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The Italian experience in implementing Industry 4.0

La experiencia italiana en la puesta en marcha de la Industria 4.0



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I. THE SITUATION OF THE ITALIAN MANUFACTURING INDUSTRY

The Italian Industry 4.0 plan was born following the German one. It depends on the deep integration of a large part of the industrial system of northern Italy with the German one.

SMEs are an important element of national and regional strategies; but in the case of Italy, for the main industrial sectors, the risk is that these companies are increasingly dependent on OEMs of the different value chains. The OEMs are often located in other countries. This is particularly true for companies located in the North West and the North East of Italy.

There are some idiosyncratic aspects of the Italian industrial structure, also stressed by the government, which make it particularly subject to being affected by Industry 4.0. Especially in the sectors producing machines for industrial automation and components (mechanics and mechatronics), SMEs are clustered in industrial districts which would become more and more integrated with a reduction of the distance, within the value chains, between suppliers and subcontractors.

Besides, SMEs has different challenges to cope with, depending on the sector. The widespread idea in the business community is that what should be appropriate for many SMEs is a retrofitting strategy. This is not suitable for SMEs that depends on global or EU value chain in which the OEMs are still on the edge of the process.

The Government's plan includes five intervention areas. The first one is intended to provide for investment in innovation and legal incentives (laws for machinery modernisation, patent box,



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EXECUTIVE SUMMARY

This article analyzes the implementation of Industry 4.0 technologies in Italy. The article provides, in the first part, the essential information on the government plan on Industry 4.0 and the reactions of entrepreneurs and unions to this plan. In the second part, the research summarizes the results of a field research conducted by the "Claudio Sabattini" Foundation on behalf of the Italian unions. In this research, we interviewed both company managers and individual workers in thirty companies. We identified two different paths of innovation based on Industry 4.0: the smart factory and the smart products. According to the employees' interviews, the main problems of the adoption of Industries 4.0 technologies are the intensification of work pace and the intensification of workloads made possible by the new technologies.

RESUMEN DEL ARTÍCULO

Este artículo analiza la implantación de la Industria 4.0 en Italia. En la primera parte, la información esencial sobre el plan Industria 4.0 del gobierno italiano y las reacciones de los empresarios y sindicatos a dicho plan. En la segunda parte, resume los resultados del estudio de campo llevado a cabo por la Fundación "Claudio Sabattini" en nombre de los sindicatos italianos. En esta investigación, entrevistamos tanto a los gerentes de la empresa como a los trabajadores en treinta compañías. Los resultados muestran dos caminos diferentes de innovación basados en la Industria 4.0: la fábrica inteligente y los productos inteligentes. Según las entrevistas de los empleados, los principales problemas de esta transformación a la industria 4.0 son la intensificación del ritmo de trabajo y la intensificación de las cargas de trabajo que hacen posible las nuevas tecnologías 4.0.

tax credits on R&D, etc.). The second area concerns investments in technologies (connectivity infrastructure, reduction of SMEs' digital divide, improvement of STEM skills). The third area concerns interoperability and communication standards to foster production processes and business models based on IoT. The fourth aims at developing corporate finance to support companies' investments for Industry 4.0.

Finally, what is worrying for the labour organisations, the Minister endorsed the need for making industrial relations more flexible by decentralising bargaining activities to the level of the single firms. Besides, He stressed the necessity of closely linking salary adjustments and corporate productivity following a model which, in recent years, has been strongly supported by the latest governments and CONFINDUSTRIA (the General Confederation of Italian Industry).

This relationship between wage developments and productivity developments has proved to be very detrimental to workers: first of all, because the term "productivity" has only meant higher business profitability. Besides, "productivity" bargaining was based on indicators over which workers and trade unions could not exercise any control. From this point of view, the regional differences concern only the spread of second-tier bargaining, which is concentrated for about 80% of the contracts stipulated in Northern Italy (about 39% for both the North West and the North East).

The effects on the labour conditions of this push for different industrial relations and of the restructuring of the work places to fit the industry 4.0 requirements can be checked in the second part of this chapter.

