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Italian F-35 Lightning II Program
Economic Impact Assessment

3 February 2014

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Section 1
Overview

Overview

- In 2013-2014, **PricewaterhouseCoopers - Italy (PwC - Italy)** Conducted a Comprehensive Economic Impact Assessment of the F-35 on the Italian Economy.
- The Study Identifies:
  - *Italian **Investment** in the F-35 Program;*
  - *Economic **Value Added** to Italian Economy (direct, indirect and induced) as a Result of F-35 Production;*
  - ***Employment** Generated (direct, indirect and induced).*
- The quantification was conducted by means of a Combined Approach, which included:
  - ***Direct Observation by Surveys**, interviews and analysis of financial statements [direct impacts];*
  - *an extended **Econometric Input-Output Modeling** [indirect and induced impacts].*

Section 2
Facts and Figures

JSF Program and Italy

- The JSF Program represents the Most Advanced Initiative in Fighter Jet Development, Production and Sustainment.

- Initiated in the 90s, the Program involves several countries, which, depending on their contribution in investments for the research and development phase and number of purchased jets, are eligible for different amounts of offered opportunities in the production and sustainment phases.

- Italy, with a 4% involvement in the initial phases of the JSF Program, represents a Level II Partner.

Italy Ordered a Total of

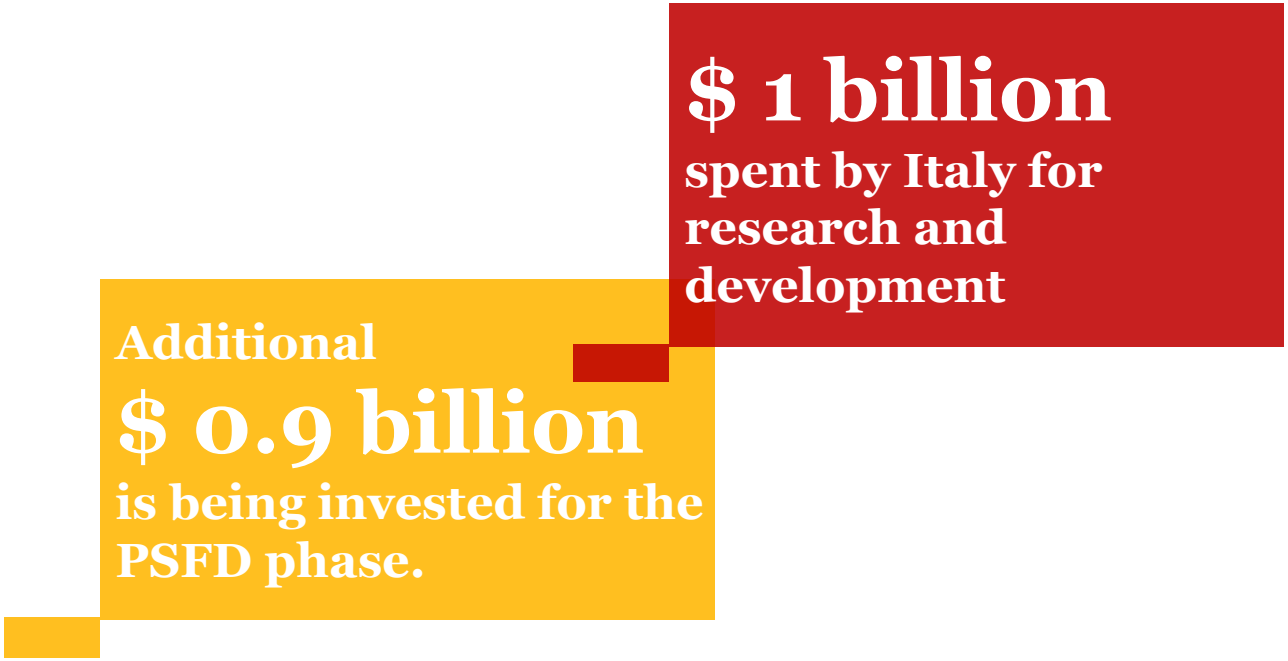
90 F-35s

60
Conventional Take off and Landing

30
Short Take off and Vertical Landing

Research & Development Investments

- During pre-production phases, the Italian government invested **$ 1 billion** for the **research and development**. Additional **$ 0.9 billion** is being invested for the **Production Sustainment and Follow-on Development** phase.
- Research & Development Investments are not included for the calculation of economic benefits (value added and employment).



Production Investments

$ 1.7 billion
of gross production investments in Italy

- To have all the required machining, tools, factories, etc. to Produce Components and perform Assembly Activities, a total of **$ 1.7 billion investments** is to be spent in Italy.

- Half a Billion Dollars is represented by imports (of which 95% is accounted for by Lockheed Martin and only 5% by Italian companies); the remaining **$ 1.2 billion is invested in Italy** by Italian companies or by the Ministry of Defense.

- Investments on production facilities and assets have been taken into account for the calculation of economic benefits (value added and employment).

Production Opportunities

Almost
$ 0.7 billion
completed

- **$667 million in contracts** have been let to more that **27 Italian companies** to date; production value projected to be worth several billion dollars.

