



Ministero dello Sviluppo Economico

ITALY'S PLAN INDUSTRIA 4.0





Agenda



Industry 4.0 in the world



The Italian way



***"Industria 4.0"* national plan**



Industry 4.0: The 4th industrial revolution

1° Industrial revolution



Historical loom

Through introduction of mechanical production plants using water and steam power

Late 18th century

2° Industrial revolution



Mass production and assembly line

Through introduction of work-division mass production using electrical energy

Early 20th century

3° Industrial revolution



Automated industrial robot in manufacturing

Through use of electronics and IT to further automate production

Early 1970s

4° Industrial revolution



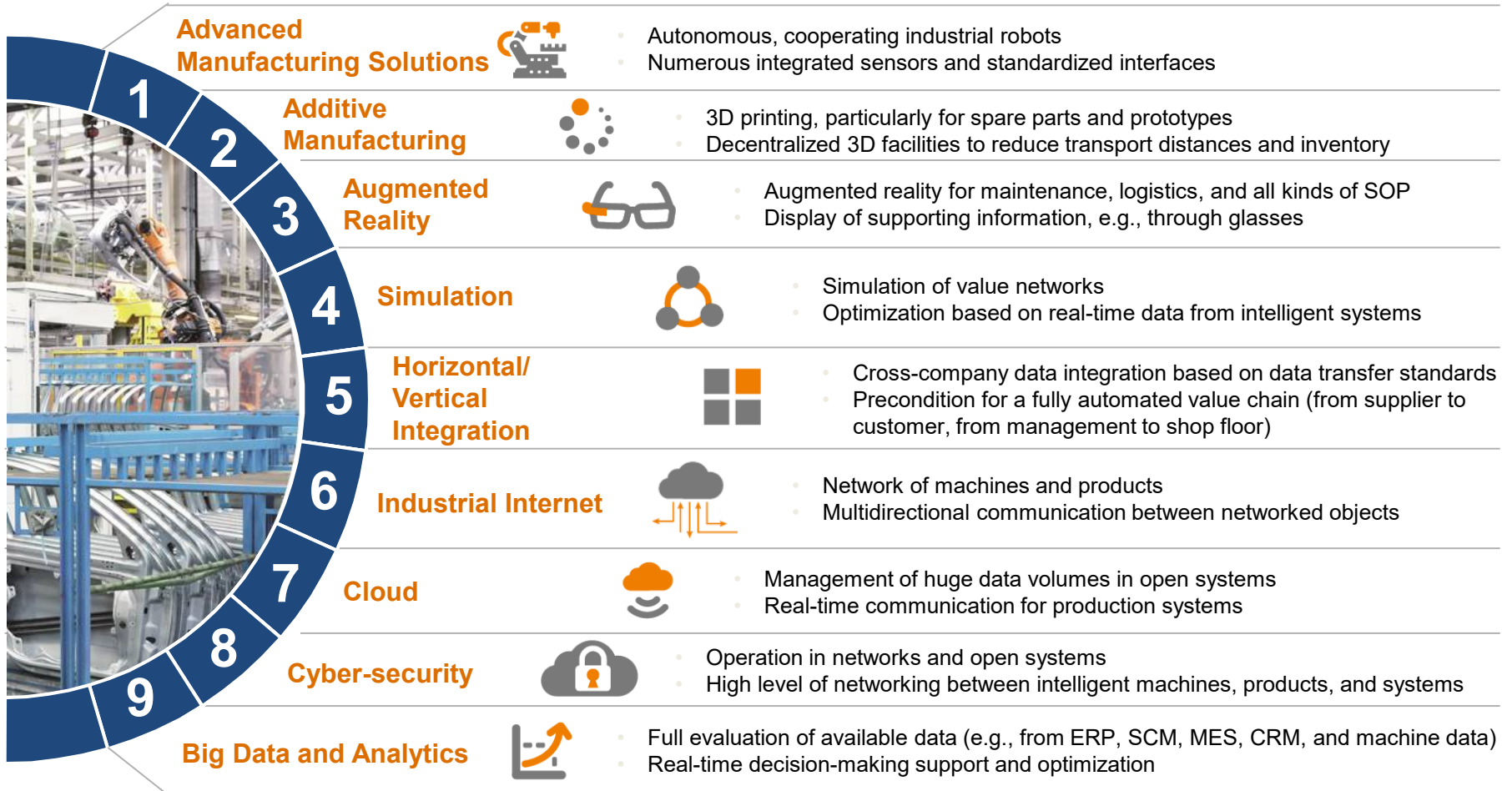
Connection between physical and digital systems, complex analyses of big data and real-time settings