2. THE GOVERNMENT PLANS

2.1. The design of the government program

The Italian Government in 2015 gave its opinion, in the person of the Minister of Economic Development, Carlo Calenda, during a parliamentary hearing at the Chamber of Deputies. According to the Minister, digitalisation improves the competitiveness of the Italian manufacturing sector, starting from those production chains mainly based on SMEs.

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The government's plan opened a phase of the progressive introduction of manufacturing digitization processes and a growing interest and discussion on the consequences of this choice. The discussion involved both the research world and the business organizations and the trade unions.

The Minister ruled out the possibility that Italian industrial policies can foster the development of vertical chains, giving priority instead to a horizontal approach based on innovation, internationalisation and recourse to the capital market.

The concept is supporting the industrial structure in its existing configuration, without any explicit objective of reducing the territorial and the dimensional imbalances of this structure. Besides, the Minister didn't make available the analytical data on the utilisation of the funds, so we can say for sure that there was not a convergence process, but we cannot produce any analytical data set beyond the ones here listed.

The Government presented the plan in September 2016 (National Plan Industry 4.0, later renamed Impresa [firm] 4.0).

The Government's Plan to stimulate the spread of Industry 4.0 was so important that in the face of the new possibility of remodelling incentives for investment, the business world said it would slow down the planned investments. This confirmed our concern about the fact that the only interest of Italian companies was to benefit from generous tax incentives and economic contributions.

The Government's plan has many critical elements

First of all, the entirety of the plan's objectives concerns only the firm-level.

The main objectives are:

Greater flexibility, which would allow taking advantage of economies of scale even when producing small batches; shortening the time necessary for prototypes to be switched-over to series production; decreasing set-up time, mistakes and machines stops, which would enhance productivity; the introduction of sensors monitoring production in real-time, which would increase quality. All these objectives should be consistent with the imperative of competitiveness, to be achieved thanks to the advantages offered by the internet. Social and labour issues are not considered, but as to the functional ones as skills.

KEY WORDS

Industry 4.0, Labour, Competitiveness, Digital Technologies.

PALABRAS CLAVE

Industria 4.0, Trabajo, Competitividad, Tecnologías Digitales.

2.2. The weaknesses of the Plan

First, the infrastructure provision plan is already showing the first criticality: the realisation of ultra-broadband is hugely behind schedule. Secondly, public commitment should stimulate private investments in goods and technologies connected to Industry 4.0. However, it is not clear whether such investments would generate production and employment in Italy or abroad. In other words, are sensors, devices, robots, hardware, software, and so on going to be produced in Italy or imported? If the latter is the case, besides a worsening of the Italian trade balance, the Government's Plan is going to generate employment abroad rather than in Italy.

The list of investment goods that can benefit from tax advantages is extensive: in this way for companies, it was enough to buy a capital good connected with some form of ICT technology.

In the absence of any prospect of intervention in the Italian industrial structure, the advantages benefited the most structured companies, with the risk that this could increase social and regional inequalities. Moreover, the Plan hardly mentions a chronic weakness of the Italian industrial system, i.e. the absolute predominance of small enterprises, usually part of more complex production chains whose head is located abroad, often in Germany. The risk is, therefore, that of digitalising a set of production chains led by German companies, whose leadership on the whole supply-chain would be even reinforced.

This means that even the most industrialised and modernised regions risk further deepening their dependence on the foreign industry.

Finally, the Plan, by its admission, adopts a horizontal approach to industrial policies, with the explicitly stated aim of avoiding the vertical approach.

The Plan lacks any reference to labour, but in terms of training and skills development.

One example suffices: Industry 4.0 generate new jobs (new sectors, products, services) and, at the same time, destroy jobs (due to automation, robots, etc.). Estimating job balance at the single firm or sector level appears to be feasible. Moreover, it would be worth trying to understand how Industry 4.0 change workers' status (new and more flexible forms of employment; the dichotomy between employment and self-employment, etc.) and working conditions (working time, safety at work, etc.).

