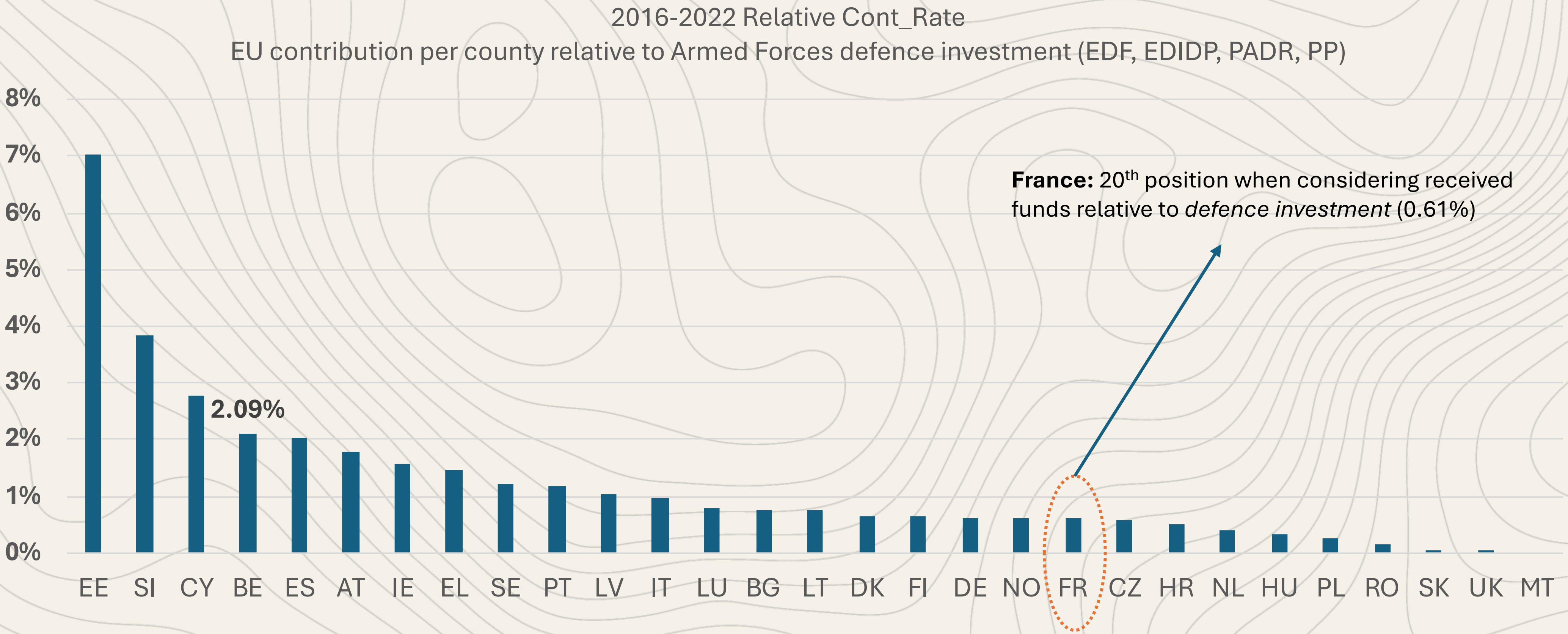
CS: Relative rate of Received EU Contributions

(Received EU Contribution relative to defence investment)



Defence Investment (EDA): "Defence equipment procurement expenditure and R&D (including R&T) expenditure." 'Defence equipment procurement "includes all major equipment categories (not O&M).
Source EU MS: EDA defence data.
Source NO, Denmark, (UK until 2019): NATO Defence Expenditure data (from category 2.1 +3.1, aligns to the EDA definition, procurement and R&D linked to 'major equipment'))
→ Cross-analyzed to confirm overall alignment

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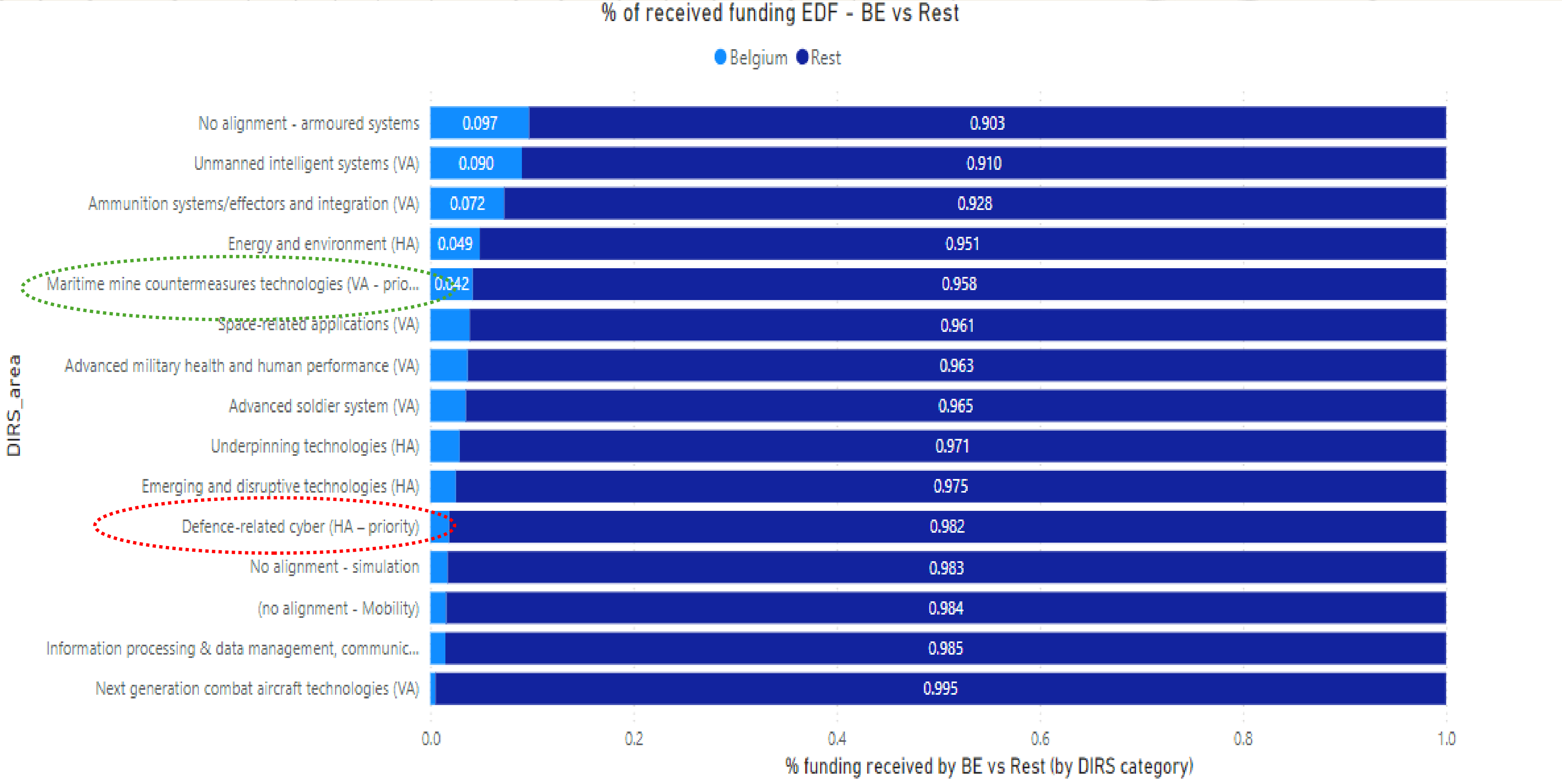
To what extent does BE participation correspond to priority domains indicated in the BE-DIRS? – %BE received funds within categories.



