strategy&

Eurofighter industrial and economic assessment

Final Study Report

January 2024

pwc

Eurofighter Typhoon

Index

Introduction, Overview, and Study Scope

The *Eurofighter* programme forms the backbone of European industry for the production of state-of-the-art military aircraft

Composition of the *Eurofighter* programme

Percentage of workshares in the development of the *Eurofighter*

- 33%
- 33%
- 21%
- 13%

Eurofighter Jagdflugzeug GmbH (Aircraft)

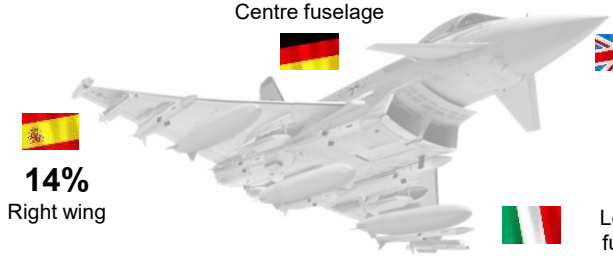
AIRBUS
BAE SYSTEMS
LEONARDO

Eurojet Turbo GmbH (Engine)

MTU Aero Engines
ITP Aero
Avio Aero
Rolls-Royce

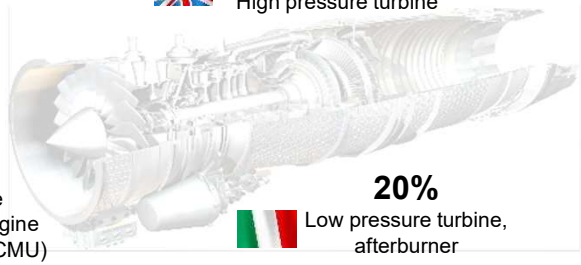
Percentage of workshares in the production of *Eurofighter* components

Eurofighter Jagdflugzeug GmbH



- **29%** Centre fuselage
- **37%** Front fuselage and rear fuselage
- **14%** Right wing
- **20%** Left wing and rear fuselage sections

Eurojet Turbo GmbH

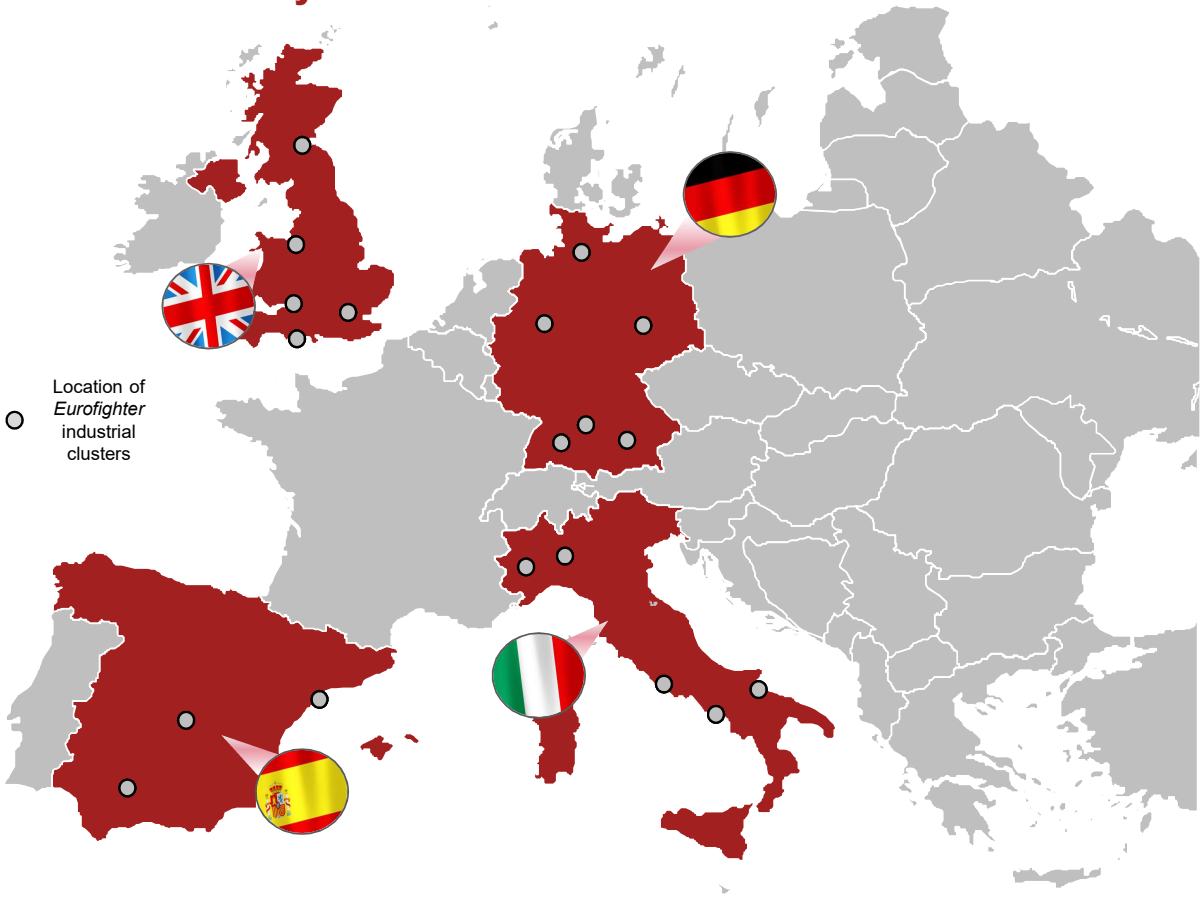


- **34%** Combustion chamber, High pressure turbine
- **30%** Low and High pressure Compressors, Engine Control Units (DECMU)
- **20%** Low pressure turbine, afterburner
- **16%** Variable Thruster

Source: Eurofighter Jagdflugzeug GmbH

The regional technology and engineering competencies across the industrial network constitute the programme's foundation

Industrial ecosystem overview



Key observations

- The *Eurofighter* programme boasts a robust **industrial system** that spans a network of **over 400 suppliers and contractors**
- The industrial network plays a crucial role in **R&D, Design, Production and in-service support** of the Eurofighter Typhoon, ensuring a **stable, diverse, and highly skilled pool of expertise** which forms a strategic asset for all four nations
- The Eurofighter industrial landscape aligns seamlessly with the **average contractual workshare agreements** of the partner nations
- The involvement of various suppliers and contractors from **regional clusters enhances the programme's resilience and adaptability**, fostering a dynamic ecosystem able to capitalize on opportunities

Source: Eurofighter Jagdflugzeug GmbH

The *Eurofighter* Impact Assessment examines past and future contributions from the programme…

The Eurofighter Economic Impact Assessment study (1/2)

The Eurofighter Economic Impact Assessment study

The study provides a comprehensive look into the **Eurofighter programme**, building upon prior research in Spain, Germany, and the UK. This analysis explores the **historical economic contributions** of the programme and anticipates **future economic contributions** according to future business opportunities.

This in-depth examination spans the **entire spectrum of development, production, and support activities**, encompassing the **four partner nations**: Germany, Spain, Italy, and the UK. The aim is twofold - to assess the nuanced economic impact **on each country** individually and to provide insights into the **aggregate measures** that encapsulate the collective impact across these nations.

The economic contribution is evaluated in terms of **GDP, employment, and tax revenues** generated by the Eurofighter programme by using the **input-output modelling** method. This method allows us to dissect the **complex economic interdependencies** within the Eurofighter ecosystem, offering a nuanced understanding of how each component contributes to the overall economic fabric.

Source: Eurofighter Jagdflugzeug GmbH

...to provide a holistic perspective of the socio-economic impact across the four *Eurofighter* partner nations

The Eurofighter Economic Impact Assessment study (2/2)

The Eurofighter Economic Impact Assessment study

The study covers different timeframes as a reference for the analysis:

- The **Historical Period** (2013 - 2023), analysing the past decade to understand the program's foundational economic impact
- The **Future Period** (2024 - 2033), considering:
  - A ***Base Scenario*** examining anticipated economic contributions focused on Halcón I, Quadriga, and Halcón II contracts
  - A ***Growth Scenario*** exploring potential gains under a scenario of enhanced growth that takes into account the Base contracts, a Tranche 5 order from Germany, a new Tranche for Italy, as well as several export opportunities
- The **Support Outlook** (2034 – 2060), covering support contracts until the end of the Eurofighter fleet's useful life.

Our study provides a comprehensive understanding of the **Eurofighter programme's economic impact**, retrospectively and prospectively. Insights from GDP, employment, and tax revenue metrics are invaluable for **strategic planning, policy development**, and **fostering sustainable economic growth**.

Source: Eurofighter Jagdflugzeug GmbH

The study illustrates the overall economic impact and national implications of new tranches via a Base and Growth Scenario

Scope and objectives of the study

Scope and timeframe of the study

Timeframe and scope	**Historical period**	**Base scenario** / **Growth Scenario**	**Support outlook** / **Support outlook**
	2013-2023	**2024 - 2033**	**2034 - 2060**
Perimeter			 
Economic activity scope	 **Development**	 **Production**	 **Support**

Socio-economic observation areas

Total contribution to GDP

Annual contribution to Employment

Total tax revenues

The scope of the study focuses on the value creation generated by the Eurofighter programme across the 4 partner nations in aggregate and for each individual one separately via two potential future order intake scenarios (Base and Growth scenario)

Source: PwC Strategy&

The study considers direct, indirect, and induced effects to gather the full socio-economic impact of the *Eurofighter*

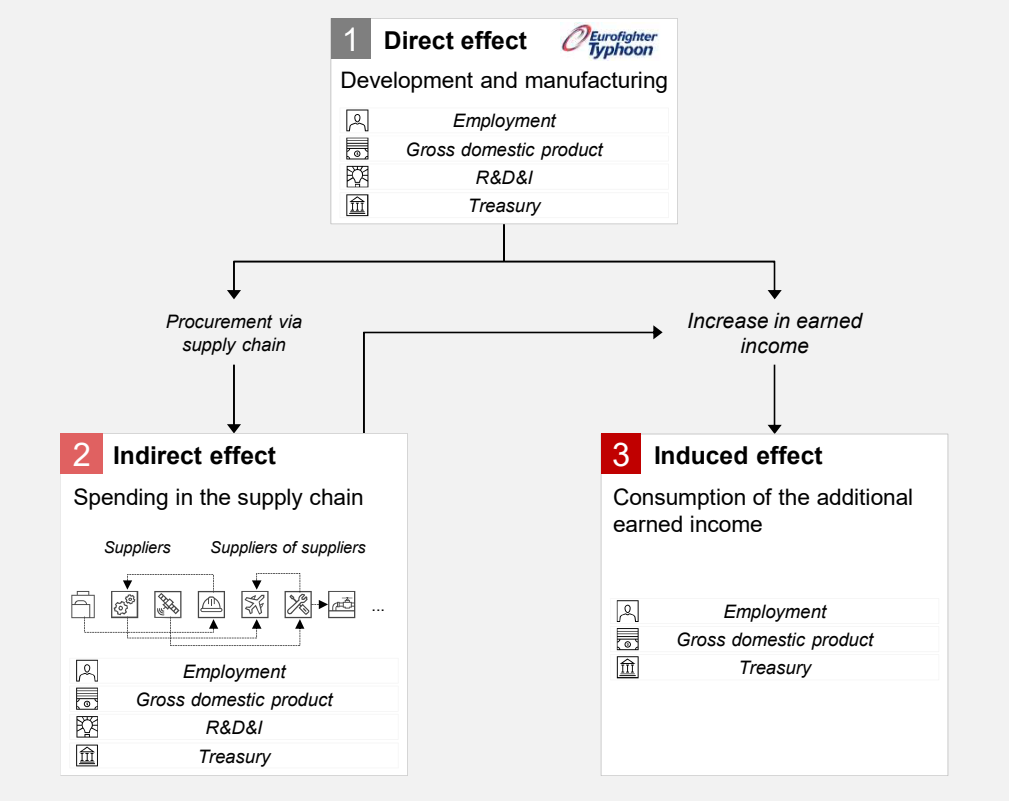
Methodology of the study

Input-Output methodology

To measure the socio-economic impact on the 4 economies, we used the **Input-Output method**, which is a standardised and widely used technique for assessing economic impacts. This allows us to quantify the effect on **GDP, employment and tax revenues on three levels:**

- **Direct effects.** These arise directly from the production of the *Eurofighter*, as well as from its subsequent use, including MRO activities.
- **Indirect effects.** These arise from expenditure and investment throughout the supply chain (e.g. at suppliers of the directly affected companies as well as suppliers of suppliers).
- **Induced effects.** These arise from the consumption of goods and services by households thanks to the labour income generated directly and indirectly

This methodology is described in more detail in **Appendix 1** of this study.



