



Investment in education and the importance to invest in training in maritime sector

Alessandro Figus

prof. PhD drHc Link Campus University, Rome and University of Genova (Italy)

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Abstract

Empirical studies have shown that changes in levels of education explain a significant part of changes in income between countries. Many causes and phenomena can affect income. In this there is a "reverse causal link" that exists between the two sizes (countries with a higher GDP offer better educational services). Cuts to education certainly contribute to reducing the numerator of the two "cursed relations" - between deficit and GDP and between debt and GDP. Too often we forget that improving the educational and university system is an investment that in the long term can contribute to the increase of the denominator of these relationships, the GDP, making public finance more sustainable. Investing in the education system and in University is good for the economy, even for the transport sector, of course.

Keywords: *Education, Bologna process, Erasmus*

1 Education and Economy

It is necessary to start from some general reflections on transport from here to the next twenty-five years, analyzing the trend of the sector and providing precise indications on the destination of future investments and on the demands of the market in next 15 years. According to OECD data, the world's gross domestic product could double by 2030, as for Italy it is more difficult to make forecasts even if today the growth forecast is low. If there is growth there will be investments. This significant increase will have important effects on the transport sector.

Italy's economy started losing momentum in early 2018 amid a wider slowdown of the euro area, and slipped into a contraction in the second half of the year. Real GDP fell by 0.2% in the last three months of 2018, following a 0.1% drop in the previous quarter. While the initial slowdown was largely due to less dynamic world trade, the recent slackening of economic activity is more attributable to sluggish domestic demand, particularly investment, as uncertainty related to the government's policy stance and rising financing costs took its toll. In annual terms, real GDP grew by 1.0% in 2018, helped by a sizable carry-over effect from the previous year. The ongoing weakening in the manufacturing sector with a further decline in economic sentiment bodes ill for the near-term outlook.

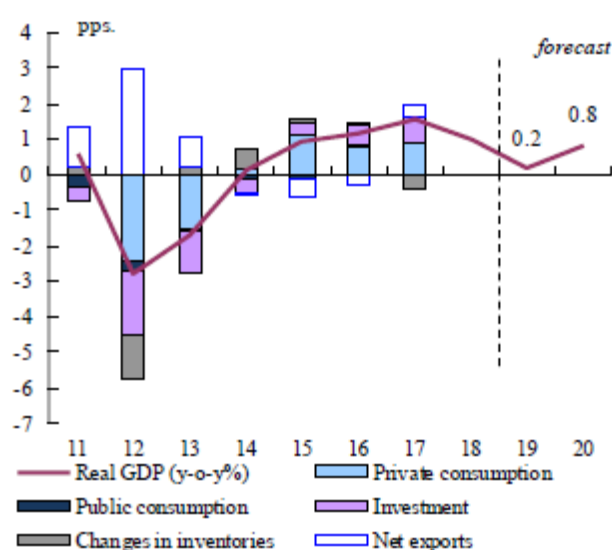
Economic activity is likely to remain anemic in the first half of 2019. In 2019, annual real GDP growth is forecast to fall to 0.2%, markedly less than what anticipated in

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the autumn forecast. A worse-than-expected cyclical slowdown in 2018, amplified by global and domestic policy uncertainty and firms' substantially less favorable investment outlook, largely explain this downward revision. Moreover, the more marked slowdown of important trade partners is likely to have knock-on effects on Italian manufacturing output. Following the budget revision in December 2018, sovereign yields eased but are still significantly higher than a year ago.

In 2020, growth is expected to pick up to 0.8%, helped by a positive carryover effect and two more working days in 2020. The forecast does not incorporate the effects of the rise in indirect taxes envisaged in the 2019 budget for 2020¹.