<u>% funds received by BE vs rest within category total</u>

Indicator of relative competitive position for obtaining funding
(as it accounts for funding differences per category)

<u>Priority domains in top 5?</u>

Maritime Mine countermeasures ***(5th)***

Defence-related Cyber ***(11th)***

AS: To what extent does BE participation correspond to defence-related export?*

BE-top 3 **(16-22)**	Export license value (EUR)	**% within EU export license value of ML category**	% of BE total Def export value	**Linked EDF/prec. Categories**	**% within EU contribution of category**	% within BE total received contribution
ML-6 (Ground vehicles & rel. components)	4.26 bln	6.26% (4th)	38.58%	Ground combat	9.41% (4th)	25.46% **(1st)**
ML-10 (Aircraft, UAVs, rel. components)	1.68 bln	0.73% (9th)	15.28%	Air combat & information superiority (when UAVs)*	0.52% (12th)	1.61% (bottom 4)
ML1 (~weapons <20mm)	1.57 bln	7.55% (3rd)	14.28%	/	/ (n.a)	/ **(n.a)**

- **‘Ground’ combat** participation in line with export position in EU (4th) and position of % received funding within total (1st).
- Categories linked to **‘Aircraft, UAVs and related components’** underperform in the EDF and precursors relative to other call categories (bottom 4). Also compared to the portion within the EU total (0.73%), Belgium underperforms in the category (0.52%).
- There are no categories in the EDF and precursors focusing on **<20mm weapons**.

__Limitation!__ Based on Export license values, not actual exported values. The latter is not published by Belgium in the COARM database.

Summary results table

Comparative/relative success indicator **	**Success threshold**	
Relative overall funding	Position > 9	**4th**
Relative Research funding	Position > 9	**6th**
Relative Development funding	Position > 9	**4th**
Relative program competitiveness over time	Increase of position over time	**Yes**

*** Relative to 'DEFENCE INVESTMENT' as burden sharing*

Alignment success (to BE characteristics) ***	**Success criteria**	
DIRS prioritization alignment	If both priority domains is in the top 5 categories of % funding received by BE	**Cyber (11th)**
Overall DIRS alignment	No significant capabilities/tech funded by EDF & precursors that are not a domain in the DIRS	**Armoured systems**
Export alignment	No significant misalignment	**AIR**
Defence industry alignment	No significant misalignment	**AIR**

**** Approximations, as categories of EDF have to be aligned to DIRS, defence exports and industry categories, which do not always clearly overlap. The purpose is to find obvious under- or outperformers in the EDF relative to the Belgian characteristics.*

