National plan *"Industria 4.0"*

Investments, skills, productivity and innovation

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Policy challenges to govern Industry 4.0

Evolution and adoption rather than disruption	**We may see more and more robots but no productivity gains: diffusion and adoption of new technologies among SMEs is the big conundrum.** How to digitally transform firms which were not born digital? Tech-transfer issues and infrastructures
Jobs, Skills adequacy and training	**Automation and labour-saving innovations will destroy jobs?** Adjustment process is critical: job demand and supply may mismatch. **Skills empowerment and retraining are key:** STEM competencies, vocational education and on-the-job training: **workplaces as evolving learning places**
Intangible assets and Data	**Data-driven innovation and know-how are the real drivers:** while production factors dematerialize, taxation and regulation remain pre-digital
Data control, security, privacy and IoT interoperability	**Data ownership and governance, open standards to ensure a seamless integration and secure interoperability for IoT:** new barriers to trade/entry and data related competition issues when data control rather than size matters

Industry 4.0: growth issues at stake in Italy

Investments	**Decreasing quantity of fixed industrial investments in the last 15 years:** increasing obsolescence in installed equipment
Capital Allocation	**Low quality of investment allocation:** resources going to low-performing firms, misallocation within firms rather than sectors, rent seeking, and poor bank creditors' discipline
Skills equilibrium	**Poor skills in STEM subjects:** only 14 out 1000 graduated in STEM **and low appeal of vocational education:** >200k students do not go to university nor to tertiary professional education, poor re-placement services
Connectivity	**70% of companies do not have adequate connectivity (>30 Mbps) and are located in grey/white areas** (where providers experience some degree of market failure)
Digital Competitiveness	**Italy ranks 25th out of 28 EU member States in the Digital Economy and Society Scoreboard:** only 6.5% of SMEs are selling online, although well positioned in cloud computing

"*Industria 4.0*": policy approach

Italian industrial sector peculiarities

- Few large industrial and ICT private players able to lead Italian industrial transformation
- Limited number of industry champions able to coordinate the evolution/integration of value chains
- Industrial sector largely based on SMEs where productivity gains are more needed
- High quality of research but fragmented network of research/tech-transfer centers
- Strong manufacturing know-how and Made in Italy quality

Government guidelines

- Operate in a technological neutrality logic
- Implement horizontal actions avoiding vertical or sector-based ones
- Operate on enabling factors
- Steer existing instruments to promote technological leap and productivity
- Coordinate key stakeholders without acting as a controller or decision-maker

"Industria 4.0" national plan

2017-2020 Strategic guidelines

Key guidelines

Innovative investments

- Stimulate **private investments** in new equipment and I4.0 transformation
- Increase **private expenditure in R&D**
- **Patent Box** to spur investment in intangible assets
- **New corporate finance** (non bank lending, VC and PE) for better allocation of capital to innovative firms

Skills

- Spread the I4.0 culture through *"Scuola Digitale"*[1] and ***"Alternanza Scuola Lavoro"***[1]
- Develop I4.0 skills through **Industrial PhDs** and **professional education**: *"Istituti Tecnici Superiori"*[2]
- Create **Competence Cen**ters and network of Digital Innovation Hubs
- **National Skill Strategy** with OECD

Complementary guidelines

Enabling Infrastructures

- Ensure adequate network infrastructure – Ultra Broadband Plan with a "**Fiber to the factory**" approach
- Cooperate in the definition of IoT open **standards and interoperability criteria**

Public instruments at support

- Attract FDI and support large investments in 4.0
- Reinforce and support internationalization of Italian companies
- Strengthen the **productivity-salary taxation exchange** through lower taxation on "productivity benefits", negotiated in decentralized bargaining

Governance and awareness

- Generate interest on I4.0 opportunities and create a public-private governance

1. Work-related learning; 2. Italian professional institutes

"Industria 4.0" national plan: 18 €B to support industrial transformation

2017-2020 Targets

Key guidelines

Innovative investments

+10 €B

private investments increase from 80 to 90 €B in '17-'18

+11.3 €B

R&D private expenditure increase over the '17-'20 period

+2.6 €B

volume of early stage investments mobilized over the '17-'20 period

Patent Box

to sustain investments in intangible assets

Skills

200,000 academic students qualified on I4.0 topics

+100%

students attending *"Istituti Tecnici Superiori"* on I4.0 topics

Creation of Competence Center and DIH focused on solution-driven tech-transfer, training and collaborative R&D

