

Accreditation and certifications. Economic value and social benefits

Executive Summary



In collaboration with:



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Executive Summary. The “culture of quality”, a value to promote for sustainable growth of the national system

In a scenario of profound evolution, characterized by rising complexity and new social needs, to study the Quality Infrastructure and evaluate its benefits – both economic and other – provides a good opportunity to reflect upon many of the challenges the country faces and which regard the competitiveness and organization of the chains, the new technologies, safety/security and environmental sustainability.

We speak about Quality Infrastructure because there are many actors involved who ensure that it functions: national institutions, national standardization bodies, national metrology institutes, national accreditation bodies and accredited conformity assessment bodies (CABs). The last of these categories includes certification, inspection, verification and validation bodies as well as testing laboratories and calibration laboratories, covering a central role in the system by means of conformity assessment activities¹. It is a complex but efficient structure, operating in a successful cooperation with public and private structures (standardization bodies and accreditation bodies operate on a not-for-profit basis).

There are innumerable areas and sectors in which accredited testing, inspection and certification (TIC) activities are performed: management systems, environmental and energy certification, quality and technical control of products, supply chain verifications, inspections concerning public building programs (buildings, construction sites, technical control of projects etc.), performance of laboratory tests on various and multiple matrices (environmental, food, industrial products, medical devices, raw materials etc.) and calibrations of measuring instruments – these being just some examples of possible applications.

The system helps businesses to improve their process efficiency and to enhance product quality, favoring uniformity, and it makes technical information available to all companies, ensuring the interoperability of products and services. **They are economic benefits which are evident in international market exchanges**, in which compliance with mutually recognized standards contributes to cost reduction in international trade. In many market sectors, thanks to the assurances offered regarding the attested requirements expected of a certified product or service, the Quality Infrastructure sustains demand, contributing to a climate of trust in the market, useful for assuring its correct functioning.

A study on the evaluation of the economic effects of the Quality Infrastructure does not only have the aim of creating appreciation of the support which these instruments have given to the Italian economy, but it also engenders understanding as to how their diffusion can be an opportunity for additional national growth.

¹ «Conformity assessment» is the procedure for demonstrating if specific product requirements regarding a process, service, system, person or body have been respected (EC Regulation N. 765/2008).

The principles at the basis of the Quality Infrastructure (competence, independence, impartiality, trust, transparency, sharing, and participation of the interested parties) are crucial for defining the **paths of innovation and environmental and social sustainability which Italy faces**. Consider, for example, the role that could be played in the diffusion of new technologies such as the *Internet of things* or artificial intelligence, sectors in which the themes of interoperability and information security are central. In the connected and automated mobility context of the future, sub-system inter-connectivity (vehicles, road and energy systems) will be decisive in establishing the level of development of an integrated European market. Also regarding environmental matters the TIC market actors will be at the forefront of the path set out by the European Commission for the achievement of a circular economy: their contribution may stretch from the definition and the measuring of the durability and the reuse of materials to the definitions of relations between the actors of the chain, as far as the efficient selection of eco-friendly services and products.

The response which may be provided to the growing needs for **transparency and social attention required from enterprises by consumers and by financial institutions** will be very important. The capacity of financial institutions to show their commitment in matters regarding environmental and social sustainability, in accordance with the indications contained in the UN Agenda 2030 will be an important tool for client communication and for attracting and having access to sources of finance. There is a growing need to find metrics and standardized elements, also on an international level, to measure the commitment of economic operators with regard to social aspects: instruments of the TIC world provide a natural support for reaching these aims.

This study sheds light on these aspects, examining the economic value of conformity assessments from various points of view.

Firstly, **the TIC world is analyzed with respect to the sector in question**, defining the characteristics of the operators involved and the size of the market.

Subsequently **the benefits which these operators bring to the Italian economic system are examined and quantified** by means of an analysis of the macro and micro economic aspects.

Finally, **an analysis is undertaken of the social benefits of these activities for the entire community** regarding the environment and the health and safety of citizens. Thanks to the use of techniques borrowed from economic literature, it has been possible to quantify these benefits also in monetary terms.

Accredited TIC activities

Results confirm and quantify the many benefits for enterprises and society deriving from the activities of CABs (conformity assessment bodies) and laboratories in the TIC sector. There are over 360 certification, inspection, verification and validation bodies, 1,200 testing laboratories and some 200 calibration laboratories possessing accreditation, carrying out conformity assessments and constituting the heart of the Italian Quality Infrastructure.