- **Additional production opportunities** to be offered as production matures.

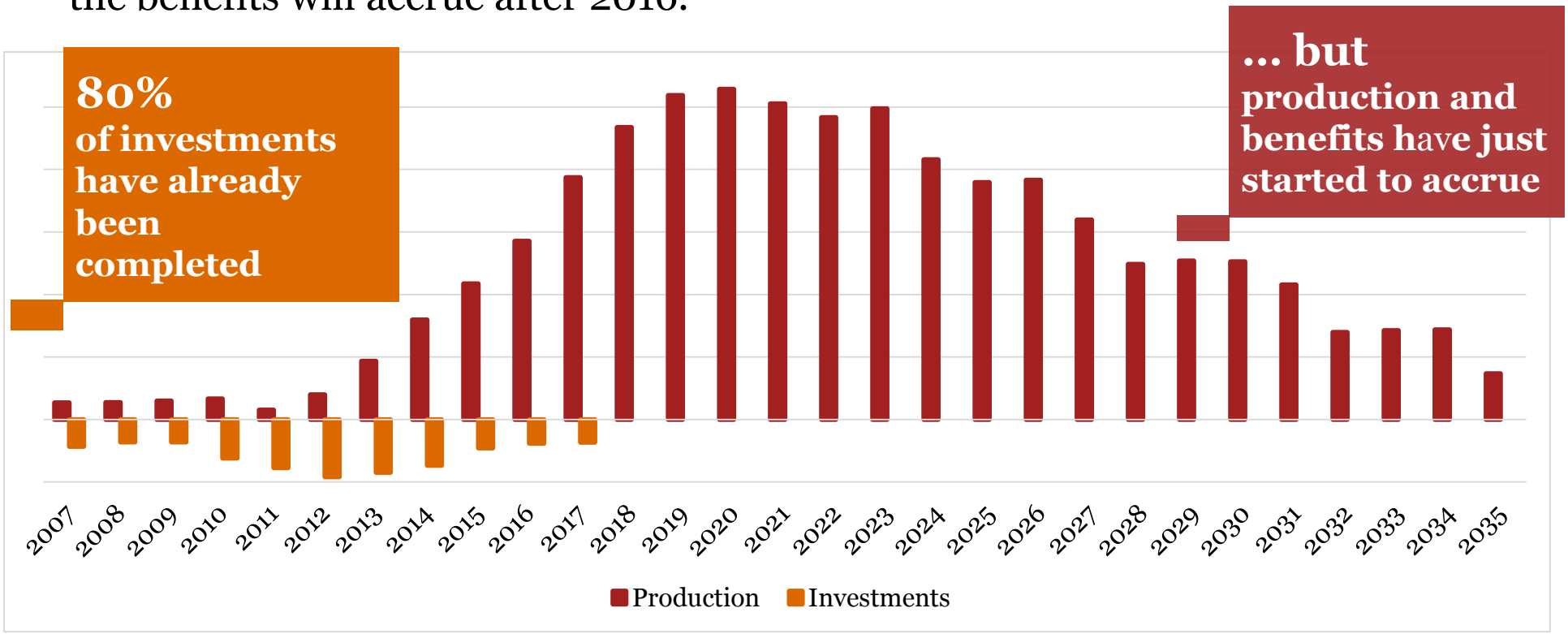
- Production opportunities have been set according to the participation share and to the number of jets to be acquired by Italy.

Areas of **Italian Industrial Participation**:

- Wing Manufacturing
- Electronics
- Machining
- F-35 Mating/Finishing
- Structures
- Support Equipment
- Engineering Support
- Cockpit Lighting

Production vs. Investments

- In the period between 2007 and 2014, **80% of the investments** to support production will be completed.
- Conversely, by 2014, the Italian economy and labor market only benefits from a **3% - 4% share of the full potential returns** from production orders; most of the benefits will accrue after 2016.



Section 3
Methodology for Impact Assessment

Methodology – direct impacts

- The **direct impacts** have been quantified by means of the direct observation of a sample of Italian companies.

- The sample covered Companies representing all different involved sectors (i.e. wings, assembly, machining, electronics, structures and equipment).

- The analysis considered:
  - *Value, type and location of investments made (and/or planned in the future);*
  - *Origin and value of production inputs (Import vs. domestic);*
  - *Number of direct workers per level of production.*

Overall the direct observation phase covered about 62% of the overall expected production value.

Methodology – indirect and induced impacts

- The indirect and induced impacts calculation is based on a model resulting from the **World Input Output Database (WIOD)**. The WIOD is recognized by the European Commission (EC) and the Organization for Economic Co-operation and Development (OECD).

- The input output model allowed for the calculation of ***Indirect effects*** *and* ***Induced effects***.

Section 4
Impact Assessment

What kind of benefits to expect?