How will companies and territories comply with the new paradigm? Which new skills become necessary? How will working tasks and



processes change? How will working performance take place, and be monitored by each firm? All these are questions which the Government's plan does not even mention. This list of questions should be made explicit as there has been no prior assessment of how the work would have changed, especially for work organisation and production. As usual, the only point of view adopted is the enterprises' one.

2.3. Firms benefitting from Industry 4.0

First of all, it is necessary to underline the absolute lack of transparency of the Italian Government, which has never provided a clear and detailed report¹ on the use of the resources made available and the number and type of companies that have had access to the various forms of incentive. Consequently, the only "data" available refers to surveys conducted on samples of companies.

A survey conducted by ISTAT on the "Climate of Confidence for Manufacturing Enterprises" in November 2017 produced the following results.

For investments in digital technologies, most of the companies surveyed stated that they made them in software, IoT and Cloud, followed by Cybersecurity and Robotics. Compared to the size of the companies that made these investments, most of them are large companies, followed by mediums and ultimately small ones.

The type of incentives considered most useful for companies sees in the first place the tax advantages of super depreciation and hyper depreciation, followed by the tax credit in R&D and the new Sabatini (partial coverage of interest for loans for investment expenses).

Companies benefited differently depending on their size:

the mediums benefited most from super depreciation, the large and mediums from hyper depreciation as well as the tax credit on R&D, while the small ones are in the lead in the use of the New Sabatini.

For the geographical distribution North-West, North-East and Centre have made greater use of the incentives of super-depreciation and hyper-depreciation with the South left behind. The gap between the South and the rest of Italy, in the utilisation of the incentives, is less relevant in the case of the use of tax credit on R&D and the Nuova Sabatini's incentives.

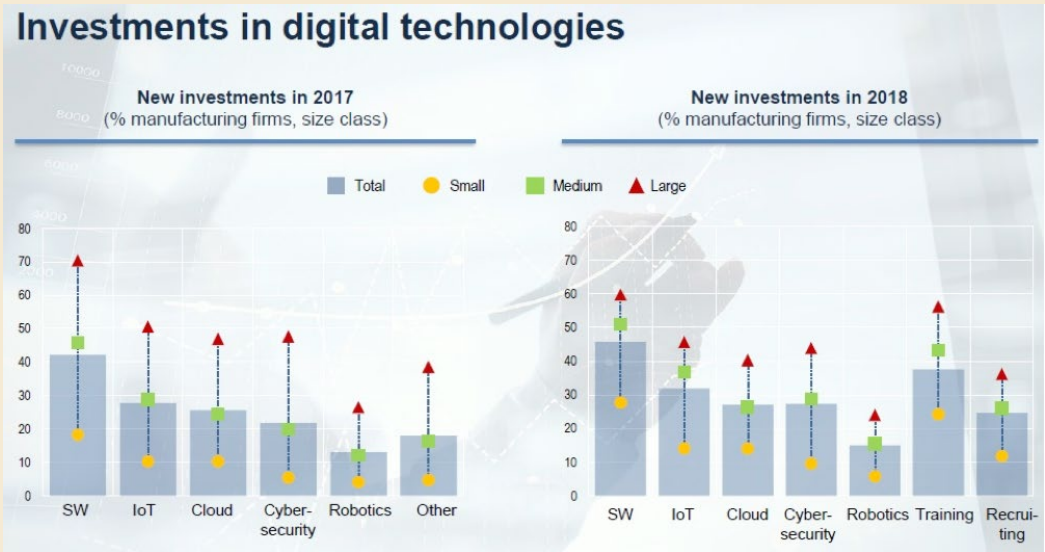
As we can see from the graphs below, in 2017 about 80% of large companies used the incentives of the government plan, while among small companies this percentage was only 20%. The



following year (2018) the distance in the use of incentives between large and medium enterprises was reduced; small companies also grew, but with percentages still far from large ones. Most of the incentives financed the purchase of technologies such as software and the IoT, i.e. technologies directly linked to connected capital goods. A significant spread of these technologies has been found in engineering industries (automotive, white domestic appliances, steel and iron production, industrial machinery, transport equipment etc.), chemical, telecommunications and logistics companies.