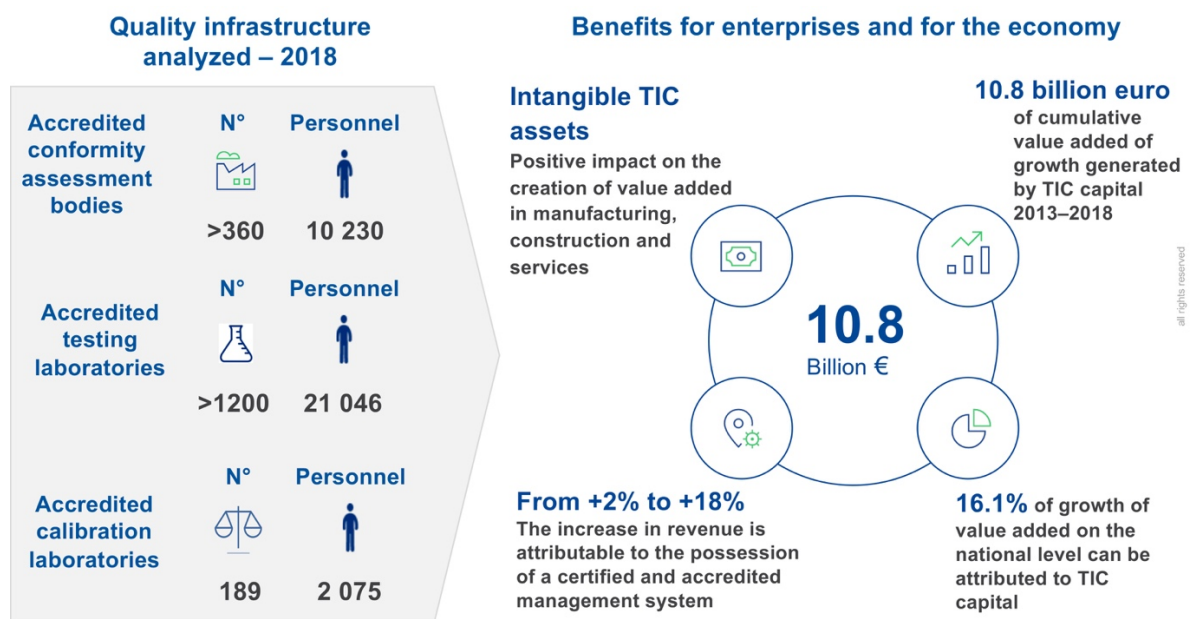
The market value of conformity assessments is estimated to stand at around 4.2 billion euro, providing work for 33,000 personnel (data for 2018).

The CABs account for almost 1.6 billion euro (with over 10,000 personnel); the testing laboratories account for some 2.5 billion (with about 21,000 personnel), whilst the figure for the calibration laboratories is roughly 110 million (with about 2,000 personnel).

Given these numbers, **conformity assessment activities take on an important role in the field of professional services offered to businesses.** With respect to this benchmark, the Italian conformity assessment market, including all existing CABs and laboratories, represents about 3.5% of revenue and just under 3% of employment. These operators are considerably bigger than the average for professional services as is testified and supported by the level of complexity and high value added of the services offered.

It is evident that accreditation provides a positive contribution to performance levels. Accredited CABs and laboratories enjoy a more sustained revenue growth rate as well as greater efficiency and productivity. The market recognizes that accreditation is a distinguishing factor and thus clients are willing to pay the price for these services.

Figure 1. Accredited bodies, benefits for enterprises and for the economy



Source: Prometeia data

The benefits for the economy

The activities undertaken by TIC operators, used as input by other sectors, have contributed to the support of the economic growth of user categories and to the growth of the Italian economy in general. **This analysis reconstructs a measure defined as “intangible TIC capital”** which represents the stock of quality, knowledge and technology traceable to activities of certification,

inspection, testing and calibration adopted in every sector²: intangible TIC capital has a positive and statistically significant impact in the creation of value added in all the macro sectors considered. The analysis quantifies how a 10% rise of TIC intangible stock capital results in an increase of around 0.5% in the total value added (proxy for the GDP) in the **manufacturing, construction and services sectors**. In aggregate terms, in the period 2013-2018 this constituted a **contribution to growth of 16.1%**; in other words, 16.1% of the value added growth in these three sectors can be attributed to TIC capital. In monetary terms, in the years 2013-2018, the TIC capital generated a **cumulative value added of 10.8 billion euro³, which is equivalent to an annual average of 2.2 billion**.