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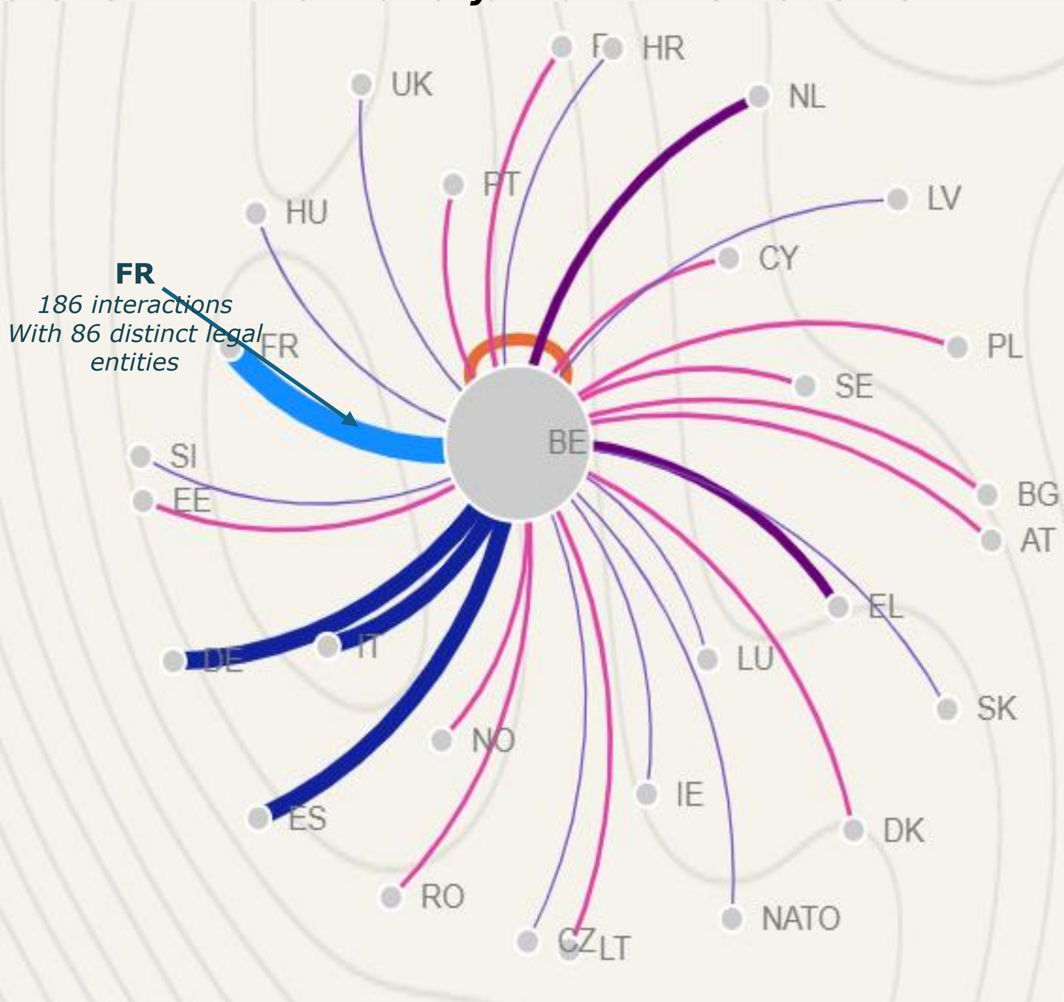
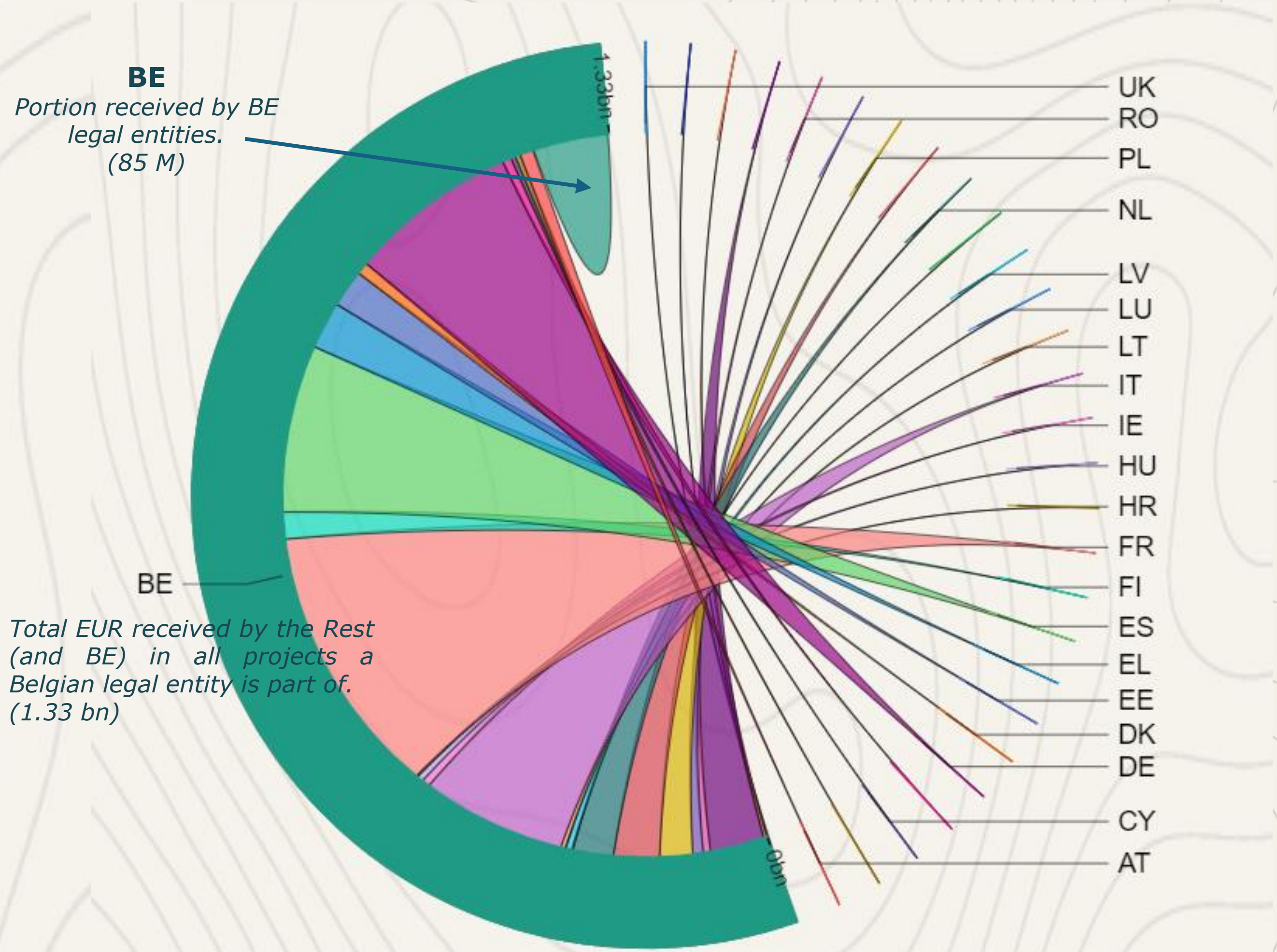
Who do BE legal entities work with the most (absolute values)?

By # interactions



By EUR received in projects



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Who do BE legal entities work with the most?

! ***<u>Distinct</u> count of interaction of BE legal entities, per project reallocated according to DIRS domains.***

Consider: These are absolute numbers without any adjustments made for country size.

BE Legal entity involved in project	(no alignment - Mobility)	Advanced military health and human performance (VA)	Advanced soldier system (VA)	Ammunition systems/effectors and integration (VA)	Defence-related cyber (HA – priority)	Emerging and disruptive technologies (HA)	Energy and environment (HA)	Information processing & data management, communications & embedded intelligent systems (HA)	Maritime mine countermeasures technologies (VA - priority)	Next generation combat aircraft technologies (VA)	No alignment - armoured systems	No alignment - simulation	Space-related applications (VA)	Underpinning technologies (HA)	Unmanned intelligent systems (VA)	Total
Yes	**31**	**49**	**27**	**49**	**74**	**70**	**66**	**70**	**140**	**32**	**22**	**9**	**96**	**41**	**78**	**563**
FR	4	5	7	10	9	14	7	11	21	8	2		15	8	22	**86**
DE	5	15	2	4	3	4	7	7	14	8	3		17	4	6	**63**
IT	3		5	1	5	5	18	12	19	2		7	10	7	7	**63**
ES	5	1	4	8	6	9	4	7	14	6	3		10	5	7	**48**
BE	2	3	2	6	5	12	4	5	8	2	1	1	7	2	7	**44**
EL	4	3			7	8	2	9	13	1	1		4	3	4	**36**
NL		5		1	4	1	2	1	12	1			4	3	3	**24**
PL	2	2	4	4		2	2	2	3				4	1		**22**
NO		2	1	1	3	2	2	1	6		1		2	2	2	**19**
SE	1	1		1		1	5		4	1			4	2	5	**18**
AT	2	5			3	1	1				2	1	3		1	**15**
DK		1	1		1		1	2	4		2		3		1	**13**
EE		2	1		2	1	1	1	4		1		3		3	**12**
Total	**31**	**49**	**27**	**49**	**74**	**70**	**66**	**70**	**140**	**32**	**22**	**9**	**96**	**41**	**78**	**563**

Key conclusions

Taking into account defence investment, Belgium outperform most other countries in obtaining funding.