As we stress in the second part the introduction of Industry 4.0 required a change in the management of the firms: the main precondition was and still is the introduction of the Lean management scheme and of some kind of Manufacturing Execution System and data analysis

Figure 1. Investment in digital technologies in Italian firms



Source: Istat (2017) and Istat (2018). Climate of Confidence for Manufacturing Enterprises

3. ON THE EFFECTIVENESS OF THE PLAN

3.1. A companies' assessment

The results of a qualitative survey conducted by ISTAT in 2017 on a representative sample of manufacturing companies provided some indications of the perception of the business world regarding the effectiveness of some of the measures contained in the Plan “Impresa 4.0”. Among the main measures, super depreciation played a “very” or “fairly” significant role in the decision to invest for 62.1 per cent of manufacturing enterprises, with values ranging from 57.3 per cent of small to 66.9 per cent of medium-sized enterprises. Hyper-depreciation was considered relevant for investment decisions by 53.0 per cent of medium-sized enterprises; by 57.6 per cent of large enterprises and by 34.2 per cent of enterprises with less than 50 employees. The tax credit for R&D expenditure was considered favourable by more than 40 per cent of manufacturing companies, a percentage that is close to 50 per cent in larger companies.

The financial benefits provided by the “Nuova Sabatini”, an instrument introduced to encourage investment in the capital goods of smaller companies, were considered necessary by 35.2 per cent of small and 28.9 per cent of medium-sized companies. From a sectoral point of view, super depreciation was considered positive in at least half of the companies in all sectors, except for clothing and other transport equipment. Hyper depreciation, instead, was relatively more important for companies operating in the electrical equipment (58.9 per cent), rubber and plastic (57.7 per cent), metallurgy (55.8 per cent), electronics and machinery (53.6 per cent in both cases) sectors.

The R&D tax credit was considered useful mainly by companies in the automotive (69.8 per cent) and other transport equipment (60.0 per cent) sectors.

For investment plans for 2018, almost 46 per cent of enterprises states that it expects to invest in software, almost a third (31.9 per cent) in technologies machine-to-machine or Internet of things. Only 27 per cent to invest in connection with the Internet, high speed (cloud, mobile, big data, etc.) and computer security, to the extent that the directly proportional to the size of the business.



3.2. The MET’s report

A report published by the Ministry of Economic Development in July 2018 highlighted the main results of the Industry Plan 4.0. The MET Study Centre produced this report through a survey involving about 23.700 companies considering their use (or planned investments) of the following technologies: advanced manufacturing solutions, additive manufacturing, augmented reality, simulation, smart technology/materials, industrial Internet of things, horizontal integration, vertical integration, big data/ analytics, cybersecurity.

Of the total manufacturing, 8.4% of companies use at least one of the above technologies. A further 4.7% of companies are planning specific investments in the next three years. The “traditional” enterprises (which do not use 4.0 technologies nor have future interventions planned) are 86.9%. The propensity towards these technologies increases significantly with the growth of the company’s size: above ten employees, 4.0 companies reach 18.4% of the total; between 50 and 249 employees they reach 35.5%; over 250 employees they reach 47.1%.

The diffusion of 4.0 technologies is more significant in the Centre-North (9.2%) than in the South (6.1%).

These data seem to be consistent with the Italian industrial matrix, characterised by a high regional imbalance. In this sense, the Government’s plan does not seem to have triggered convergence trajectories, but rather to deepen regional disparities.

A little less than half of the 4.0 enterprises use only the data management technologies acquired along the production chain, 36% use both the technologies that concern the production process and those of data management, while those that use only the production technologies are 16.0%. The ones using only the data technologies prevail in the micro and the enterprises with less than fifty employees, while beyond that threshold prevails the concurrent use of both, with percentages equal to 50% in the case of medium enterprises and 69.2% in large enterprises.

In the majority of cases, the involvement in 4.0 technologies appears limited to the use of a minimal number of applications. 62.4% of 4.0 companies use one or at most two technologies; above 50 employees the number of technologies expands, but it is only in large companies that the use of more technologies becomes a widespread model: over 60% of them, in fact, use at



least four of 14.0 technologies.