These quantities are an incremental contribution to national economic growth. This means that if in the last five years the TIC capital had remained constant (i.e. investments had been made aimed solely at replacing depreciated capital) the Italian GDP in 2018 would have been lower by at least 10 billion euro (0.6 of the total). 83% of this sum (about 9 billion) is attributable entirely to accredited conformity assessments, reflecting the strong impulse that accreditation has received during the period in question.

Altogether, the econometric analyses of this study reveal the significance of the contribution made by TIC capital in providing a positive influence on the national economy, **and it doesn't end with businesses buying TIC services directly because it reaches entire sectors**. TIC investments also help to increase the productivity of the other factors, and if they are implemented, studies show that production increases, as does the quality of goods and services offered.

An in-depth microeconomic analysis of the relation between the adoption of an accredited certified management system and economic performance confirmed the results described above. Businesses which use a certified and accredited management system (over 88,000 in Italy with revenue of some 1,400 billion euro, equal to 40% of the total economy) perform significantly better than those without certification. Applying a counterfactual method based on a comparison between certified and non-certified businesses but possessing similar characteristics, it transpires that **accredited certification leads to a growth rate in revenue over the next two years of between 2% and 18%** depending upon the sector in question and the standard applied, with more evident effects in the case of construction and services. It is interesting to note that also the implementation of an environmental management system, usually in conjunction with the adoption of a quality management system, engenders an increase of revenue of over 1.8%.

The impact on other balance sheet variables underlines that increases in production are accompanied by a rise in investment, a reduction of financial burdens and a greater capacity to generate cash-flow.

² This approach derives from awareness of the costs sustained by the economy for certifications, tests and calibrations, not as simple occasional expenses, but as investments in human effort, in patents, software and all other intangible expenses which support economic growth.

For example, the managerial ability can be a crucial factor for growth in guiding and organizing production systems. However, in the same way, also the expenses for laboratory tests are an activity of maintenance and raising of product quality and safety standards, promoting the competitiveness of the economy.

³ Value at constant prices.

These benefits do not result in increased operational costs, confirming the fact that costs relating to certification are in some way absorbed and rewarded by better corporate organization. A medium-term study conducted on a sample of companies with ISO 9001 certification showed that the performance discrepancy remained stable as much as ten years later.

The benefits for society

Along with the benefits for businesses described above there are a great many positives for society at large deriving from the application of standards and TIC activities. Experience has provided evidence of and quantified the contribution of certain segments of the Quality Infrastructure to society concerning the **environment, health and safety**. Analysis conducted examines and evaluates the benefits created by the reduction of negative factors⁴ (less pollution, fewer illnesses, injuries and others) and of the related financial costs (external costs⁵) attributable to the TIC activities taken into consideration. From an economic point of view it is important to evaluate them in order to fully understand the effects of policy choices and to select the best options from a social standpoint.

Thanks to **environmental certification** certified Italian companies reduce their GHG emissions by an average of 6.9% with respects to those without certification – a saving of 7.7 million tonnes of CO₂ annual equivalent.

The development of **energy certifications**, and in particular ESCos, EGE and EnMS certifications, has helped to reduce primary energy consumption by 1.7% per year – a contribution to the annual reduction of CO₂ emissions of over 6 million tonnes in 2018. In terms of the social cost of CO₂ this generates an overall saving in these two areas – environment and energy – of more than 500 million euro p.a.

Organizations holding **occupational health and safety management system** certification endure fewer and less serious workplace injuries compared with those with the same characteristics but without certification. Injuries are an average of 16% fewer, ranging from 7 to 46% depending on which sector they belong to, and the severity of the injuries sustained is 40% lower than for their non-certified equivalents. These factors constitute a saving of some 300 million euro annually in social costs.

The joint action of public and private operators performing **tests and certifications in the food chain** promotes and protects food safety, making an appreciable contribution to the reduction of foodborne diseases and the relative social costs. By means of a specially created model it was possible to quantify the reduction in the number of health years lost due to foodborne diseases at 75%.