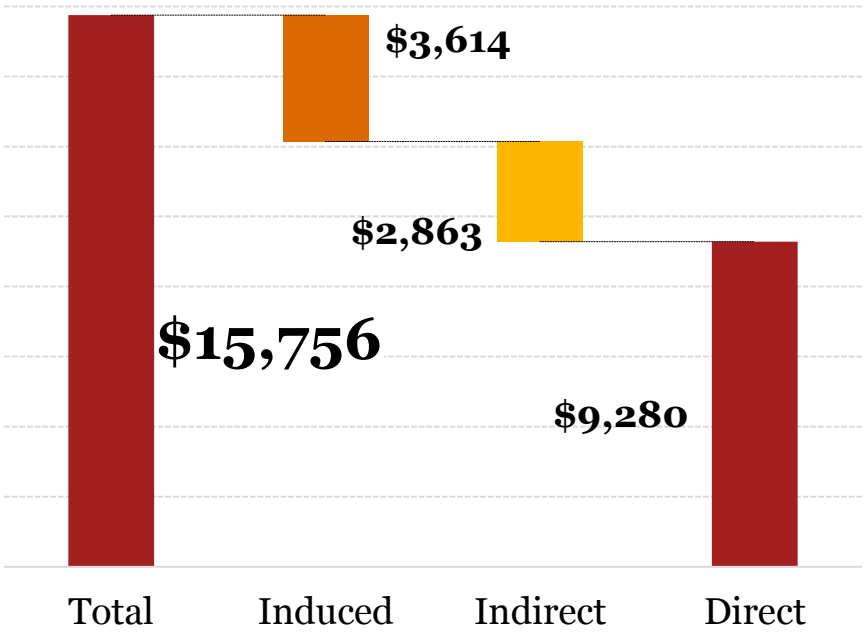
- Both **Investments** involving Italian companies and **Production Activities** result in an effect on the Italian market in terms of economic benefits (value added) and demand for labor.

Value added =
sum of profit, government income, labor cost, and depreciation cost

- This impact is differentiated into:
  - ***Direct impact*** *refers to the amount of value (economic benefit or demand for labor) directly related with Italian companies producing components (or, in the case of investments: plants, tools, machines, etc.) for Lockheed Martin's or any other JSF consortium member, which purchase them;*
  - *The* ***indirect impact****, on the other side, arises as these Italian companies have suppliers themselves; which thus receive orders and produce sub-components, provide materials, etc.;*
  - *The* ***induced effect*** *is due to employees spending their wages in Italy, thus contributing to the overall Italian economy.*

Value added

- Total opportunities have been calculated to result in approximately **$ 15.8 billion** of Value Added in the total period (2007 – 2035).
- Value Added is the result of investments, production, and consumption by direct and indirect employees.

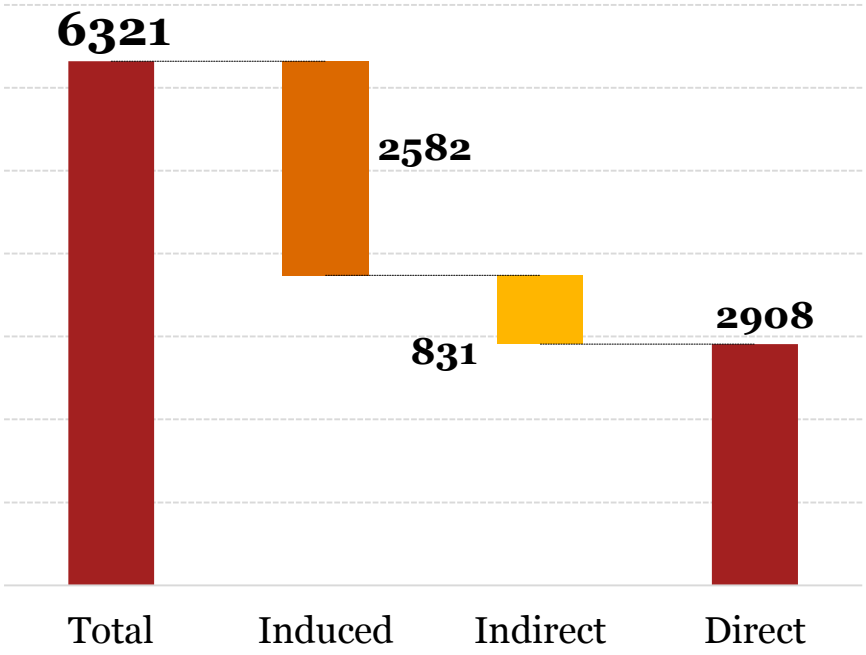


60% of the benefit resulting by production is generated by the companies directly involved in the Program

$ 1.08 return into the Italian economy for each dollar spent in the JSF Program

Employment

- The F-35 Program is Expected to Support More Than **6,300 Jobs** in the Peak Year of Production.
- The Peak for New Jobs is Reached in 2019.