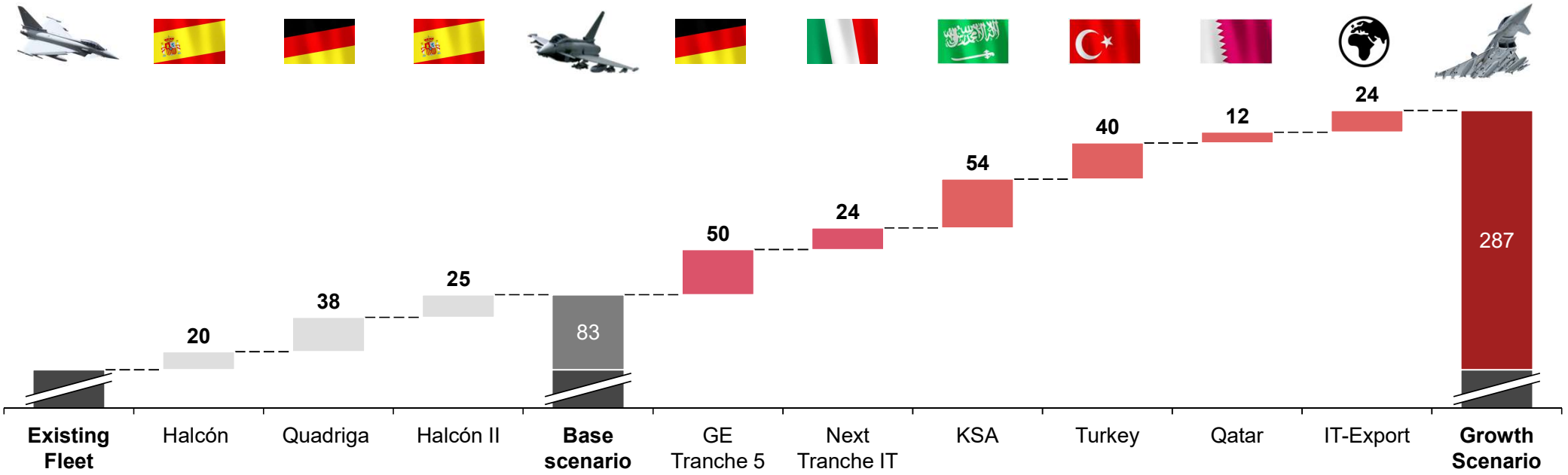
Source: Strategy& Analysis

Future Contribution Scenarios

A Base Scenario would sustain a minimum production rate for a few years, but further domestic and export orders are needed

Future contribution Scenarios

Composition of the Base and Growth Scenarios



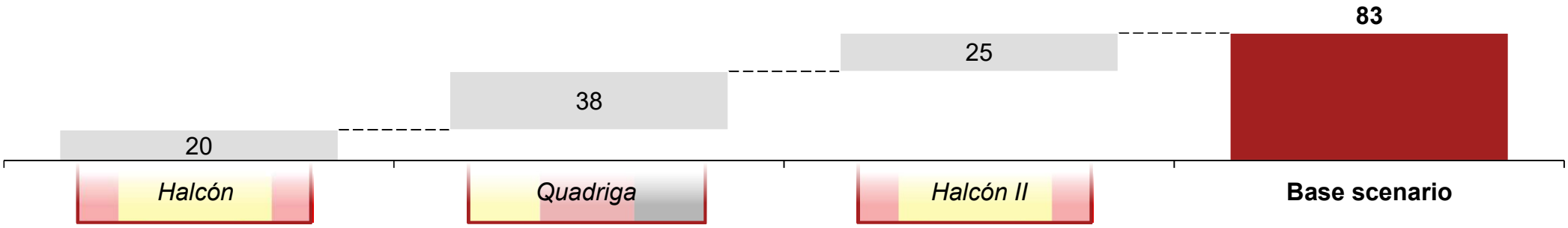
Comprised of contracts for: **Development** **Production** **Support** *Includes existing in-service fleet support*

Source: Eurofighter Jagdflugzeug GmbH; PwC Strategy& analysis

The Base Scenario considers a total contract value of 57.8 €bn on R&D, production, and support of new & existing aircraft

Future contribution between 2024 to 2033 – Spend value data

Legacy contracts included in the Base Scenario



Total accumulated contract value via Base scenario

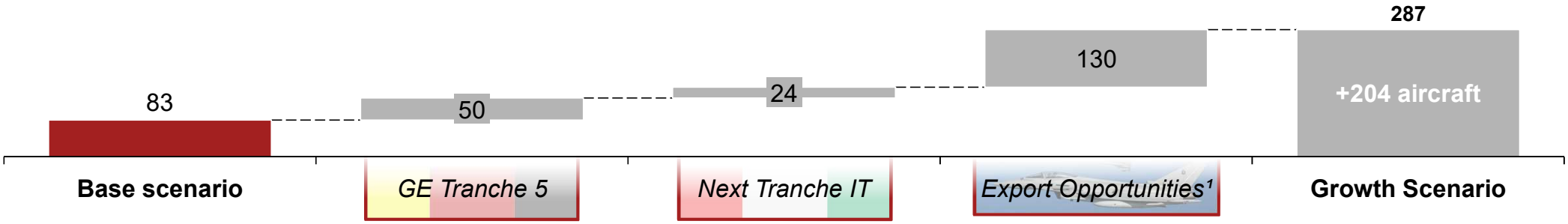
	Development		Production		Support*		Total Value
83 aircraft	**6.5 Bn €**	+	**9.2 Bn €**	+	**3.8 Bn €**	=	**57.8 Bn €**
Existing in-service fleet	**-**		**-**		**38.3 Bn €**		

Source: Eurofighter Jagdflugzeug GmbH; PwC Strategy& analysis
*Includes contract values from related armament spend

The Growth Scenario considers a total contract value of 89.0 € bn on R&D, production, and support of new & existing aircraft

Future contribution between 2024 to 2033 – Spend value data

Legacy contracts included in the Growth Scenario



Total accumulated contract value via Growth scenario

	Development	Production	Support*	Total Value
287 aircraft	6.5 Bn €	29.2 Bn €	15.0 Bn €	89.0 Bn €
Existing in-service fleet	-	-	38.3 Bn €	

Source: Eurofighter Jagdflugzeug GmbH; PwC Strategy& analysis;
*Includes contract values from related armament spend; ¹Distribution of a/c per export country listed in Appendix 1

Increased GDP, employment, and tax revenue would result from realising domestic & export sales via the Growth Scenario

Future contribution overview

Socio-economic impacts 2024 – 2033

	In-service fleet support	Base Scenario	Growth Scenario
Economic Value in € Bn:	**38.3** (18.5*)	**57.8** (37.0*)	**89.0** (48.4*)
Taxes (€ bn.)	**10.4**	**15.5** +5.1	**23.1** +7.6
Jobs (annual)	**46,500**	**68,000** +21,500	**103,400** +35,400
GDP (€ bn.)	**41.2**	**62.2** +21.0	**95.0** +32.8

Notes: ***Numbers in brackets show approximate contribution share of EF partner nations based on historic and forward-estimated contract values**;
The results for GDP and tax revenue are provided at current prices (2023). Source: Eurofighter Jagdflugzeug GmbH; PwC Strategy& analysis

The Growth Scenario contract values of €89.0 bn can be split into its R&D, production, and support activity components

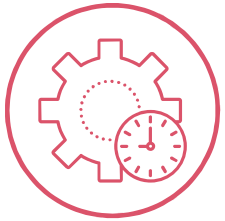
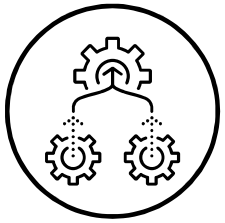
Overview of the contract composition

Scenario	Component	Sub-component	Economic value	
 **Existing contracted elements**	Production	Remaining Kuwait and Qatar contracts	0.1 Bn €	38.3 Bn €
		Armaments	2.2 Bn €	
	Support	Mid-Life Upgrades (MLUs)	4.5 Bn €	
		Aircraft/ Engine maintenance	31.5 Bn €	
+				
 **Base scenario**	Development	Planned R&D contracts	6.5 Bn €	57.8 Bn € +19.5 Bn €
	Production	Halcón I, Quadriga, and Halcón II contracts	9.2 Bn €	
	Support	Armaments (production & support)	2.9 Bn €	
		Support package	39.2 Bn €	
+				
 **Growth scenario**	Development	Planned R&D contracts	6.5 Bn €	89.0 Bn € +50.7 Bn €
		GE Tranche 5	6.0 Bn €	
	Production	Next Tranche Italy	2.9 Bn €	
		IT-Export, KSA, Turkey & Qatar opportunities	20.3 Bn €	
	Support	Armaments (production & support)	4.6 Bn €	
		Support package	48.7 Bn €	

Source: Eurofighter Jagdflugzeug GmbH; PwC Strategy& analysis

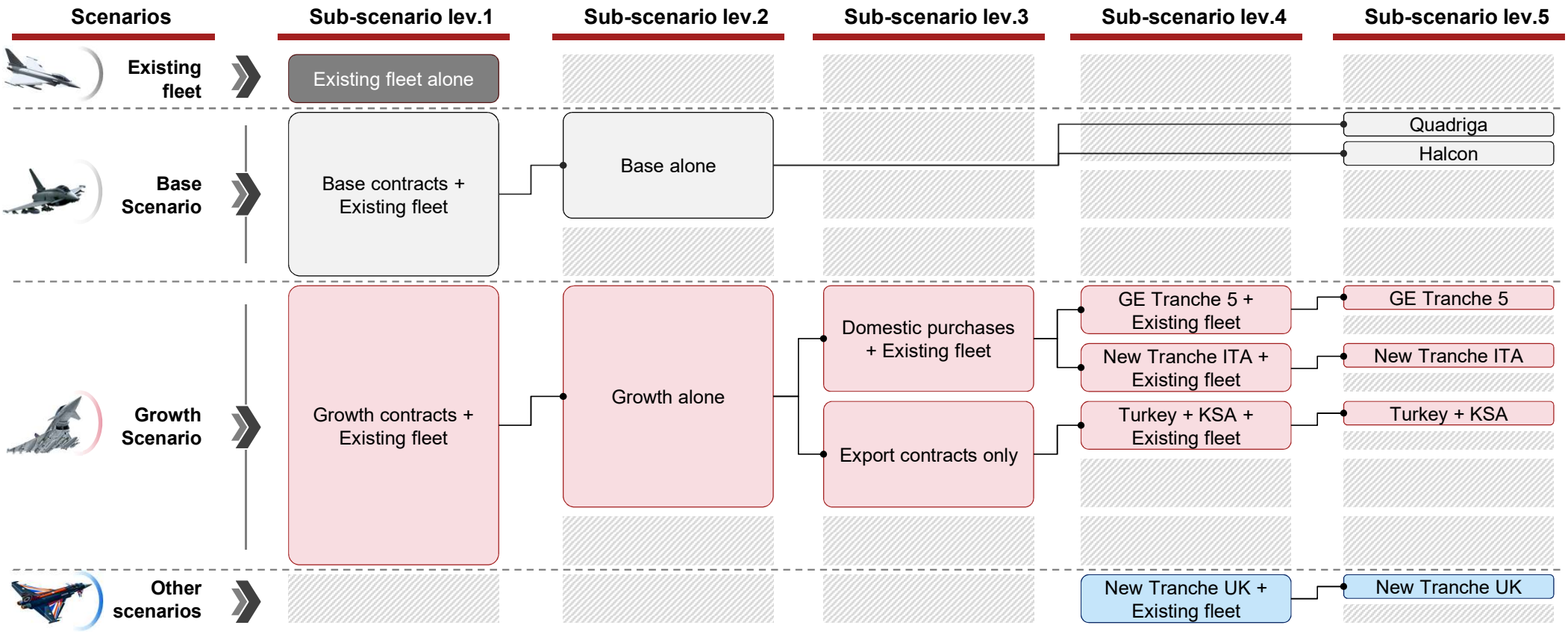
Some key assumptions were used to derive the total contract value of the Eurofighter programme across the two scenarios