⁴ In economic theory the term used is externalities, meaning an unintentional effect deriving from actions impacting production or consumption by a second party without direct transaction between them. These external effects may be positive or negative. The negative ones include activities which emit pollution into the air or which reduce business output, or those which alter productivity of persons collaborating in the productive process.

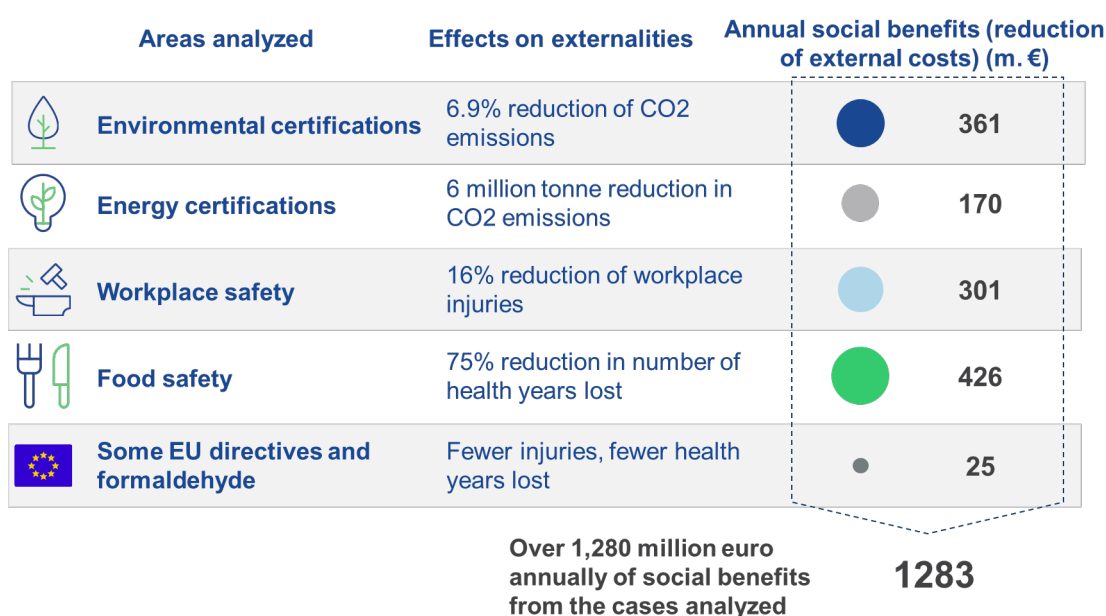
⁵ The external cost is the economic quantification of a physical effect and it pre-supposes the choice of a value to give to human life, to the quality of the air and to health. The economic literature has developed a series of techniques to reach these goals and the evaluations of this study are based on those techniques.

The high costs avoided and the resulting benefits of a food safety system are estimated to be in the range of 1.5 billion euro annually, with a contribution of public and private TIC bodies amounting to over 400 million euro.

Analysis of the European regulations reveals how environmental and product safety issues were pivotal in numerous EU Directives such as those regarding industrial machinery, medical devices and personal protection. Although they are very thorough (consider only the current situation regarding individual protective devices in the management of the Covid-19 crisis), the studies on the regulations have not always succeeded in quantifying the social benefits resulting from the application of these rules. This study reports the **application in Italy of three EU Directives** for which quantitative evaluations are available: machines, toys and noise and for which the contribution of the TIC factor amounts to around 25 million euro per year.

The overall results of the cases viewed reflect a major contribution made by the Quality Infrastructure in all its components in terms of social and environmental benefits, totaling around 1.3 billion euro per year⁶. It is important to underline that the evidence presented regards a limited though significant number of examples related to the Quality Infrastructure, and leaves aside many others for reasons of information availability or which are not strictly relevant to the scope of this study. It is important to report that, within the areas taken into consideration, the social benefits are, on average, double the costs sustained by businesses to obtain and maintain certification (without counting the private benefits). Any expansion of the diffusion of the systems analyzed could increase the systemic effects reported contributing to sustainable growth.

Figure 2. The effects of externalities and the annual social benefits (reduction of external costs) (millions €)



Source: Prometeia data

⁶ The figure ranges between 550 million and 1.2 billion depending on the criterion of economic assessment used.

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