Through use of smart machines, inter-connected and connected to internet

Today and near future



Industry 4.0: Nine technology drivers





Industry 4.0: Expected benefits



Flexibility

Higher flexibility given by small batches production with the economies of scale of mass production



Speed

Higher speed from prototyping to mass production using innovative technologies



Productivity

Increased productivity thanks to lower set-up time and reduced downtimes



Quality

Improved quality and scrap reduction thanks to real time production monitoring through advanced sensors



Product Competitiveness

Higher competitiveness of products thanks to additional functionalities enabled by Internet Of Things



Industry 4.0: European landscape

UK

CATAPULT – High Value Manufacturing



Strategic plan underpinned by the government and by the University's Institute For Manufacturing which encompasses universities and industrial players

Main initiatives:

- Project financing and applied research

Germany

Industrie 4.0



Strategic plan shouldered by the federal government and with the involvement of the main firms in the industrial and technology sectors

Main initiatives:

- Project financing and applied research
- Tax incentives bestowed to investments in hi-tech start-ups

France

Industrie du Futur



Central Government steering the process which involves investing in technologies and devising industrial strategies compliant with I4.0 guidelines

Main initiatives:

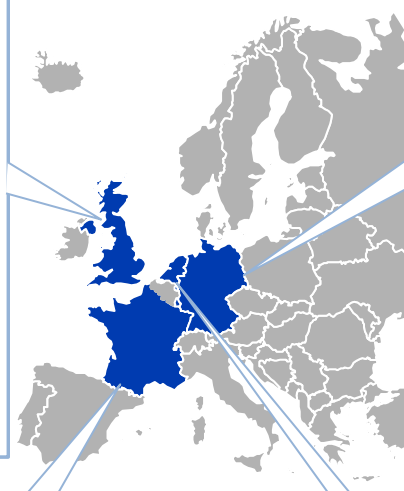
- Fiscal benefit for private investments
- Facilitated financing for SMEs
- Tax credit for research expenditure
- Project financing including: "Industrie du Futur" and "Invest for the future"

Netherlands

Smart Industry



«A network centric approach» aiming at beefing up the traditional industrial system through the opportunities stemming from the I4.0 strategy, involving: FME², TNO³, Ministry of Economic Affairs, VNO-NCW⁴ and Chamber of Commerce



1. Under approval by the German government

2: FME: is the largest organization in the Netherlands representing employers and businesses in the technological industry; 3. TNO - Netherlands Organization for Applied Scientific Research - is a nonprofit company in the Netherlands that focuses on applied science; 4 VNO-NCW - Confederation of Netherlands Industry and Employers