Assumptions list

Assumption list		Applied value in the model
	**Armaments** Assumption based on the **MBDA figure** of **10-20% of armaments** value over the total aircraft value considering only the **European component**	**6% increase** of total production and support value (700 Mn € in base and 2.2 Bn € in Growth Scenario)
	**MLU and retrofit** Assumption based on **Eurofighter considerations** on the possible amount of **Mid-Life Upgrades** to be provided to the **existing fleet**	**4.5 Bn €** contract value based on 250 aircraft of the existing fleet and retrofit cost of 18 Mn € per a/c
	**Engine support** Assumption based on **Eurofighter contractual values** for **engine support activities** applied across the scenarios based on the number of aircraft	**11.5 Mn € over ten years** per each individual aircraft multiplied by the number of aircraft in each scenario

The economic model provides an extremely high level of granularity across base data and outputs of specific scenarios

Overview of available model scenarios – (*Forward program 2024-2033 & Outlook 2034-260*)



Scenario details available in the economic model

Source: PwC Strategy&

The programme has had a significant impact on job creation, GDP, and tax revenue on all the participating nations

Historical contribution between 2012 to 2023

	Jobs (annual average)	**GDP** (cumulative total, € bn.)	**Taxes** (cumulative total, € bn.)
Germany	11,700	15.3	4.6
Spain	8,000	7.6	1.7
Italy	8,800	9.5	2.2
United Kingdom	18,800	20.1	4.4
Total	**47,300**	**52.5**	**12.9**

Source: PwC Strategy&

The Base Scenario will contribute substantially to the partner nations' economies, tax budgets, and aerospace industries

Future contribution on employment, GDP and tax revenues via base scenario

Country	***Base Scenario* – Total economic contribution** (2024–2033) Avg. Jobs / yr.	Total GDP (Bn €)	Tax revenue (Bn €)	**Support and maintenance** (2034–2060) Avg. Jobs / yr.	Total GDP (Bn €)	Tax revenue (Bn €)
Germany	16,600 (10,700*)	18.3 (11.8)	5.6 (3.7)	6,100	18.1	5.7
Spain	11,700 (7,400)	9.2 (5.7)	2.1 (1.3)	4,800	9.9	2.3
Italy	12,600 (9,100)	11.2 (7.6)	2.6 (1.8)	4,700	10.7	2.5
UK	27,100 (19,300)	23.5 (16.1)	5.2 (3.6)	10,100	22.6	5.1
Total	68,000 (46,500)	62.2 (41.2)	15.5 (10.4)	25,700	61.3	15.6

Notes: ***Numbers in brackets show impact of in-service fleet support**;
The results for GDP and tax revenue are provided at current prices (2023). Job average figures are rounded to nearest 100.
Source: PwC Strategy& analysis

The current Growth Scenario will generate highly significant GDP, job, and tax revenue impacts across all partner nations

Future contribution via Growth scenario - General economic overview

	***Growth Scenario* – Total economic contribution** (2024–2033)				**Support and maintenance** (2034–2060)		
Country	**Avg. Jobs / yr.**	**Total GDP (Bn €)**	**Tax revenue (Bn €)**		**Avg. Jobs / yr.**	**Total GDP (Bn €)**	**Tax revenue (Bn €)**
Germany	**25,000** (10,700*)	**27.3** (11.8)	**8.2** (3.7)	+	**10,600**	**31.6**	**9.8**
Spain	**16,600** (7,400)	**13.0** (5.7)	**2.8** (1.3)	+	**7,400**	**15.3**	**3.5**
Italy	**19,700** (9,100)	**17.5** (7.6)	**4.0** (1.8)	+	**8,900**	**20.3**	**4.7**
UK	**42,100** (19,300)	**37.2** (16.1)	**8.1** (3.6)	+	**20,000**	**45.4**	**10.1**
Total	**103,400** (46,500)	**95.0** (41.2)	**23.1** (10.4)	+	**46,900**	**112.6**	**28.1**

Notes: ***Numbers in brackets show impact of in-service fleet support**;
The results for GDP and tax revenue are provided at current prices (2023). Job average figures are rounded to nearest 100.
Source: PwC Strategy& analysis

Export opportunities provide considerable economic benefits to all the partner nations without need for taxpayer funding

Future contribution via Export opportunities - General economic overview

Country	***Export opportunities*** **– Total economic contribution** (2024–2033) Avg. Jobs / yr.	Total GDP (Bn €)	Tax revenue (Bn €)	**Support and maintenance** (2034–2060) Avg. Jobs / yr.	Total GDP (Bn €)	Tax revenue (Bn €)
Germany	5,000 (3,800*)	5.3 (4.1)	1.5 (1.2)	2,400	7.2	2.2
Spain	3,200 (2,500)	2.5 (1.9)	0.5 (0.4)	1,600	3.4	0.8
Italy	4,500 (2,900)	4.0 (2.6)	0.9 (0.6)	2,900	6.6	1.5
UK	10,700 (8,500)	9.6 (7.7)	2.0 (1.6)	8,700	19.9	4.4
Total	23,400 (17,700)	21.4 (16.3)	4.9 (3.8)	15,600	37.1	8.9

Notes: ***Numbers in brackets show KSA & Turkey only impact**
The results for GDP and tax revenue are provided at current prices (2023). Job average figures are rounded to nearest 100.
Source: PwC Strategy& analysis

KSA & Turkey export opportunities by themselves present significant economic contributions with 65% of total exports

Future contribution via KSA & Turkey opportunities - General economic overview

Country		*KSA & Turkey opportunities* – Total economic contribution (2024–2033) Avg. Jobs / yr.	Total GDP (Bn €)	Tax revenue (Bn €)		Support and maintenance (2034–2060) Avg. Jobs / yr.	Total GDP (Bn €)	Tax revenue (Bn €)
Germany		3,800	4.1	1.2	+	1,600	4.8	1.5
Spain		2,500	1.9	0.4	+	1,100	2.3	0.5
Italy		2,900	2.6	0.6	+	1,400	3.1	0.7
UK		8,500	7.7	1.6	+	6,900	15.7	3.5
Total		17,700	16.3	3.8	+	11,000	25.9	6.2

Notes: The results provided do not consider the in-service fleet contribution – only KSA and Turkey generated impacts are reported
The results for GDP and tax revenue are provided at current prices (2023). Job average figures are rounded to nearest 100.
Source: PwC Strategy& analysis

During its full life, a single *Eurofighter* generates a GDP impact of 442 Mn€, sustains 130 annual jobs, and creates 106 Mn€ tax revenue

Individual aircraft contribution across all nations via Growth Scenario for full lifecycle

Socio-economic impacts of one new Eurofighter aircraft

2024

2060

418

GDP contribution
(Mn €)

124
(262 as peak annual jobs)

Jobs sustained
(annual average)

102

Tax Revenues
(Mn €)

Notes: All figures rounded; The results for GDP and tax revenue are provided at current prices (2023).
Source: Eurofighter Jagdflugzeug GmbH; PwC Strategy& analysis

Decisions in favour of the *Eurofighter* benefit its home nations, their people & the entire European socio-economic landscape

Key *Eurofighter* programme attributes

- **Creates significant GDP impact**
- **Generates net tax revenue via export campaign success**
- **Sustains highly-skilled workforce**
- **Retains production & maintenance infrastructure**
- **Guarantees national sovereignty**
- **Prevents overreliance on US technology**
- **Enables next gen combat system via R&D investments**
- **Showcases domestic product quality**
- **Delivers unrivalled airspace protection capability**

Source: PwC Strategy& analysis

National Implications

Eurofighter Impact in Germany

The Quadriga & Tranche 5 procurements form the current backbone of the Eurofighter and generate significant GDP, jobs, and tax income

Future contribution – Germany

Total economic contribution

		2024-2033 Economic Impact	Delta Impact to Base scenario	Support outlook
Total contribution to GDP	Base scenario	18.3 € Bn.	-	18.1 € Bn.
	With GE Tranche 5*	19.7 € Bn.	+ 1.4 € Bn.	23.2 € Bn.
	Growth scenario	27.3 € Bn.	+ 9.0 € Bn.	31.6 € Bn.
Annual avg. job contribution	Base scenario	16,600 jobs	-	6,100 jobs
	With GE Tranche 5*	18,000 jobs	+ 1,400 jobs	7,800 jobs
	Growth scenario	25,000 jobs	+ 8,400 jobs	10,600 jobs
Total tax revenues	Base scenario	5.6 € Bn.	-	5.7 € Bn.
	With GE Tranche 5*	6.0 € Bn.	+ 0.4 € Bn.	7.3 € Bn.
	Growth scenario	8.2 € Bn.	+ 2.6 € Bn.	9.8 € Bn.

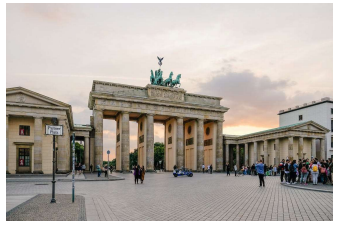
*Consisting of 50 aircraft

Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures are rounded to the nearest 100; Source: PwC Strategy& analysis

The Quadriga & Tranche 5 procurements would be amortised in part by their tax revenue and sustain a large number of jobs

Future contribution – Germany

		Eurofighter Economic Impact 2024-2033	Impact Comparison	
GDP benefit	Base scenario	18.3 € Bn.	10.0%	% of GDP Impact from entire state of Berlin in 2022
	Growth scenario	27.3 € Bn.	15%	
Annual jobs	Base scenario	16,600 jobs	12,340 jobs	# of new direct jobs in wind energy since 2012
	Growth scenario	25,000 jobs		
Tax revenue	Base scenario	5.6 € Bn.	43%	% of T5 and Quadriga cost amortisation (est. at €13bn)
	Growth scenario	8.2 € Bn.	63%	



Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis; wind-energie.de, Statista

Domestic and export procurements will generate significant GDP, jobs, and tax revenues for the Germany's economy

Future contribution of Tranche 5 in Germany

	Base Scenario	Incl. GE Tranche 5*	Growth Scenario	W/o KSA & Turkey export
GDP benefit	18.3 € Bn.	+2.9 € Bn	27.3 € Bn. +9.0 € Bn	-4.1 € Bn
Annual jobs	16,600 jobs	+2,700 jobs	25,000 jobs +8,400 jobs	-3,800 jobs
Tax revenue	5.6 € Bn.	+0.8 € Bn	8.2 € Bn. +2.6 € Bn	-1.2 € Bn