Every Direct F-35 Job Creates an Additional

1.17 Jobs

in Italy

More than

6,300 jobs

in the peak year

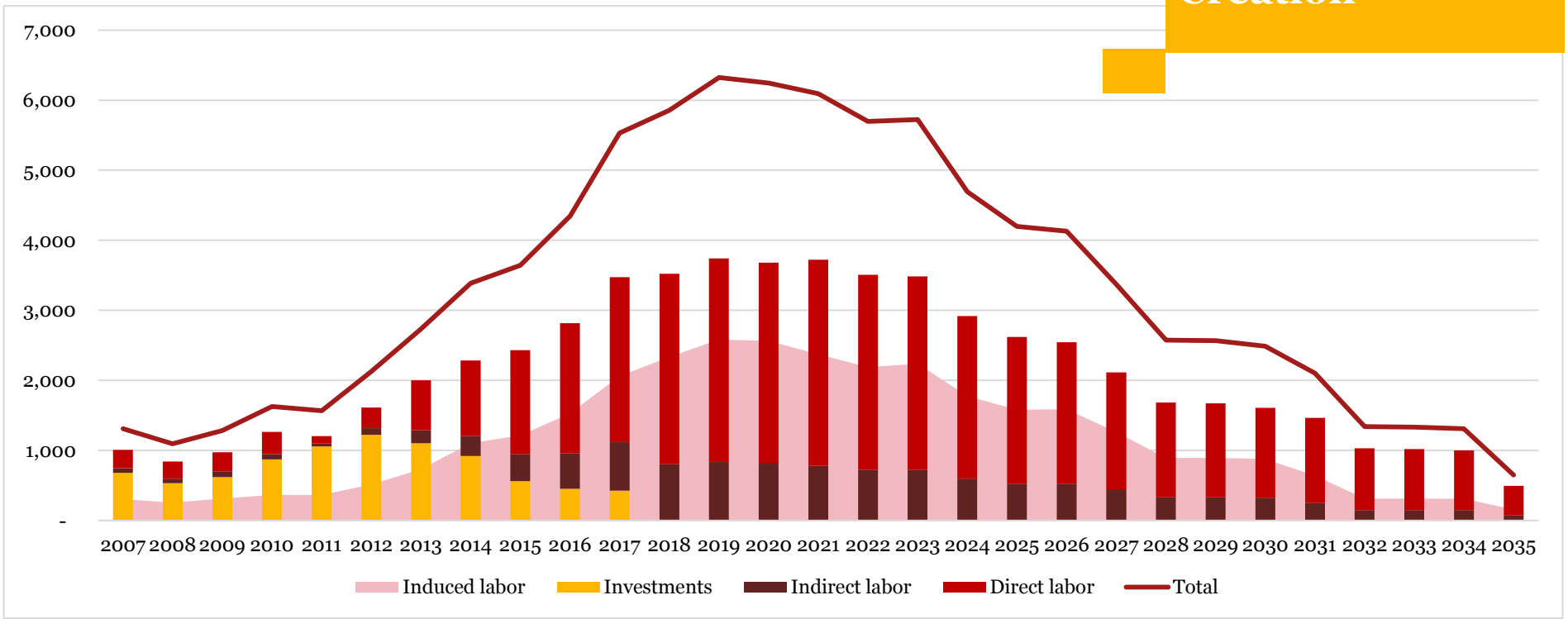
Employment

- Demand for Labor Remains at its Highest Levels From 2017-2023.
- The F-35 Program Will Sustain an Average of **5,450 Jobs** Annually in Italy from 2017 to 2026.

F-35 Quantity Reduction

(131 to 90)

Negatively Impacted Job Creation



Section 5
Additional Benefits

New Jobs from FACO and Sustainment Activities

- The FACO in Cameri is also Positioned to **Serve as the Maintenance, Repair, Overhaul (MRO&U) Center** of Excellence for the European and Mediterranean F-35 Fleet.

- The FACO in Cameri is has capability to accomplish **Assembly Work** for additional countries.

- The Full Spectrum of Sustainment Activities Includes: *management & Planning; maintenance, Repair, Overhaul & Upgrades; supply Chain Management; support Activities.*

- Lockheed Martin Projects Sustainment Work Conducted in Italy Will Support an Additional **1,900 Direct Jobs** Over the Life of the Program (30+ years).

New Technologies

- More Than Half of Italy's Industrial Participation is Focused on the Application of New, **Highly-Complex Manufacturing Techniques** Used in the Construction of Wing and Related Composite Materials.

- These Technologies Will Help Italian Industry Differentiate Itself in the Global Aerospace Market, Creating Additional Competitive Advantage and Opening New Market Opportunities.

Section 6
Summary

Summary

- The F-35 Production Program Will Support More than **6,300 Jobs** in Italy in the Peak Year.

- The F-35 Production Program Yields **$15.8 Billion** in Economic Benefits for Italy.

- The F-35 Production Program Empowers Italian Industry and Workers with **New, High-Technology Skills**.

- Italy is Positioned to Realize Additional and Substantial Economic Benefits Through **F-35 Sustainment**. Sustainment work potential for **1900 additional direct jobs** (Calculated by Lockheed Martin).

Appendix 1
Methodology for Impact Assessment

What triggers macroeconomic effects?