Source: public data



Multistakeholder steering committee for Industria 4.0

National Steering Committee



Presidency of the Council of Ministers

Ministry of Economy and Finance

Ministry of Economic Development

Ministry of Education, University and Research

Ministry of Labour and Social Policy

Ministry of Agriculture

Ministry of Environment and Protection of Land and Sea

Representatives of Regional Governments



Leading Italian universities and CRUI



Research centers



National Promotion Bank



CONFINDUSTRIA



ALTIPLANO IMPRESA ITALIA

Association of manufacturing and service companies



Trade Unions



"Industria 4.0": The Italian way

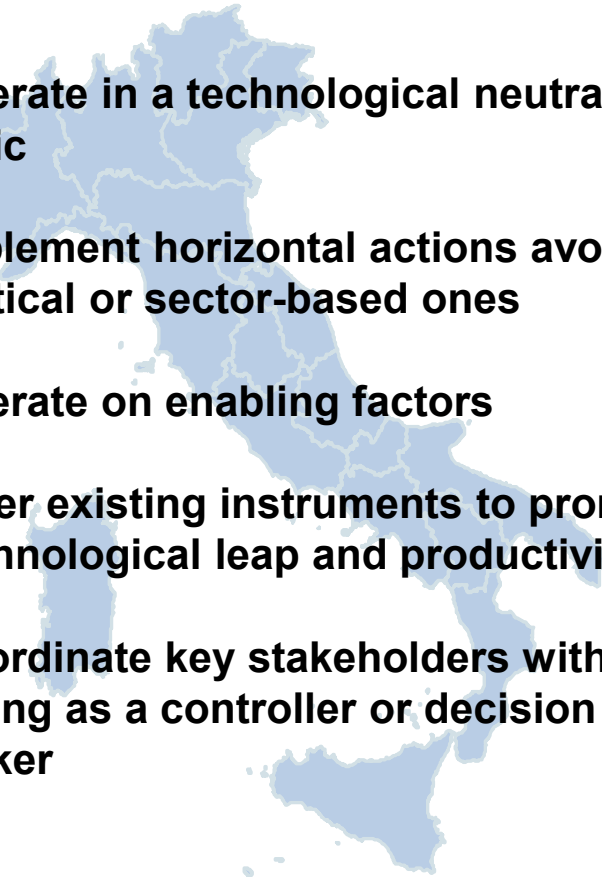
Italian industrial sector peculiarities

- ✗ Few large industrial and ICT private players able to lead Italian manufacturing transformation
- ✗ Limited number of industry champions able to coordinate the evolution process of value chains
- ✓ Industrial sector deeply based on Small and Medium enterprises
- ✓ Key role of illustrious universities and research centers in development and innovation
- ✓ Strong cultural traits of finished products



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 Measures

Strategic measures

Complementary measures



Innovative investments

- Stimulate private investments in I4.0 technology drivers
- Increase private expenditure in research & development & innovation
- Expand open innovation relationships between mature companies and high-tech startups



Skills

- Spread the I4.0 culture through "*Scuola Digitale*"¹ and "*Alternanza Scuola Lavoro*"² programs
- Develop I4.0 skills through vocational training, strengthening "*Istituti Tecnici Superiori*"³
- Finance the I4.0 Technological Clusters and Industrial PhDs
- Create Competence Centers and Digital Innovation Hubs



Enabling Infrastructures

- Ensure adequate network infrastructure – Ultra Broadband Plan
- Cooperate in the definition of IoT open standards and interoperability criteria



Additional support measures

- Channel finance to support the I4.0 transformation: Private Debt/Equity, VC
- Support Public Guarantee scheme on investments
- Reinforce internationalization of Italian companies
- Strengthen the productivity-salary taxation exchange and decentralized negotiation



Governance and awareness

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

1. Digital classes at primary and secondary schools ; 2. Work-related learning; 3. Italian vocational schools
Source: Steering Committee "*Industria 4.0*"

Industria 4.0 national plan

2017-2020 Targets



Strategic measures

Complementary measures



Innovative investments

>10 bn €

private investments increase in 2017/18

+11 bn €

R&D&I private expenditure over the '17-'20 period (exceeding 2% of GDP)

+2,6 €B

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



Skills

200.000

academic students and

3.000 managers qualified on I4.0 topics

+100%

Doubling students attending vocational schools on I4.0 topics

~1,400

Industrial PhDs focused on I4.0 (out of ~5.000 included in NRP¹)