*Consisting of 50 aircraft

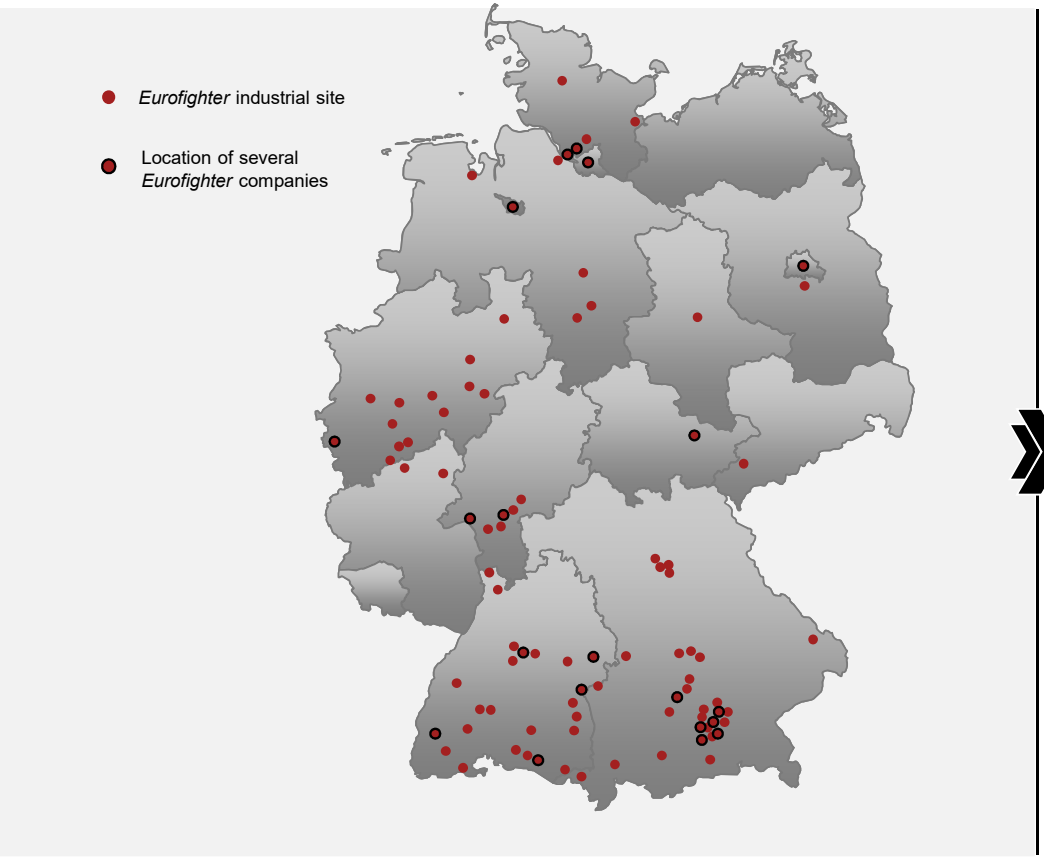
Notes: **1) All impact figures are based on period between 2024-2033**; 2) The results for GDP and tax revenue are provided at current prices (2023); 3) Job average figures are rounded to the nearest 100;

Sources: PwC Strategy& analysis

The German *Eurofighter* industrial network is spread across a wide variety of regions and various-sized supplier firms

Industrial ecosystem overview - Germany

Not exhaustive



Key observations

- The direct contractors and **over 120 suppliers** of the *Eurofighter programme* **are spread over almost all states** of the German federal republic
- **Geographical clusters** are an important **industrial location factor,** as well as **close cooperation with the German Air Force,** such as in the Military-Industrial Competence Centre for development, production & maintenance of the *Eurofighter*
- Geographical proximity and short delivery routes enable *Eurofighter* partners to have an **efficient and agile manufacturing process** and contribute to a positive environmental footprint
- The backbone of the *Eurofighter is* formed by **regional technology and engineering competencies**, which realise numerous **key technologies** in the system

Source: Eurofighter Jagdflugzeug GmbH

The German investments into the Eurofighter programme produce an excellent return in GDP, Jobs, and tax revenues

Economic return generated by the investment

	In-service fleet support		Base Scenario		Growth Scenario
National Investment	5.6 € Bn.	+7.4 € Bn.	13.0 € Bn.	+7.5 € Bn.	20.5 € Bn.
Tax revenue	3.7 € Bn.		5.6 € Bn.		8.2 € Bn. +2.6 € Bn.
Annual jobs	10,700 jobs		16,600 jobs		25,000 jobs +8,400 jobs
GDP benefit	11.8 € Bn.		18.3 € Bn.		27.3 € Bn. +9.0 € Bn.

Notes: **1) All impact figures are based on period between 2024-2033; 2**) The results for GDP and tax revenue are provided at current prices (2023); 3) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis

The *Eurofighter* programme strengthens national sovereignty and contributes significantly to the entire German economy

Summary of impacts in Germany

Not exhaustive

Eurofighter contribution to the socio-economic development of Germany

- **Sovereign military capability via domestic technology development**
- **Retention of skilled workforce via timely T5 procurement**
- **Unrivalled airspace protection capability**
- **Existing production and maintenance infrastructure**
- **High net tax revenues via potential export orders**
- **Enabler to participation in any combat air system in the future**

Key considerations

- The products stemming from the German Eurofighter industrial ecosystem cover a **vast majority of the key technologies highlighted for sovereign national defence** by the German government in 2020
- The ~25.000 **jobs that are annually sustained in Germany** via the Eurofighter fleet consist of many **high-skilled profiles** with high **labour productivity rates**
- With over 800k total flying hours and full combat experience the Eurofighter is a **tested and proven airspace protection platform for quick reaction alerts**
- **Teaming between industry and Armed Forces** at existing production and maintenance infrastructure is a **key for operational readiness, safety, and reliability**
- Enabling **successful export campaigns** would generate additional **German tax revenues worth about €5bn**
- **Investments to enable R&D** and sustain Eurofighter production form the **necessary precursor for Germany to play a strong role in any future combat air system**

Source: PwC Strategy&

Eurofighter Impact in Spain

Spain's strong domestic economic impact from Halcón I and II would be further increased via successful export campaigns

Future contribution – Spain

Total economic contribution

		2024-2033 Economic Impact	Delta to Base scenario	Support outlook
Total contribution to GDP	Base scenario	9.2 € Bn.	-	9.9 € Bn.
	Growth scenario	13.0 € Bn.	+ 3.8 € Bn.	15.3 € Bn.
Annual avg. job contribution	Base scenario	11,700 jobs	-	4,800 jobs
	Growth scenario	16,600 jobs	+ 4,900 jobs	7,400 jobs
Total tax revenues	Base scenario	2.1 € Bn.	-	2.3 € Bn.
	Growth scenario	2.8 € Bn.	+ 0.7 € Bn.	3.5 € Bn.

Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures are rounded to the nearest 100;
Source: PwC Strategy& analysis

Domestic procurement will be amortised in large part by its tax revenue and sustains a large number of high-skilled jobs

Future contribution – Spain

Eurofighter Economic Impact 2024-2033			Impact Comparison		
GDP benefit	Base scenario	9.2 € Bn.	38%	% of GDP benefit from wine-making industry	
	Growth scenario	13.0 € Bn.	54%		
Annual jobs	Base scenario	11,700 jobs	23%	% of employees of La Liga and its clubs	
	Growth scenario	16,600 jobs	30%		
Tax revenue	Base scenario	2.1 € Bn.	32%	% of Halcon I and II cost amortisation (est. at €6.5bn)	
	Growth scenario	2.8 € Bn.	43%		

Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis, afi.es, La Liga

Failure to materialise export opportunities would result in strongly reduced GDP impact, job security, and tax revenues

Future contribution – Spain

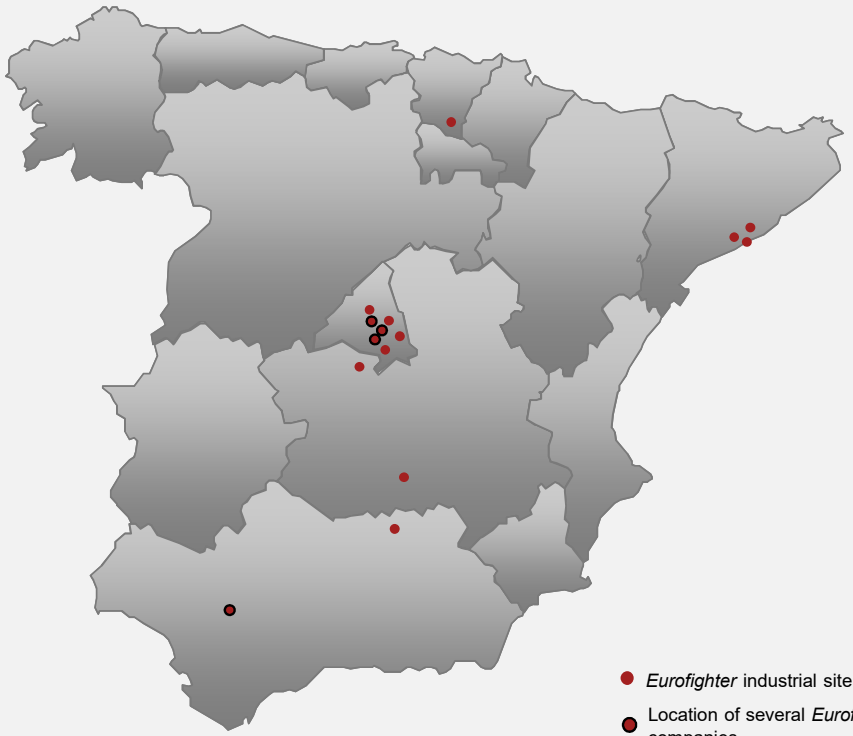
	Base Scenario	Growth Scenario	Growth Scenario w/o export
GDP benefit	9.2 € Bn.	13.0 € Bn. +3.8 € Bn	-3.0 € Bn
Annual jobs	11,700 jobs	16,600 jobs +4,900 jobs	-3,700 jobs
Tax revenue	2.1 € Bn.	2.8 € Bn. +0.7 € Bn	-0.6 € Bn

Notes: **1) All impact figures are based on period between 2024-2033; 2**) The results for GDP and tax revenue are provided at current prices (2023); 3) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis

The Spanish *Eurofighter* industrial network spreads across the country with a clear high-tech cluster in the Madrid region

Industrial ecosystem overview – Spain

Not exhaustive



Key observations

- The Eurofighter programme in **Spain** counts on **more than 35 key suppliers and contractors** contributing to the realization of the key components of the aircraft and the engine
- The distribution of the supplier companies within the Iberian country is highly **concentrated within the Madrid region**, where more than 50% of the suppliers are established
- The region of **Sevilla is gaining momentum** and rapidly developing a strong industrial hub for aerospace and defence activities
- The backbone of the *Eurofighter is* formed by **regional technology and engineering competencies**, which realise numerous **key technologies** in the system

Source: Eurofighter Jagdflugzeug GmbH

The Spanish investments into the Eurofighter programme produce an excellent return in GDP, Jobs, and tax revenues

Economic return generated by the investment

	In-service fleet support		Base Scenario		Growth Scenario
National Investment	2.8 € Bn	+7.5 € Bn.	10.3 € Bn	+0.0 € Bn.	10.3 € Bn
Tax revenue	1.3 € Bn.		2.1 € Bn.		2.8 € Bn. +0.7 € Bn.
Annual jobs	7,400 jobs		11,700 jobs		16,600 jobs +4,900 jobs
GDP benefit	5.7 € Bn.		9.2 € Bn.		13.0 € Bn. +3.8 € Bn.