- *The **EDF and precursors are comparatively successful as a <u>funding</u> support tool** for the BE-DTIB.*

- *It comparatively takes a disproportionate amount of funding relative to defence investment.*

The funding obtained by the EDF and precursors is only patially aligned to key defence characteristics in Belgium.

- *AIR (**Air combat and UAVs**) **<u>is underrepresented</u>** in the obtained funding by BE legal entities, when compared to exports and its position in the Belgian defence industry.*

- *There is **<u>no domain in the BE-DIRS</u>** which focusses on **'armoured systems'**, while BE legal entities have a comparative strong competitive position for obtaining funding from the EDF and precursors.*

Updates/ additional research post-BEPIDS

Add 2023 EDF when all info is available in SEDIA

Add ultimate owner info for network analysis

Assess actual effectiveness through case studies:

- To what extent did the projects result in goods and services (including components, technologies, or intangible inputs such as skills or knowledge) for Defence actors or within the value chain?

Consider BE co-financing data (if data can be shared or via estimations)

- *Potential leverage based on regional involvement**

Look at the broader defence and security ecosystem by including other programs

APPENDIX & Backups

Definition for Size Type

LargeCap	not a SME that employs more than 3.000 persons
MidCap	not a SME that employs a maximum of 3.000 persons
ME	employs fewer than 250 persons turnover not exceeding EUR 50 million
SE	employs fewer than 50 persons turnover not exceeding EUR 10 million
MicroE	employs fewer than 10 persons turnover not exceeding EUR 2 million

See: European Investment Bank [LINK]; DG GROW [LINK]

**This analysis is general, preliminary and is not included as part of the current project. It will be included as part of the future research of the current project-members after the end of the BEPIDS project. We include it here as a general indication on "high-level" competitive advantage.*

For detailed analysis, the publicly available figures of the Region are required in xlxs or extractable PDF. One of the regions has currently shared this information with us in such a format for 2022 data.

From 2024 onwards, EU-wide reporting on Dual-use items and technologies also commenced, which will facilitate a wider analysis when figures are available in 2025.

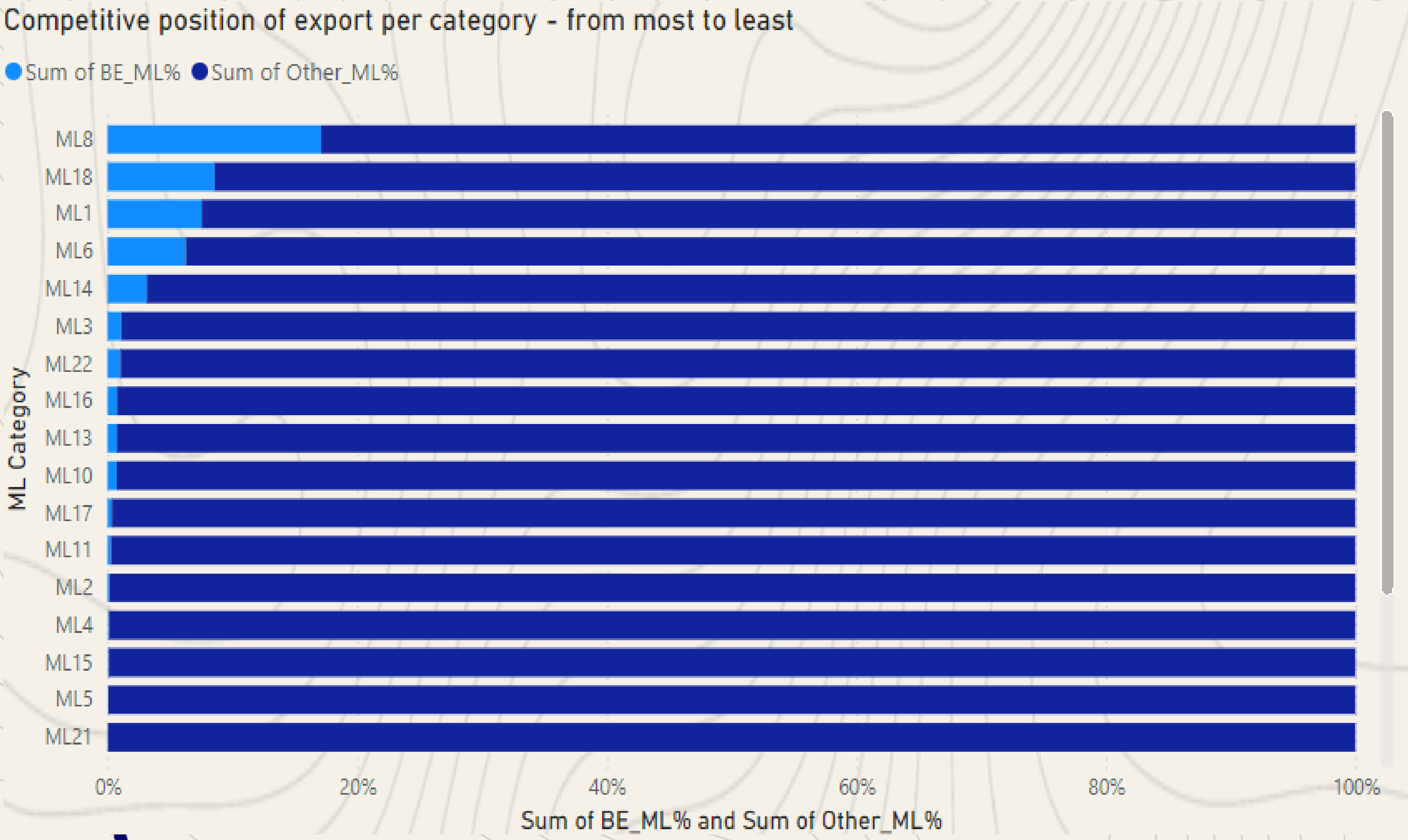
ML = EU Military List

3.11. HL Potential inferred from ML and Dual-Use exp.*

What general competitive advantage can we *infer* from the EU ML-List and broader Dual-use/strategic goods export?

Competitive position ML-List BE vs Rest of EU.

Limitations:
- *Export licenses! Not registered export values. BE does not report values in EU COARM.*
- *Germany is not included. (Explicitly chooses not to report)*
- *No view on split per Region in BE (data currently only received from one region.*



Relative position!
Not by absolute value, but by proportional strength within total of category.