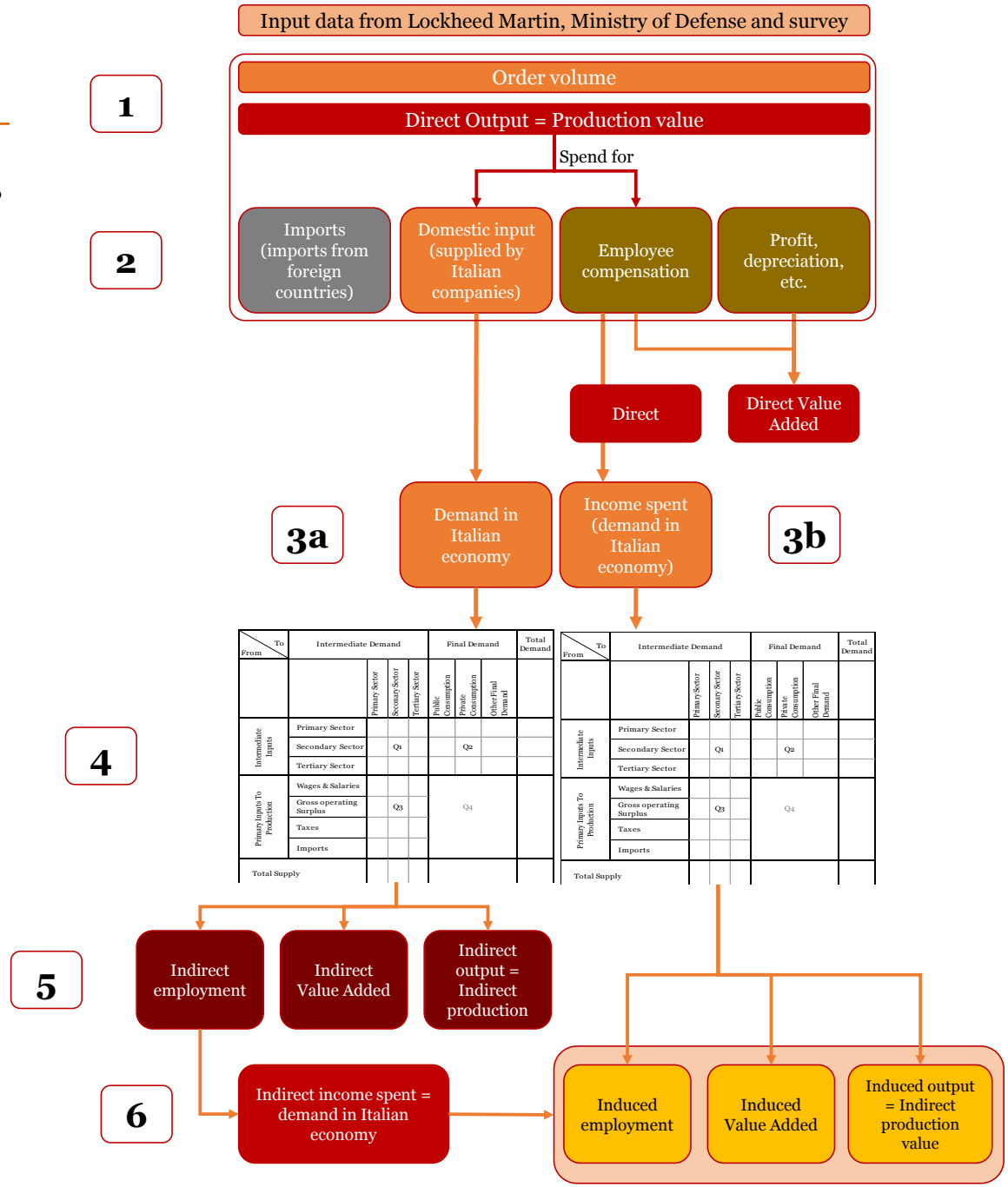
- PwC model quantifies the economic impact in Italy of the JSF **Production** phase and of the relative support **Investment** phase.

- Initial **R&D Investments** by Italy has not been considered.
- The effects generated by **Testing & Training** are not considered in this quantitative analysis.
- Also the effects resulting from the **Sustainment** and the **Technology Spillover** are not included in the quantitative analysis by PwC.
- Lockheed Martin has carried out a preliminary assessment of the potential impact of Sustainment activities which is provided in slide 18.

How the model works…

- The **direct effects** have been derived based on company data (survey on 5 companies representing different sectors and more than 60% of program value in Italy).