Notes: **1) All impact figures are based on period between 2024-2033; 2**) The results for GDP and tax revenue are provided at current prices (2023); 3) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis

The *Eurofighter* programme accounts for highly-skilled jobs in Spain and is a key driver for new technological developments

Summary of impacts in Spain

Not exhaustive

Eurofighter contribution to the socio-economic development of Spain

- **Sovereign military capability via domestic technology development**
- **Retention and development of highly-skilled workforce**
- **Unrivalled airspace protection capability**
- **Existing production and maintenance infrastructure**
- **High net tax revenues via potential export orders**
- **Enabler to participation in any combat air system in the future**

Key considerations

- The **~15.000 jobs that would be annually sustained** in Spain via the Eurofighter fleet consist of many **high-skilled profiles with significant labour productivity rates**
- Many **vital technology developments** for the operational capability of the Eurofighter stem from **Spain's national competence in Aerospace & Defence**, which could be lost due to a slump in orders and lack of export success
- With over 800k total flying hours and full combat experience the Eurofighter is a **tested and proven airspace protection platform for quick reaction alerts**
- Enabling **successful export campaigns** would generate additional **free Spanish tax revenue worth about €0.5bn** and avoid ramp-up costs after a longer gap in production
- **Investments to enable R&D** and sustain Eurofighter production forms the **necessary precursor for Spain to play a clear role in any future combat air system**

Source: PwC Strategy&

Eurofighter Impact in Italy

Domestic and export sales could help Italy maintain a strong industrial ecosystem that generates high economic value

Future contribution – Italy

Total economic contribution

		2024-2033 Economic Impact	Delta Impact to Base scenario	Support outlook
Total contribution to GDP	Base scenario	11.2 € Bn.	-	10.7 € Bn.
	Next Tranche IT*	11.3 € Bn.	+0.1 € Bn	12.7 € Bn.
	Growth scenario	17.5 € Bn.	+ 6.3 € Bn.	20.3 € Bn.
Annual avg. job contribution	Base scenario	12,600 jobs	-	4,700 jobs
	Next Tranche IT*	13,100 jobs	+500 jobs	5,600 jobs
	Growth scenario	19,700 jobs	+ 7,100 jobs	8,900 jobs
Total tax revenues	Base scenario	2.6 € Bn.	-	2.5 € Bn.
	Next Tranche IT*	2.7 € Bn.	+0.1 € Bn	3.0 € Bn.
	Growth scenario	4.0 € Bn.	+ 1.4 € Bn.	4.7 € Bn.

*Consisting of 24 aircraft

Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures presented are rounded to the nearest 100; 3) Numbers may not add up due to rounding. Source: PwC Strategy&

A new Italian Tranche procurement would be amortised in part by its tax revenue and sustain a large number of jobs

Future contribution – Italy

Eurofighter Economic Impact 2024-2033			Impact Comparison		
GDP benefit	Base scenario	11.2 € Bn.	45	Equivalent to GDP impact via # of Monza F1 Grand Prix	
	Growth scenario	17.5 € Bn.	70		
Annual jobs	Base scenario	12,600 jobs	24%	% of employed people in the Italian fashion industry	
	Growth scenario	19,700 jobs	38%		
Tax revenue	Base scenario	2.6 € Bn.	67%	% of new tranche* cost amortisation (est. at €3.9bn)	
	Growth scenario	4.0 € Bn.	103%		

Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures are rounded to the nearest 100;
Sources:Sole24Ore; Moda e Lusso Formazione; PwC Strategy& analysis

Export sales and a new Italian procurement would generate significant GDP, jobs, and tax revenues for Italy's economy

Future contribution of New Tranche IT – Italy

	Base Scenario	Incl. Next Tranche IT*	Growth Scenario	Growth Scenario w/o export
GDP benefit	11.2 € Bn.	+1.1 € Bn	17.5 € Bn. +6.3 € Bn	-4.9 € Bn
Annual jobs	12,600 jobs	+1,300 jobs	19,700 jobs +7,100 jobs	-5,200 jobs
Tax revenue	2.6 € Bn.	+0.3 € Bn	4.0 € Bn. +1.4 € Bn	-1.0 € Bn

*Consisting of 24 aircraft

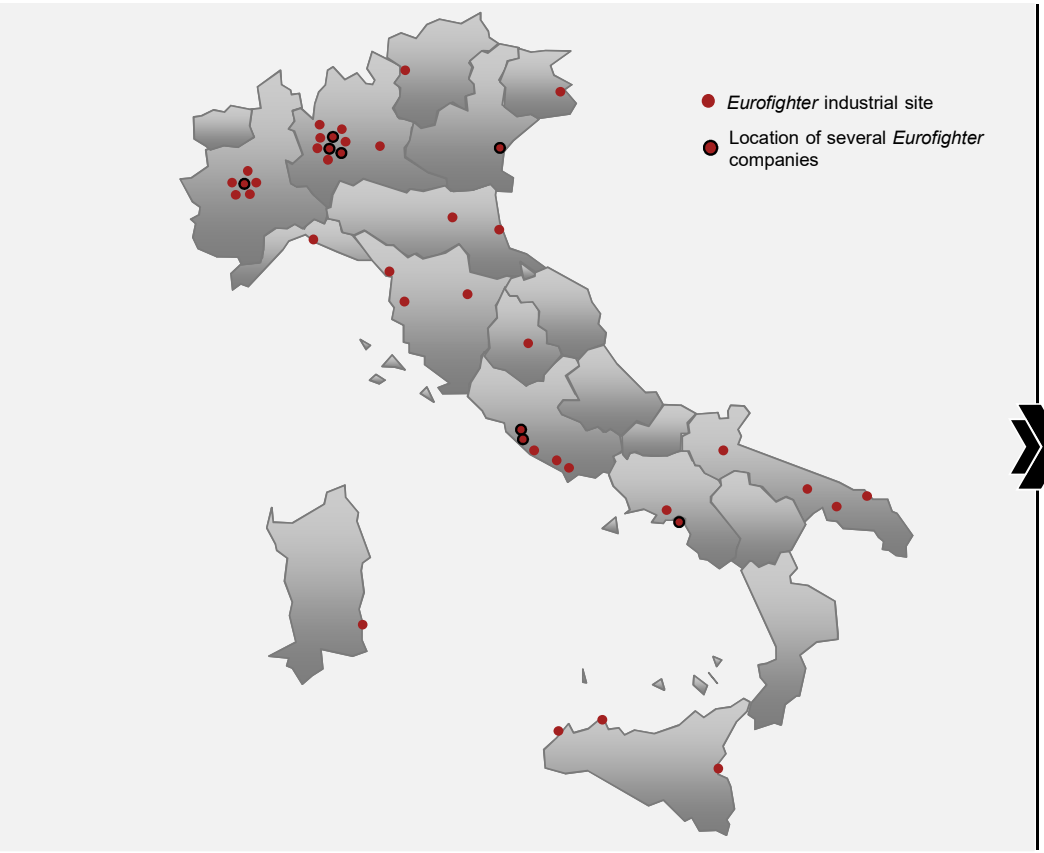
Notes: **1) All impact figures are based on period between 2024-2033; 2**) The results for GDP and tax revenue are provided at current prices (2023); 3) Job average figures are rounded to the nearest 100;

Sources: PwC Strategy& analysis

The Italian *Eurofighter* key industrial network consists of numerous high-tech suppliers located across the entire country

Industrial ecosystem overview – Italy

Not exhaustive



Key observations

- Italy's pivotal role in the Eurofighter program is underscored by a **robust industrial ecosystem**, boasting approximately **50 key suppliers and contractors** strategically distributed across the country
- This network is not only expansive but **strategically positioned in key economic hubs**, aligning with regions renowned for their technological expertise
- The concentration of contributors in these regions highlights the **strategic placement of suppliers**, forming a cohesive and technologically advanced supply chain throughout the territory
- The backbone of the programme is formed by **regional technology and engineering competencies**, which realise numerous **key technologies** in the system

Source: Eurofighter Jagdflugzeug GmbH

The Italian investments into the Eurofighter programme produce an excellent return in GDP, Jobs, and tax revenues

Economic return generated by the investment

	In-service fleet support	Base Scenario	Growth Scenario
National Investment	3.8 € Bn.	+1.3 € Bn. → 5.1 € Bn.	+3.9 € Bn. → 9.0 € Bn.
Tax revenue	1.8 € Bn.	2.6 € Bn.	4.0 € Bn. (+1.4 € Bn.)
Annual jobs	9,000 jobs	12,600 jobs	19,700 jobs (+7,100 jobs)
GDP benefit	7.6 € Bn.	11.2 € Bn.	17.5 € Bn. (+6.3 € Bn.)

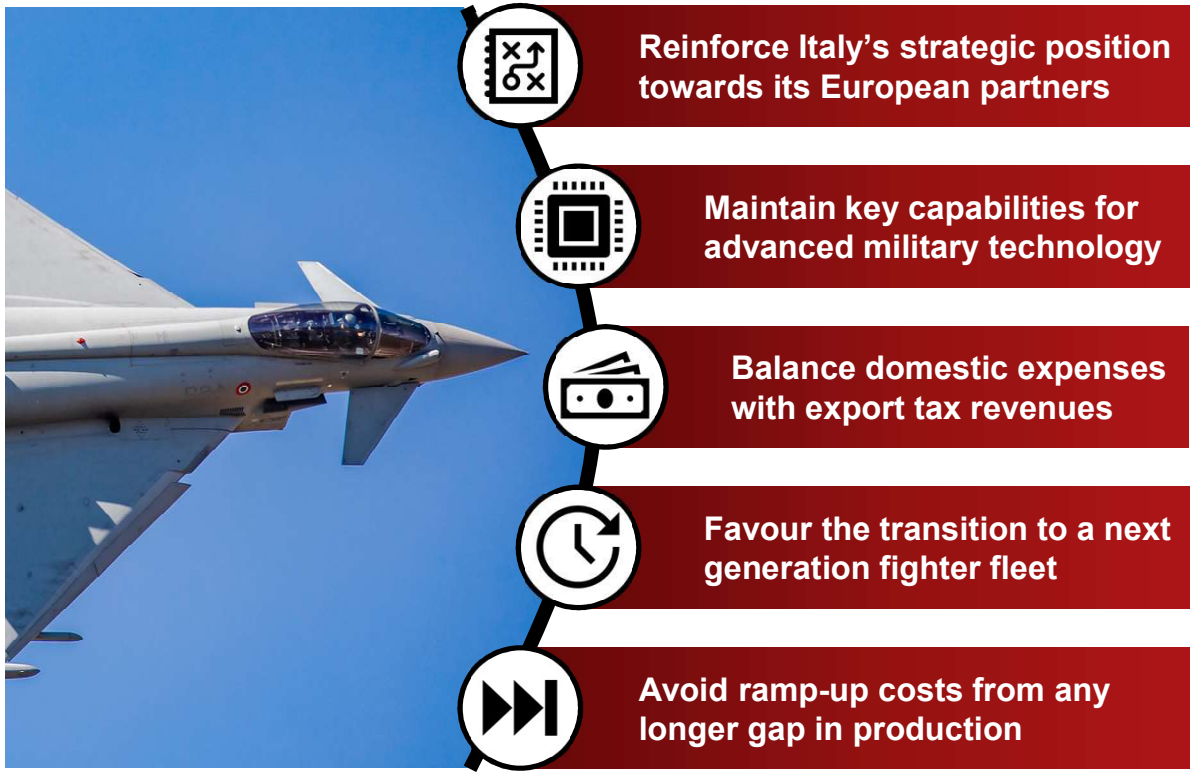
Notes: **1) All impact figures are based on period between 2024-2033; 2**) The results for GDP and tax revenue are provided at current prices (2023); 3) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis

The *Eurofighter* could serve as a transitional solution toward new generation fighters sustaining production activity in Italy

Summary of impacts in Italy

Not exhaustive

Eurofighter contribution to the socio-economic development of Italy



- **Reinforce Italy's strategic position towards its European partners**
- **Maintain key capabilities for advanced military technology**
- **Balance domestic expenses with export tax revenues**
- **Favour the transition to a next generation fighter fleet**
- **Avoid ramp-up costs from any longer gap in production**