Proportional strength in:
- ML 8 - ”Energetic materials”, and related substances
- ML18 - ’Production’ equipment, environmental test facilities and components
- ML 1 – Weapons <20mm

*Source: BEPIDS EDF+ PowerBi working file, based on **2016-2022** data from the EU COARMS dataset.*

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Competitive position ML-List BE vs Rest of EU.

Limitations:
- *Export licenses! Not registered export values. BE does not report values in EU COARM.*
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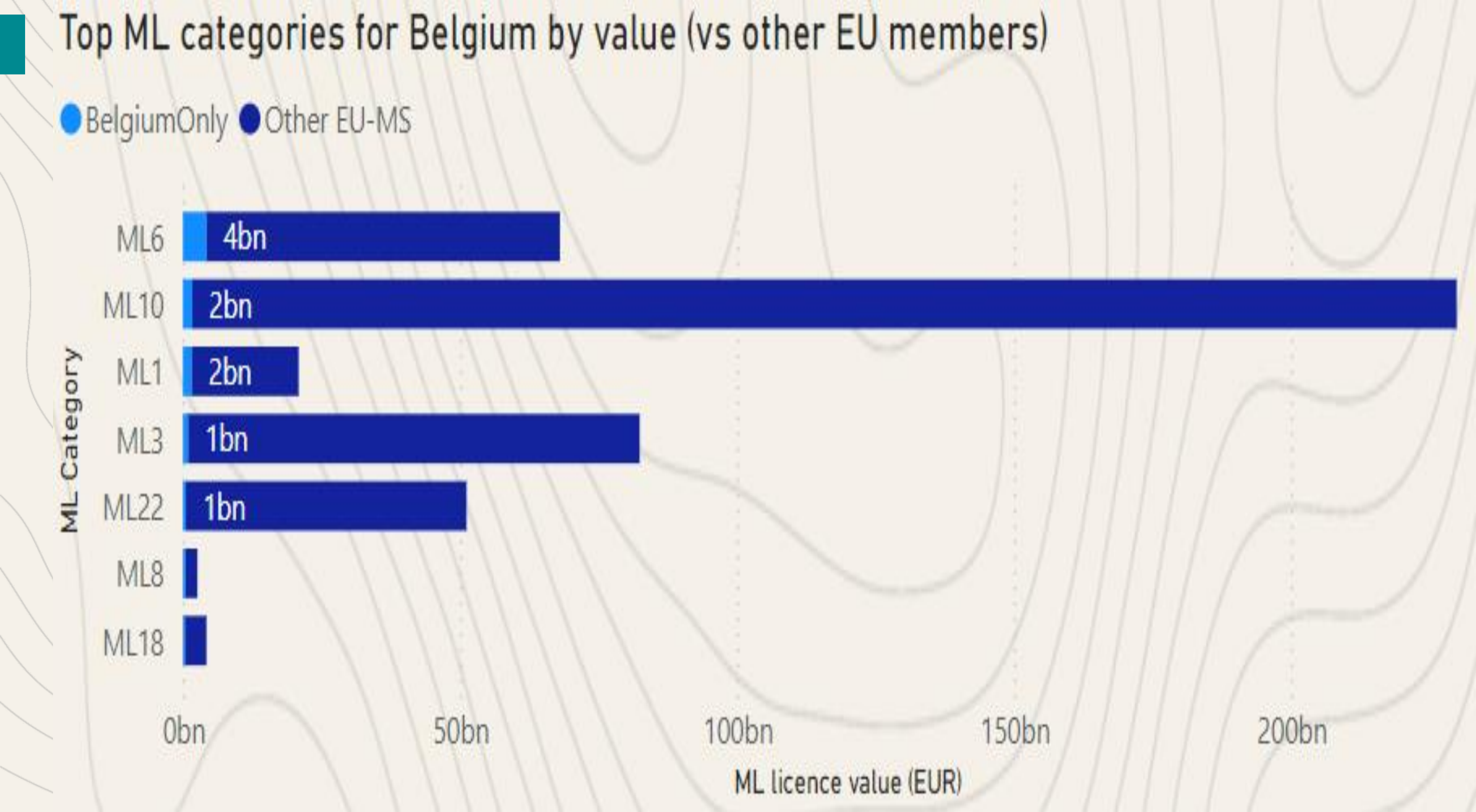

Absolute values!
Highest value for categories:

- ML 6 – Ground vehicles and components
- ML 10 – Aircraft & components
- ML 1 – Weapons <20mm

*Source: BEPIDS EDF+ PowerBi working file, based on **2016-2022** data from the EU COARMS dataset.*

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Matches in absolute value & relative strength

Importance in absolute Value	ML - Category	Relative Position for BE vs rest
1	ML 6 – Ground vehicles and components	4th
2	ML 10 – Aircraft & components	9th
3	ML 1 – Weapons <20mm	3rd
4	ML3 - Ammunition	6th
5	ML22 – Technology *required for the "development", "production", operation, installation, maintenance (checking), repair, overhaul or refurbishing of items"*	7th
6	ML8 - "Energetic materials", and related substances *Explosives, propellants, fuels, base inputs*	1th
7	ML18 - - 'Production' equipment, environmental test facilities and components	2nd

Lower relative position for "Aircraft and components" (although nuanced!)

Important contributor within the value chain, but dependent on the large countries with system integrators*

To maintain an edge in its defence-related aeronautics industry, it is therefore important for BE to be proactive in entering multinational cooperation/procurement programs.

BE support programs seeking to re-engage the aeronautics industry can maintain and enhance its positioning with the strategic importance for Belgium.