Among the companies that employ at most two technologies, the use of techniques of data acquisition and management prevails. Starting from three technological applications, the probability of observing uses that are more strictly related to the production instead of information management increases. The case of companies using only production technologies is rare.

For future investments, 10.0% of all companies (including those that do not currently use 4.0 technologies) expect at least one intervention in the next future; this percentage increases significantly in companies with 10-49 employees (22.5%), reaching about one-third of medium and large size companies. Southern companies show a negative gap also as to future commitment (8.1% vs 10.6%).

The probability that traditional companies implement 4.0 interventions in the next three years is very low; on the contrary, companies that currently use 4.0 technologies have a high probability of expanding the set of 4.0 technologies they employ soon.

Among the goals that companies aim to achieve with 4.0 technologies are: improving product quality and minimising errors (63.4%); increasing productivity (46.3%); increasing production flexibility (25.3%); the possibility of entering new markets (21.9%); improving safety from 20.9%; and reducing personnel (6.3%). From a dimensional point of view, there are few significant differences.

This survey also confirms the widespread use by companies of the incentives made available by the Government. 56.9% of 4.0 companies state that they have used at least one public support measure compared to 22.7% of companies that do not use 4.0 technologies: 4.0 companies have mostly used Super-amortisation and hyper-amortisation (36.8%), the tax credit for R&D expenditure (17.0%), Nuova Sabatini (19.8%) and guarantee funds (11.3%).

There is a high propensity to cumulate incentives: 57.5% of the 4.0 companies involved in the plan had access to at least two incentives; in 27.9% of cases to at least three measures.



4. THE SITUATION AS AT THE SECOND HALF OF 2019

Since March 2017, France, Germany and Italy have initiated trilateral cooperation to promote the digitisation of the manufacturing sector and to support the European Union's efforts in this area.

From 1 June 2018 to 5 September 2019, the Lega and Five Stars alliance run the Italian government. The new government renamed the Industry 4.0 plan in Enterprise 4.0 and reduced the scope of the project with a series of modifications to the approved economic and financial planning document at the end of 2018. There was a reduction in the entire part of the economic incentive with a downsizing of the section relating to investments, with a system more favourable to SMEs. Besides, the weight of training has been redefined. In May 2019 there was a rethinking with the launch of the growth decree, then transformed into law (28 June 2019, n. 58), with a new allocation for the digitization of businesses. The new Conte government in the programmatic declarations put at the centre the project of an extensive digitalization of companies with particular attention to SMEs.



4.1. The patterns of change and the consequences for the employees

We started a field research on the introduction of industry 4.0 in the metalworker's sector.

Our sample, available in a report available in English, is made of 30 companies – 3 in Piemonte, 6 in Lombardia, 15 in Veneto, 6 in Emilia – Romagna - ranging from metal casting companies to an automaker, and a sample of different producers of machine tools. This is a work in progress, and we have more case studies in some reports, available only in Italian².

These companies represent different sectors according to the NACE codes. As it is easy to check this sample is very coherent with the actual distribution of companies involved in the Industry 4.0 project funded by the Italian state. We carried out the research interviewing both the managers of the companies and a sample of workers and their delegates.

4.2. Managers

According to the managers' interviews, there are two different paths of innovation based on Industry 4.0: the smart factory, the

smart products. There are also companies affording both, but frequently even in these cases, a path is the prevailing one. The way toward producing smart products is based on achieving a new business model based on the integration of manufacturing and services in smart products. In some sectors, the smart component of the product is more relevant, regarding the value and competitive edge, than the manufactured part. Besides, smart products usually include a basket of services for the client – as, for instance, the possibility of predictive maintenance – allow the collection of data – an enormous amount of data – by customers and clients to feed AI-based innovation shortly.

Summarising our main findings, what does mean and imply looking for a smart factory?