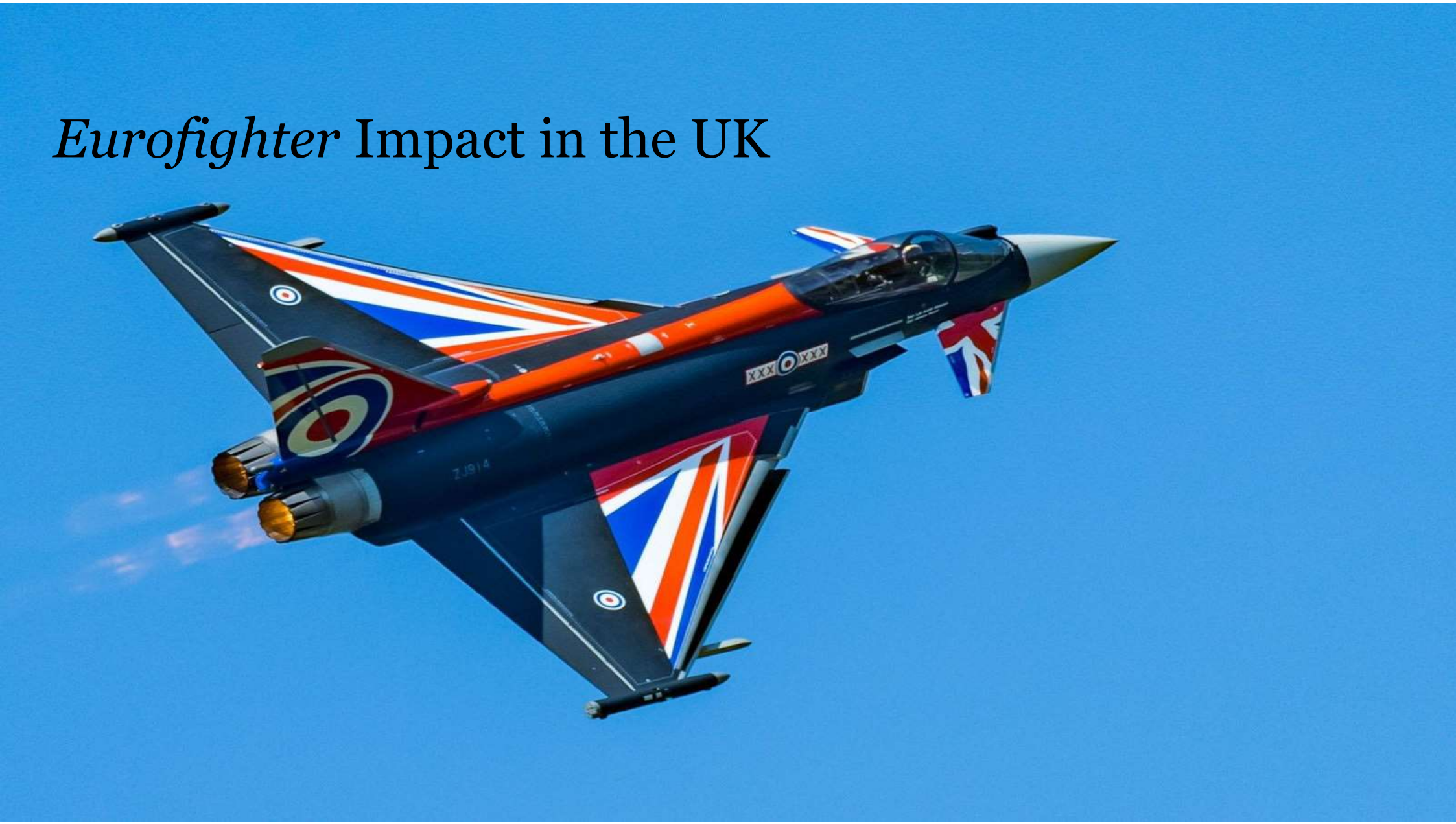
Key considerations

The procurement of the Eurofighter:

- Consolidates **Italy's political and industrial positioning** within the European community during a time of **next-generation air combat system** development
- Sustains Italy's technological leadership in the **development of cutting-edge military capabilities by fostering innovation** in the defense sector
- Reinforces the Italian commitment to maintain an **active industrial ecosystem** via the **Final Assembly Line in Piedmont** and production locations across the country
- Reduces the dependency on foreign suppliers **ensuring control over critical military technology**
- Navigates the transition to a **mixed-generation combat aircraft fleet** and enables **life extension options**
- Serves as a bridge by **sustaining production** to ensure continuity in **R&D, MRO, and manufacturing skills** and avoiding the need to switch production on and off

Source: PwC Strategy&

Eurofighter Impact in the UK



Eurofighter production and support in the UK and abroad creates immense economic, fiscal and employment impacts

Future contribution – UK

Total economic contribution

		2024-2033 Economic Impact	Delta Impact to Base scenario	Support outlook
Total contribution to GDP	Base scenario	23.5 € Bn.	-	22.6 € Bn.
	Growth scenario	37.2 € Bn.	+ 13.7 € Bn.	45.4 € Bn.
Annual avg. job contribution	Base scenario	27,100 jobs	-	10,100 jobs
	Growth scenario	42,100 jobs	+ 15,000 jobs	20,000 jobs
Total tax revenues	Base scenario	5.2 € Bn.	-	5.1 € Bn.
	Growth scenario	8.1 € Bn.	+ 2.9 € Bn.	10.1 € Bn.

Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures presented are rounded to the nearest 100; 3) Numbers may not add up due to rounding. Source: PwC Strategy& analysis

The GDP impact and tax revenue generated from increased Eurofighter production could contribute strongly to society

Future contribution – UK

Eurofighter Economic Impact 2024-2033			Impact Comparison	
GDP benefit	Base scenario	23.5 € Bn.	87%	Equivalent to annual total GDP in the brewing industry
	Growth scenario	37.2 € Bn.	138%	
Annual jobs	Base scenario	27,100 jobs	x4.3	Factor to direct employees of UK Premier League clubs
	Growth scenario	42,100 jobs	x6.8	
Tax revenue	Base scenario	5.2 € Bn.	173	# of secondary schools that could be built w/ tax revenue
	Growth scenario	8.1 € Bn.	270	

*Notes: 1) The results for GDP and tax revenue are provided at current prices (2023); 2) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis; The Brewers of Europe; checkatrade.com; Gov.UK;

The Growth scenario as well as a new Eurofighter Tranche in the UK would generate significant GDP, jobs, and tax revenues

Future contribution – UK

	Base Scenario	Growth Scenario	Delta via Next Tranche UK*
GDP benefit	23.5 € Bn.	37.2 € Bn. +13.7 € Bn	+1.9 € Bn
Annual jobs	27,100 jobs	42,100 jobs +15,000 jobs	+2.100 jobs
Tax revenue	5.2 € Bn.	8.1 € Bn. +2.9 € Bn	+0.4 € Bn.

*consisting of 24 aircraft

Notes: **1) All impact figures are based on period between 2024-2033; 2**) The results for GDP and tax revenue are provided at current prices (2023);
3) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis

The British *Eurofighter* industrial network is distributed across all regions in England and has some major local clusters

Industrial ecosystem overview - UK

Not exhaustive

Key observations

- The direct contractors and suppliers of the *Eurofighter programme* are **spread over most regions of the United Kingdom**
- **Significant clusters of economic and industrial activity** can be found around the Greater Manchester area in Warton and Samlesbury with nearly 10k employees, as well as in the south-eastern urban and coastal areas
- Many **high-tech components** for the Eurofighter are produced in **small and medium-sized companies** across the UK
- BAE Systems as the **major British prime contractor employs over 35k people** in total in the UK and forms the backbone of British aerospace engineering capabilities

Source: Eurofighter Jagdflugzeug GmbH

The UK investments into the Eurofighter programme produce an excellent return in GDP, Jobs, and tax revenues

Economic return generated by the investment

	In-service fleet support		Base Scenario		Growth Scenario
National Investment	6.3 € Bn.	+2.3 € Bn.	8.6 € Bn.	+0.0 € Bn.	8.6 € Bn.
Tax revenue	3.6 € Bn.		5.2 € Bn.		8.1 € Bn. +2.9 € Bn.
Annual jobs	19,300 jobs		27,100 jobs		42,100 jobs +15,000 jobs
GDP benefit	16.1 € Bn.		23.5 € Bn.		37.2 € Bn. +13.7 € Bn.

Notes: **1) All impact figures are based on period between 2024-2033; 2**) The results for GDP and tax revenue are provided at current prices (2023); 3) Job average figures are rounded to the nearest 100;
Sources: PwC Strategy& analysis

The *Eurofighter* programme contributes strongly to prosperity in the UK and is a vital component of stability and deterrence

Summary of impacts in UK

Not exhaustive

Eurofighter contribution to the socio-economic development of UK

- **Cutting-edge military technology realisation in Typhoon platform**
- **Advanced collaboration between Forces and Industry**
- **Highly efficient support and maintenance infrastructure**
- **Enabler for continued European collaboration**
- **High net tax revenues via potential export orders**
- **Safeguard of stability in a tumultuous global landscape**

Key considerations

- Collaboration between Armed Forces, industry, and academia ensures a **strategic advantage by realizing new science and technology in the Eurofighter**
- **Technologies central to Tempest will be deployed on Typhoon** while capability requirements mature
- **Strong established collaboration between industry, Royal Air Force, and Ministry of Defence** personnel to ensure continuity in production, MRO, and training operation at RAF Coningsby in Lincolnshire and RAF Lossiemouth in north-east Scotland.
- **Advanced aircraft support setup** via Typhoon Total Availability Enterprise (TyTAN) **to deliver Quick Reaction Alert (QRA) capability** and protect UK airspace.
- Continued **collaboration with European partners** ensures fruitful political exchange and **strengthens the UK's strategic positioning** with other EU nations
- Vital importance of the programme to **global security and UK prosperity** in a time of conflict, uncertainty, and threats

Source: PwC Strategy&

Conclusion

The *Eurofighter* encompasses a strong industrial ecosystem and actively defends the safeguarding of democracy in action

The *Eurofighter programme* in the present

HIGHLY SKILLED EMPLOYEES ACROSS OVER 400 COMPANIES

in direct production and extended supply chain

> ***The Eurofighter's* superiority** both in close air combat and at long range **ensures the protection of our own forces and assets.**

German Ministry of Defence: "Weapon systems and large-scale equipment of the Bundeswehr".

Tried, proven, and ready

Over 850,000 flying hours completed with numerous missions in active operational theatres

Sources: Eurofighter Jagdflugzeug GmbH, German Ministry of Defence

Based on newly produced aircraft, the Eurofighter programme will generate substantial benefits across the partner nations

Summary of results

Contribution 2024 - 2033	GDP (Bn €)	Annual jobs (k)	Tax revenues (Bn €)
	18.3	16,600	5.6
	27.3	25,000	8.2
	9.2	11,700	2.1
	13.0	16,600	2.8
	11.2	12,600	2.6
	17.5	19,700	4.0
	23.5	27,100	5.2
	37.2	42,100	8.1

Key programme attributes

- Creates significant GDP impact
- Generates net tax revenue via export campaign success
- Sustains highly-skilled workforce
- Retains production & maintenance infrastructure
- Guarantees national sovereignty
- Prevents overreliance on US technology
- Enables next gen combat system via R&D investments
- Showcases domestic product quality
- Delivers unrivalled airspace protection capability