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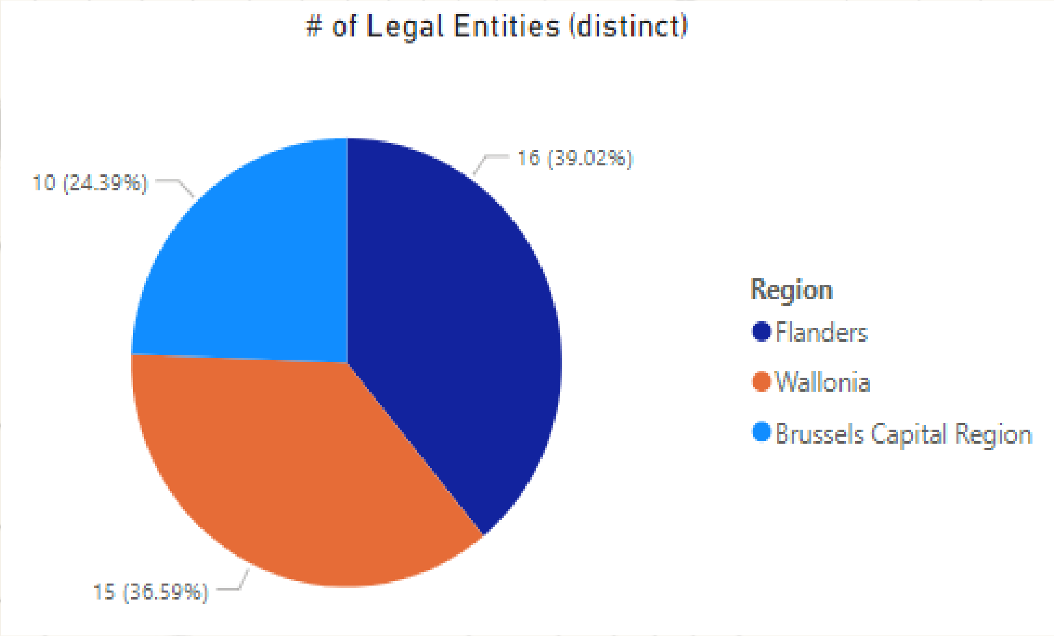
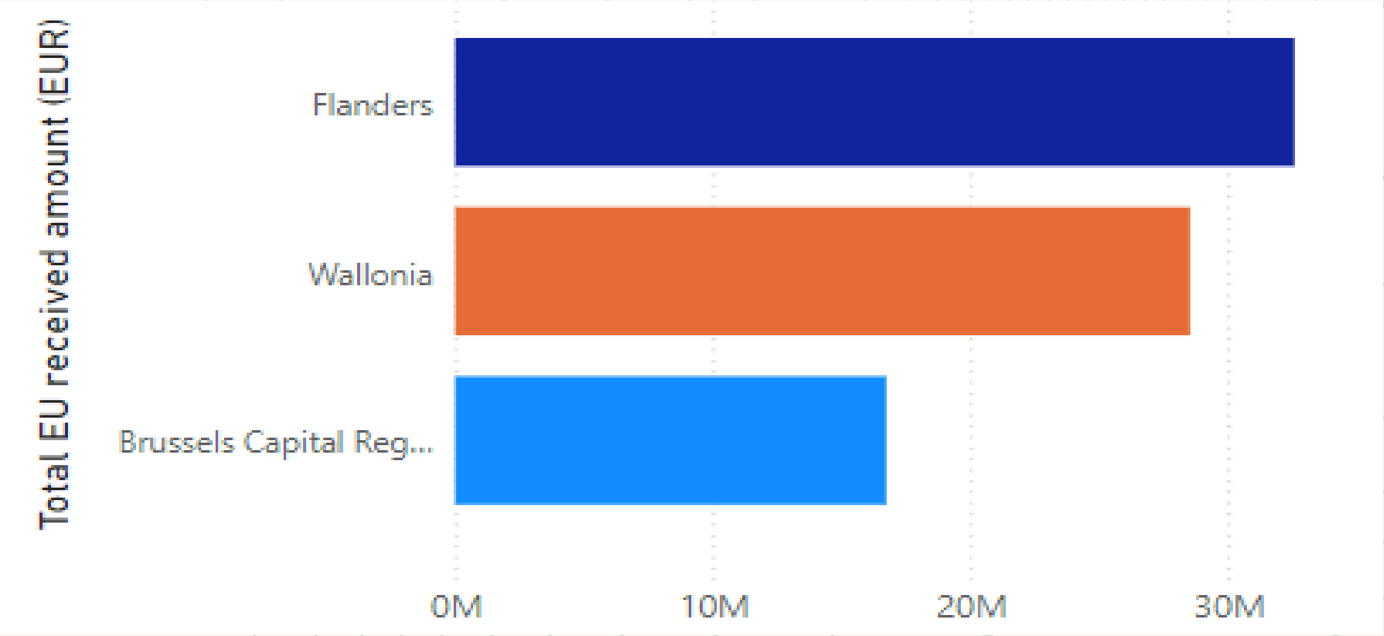
Other Backup

EDF & EDIDP – Regional Distribution





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*EC Financial Transparency System: EDIDP (19-20), EDF (21-22)**
Current received amounts in EUR

**FTS reporting does not include projects managed by the EDA.*
*** There are gaps in the FTS due to late start of projects. The total estimated amount for BE is about 85.31 million EUR.*

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AS: To what extent does BE participation correspond to priority areas indicated in the BE-DIRS?

Domains in the BE-DIRS:

Capability objectives (vert.)

- *Maritime mine countermeasures technologies (includes unmanned) ;*
- *Next generation combat aircraft technologies;*
- *Advanced military health and human performance;*
- *Advanced soldier system;*
- *Ammunition systems/effectors and integration;*
- *Unmanned intelligent systems (air and land);*
- *Space-related applications.*

Cross-application know-how and technology (Hor.)

- *Defence-related cyber;*
- *In-service support and life cycle services;*
- *Smart and advanced structures and materials;*
- *Energy and environment;*
- *Information processing & data management, communications & embedded intelligent systems;*
- *Emerging and disruptive technologies;*
- *Underpinning technologies;*
- *Skills and competences.*