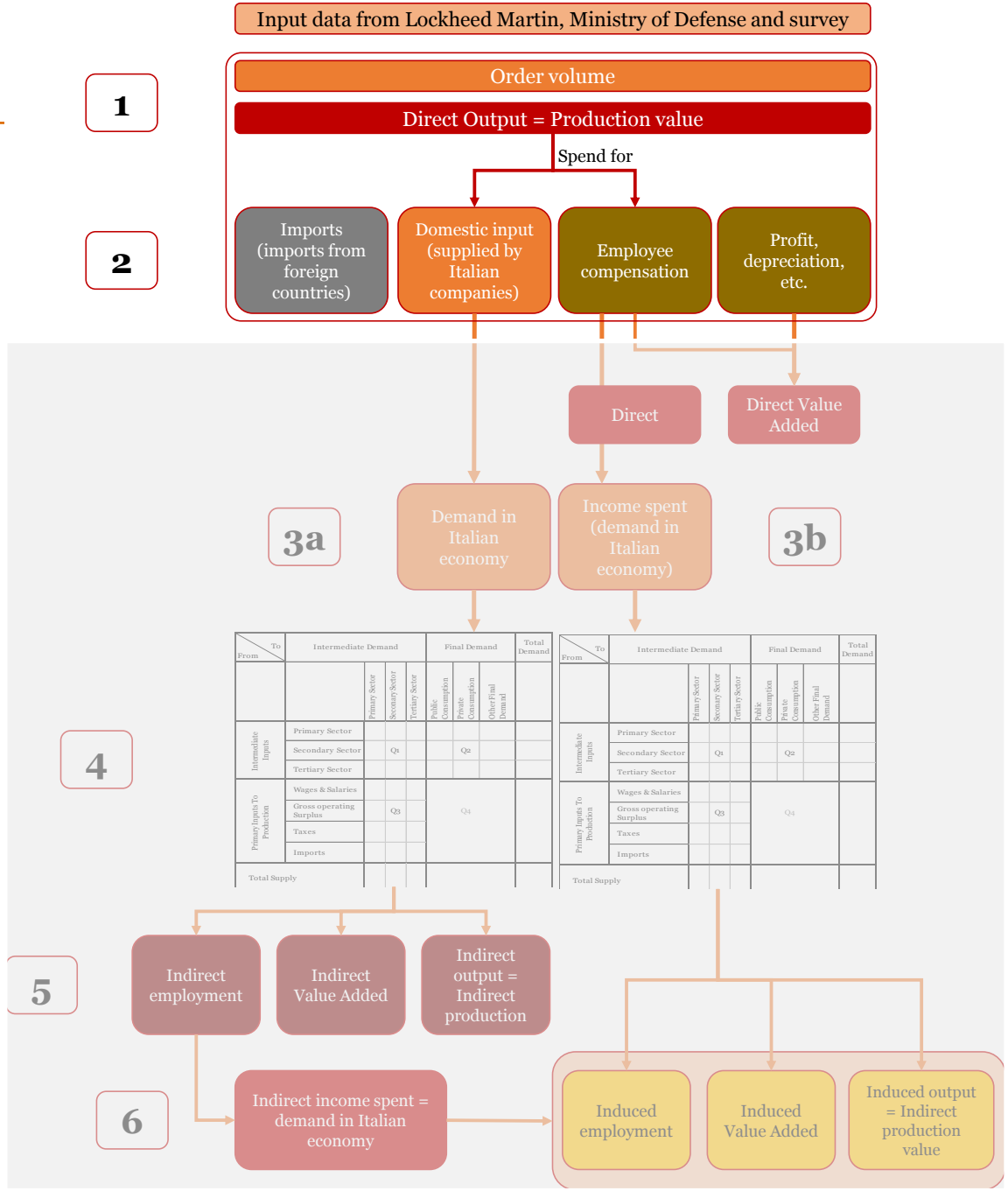
- The econometric input-output model for Italy quantifies the **indirect and induced effects** within Italy.



How the model works…

Direct effects are based on planned production output (**step 1**).