Base scenario *Growth scenario*

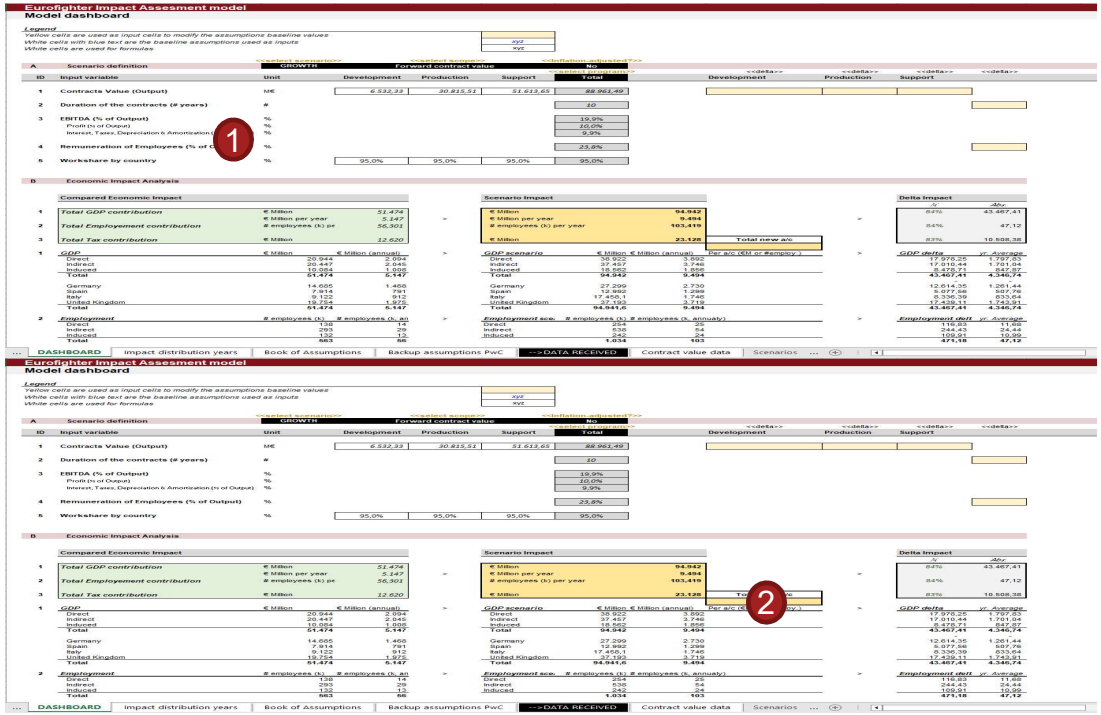
Appendix 1

Methodology and Definitions

At the heart of the analysis lies an economic model that uses the Input-Output-Method to calculate the scenario impacts

Economic Model for the Eurofighter Impact study

Eurofighter Economic Impact Assessment study – Economic Model Overview



- The quantitative analysis of this study is based on a **socio-economic Impact Model**, which is based on the commonly-established **Input-Output-Method** (See Appendix for more information on methodology)
- **Contract value data** from Eurofighter GmbH databases forms the **foundation of the model inputs**
- **The model outputs** can be easily made visible via a **Dashboard Sheet** (see picture on the left), which features a **drop-down selection of all evaluated scenarios** built into the top row (see figure 1 on the left)
- Via the selected scenario the area below (see figure 2 on the left) shows the respective **scenario impact broken down by**
  - *GDP Impact, Jobs sustained, and Tax Revenues*
  - *Direct, Indirect, and Induced Impact*
  - *Impact distribution across all 4 nations*
- The model also gives an overview of any **important assumptions** (also listed in more detail in Appendix 1)

Source: Strategy& analysis; Eurofighter Jagdflugzeug GmbH

A methodology comparison test on the German and Spanish studies showed a very small delta margin in model outputs

Study output comparison analysis

Illustrative

Total economic contribution 2024-2060

Variables[1]	Current model	National study	Delta
GDP	1,786	1,680	+6.3%
Jobs/year	688	657	+4.7%
Tax	449	427	+5.1%
GDP	5,807	5,624	+3.3%
Jobs/year	2,106	2,077	+1.4%
Tax	3,192	3,131	+1.9%

Key **methodological differences** that explain the delta across studies:

1. **Year of reference.** The current model uses a Europe-wide input-output table for 2019.

   Europe I-O **2019** v.s. Germany I-O **2020**, Spain I-O **2015**

2. **Intercountry economic feedback**. The Europe-wide input-output model captures economic relations and import-export feedback.

   Europe I-O — EU country ⇄ feedback ⇄ EU country

3. **Industry disaggregation**. The input-output table in the current model differs slightly in industry categorisation compared to the models used in national studies.

   Europe I-O **64** industries v.s. Germany I-O **72**, Spain I-O **63**

Source: PwC Strategy& analysis

[1]The current model and the Spanish and German study models equally consider the impact of 20 a/c in Spain and 38 a/c in Germany for their respective countries

The Input-Output-Method makes a quantification of three significant socio-economic contribution parameters possible

Socio-economic considerations on the scope of the study

Aim

The aim of this report is to **analyse** the **socio-economic contribution of the** *Eurofighter* across all 4 partner nations **on three different levels**:

- **Effects on employment**
- **Impact on GDP**
- **Impact on tax revenues**

Scope

Thematic scope

The impact of the *Eurofighter* spans across the **manufacturing,** as well as the **utilisation and maintenance phase[1] (including MRO[2] activities)**

Geographical scope

The geographical scope is defined by **value that is added in each of the 4 partner nations**

Temporal scope

The calculations take into account the **historic period from 2012 to 2023** and the forward period from **2023 to 2060** for **system production, utilisation, and maintenance** of the *Eurofighter*

1) See definition via Customer Product Management (CPM) of the German Armed Forces: "In the utilisation phase, all measures are to be carried out to maintain and restore the operational readiness as well as the operational capability and readiness for use. This includes, among others, maintenance, repair, logistical support, training and other services"; 2) Maintenance, Repair & Overhaul;
Sources: Strategy& Analysis, BMVG Central Service Regulation A-1500/3 "Customer Product Management".

The FIGARO Input-Output tables provides a robust method for calculating the *Eurofighter*'s total impact

Definitions of input-output indicators and effects

The most important goal of **input-output accounting** is to show in detail the interdependencies of production and goods in an economy (country), including the trade of goods and services between countries.

For the purpose and framework of this study we use the integrated global accounts for economic modelling, **FIGARO Input-Output tables**, developed by the European Commission that join national data for the EU member states and its main trade partners (including the UK) regarding the goods and services produced and traded.

Building from the FIGARO Input-Output tables, the Input-Output-Method is applied to account for direct, indirect and induced impacts of the *Eurofighter* project

FIGARO
Full International and Global Accounts for Research in Input-Output analysis

- Standardized Input-Output tables for the analysed countries

- **64 industry disaggregation**, as well as data for wages, household consumption and GVA
- Complemented with **employment data** from Eurostat Labour Force Survey
- **TAX collection** results added from Eurostat and OCDE national accounts data

Direct
Activities carried out directly by the *Eurofighter* partner companies in Europe

Indirect
Activities that occur in the complete value chain of the *Eurofighter* programme

Induced
Activities carried out by spending wage income by direct and indirect employees in the wider economy

Total economic contribution:
Summarised contribution from direct, indirect and induced effects on Employment, gross domestic product and tax revenues

Source: Strategy& Analysis

GDP is the most suitable macroeconomic measure of the wealth generated by a country's economy

Suitability of GDP as a benchmark for this study

Why use GDP[1] as a benchmark?

Turnover is a good indicator of the relative size of a company, but it does not really reflect the economic value that the company generates.

To correctly measure the economic value generated, **GVA[2]** is used, which is the difference between the value of goods and services sold by an enterprise (turnover) and the goods and services used as inputs in the production process.

There are 3 methods of calculating GVA and GDP, with the **income method** being used for this study.

Income method

Remuneration of the production factors
(Labor and capital)

+ Compensation of employees
+ Gross Operating Surplus / Mixed income
+ Net taxes on production(1)

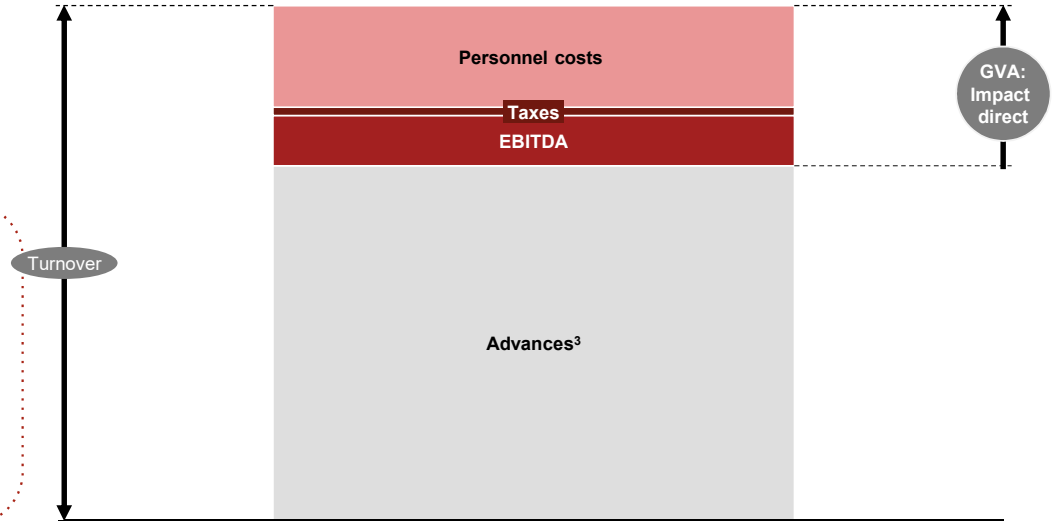
= **Gross Value added (GVA)**

+ Net taxes on products

= **Gross Domestic Product (GDP)**

The impact on GDP is estimated in **terms of GVA.**

Illustration of the breakdown of turnover



1) Gross domestic product; 2) Gross value added; 3) Includes procurement costs, expenses for external services and other general operating costs of the programmes;
Source: Strategy& Analyse

For an accurate estimate of the direct contribution, this study uses the income method

Use of the income method

Estimated direct contribution to GDP

GVA[1] is a macroeconomic indicator that measures wealth creation in the various sectors of the economy and differs from GDP only in that it does not include taxes on products.

Generally, the impact on GDP is estimated using the method of calculating GDP known as the "income method", which aggregates the compensation of the factors of production used in the economy. Specifically, directly generated GDP is the sum of compensation of employees (personnel costs), gross operating surplus (EBITDA) and net taxes on output generated by the enterprise in each country.

These variables (personnel costs, EBITDA and taxes) are estimated for each country taking into account their share in the revenues of the main companies involved, a ratio that is then applied to the manufacturing and maintenance budget.

Estimated direct contribution to employment

In the case of employment, the direct impact is calculated by taking into account the jobs per euro of turnover of the main companies involved in the *Eurofighter* project. The resulting ratio is applied to the estimated budget for the production and maintenance of the acquired *Eurofighters.*

Estimated direct contribution to tax revenue

Finally, the direct tax effects refer to the sum of the most important taxes levied and borne by companies. Specifically, the following types of taxes are considered in this study for the direct effects: Corporate Income Tax, Social Security Contributions for Workers and Employees and Personal Income Tax.

1) Gross Value Added;
Source: Strategy& Analysis

Data from the FIGARO Input-Output tables is used for the total impact model construction for the four nations

The Input-Output model

The economic impacts are calculated on the basis of the *input-output model*, which is created using data from the FIGARO Input-Output tables for European Union member states and the UK.

Input-output models are a common and widely used technique to quantify the economic impact of economic activities and infrastructure investments. They are based on the *Leontief production model*, in which the production demand (X) of an economy is equal to the intermediate demand for goods and services by the productive sectors plus final demand (y), as shown in the following expression:

$$X = AX + y$$

where *X* is a column vector representing the production demand of each industry-country of the economy (using a 64 industry and 28 country breakdown we have 1,792 individual observations) and *y* is a column vector representing the final demand of each sector, and *A* is a matrix called the technical coefficients, which indicates for each specific sector, row by row, the percentage of its output that is destined for each of the other sectors of the economy, and also indicates for each sector, column by column, the weight of its output of the goods and services that it demands from each of the other sectors of the economy. The above expression can also be interpreted as follows:

$$\begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ \dots \\ X_n \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & a_{13} & \dots & a_{1n} \\ a_{21} & a_{22} & a_{23} & \dots & a_{2n} \\ a_{31} & a_{32} & a_{33} & \dots & a_{3n} \\ & & \dots & & \\ a_{n1} & a_{n2} & a_{n3} & \dots & a_{nn} \end{bmatrix} \times \begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ \dots \\ X_n \end{bmatrix} + \begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ \dots \\ y_n \end{bmatrix} ;$$

28 countries

64 industries

n= 1,792

Where, for example, X_1 is the production demand of industry-country 1 *and* y_1 is the final demand of this industry-country, and a_{11} , a_{12} , a_{13} , ..., a_{1n} are the percentages of industry-country 1's production going to industry-country 1, 2, 3, ..., ...1,792, while a_{11} , a_{21} , a_{31} , ..., a_{n1} are the weights of goods and services demanded by industry and country index 1, 2, 3, ..., 1,792 on the output of industry-country 1.