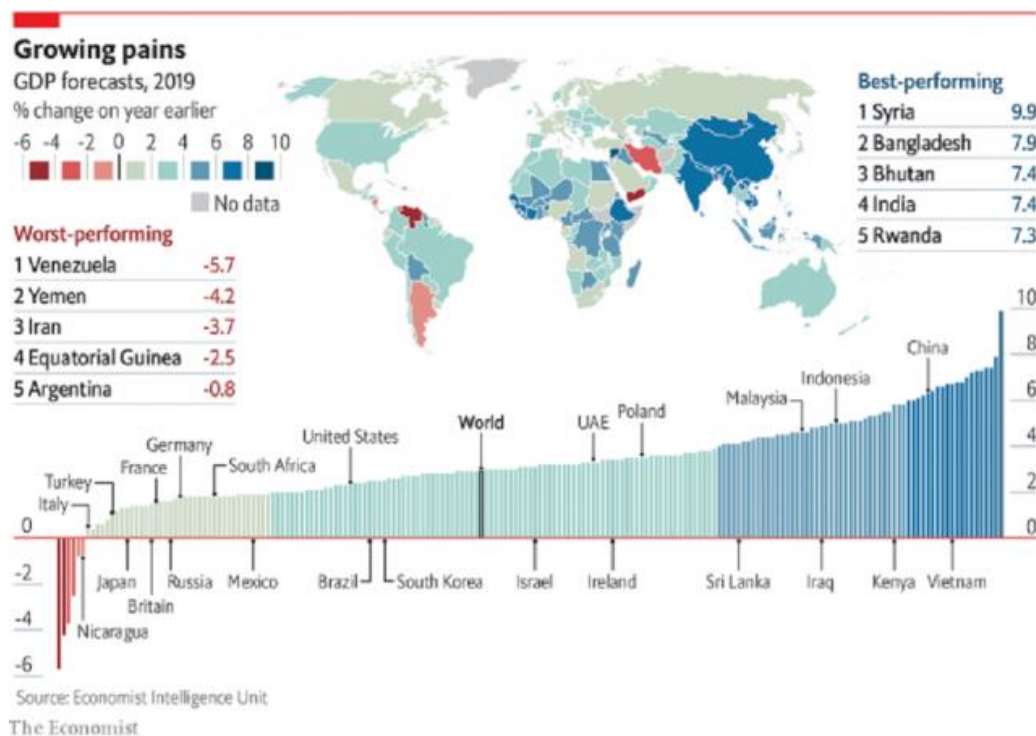
Graph 2.12: Italy - Real GDP growth and contributions



Recently the European Commission forecast the Italian economy would grow more slowly in the next two years (2019-2020), differently than what Italy thinks, making government budget deficits much higher than assumed by Italy while public debt would be stable rather than decline. [Italy's slump into stagnation](#) has raised fresh fears over its spending plans.

In the world we have countries that grow more and countries that grow less. The more we grow and the more we invest.

¹ See https://ec.europa.eu/info/sites/info/files/economy-finance/ecfin_forecast_winter_07_02_19_it_en.pdf



The OECD forecasts outline a very interesting scenario that sees maritime traffic among the main players in this new course.

Port management activities could increase due to this shift in development that comes from the East, especially from Asia to Europe, possibly even triple or quadruple by 2030. The increase in international trade is a very important driver for this growth.

These are important data that allow us to look at transport in a completely different way, thinking actively about possible investments in the sector. If maritime transport will make the expected leap, in the areas where it will be necessary to invest and which will bear fruit in the short and medium term, transport will continue (including air transport, which is also in full development).

When it comes to transport, one cannot ignore what is the area considered by many to be the most relevant in the sector, namely the infrastructural one. An infrastructure that works means a transport that works and can withstand well the challenges of strong growth that are expected. Tied to the infrastructure there is obviously the whole service layer, and specifically the innovative services, which plays an ancillary role but at the same time of great importance in the sector and which cannot be separated from investments of a certain level and attention from all economic actors.

The infrastructure is undoubtedly a fundamental point in international competition. A quality infrastructure means a point of advantage, being a step ahead of everyone, in international competition. This, above all, in anticipation of an extraordinary

increase in passengers and goods like the one envisaged. International gateways and corridors are fundamental hubs for exports and imports of products and resources referred to the economies of all countries. With the increase in passengers and in the demand for freight transport through major international routes, with the substantial increase in volumes transported by aircraft that are ever larger and containers capable of transporting large volumes at low costs, the development of these "international" routes will play an increasingly important role for national economies. Something that now, according to OECD data, is missing or not adequate enough for the growth prospect, above all due to the thrust of some countries.

The quality of the infrastructure is therefore a fundamental pillar of the international competitiveness. Infrastructure networks reduce the effects of distance, help integrate national markets and provide the necessary connections to international markets. Our economy is not growing but in the transport sector it could benefit from the development of other countries (Ricci, 2011). As we have seen, since Italy shows important shortcomings, it is necessary to consider the need for investments in a space left free and which, potentially, leaves many possibilities for intervention to different actors. Data says that despite the recent financial crisis and the recession, countries with good planning processes and strategic infrastructure plans linked to secure forms of financing are continuing to build positively and successfully the strategic infrastructure they need.

In Europe and in Italy the funding deriving from the private sector has been fundamental for making infrastructural projects operational. This fact is interesting because it is clear that partial or total privatization can increase efficiency and reduce public investment requests, thus relieving the state from, at times, "unsustainable costs".

The fact that in many infrastructural markets private funding is already active makes one think in a relevant way to a powerful contribution of private companies in the transport revolution from here to the next twenty-five years. The transport sector does not seem to be part of the general European crisis, to invest. There is the possibility of gaining in a sector of strong growth. In fact, there is an increase in the demand for international transport for passengers and goods.