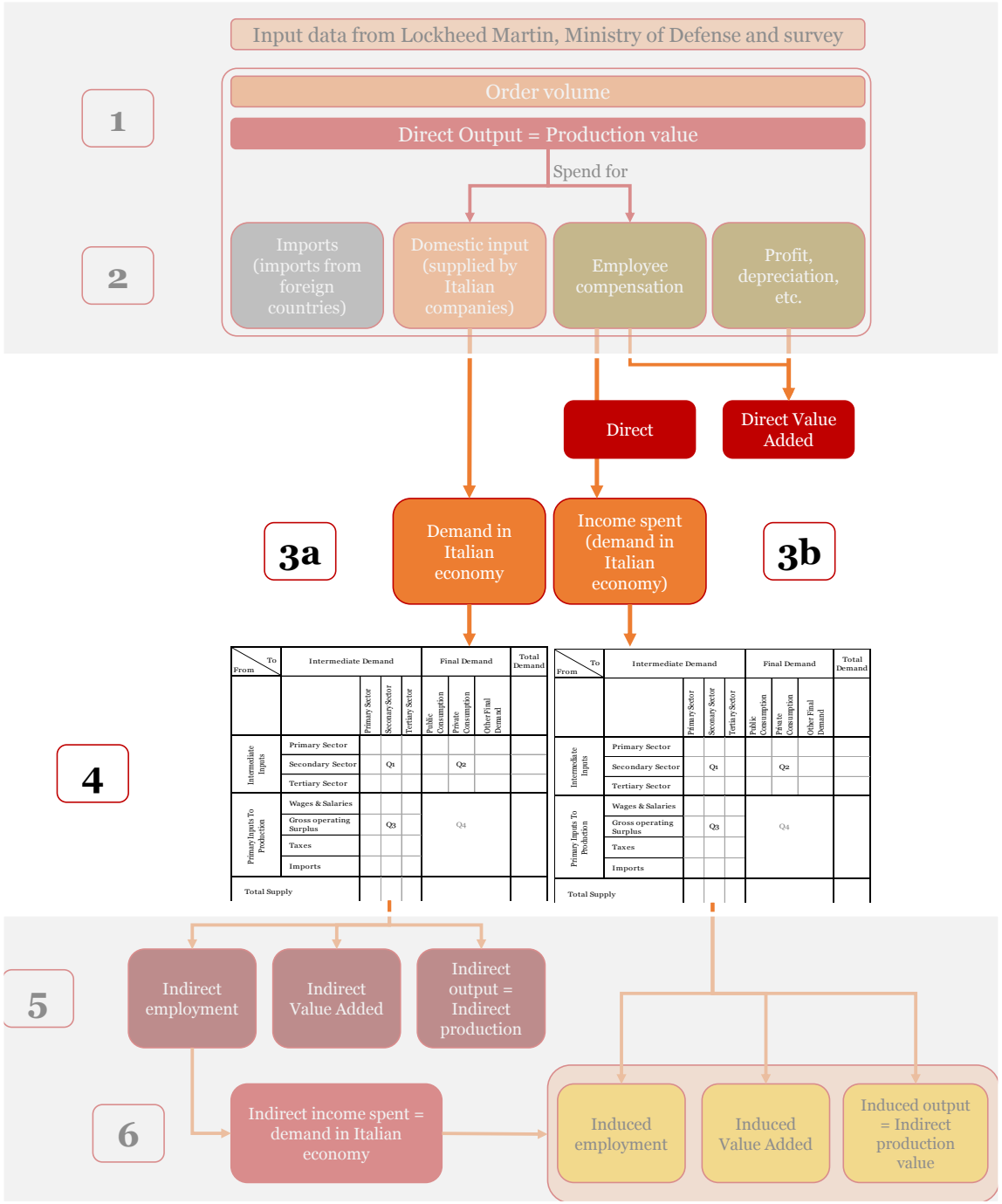
Gross Value Added, the direct employment as well as employee compensation - is represented in **step 2**. In step 2, imports from other countries are discarded from the analysis because they do not generate impacts into the Italian economy.



How the model works…

The occurring direct effects have two main reaction chains in consequence resulting from the demand for Italian goods and services due to production input demand (**3a**) and due to income spend (**3b**).

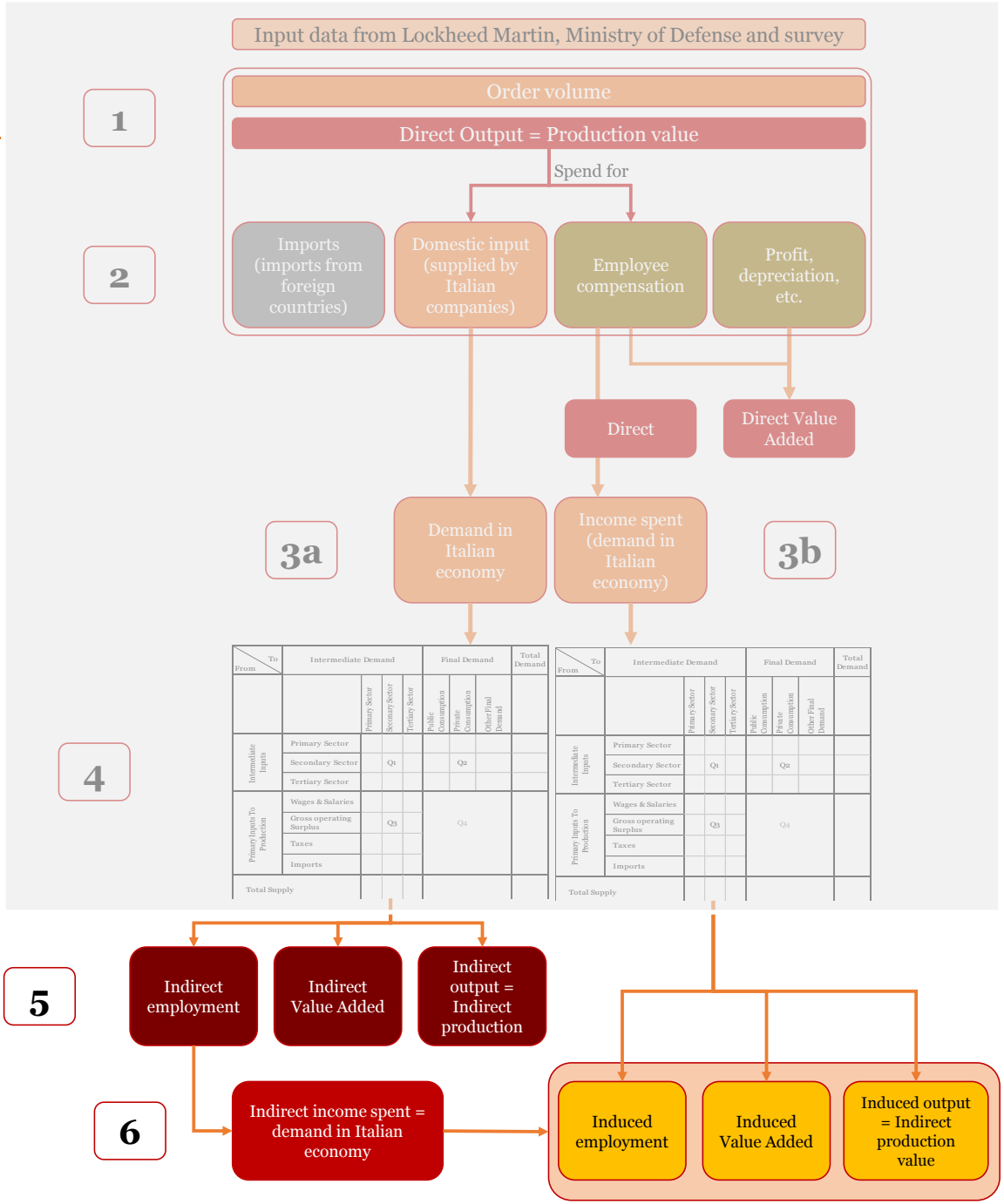
The calculation of both reaction chains is based on the extended Input-Output Model for Italy (**step 4**). This model quantifies the socio-economic contribution of the JSF program to the Italian economy up to 2035.