If you rearrange the above expression, the production needs of an economy (*X*) can be calculated from the final demand (*y)* it has to meet as follows:

$$X = (I-A)^{-1} y$$

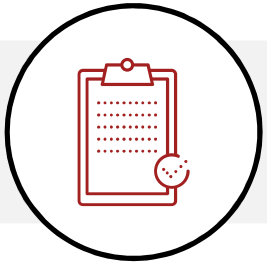
Where $(I-A)^{-1}$ is the inverse *Leontief matrix* or production multiplier matrix used to calculate impacts. This matrix allows us to determine the impact in terms of gross output (i.e. output demand) for each euro spent or invested in the different sectors of the national accounts (i.e. for each euro of final demand). Employment multipliers are calculated from the matrix of production multipliers. To do this, the direct employment coefficients (ratio between the number of employees and production) are first calculated for each industry-country using data from Eurostat. The employment impacts are then derived by multiplying the employment/production ratios by the production impact column vector.

The multipliers for the calculation of induced effects are derived from information on: *(i)* the weight of household income (compensation of employees) on the output of each of the sectors concerned, *(ii)* the distribution of household consumption by sector, and *(iii)* the marginal propensity to consume estimated from the FIGARO macroeconomic accounts.

Source: Strategy& Analysis

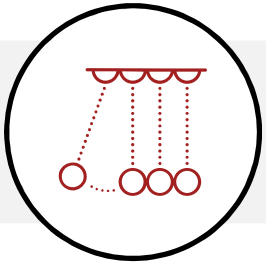
We developed an early-stage sensitivity test case to evaluate assumptions and refine the following data gathering process

Sensitivity test case – key objectives



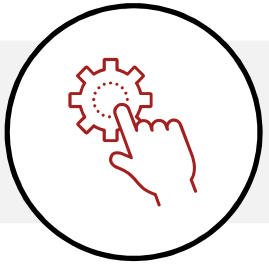
Align on the data request and methodology

- List all the **needed data** and **underlying assumptions**
- Define which data points are **critical** and should be further assessed
- Align the **final data request** on the **assumptions list**



Derive the expected effect of each input data

- Perform a **baseline sensitivity** test to outline the expected impact of a **general contract**
- Assess the **sensitivity** of each one of the data inputs over the **aggregate economic impact**



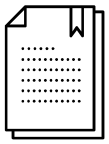
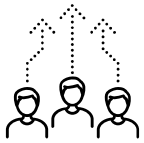
Adjust and refine the key underlying assumptions

- Analyze the **results** and identify any **major issue**
- Select the data to be **validated by the SCM**
- Adjust the **data request table** and **assumptions list** according to the results

Source: PwC Strategy&

The test employs 6 input variables to estimate a baseline economic output against which we estimated a delta impact for each variable

Sensitivity test case – variables list

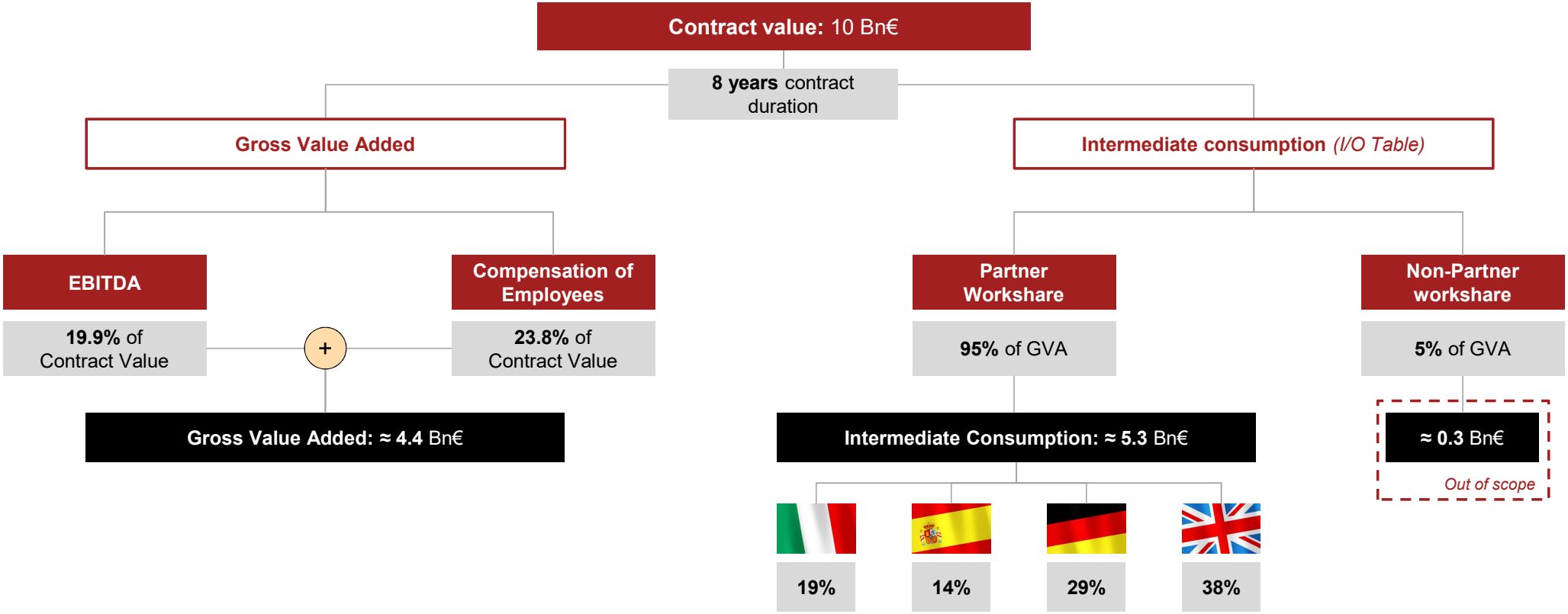
Dimension		Input variable	Description	Baseline value
 Contract terms	1	Contract value	Estimated reference contract price	10.0 Bn€
	2	Time period	Expected duration of the contract and distribution of production across the business plan	8.0 yrs
 Financial data	3	EBITDA margin	Assumed EBITDA margin over the total contract price split for profit and interest, tax, depreciation	10.0% + 9.9%
	4	Compensation of Employees	Percentage value of the employees remuneration over the total contract price	23.8%
 Workshare	5	Non-partner country workshare	Share of production incurred outside partner countries	5.0%
	6	Partner country workshare split	Workshare split among the four partner countries	19% 14% 29% 38%

Source: PwC Strategy&

The generated impact sensitivity of each of the input variables is based on a macroeconomic theory-based algorithm

Sensitivity test case – algorithm overview

Illustrative



Input variable | Assumption | Result

Source: PwC Strategy&

The assessment model requires alignment on key variables and assumptions such as the total contract values

Sensitivity test case – conclusions

	Dimension		Effect on the model output				Comment
Contract	1	Contract value	**High**	Medium	Low	»	• Contract value is a **crucial variable**, demanding **precise data**, as it exerts the **most significant influence** on economic output
Contract	2	Time period	High	Medium	**Low**	»	• Time period exerts **minimal impact** on the overall economic output - what matters is the **distribution of work across the years**
Financials	3	EBITDA margin	High	Medium	**Low**	»	• EBITDA margin has a **limited impact** on the total economic output, primarily influencing the **distribution between direct, indirect, and induced** effects on GDP, employment and tax revenues
Financials	4	Compensation of Employees	High	Medium	**Low**	»	• CoE has a **limited impact** on the total economic output, primarily influencing the **distribution between direct, indirect, and induced** effects on GDP, employment and tax revenues
Workshare	5	Non-partner country workshare	High	**Medium**	Low	»	• Non-partner country workshare has a **moderate impact** on the total economic output as it alters the **allocation of production** assigned to **partner countries**
Workshare	6	Partner country workshare split	High	Medium	**Low**	»	• Partner country workshare split has a negligible effect on the total economic output adjusting the **distribution of shares** across nations with an equal sum – **minimal macro differences** by country apply

Source: PwC Strategy& analysis

Within the model we considered a few paramount assumptions in order to assess the economic contribution of the programme

Model Assumption List (1/2)

Assumption category	Description	Variables list and assumed values
Macroeconomic sectors	In line with the **Input-Output methodology** we allocate the **expenditure of the programme procurement** to specific **macroeconomic industrial sectors**. The allocation is based on the type of contract analysed, namely: **production, support, development**. The percentage of allocation across the sectors (*reported on the right*) is based on the same assumptions used for the Quadriga and Halcon studies.	Manufacture of other transport equipment Manufacture of electrical equipment Repair and installation of machinery and equipment Manufacture of machinery and equipment Wholesale trade, except of motor vehicles and motorcycles Manufacture of fabricated metal products, except machinery and equipment Manufacture of computer, electronic and optical products
Workshare by country	We have allocated a **specific workshare** that takes into account (i) **Non-partners workshares** – being fixed across the scenarios, and (ii) the **Partners workshare**, adjusted according to the scenarios and activity type	**Non-partners nations** Fixed share of 5% **Average Workshare** 20% 14% 29% 37%
Financial indicators	For the calculation of the direct economic effect we consider two variables: (i) **EBITDA margin**; (ii) **Employee remuneration**. The assumptions on the value are based on historical EF data, and average values for the industry	**EBITDA** Fixed profit share at 10% Fixed Interest, Taxes, D&A at 9.9% **Employee average remuneration** Fixed at 23.8% across scenarios
In-scope elements	We consider in the model several elements of the Eurofighter programme to ensure the full **comprehensiveness of the economic analysis**	Aircraft Engine Armaments Aircraft and Engine support R&D MLU and retrofit

Source: Strategy& Analysis

Within the model we considered a few paramount assumptions in order to assess the economic contribution of the programme

Model Assumption List (2/2)

Assumption category	Description	Variables list and assumed values
Development contract value details	The **contract values** for the **Development portion** in the **Base and Growth Scenario** contain **equal contract elements** since this **investment** is assumed to be **independent from the production scenarios**	**Development Contracts assumptions:** 1. PxE (2,200M €) 2. EW (1,165M €) 3. MK1 & 2 Radar (1,500M €) 4. LTE (1,000M €) 5. Other Tasks (1,400M €) **Total: 7,266Bn €** (Incl. 700M € pre-2024 investment)
Production model	Assumed **rate of production**: 30 aircraft per year maximum (with marginal increase in Growth Scenario)	Growth Scenario planned **completion of production** activity: End 2036
Support model	**Out of Service Date** (Current Fleet): Full Fleet — Until 2034 70% — 2035-2039 30% — 2040-2044 0% — Beyond 2044 New fleet assumptions: **Fleet Life** 40 Years	**Initial ISS** - 3 Years from initial deliveries - 30% of a/c acquisition price for existing fleets upgrade; - 50% of a/c acquisition price for new fleets (e.g. TK & IT-Export) **FOS** - 4M€/ac/Year (Core Fleet); - 6M€/ac/Year (Export Fleet) **Workshare allocation** - *Core Fleet*: Equivalent to Production workshare - *Export Fleet:* 35% allocated to PCO, remaining 65% in line with Production WS
Export country distribution	The **130 export aircraft** considered within the Growth Scenario stem from a variety of contract opportunities as illustrated here:	Turkey: 40 a/c IT-Export: 24 a/c KSA: 54 a/c Qatar: 12 a/c

Source: Strategy& Analysis