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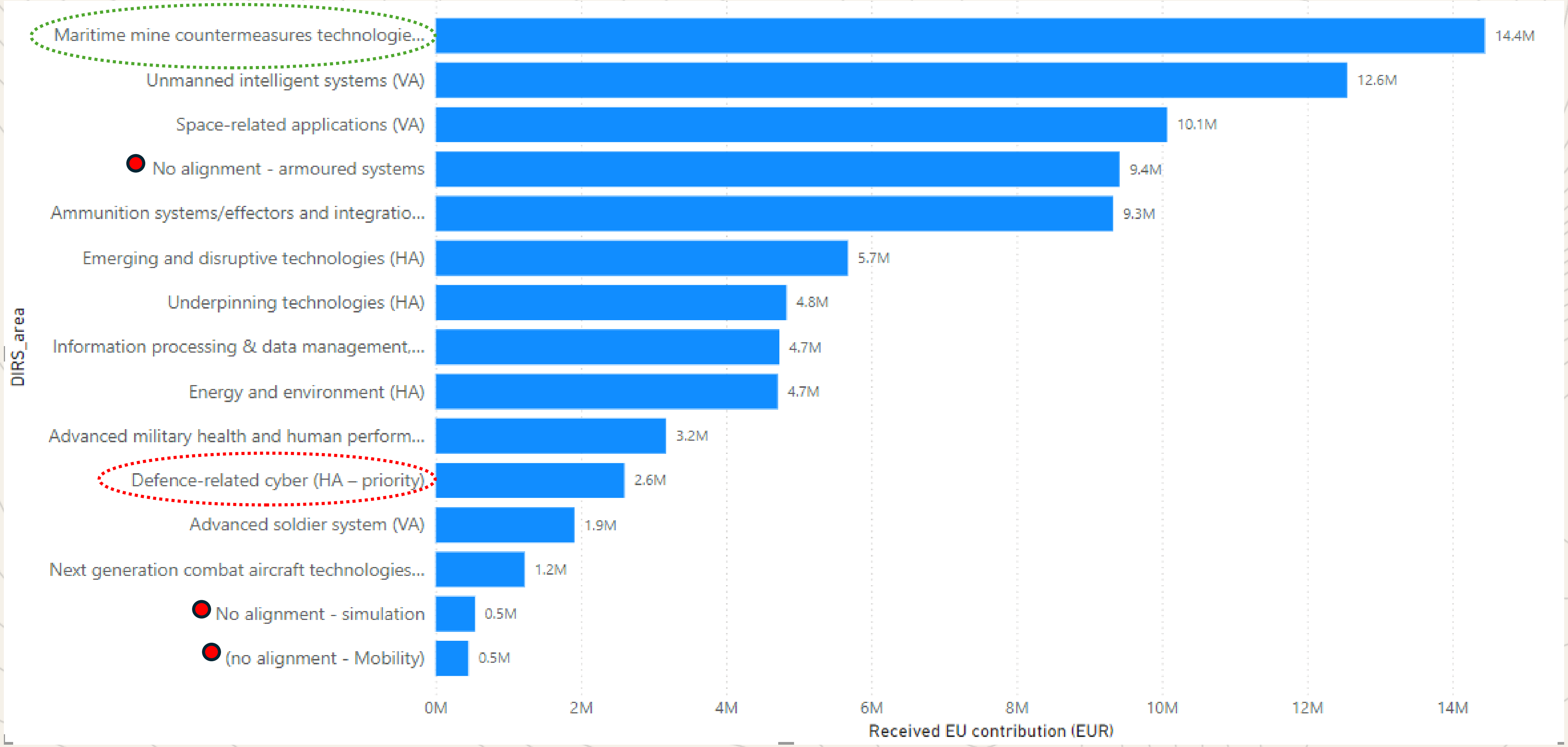
AS: To what extent does BE participation correspond to priority areas indicated in the BE-DIRS?



<u>Alignment to Prio:</u>
Aligned performance for *'Maritime mine countermeasures'?*

Underperforming for 'Cyber'?

(see next slide for comparison to overall funding of category)

<u>No alignment</u>
~ 10.5 mln EUR **(12%)** are **not linked to categories in the BE-DIRS**

! 'armoured systems and related technologies' (position 4)

BE-DTIB: delimitations for mapping (Current employed def)

Any entity,

i. registered in Belgium in the Crossroad Bank of Enterprises;
   a. that was established under Belgian law and;
   b. that is considered a separate legal entity (regardless of its specific legal status and the way in which it is financed);

ii. with any economic activities occurring on Belgian soil related to 'defence-use products', 'security-use products' or 'any other products' and;

iii. which supplies 'defence-use products', 'dual-use' or 'security-use products' to any (i.e. foreign or domestic) 'Defence actors' or as inputs or components to 'other entities active in the DTIB value chain' OR;

iv. which significantly supplies 'any other products' directly to any 'Defence actors' or as significant inputs (e.g. critical materials) or components to 'other entities active in the DTIB value chain'.

is considered part of the BE-DTIB.

The (first part of the) last point is a point of contention: some understanding of the DTIB concept include it, others do not.

BE-DTIB delimitation - *terms*

With

'defence-use products' consisting of : Defence-related products in EU ML-list + Dual-use items and technologies in Dual-use regulation when altered or used for military purposes or as inputs in defence-related products + services not included in either when *specifically designed and intended for military purposes.*

'security-use product' consisting of products in the EU Security taxonomy and Dual-use items and technologies when altered or used for public secuity purposes.

'defence actors': consists of any Ministry of Defence, National Armaments Directorate, Military intelligence, any of the other components or parts of the armed forces that can procure goods or services.

'other entitities active in the DTIB value chain' consists of any legal entities active in providing goods, services and technologies required by armed forces to fulfil their responsibilities, either through direct supply or by being part of the value chain .

**'Product' refers to any good and services offered to the market. This includes technologies, parts, components and raw materials which are considered products for one party and inputs for another..*

Context: DIRS (22)

Defence Industry & Research Strategy (DIRS): *Development and consolidation of a performant Belgian Defence Technological and Industrial Base*

- the capability needs of the Belgian security and defence policy;
- the EU's and NATO's priorities regarding defence-related technological research identified on the basis of technology forecasting processes and the focus areas covered by the Belgian Defence R&T policy;
- the technological and industrial potential of defence-related research and development for the Belgian DTIB.