4.3. The smart factory

I. It requires a reorganisation along the lines of the lean production, of the tense flow scheme and production flexibility. In conclusion, **this eliminates all non-value-added activities** and introduces **feedback mechanisms** to align production with demand. These objectives were first pursued mainly with organisational measures. Now Industry 4.0 technologies allow this to be accomplished primarily by technology but presuppose previous organisational changes.

II. In all, there have been critical structural changes - new plant layouts - both in IT and in smart tools. The adoption of the new MES (Manufacturing Execution Systems) management systems, i.e. systems that unlike the old MRP (Material Requirement Planning), support in an integrated way the production both in the management of production operations and in those supporting production.

The companies best prepared to accept the technologies of Industry 4.0 seem to be those that had already implemented organisational innovations in the direction of lean production.

Besides, companies owned by multinationals, mainly concentrated in Northern Italy, or with close ties to German industry (also in this case located in Northern Italy) have shown a higher propensity to Industry 4.0.

There is, therefore, no standard formula for the application of Industry 4.0. The forms depend on the nature of the strategic problem of the product/market relationship that every company





must solve. However, there are in all **some common elements (which are explained in detail in a subsequent chapter):**

- a. Elimination of non-value-added activities more effectively and pervasively than before. Achieving this goal through technical devices changes the relationship between the hierarchy and the forms of the work command. Everything becomes less mediated by the social contact and more by the apparent objectivity of a relationship mediated by technology.
- b. There is a previously unthinkable **control** not only of performance as a result but also of its execution moment by moment and in real-time.
- c. A shift - with the ideal model of the tense flow - towards a flexible and continuous alignment between market and production through the use of cyber-physical systems able in different measures to self-settle concerning market demand. The ideal model is batch production one.

The previous points involve a significant intensification of the work that must be evaluated case by case in its effects, also as to the psychological factors.

Future employment consequences must also be assessed. In our research, although concerns have been expressed, there does not seem to be significant consequences at the moment.

III. The supply network is integrated directly - at least at the first level - in production management. There are currently two integration profiles:

- a. An operational integration mainly through the adoption of the parent company's standards by the suppliers;
- b. In addition to operational integration, real co-design relationships develop.

IV. On the other hand, there are different elements regarding personnel management. If we take as reference the **International High-Performance Work Practices (HPWP)** - considered in the managerial theories, the more advanced - only in some cases, this model starts to be applied. It can be deduced by analysing the following aspects:

- i. *Criteria and methods* of entry of personnel: very stringent selection procedures up to personality tests.
- ii. *Training and career*: a substantial investment in the first six months, continuous training; process transparency for career and incentives.

- iii. *More or less deep forms of operational decentralisation:* such as team self-management, problem-solving practices, etc.
- iv. Dissemination of teamwork forms and job rotation practices.

4.4 Smart products: hybrid manufacturing, product-cum-services

There are more and more obvious paths of innovation that arise from the possibility of diversification/specialisation towards more complex products that, for example, include services whose exclusivity creates value (Bryson, 2009).

There is, in short, an interdependence between manufacturing and services which may affect the so-called mature industries significantly.



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5. THE SOCIAL SIDE

5.1. Employees' participation

Participation with changes in progress requires a multi-level assessment. On the first level, the participation of workers must be evaluated and only in some cases, there are practices of involvement of individuals, but of a functional nature. Functional participation is achieved through both initial and ongoing training on ongoing changes. On the second level, that of the company and the provincial unions. In all the cases analysed, the union and the Trade unions' delegates (RSU) are at least informed. There are significant cases of proactive practices of the RSU. Even when they do not realise real framework agreements can intervene promptly to protect workers and workers involved. At the third level, there is the negotiated participation with the presence of real joint commissions. It happened only in a few cases.

5.2. The employees' interviews

The main consequences for employees are at least three:

1) Times reduction

Industry 4.0 allows a reduction of working times in a way adverse to workers, with an intensification of the pace of work and a decrease in times for each operation.



This modification was not due to the mere introduction of new technologies, but rather to the implementation of new business models, strictly determined by market conditions.

Technologies supported these new business models, making a different organisation of labour possible by reducing operation times.

Order fulfilment times became stricter, strongly influencing working times and schedules.