Infrastructures and competitiveness, strategic planning and openness to say that the Ports will become important attractors of Private sector investment in the creation and development of a strategic infrastructure will be crucial (Amodio, 2017).

What is expected in the future is a rapid increase in volumes in the transport and trade corridors between the larger regions, such as Asia and in particular China, Indochina and India, Europe and North America.

Most of the long-distance traffic will be attracted by seafarers services, with a consequent increase in complexity on the departure, arrival and interchange hubs, in this case ports and also airports.

Most of these infrastructures will require a better capacity to handle volumes two or three times higher than today's levels. As a result, an increase in investments and financial arrangements will be required in many countries.

The greatest economic growth is expected in the Asia and Pacific areas. Asia will drive this transformation: container traffic could grow over 6% and passenger and freight traffic could increase by 2-3%.

2 The Italian reform of “port Sector and Logistics”

In this scenario, in the last 5 years, Italy promoted an important reform of “port Sector and Logistics” in the last legislature. It was promoted by the Italian Minister Graziano Delrio, and it established a reorganized, simplified and more efficient National Port System. The strategic system was created to support the role of Italy as gateway of Europe to the Mediterranean, assisting freight and passenger transport, creating jobs and promoting Italian economic development.

The Italian port sector’s legislation has been revised with the introduction of administrative actions on innovation, digitalization and system coordination, along with the improvement of logistics network. Today there are in Italy 58 main Ports and they have been organized into 15 new Port System Authorities, coordinated by the National Coordination Conference established at the Ministry of Infrastructures and Transport.

The new Port System Authorities represent the hubs of a logistics network integrating maritime and road transports, providing continuity along the TEN-T Corridors, which connect Italy to the World and run from the Baltic Sea to the Atlantic Ocean and the Mediterranean networks.

Italian Ports are now situated at the core of a connection network providing a more organized, intelligent and efficient transport system, at the service of undertakings and passengers, combining competitiveness with the tasks of connecting territories and local markets.

The New Port System Authorities also manage, in a coordinated way, the implementation of the new infrastructural projects, due to investments which amount to 450 million Euro per year, thus giving a boost to the planning and implementation of the public projects aimed at making Italian Ports ever more efficient and competitive at a global level (Amodio, 2017). The Interactive Map describes the new organization of the Italian Port System and its integration with the European transport Network, informing investors and those working in the maritime sector about the financing opportunities of the sector. This Map also includes detailed data on Italian Ports, providing a description of their main technical features, including shore and water-side connections, their freight and passenger traffic, the projects underway and the new investments planned for them (Amodio 2017).

Last May, the annual federation meeting of Federagenti (National Federation of Maritime Agents and Advisors) focused on the theme of the new attraction for

international investors (financial and operational) of Italian companies operating in ports, shipping and logistics, was carried out. There are almost 60 companies in the Italian port, maritime and logistics sectors that have been partially or totally acquired in the last ten years, or that have participated significantly in international groups, both in the financial and maritime sector, for a total investment in Italy that reaches 3.5 billion Euros. The maritime transport sector and transport logistics therefore ranks first in Italy among the non-invading and cannibalizing sectors, resulting in "a positive contribution from international investors". This is what emerges from an analysis that the president of Federagenti, Gian Enzo Duci, has carried out as part of his duties at the University of Genoa (course in Transportation Economics) and presented at the annual meeting of the Federation of Maritime Agents in Porto Cervo. Between the entry of international investment funds and public purchase offers, some of the major brands of shipping, port, and logistics have managed to attract international investors who, in most cases, have rooted in Italy their activities producing added value in our country. In particular, as stated by Gian Enzo Duci: "it is the result of these interventions to dispel the suspicion that it is only a massive operation of colonization: in the three years following the intervention of foreign investors, the Ebitda of the groups subject to intervention, and whose data could be found, recorded an average increase of 70%, and then settle in the following years on annual growth rates of 5%". The process of globalization has not been and is not painless, especially in the shipping sector as highlighted in the analysis presented by Federagenti. In ship owning activities, the wind of crisis blew up impetuously, making it necessary for more than 30 groups to resort to extraordinary measures of debt renegotiation and how, while in some cases the financial meltdown has resulted in bankruptcy.

Also in the world of shipping agencies the concentration effect, which has revolutionized the container sector, has polarized it on a limited number of protagonists (no more than 9) grouped into three alliances and able to divide more than 80% of the world trade transported in container. This has caused a real change of identity of the great marine agencies, which have become either direct ownership or joint venture between the previously independent ship owning groups and Italian operators.