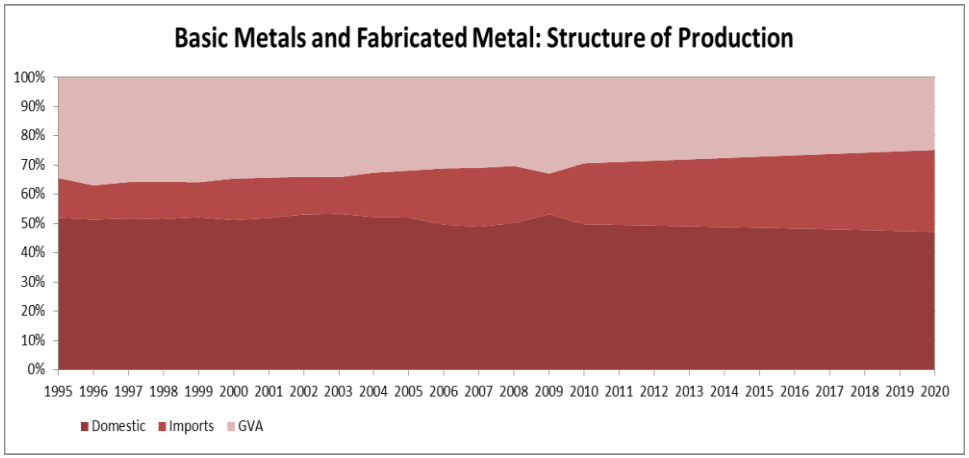
How the model works…

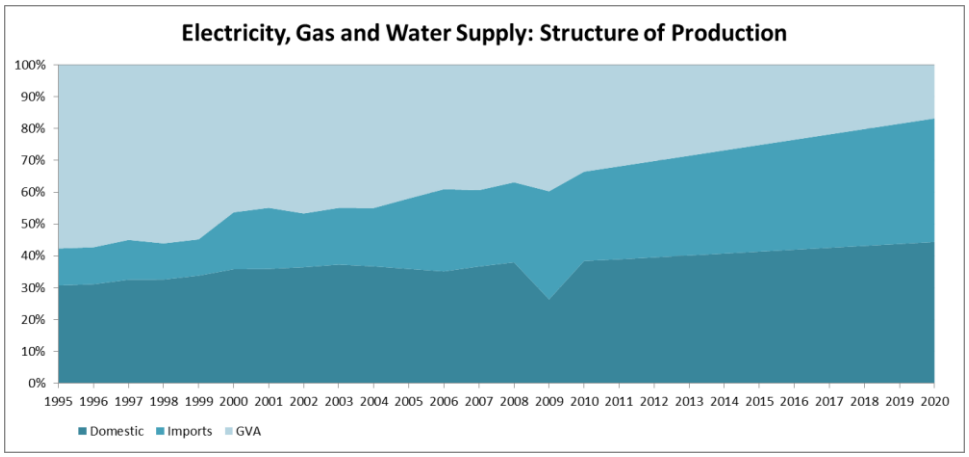
Applying the model results in the quantification of indirect socio-economic effects, **step 5**, that resulted from the reaction chain evolved in 3a.

These indirect effects also imply induced effects from indirect consumption, which are represented in **step 6** along with the induced effects from direct consumption that resulted from the reaction chain evolved in 3b.



Conservative approach





The PwC IO model conservatively anticipates economic structural changes over time. The VA and Labor multipliers consider:

- productivity increase;
- domestic supply share variations;
- technology changes;
- value added intensity;
- adjustments for inflation;

Charts on the left refers to two of the most indirectly activated sectors by the JSF program in Italy.