Setup of National Competence Centers



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

regarding IoT standards, monitored by Italian representatives



Additional measures

+1 bn €

Reform and refinancing of Public Guarantee Fund for 2017

+1 bn €

Support measures on large scale investments focused on I4.0

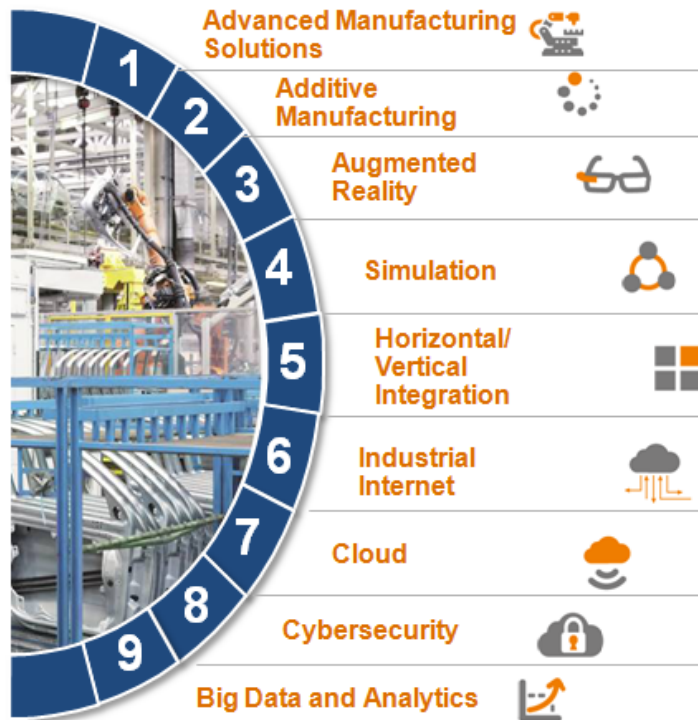
+0.1 bn €

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

Hyper-Depreciation

- Increase of amortization rate for investments in I4.0 technologies

As is

140%



To be

250%

Super-Depreciation

- 1 year extension of the Super-Depreciation with a flat rate (**140%**) for all investments, both tangible and intangible (when related to I4.0 technologies)

Deadline

- In order to guarantee a broad diffusion of Hyper and Super-Depreciation schemes, the item delivery date is extended to **30/06/18**; however, the order and a >20% deposit must be finalized by 31/12/17

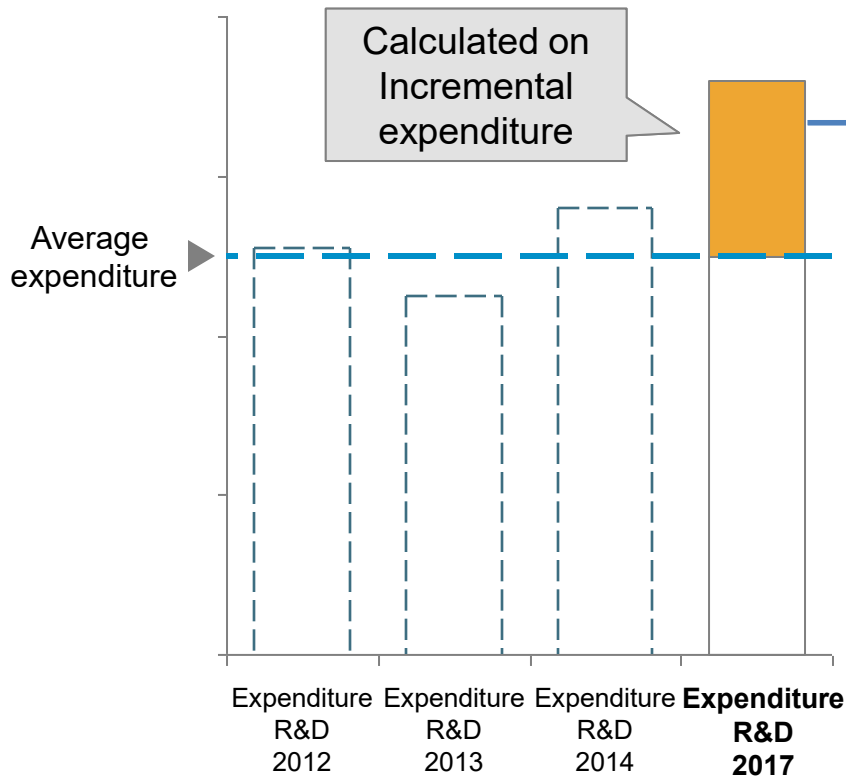


Not only manufacturing, but also in agrifood, bio-based economy and energy efficiency