For this reason, a series of software tools acquired greater relevance.

In the vast majority of cases, Companies unilaterally define work schedules and working times. This is often the pre-condition to implement labour organisation models such as Lean Production, Just in Time; Just in Sequence, WCM etc.

These labour organisation models – supported by Industry 4.0 technologies - enable:

- compliance of supplies deliveries to planning defined by the company at the head of a production chain (OEMs);
- the synchronisation of production stages (internal and external);
- the management of the high degree of variability of workloads and product mix.

Work orders have a barcode that embeds cycle times, often based on machine times.

In this way, working times are presented by Companies as “objective”, and as such, not subject to bargaining.

Finally, all data are immediately uploaded, collected and analysed by ERP/MES.

2) Control of workers performance

The intensification of workloads was made possible by technologies that can track the start and end of every single operation. Data concerning operation times are recorded, collected and monitored thanks to computer-based systems. Moreover, Companies introduced devices for remote control of plants and equipment and, therefore, of the corresponding workers' performance. This control can be realised by matching barcodes associated with workers (ID badge), the machines they operate, the batch which is being produced, and the specific components under process. Machines also generate data about production volumes and

downtimes (breakdowns, set up, controls, lack of materials, etc.). This monitoring system often involves suppliers and customers as well.

In this way, Companies can achieve new goals:

- computing production costs;
- calculate the cost of each worker;
- decide whether to externalise or not some specific production stage.

Companies, via these control systems, can compare internal costs with costs charged by potential external suppliers. They create competition between internal and external workers and put much pressure on their employees.

3) Human-machine relation

Despite the rhetoric of Industry 4.0 about the upskilling of workers, we found that companies exclude workers more and more. This exclusion concerns all aspects related to production process information. The elaboration of software and scripts is of competence of planning and engineering departments. In some cases, this service is not even provided internally, but by the companies which supplied equipment, which is in charge of software updates, maintenance, etc. Programming requires computer science skills. It is also true that workers could well be involved in the discussion concerning software goals (machines' performance, modes of operation, times, etc.).

After being programmed, scripts are not uploaded by the worker operating the machine, but directly by programmers. In some cases, this is done by programming/engineering departments which remotely upload scripts through intranet or internet networks.

Once uploaded, workers do not always launch scripts. In some cases, choosing scripts to be started is the competence of the head of the department or the production responsible. In other cases, scripts are automatically launched by optical readers thanks to barcodes associated with the production batch, which in its turn is associated with a specific script.

The fact that workers are not aware of the working of the machine is a potential additional source of alienation: information, data, scripts by which the system works are entirely unknown.

The utilisation of more advanced tools and machines (connected



devices, smart devices, etc.), therefore, does *not imply higher-level skills for workers. On the contrary*, tasks might even result simpler and poorer.

6. CONCLUSIONS

In the last ten years *Italy lost quite 1/4 of its industrial production*, still not fully recovered, and quite the 8% of the GDP/person. In the Southern regions, it leads to a creeping process of deindustrialisation and degradation of the productive matrix, besides the GDP/person losses are with two digits. The integration of Italy in the EU industrial structure is very different for the northern regions and the rest of Italy. The Italian northern industrial structure is fully integrated into the leading European value chains. The drive to Industry 4.0, without specific policies to overcome these disequilibria, will confirm this divide. This is the more critical issue also in the political arena. Digitalising Italian SMEs is now a key political issue as well as the upgrading of skills for the employed and the continuous training of the new entrants.

Trade Unions and Employer associations are delivering training material and training packets for their associates and officials. For instance, the Association of the Engineering sector' employers sponsored a book to explain what digitalising manufacturing is about and delivering suggestions for SMEs. In this book, they suggest to small firms to avoid a full implementation of all technologies at once; it is better to start with small steps. There are already some new good cases of company's agreements to afford the chief complaints of the employees and to smooth the way to the digitalisation.



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NOTES

1. There is a report but it is not available, at least at the moment of writing this article.
2. [1] <http://www.fondazioneSabattini.it/ricerche-1/ricerca-europea-industria-4-0>