National Skill Strategy

Complementary guidelines

Enabling Infrastructures

100%

of Italian companies with access to 30 Mbps connectivity within 2020

50%

of Italian companies with access to 100 Mbps connectivity within 2020

6 consortia

on IoT standards, monitored by Italian players

Fiber to the factory approach

Public instruments at support

+1 €B

Development Contracts focused on I4.0 large investments

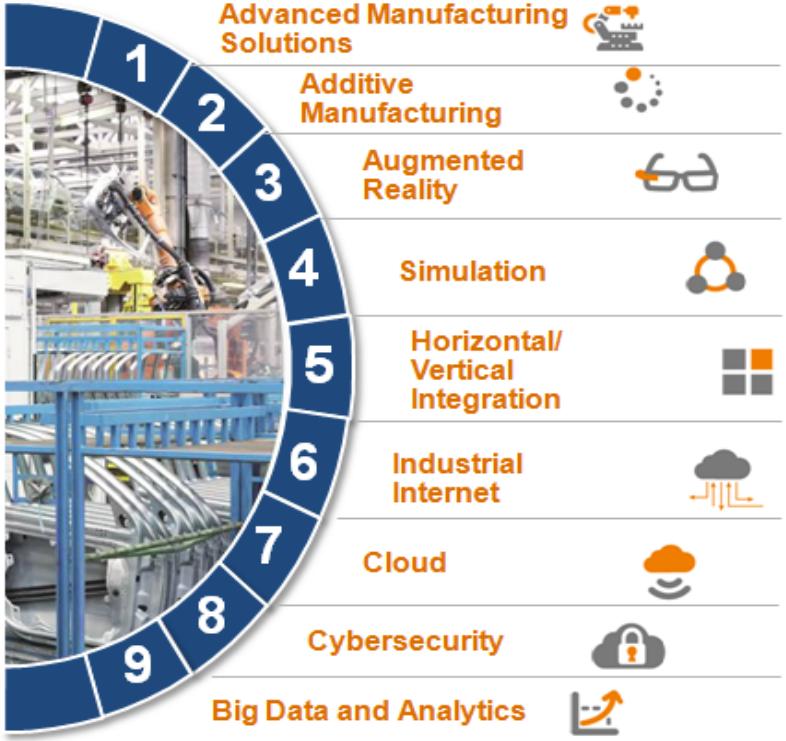
+0.1 €B

Strong investment on digital sales chains (Made in Italy plan)

Strengthening of productivity-salary taxation exchange

Hyper-Depreciation and Super-Depreciation schemes

Innovative investments



Advantages in plan

Hyper-Depreciation

- Increase of rate for I4.0 investments

As is		*To be*
140%	⇧	250%

Super-Depreciation

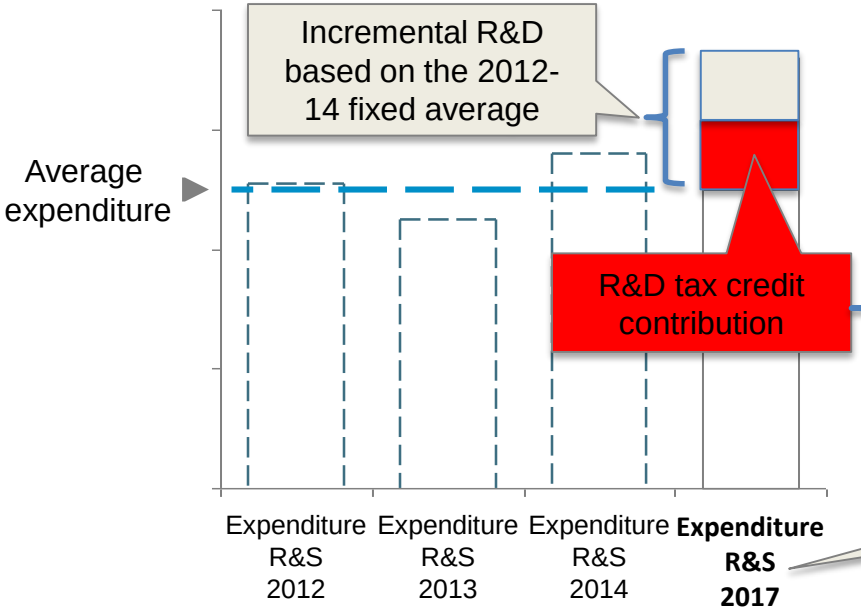
- 1 year extension of the Super-Depreciation with a fixed rate **(140%)**
- extension to immaterial assets like software

Deadline

- In order to guarantee a high appeal of Hyper and Super-Depreciation schemes, item delivery date is prolonged to **30/06/18**; however the order and a >20% deposit have to be placed within 31/12/17