Tax credit for research and development and innovation expenditure

Research and development and innovation expenditure – '17 example



Tax Credit calculation

As is

To be

Eligible credit for *intramoenia* expenditure

25%



50%

Eligible credit for *extramoenia* expenditure

50%



50%

Maximum tax benefit per taxpayer

5 M€



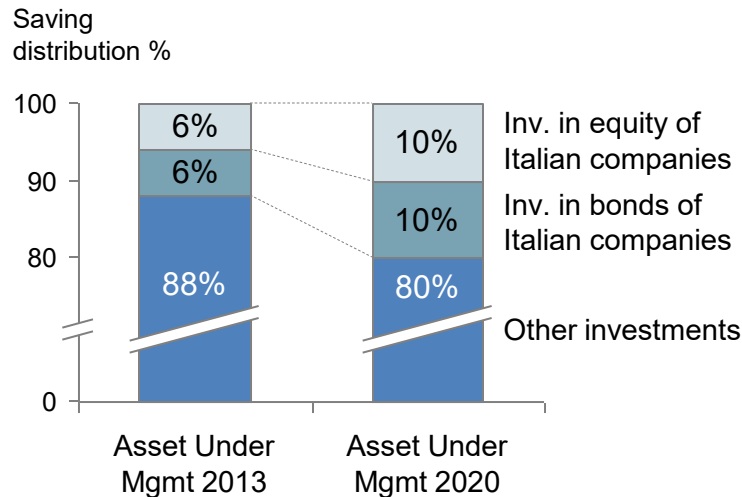
20 M€



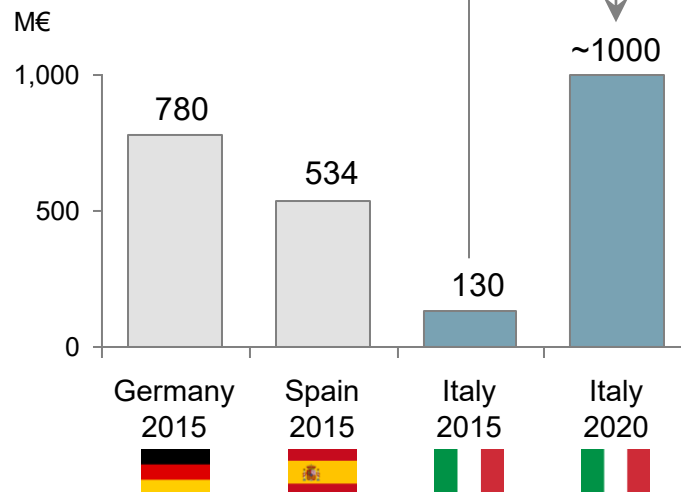
Finance in support of I4.0, VC and startups

Initiatives

National saving investments¹



Early stage investments



- 30% tax deduction for investments up to 1 M€ in innovative startups and SMEs
- Enablement of "sponsor" companies to buy fiscal losses of participated startups
- "PIR" – Reduction of capital gain taxes in case of medium/long term investments on listed and unlisted SMEs
- "Acceleratori di impresa" program, financing the establishment and the growth of new companies focused on I4.0 technologies ("CDP")
- Establishment of dedicated investment funds for the industrialization of high-tech ideas and patents ("CDP")

1. Open funds, Pension plans and Insurance plans; 2013 value equal to 1.069 Bn€
Source: CDP; Invitalia; MEF; MISE



Innovative investments: Tangible benefits for enterprises

Hyper-Depreciation



Example:
1.000.000 €
investment in
**Advanced
Manufacturing
Solutions**

As Is

Amortizable value : **140%** of
the purchase value
→ 5 years tax reduction equal
to **96.000€**

To Be

Amortizable value : **250%** of the
purchase value
→ 5 years tax reduction equal
to **360.000€**

+275%

Tax credit for research



Example:
1.000.000 €
incremental
expenditure

- 800.000 € intramoenia
- 200.000 € extramoenia

As Is

Tax credit **300.000 €**
(In case of higher expenditure,
credit limit = **5.000.000 €**)

To Be

Tax credit **500.000 €**
(In case of higher expenditure,
credit limit = **20.000.000 €**)

Up to
+300%

Finance in support of I4.0, VC and Start-ups



Example:
1.000.000 €
investment in
innovative start-up

As Is

Tax deduction: **19%**
Maximum investment per
taxpayer: **0,5 €M**
→ Tax deduction equal to
95.000 € / year

To Be

Tax deduction: **30%**
Maximum investment per
taxpayer: **1,0 €M**
→ Tax deduction equal to
300.000 € / year