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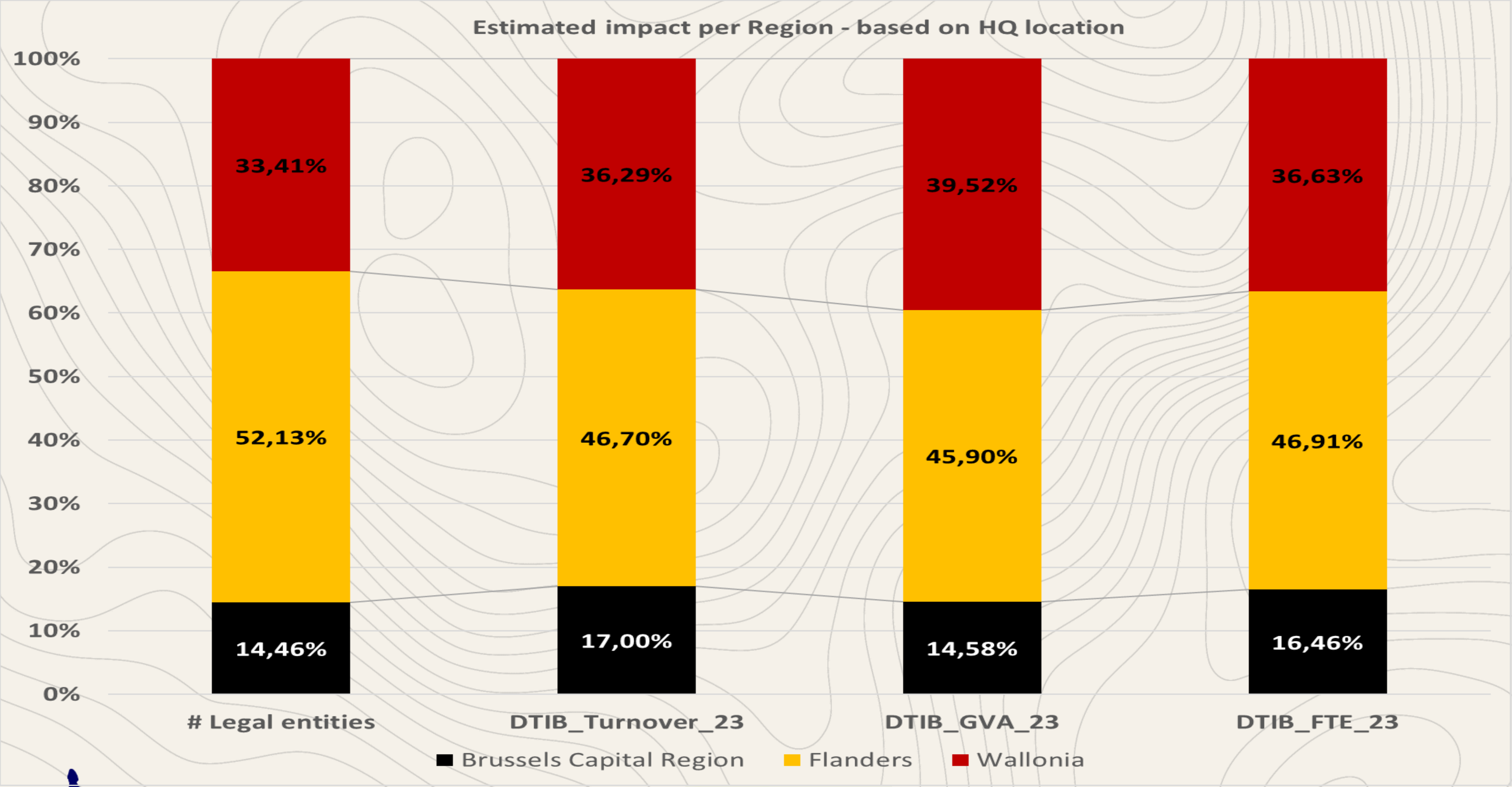

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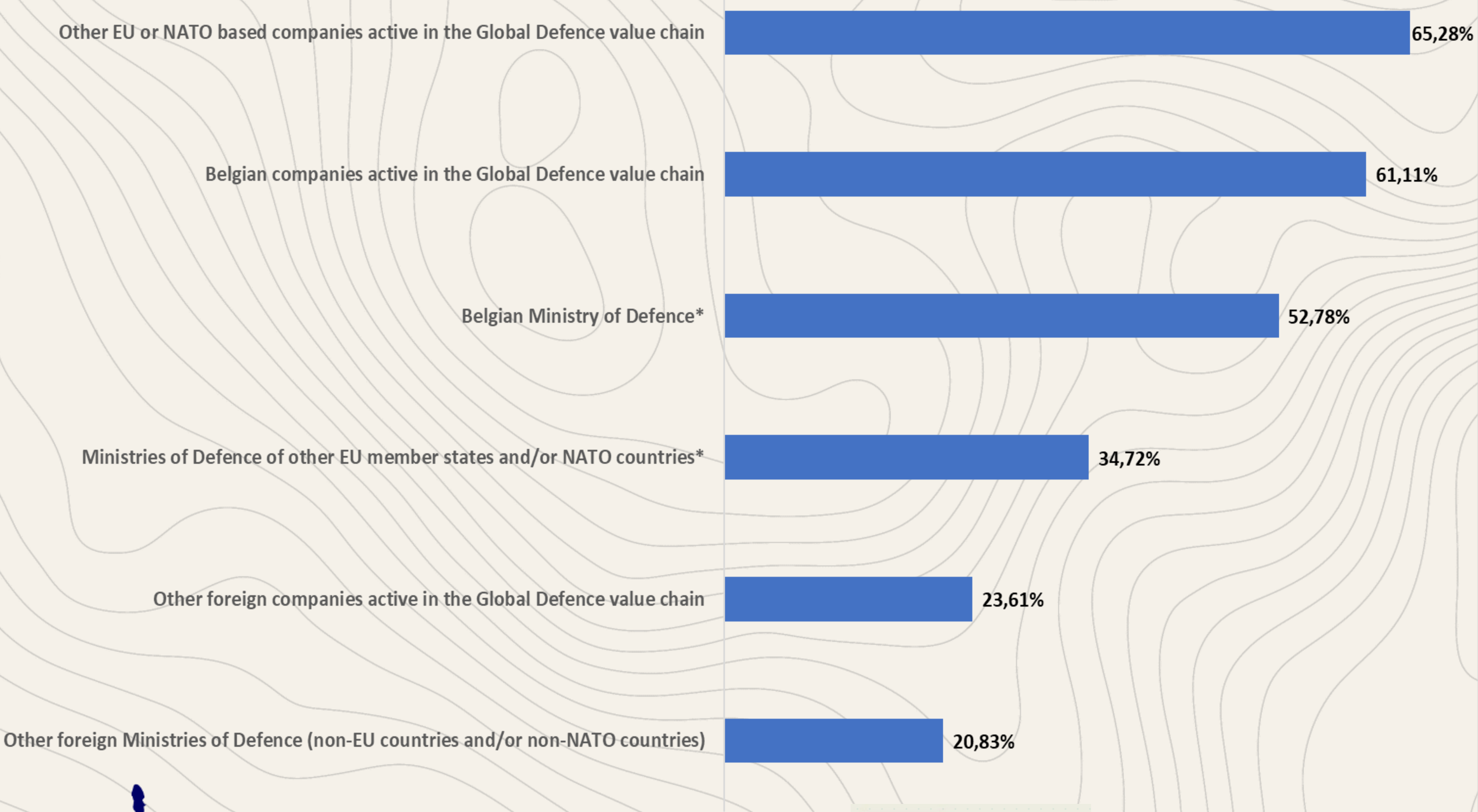
Please note that this info is based on the survey. While deemed representative overall, actual distribution proportions will differ. The info is primarily for indicating the general pattern.

3.8. Customer distribution of the BE-DTIB survey*

What is the distribution of customers the BE-DTIB sell its DTIB relevant goods, services and technologies to?

Customers of survey respondents

Does not concern values. Respondents were only asked to indicate whether they have the following as customers.



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