Tax credit for research and development and innovation expenditures

Research and development and innovation expenditure – '17 example



Tax Credit calculation

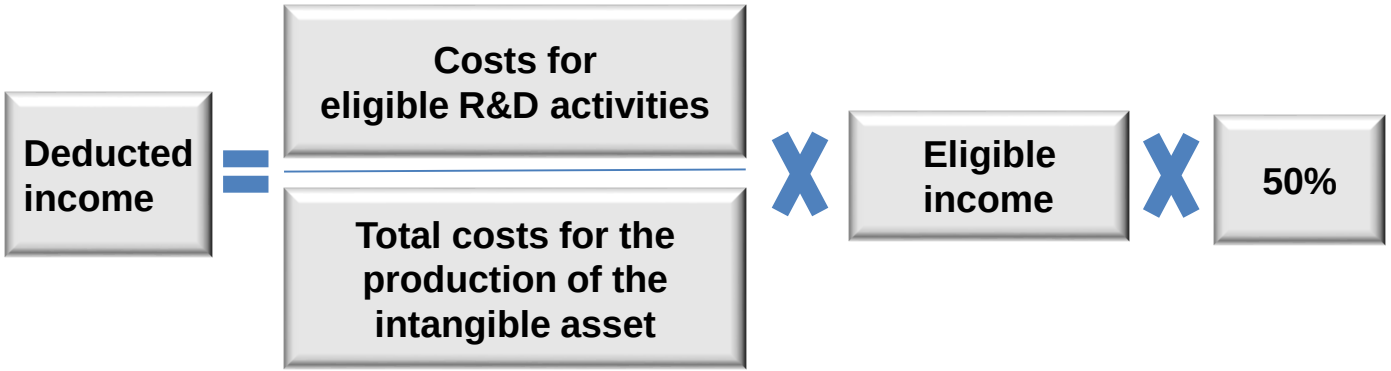
Tax Credit calculation	2016	2017
Credit for intramural expenditure	25%	50%
Credit for extramural expenditure	50%	50%
Maximum tax benefit per taxpayer	5 €M	20 €M

R&D tax credit regime valid until 2020

Italy's Patent Box

Since 2015, any company can opt for a special tax regime on corporate taxation: a **deduction by 50%** of taxable income that demonstrably derives from direct or indirect use of IP (**industrial models, patents**, **formulas** and **software** protected by copyright) with substantial R&D activity (so-called "*nexus approach*").

This measure aims to attract and retain in Italy intangible assets by Italian or foreign companies; it is also intended to **support investments in IP with real R&D activities.**



Digital Innovation Hubs and I4.0 Competence Centers

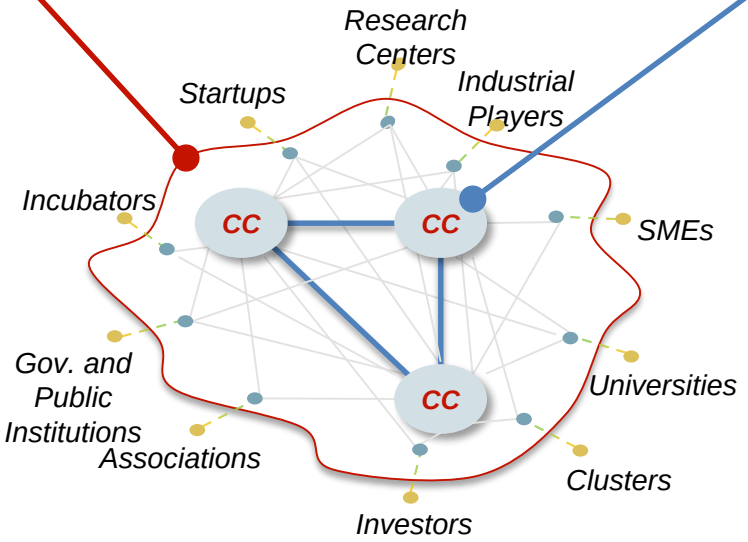
Digital Innovation Hubs

Features:

- Point of contact between companies, research centers and public – private investors
- Selected DIH located at *Confindustria's* and *R.E.TE. Imprese Italia's* branches

Mission:

- Awareness creation on I4.0 opportunities
- Support in developing innovative investment plans
- Orientation to I4.0 Competence Centers
- Support in accessing public and private financing solutions/investors
- Interactions with European DIHs



I4.0 Competence Centers

Features:

- Few and selected national Competence Centers
- Strong involvement of leading Italian universities and large private players
- Support of key stakeholders (e.g. research centers, startups,...)
- Competence Center focused on specific and complementary technology drivers
- Ad hoc governance and adequate managerial skills

Mission:

- I4.0 training and awareness
- Live demos on new technologies and access to I4.0 best practices
- Technical advisory on I4.0 for SMEs
- Launch and acceleration of technological development and innovative projects
- Trial support and "on-site" development of new I4.0 technologies
- Coordination with European CCs

Italy : the 2nd most attractive country for digital investment (PWC-ZEW 2017)

Country (Region)	Effective tax rate 2017	Ranking
Ireland	-10.32%	1
Italy	**-8.84%**	**2**
Hungary	-6.85%	3
…	…	…
Switzerland (Zurich)	8.39%	11
United Kingdom	11.11%	16
France	12.39%	18
Spain	12.85%	20
Netherlands	13.61%	22
Germany	22.81%	31
USA (California)	22.82%	32

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