+215%



Skills: Digital Innovation Hub and I4.0 Competence Center

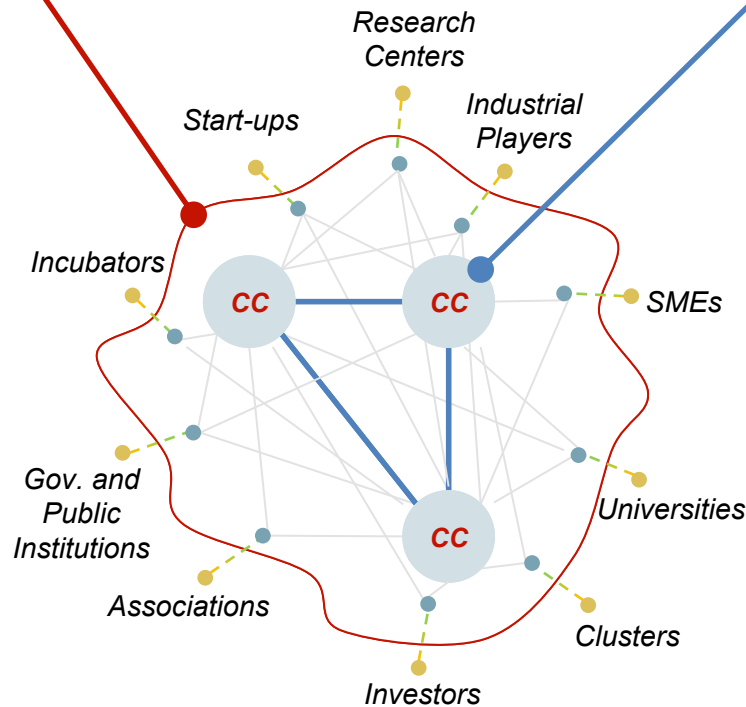
Digital Innovation Hub

Features:

- Selected DIH located at *Confindustria's* and *R.E. TE. Imprese Italia's* branches
- Contact point between companies, research institutions and public/private investors

Mission:

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



I4.0 Competence Center

Features:

- Few and selected national Competence Center
- Strong involvement of leading Italian universities and large private players
- Support to key stakeholders (e.g. research institutions, startups,...)
- Mission-oriented and focused on facilitating I4.0 transformational projects in all domains
- Appropriate legal and 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 CC



Budget Law: Provisions to foster the Italian industry competitiveness

Provision	2017	2018	2019	Cumulated value (from 2020 to 2027)
Super and hyper depreciation scheme *	0	1.131	1.923	5.702
R&D Tax credit **	0	727	727	2.001
Extension of Sabatini law	28	84	112	336
Guarantee Fund	1.000	TBD	TBD	TBD
Financial provisions for growth	9	97	142	1.108
<i>Of which:</i>				
- PIR	9	25	45	479
- Alienation of start-up losses	0	39	61	352
- Tax incentives for start-ups and innovative SMEs	0	33	36	278
Competence Center	20	10	0	0
Productivity salary	211	392	385	1.924
Made in Italy Plan	100	TBD	TBD	TBD
Total Industria 4.0	1.368	2.441	3.289	11.071
IRES haircut (from 27,5% to 24%)	3.950	3.950	3.950	3.950 (annually)
Total	5.318	6.391	7.239	

2017

Public finance burden for incentives on investments scheduled in 2017:

- Industria 4.0 ➡ 10.851 +
- IRES ➡ 3.950 =

Total 14.801

Overall

Public finance burden for incentives and tax-cut for the entire period :

- Industria 4.0 ➡ 18.169 +
(excluding further refinancing of the Guarantee Fund and Made in Italy)
- IRES ➡ 11.850 =

Total 30.019

* Super and hyper depreciation scheme is related to investments started in 2017 and finalized by June 2018. However, the public finance burden follows the depreciation scheme which occurs during the 2018 - 2027 period.

** The tax credit is granted from January 1st, 2017 until the entire 2020. The public finance burden materializes from 2018 onwards.



Awareness

Blazoning the acquaintance of “*Industria 4.0*”



Competence Center / DIH

- Pitching and instructing on the latest digital and manufacturing technologies (about how to use it, benefits in term of innovation, productivity, and firm competition,..)
- Target: Corporate managers mainly from SMEs



Roadshow I4.0 local/regional level

- Training seminars (presentations, video, private tributes..) in order to increase SMEs' confidence on digital innovation topics
- Target: Corporate managers mainly from SMEs



Assistance to High-potential SMEs

- One to one support and assistance to high potential SMEs aiming at integrating the I4.0 guidelines in their business process and prompting the industrial conversion
- Target: Top management of SMEs



National communication plan

- A national communication plan enforced through the press, web-sites and social media, with the aim of making the industrial sector more keen on the I4.0 concepts and digital innovations thematic
- Target: Industrial firms