However, this process is not new to our country, where in the last decade some of the main national players in the sector have seen the entry of large international operators into the capital; from the acquisition of Lloyd Triestino, later renamed Italia Marittima by Evergreen, to the passage of control of the major Italian container terminal, that of Genova-Voltri, from the Fiat group to the Psa of Singapore, up to the transfer to the American Carnival of the Costa Crociere Group. However, even Italians are not worth less in foreign markets. In fact, Italy is number one in the international markets for the acquisition of companies in the ferry sector, with two groups (Grimaldi Napoli and Onorato) protagonists of important international operations.

What does this show? That transport sector in general and investments in the maritime transport sector and in ports also work in a low-growth country like Italy.

3 Country growth and society need, promotion education and blue economy.

That said, an important reflection that affects the economic system, in this case transport, and society is needed: in order to make our country grow, it is necessary that the policy broadens the horizons of its choices by considering some factors neglected so far, but deemed essential for full growth and to avoid negative falls that are difficult to recover from. There are three areas in which Italy is in serious delay: the recovery in the birth rate, to guarantee a future for the country in all sectors; family support, to ensure better coexistence and social cohesion; the promotion of education, for the full growth of people from a human and professional point of view. Without adequately resolving these problems, the country risks failing its own development, including economic development, on which only political choices have so far been concentrated. This is why it is important to address these problems and propose appropriate solutions. As for education, it is time to intervene by guaranteeing real freedom for the subjects that make up the educational sphere. At all levels of education, autonomy must be ensured for both the state and the private education system to guarantee a pluralistic system. Another question to consider is: are Italian seamen able to face the challenges imposed by new international regulations? What impact do new technologies have on life on board and, above all, on the training of workers? Finally, in terms of crew preparation, are we behind other European countries? To answer these questions, it is necessary to understand that the current situation of maritime training in our country is directly related to the possibility of offering new spaces of employment on board for our officers, raising the standards of quality and professionalism, in order to make them competitive on the international market. Further, the Italian armament, and Europe in general, needs and will need increasingly high-level operators, competent on a specific technical-professional level, with a managerial training and high ethical responsibility profiles.

If we need to understand, more about the public policies related the education and training of seafarers in European Union we need to comprehend that in order to maintain and develop the level of knowledge and skills in the maritime sector in the EU as well as in the interest of maritime safety. It is therefore essential to define and maintain a minimum level of training for seafarers in the EU.

In this respect, the EU “has adopted a whole arsenal of specific rules on the training and certification of seafarers since 1994. The aim is, on one hand, to transpose into EU law the international standards enacted by the International Convention on Standards of Training, Certification and Watchkeeping ([STCW Convention](#), as amended) and, on the other hand, to ensure that all seafarers working on board EU ships have a level of competence at least equivalent to that required by the STCW

Convention. In particular, [Directive 2008/106/EC](#) on the minimum level of training of seafarers incorporates in EU law the STCW Convention. Directive 2008/106/EC has been amended by [Directive 2012/35/EU](#) so as to bring it in line with the latest amendments to the STCW Convention, namely the “Manila Amendments”. Directive 2008/106/EC as amended also lays down a common system of EU-wide recognition of third countries which comply with the requirements of the STCW Convention for the purpose of recognition by the Member States of seafarers' certificates of competency issued by these countries. The Commission with the assistance of EMSA has assessed a number of third countries and to date more than 40 such countries have been recognised at EU for STCW purposes. A country that has been recognised at EU is reassessed regularly by the Commission so as to ensure that it continues to comply with the requirements of the STCW Convention”.

(https://ec.europa.eu/transport/modes/maritime/seafarers/education_en)

Another problem is the certification. The stringent rules of the STCW (*Standards of Training, Certification and Watchkeeping for Seafarers*) Manila 2010 Convention and the requirements of EMSA (European Maritime Safety Agency), require us to take a decisive step forward in the full implementation of the provisions of international organizations, first of all by IMO (International Maritime Organization), trying to reposition ourselves at the cutting edge of professionalism in this very important sector of our economy (Musso1996).

For the European Union the main policy in Maritime affairs depends from the possibility to growth not only in traditional way but also for new sector as the blue economy. The coasts and seas have the potential to deliver growth and jobs in the coming years. In order to achieve for example the “Blue Growth” (related Blue economy that is a term in economics relating to the exploitation and preservation of the marine environment), highly qualified and skilled professionals are needed. Yet many Blue Economy sectors are experiencing difficulties in finding the right employees – and most sectors expect these difficulties to continue in the near future: this is due to: 1) a skills gap between education offer and labour market needs, especially with regards to technological developments and innovation; 2) a lack of communication and cooperation between education and industry; 3) a lack of attractiveness and awareness of career opportunities in the blue economy; 4) lack of ocean literacy culture. Four main actions have been put in place to tackle the skills gap in the blue economy. In this case education is central for the improvement of the [Blue Careers projects](#). In fact, European Maritime and Fisheries Fund (EMFF) work programme 2016 has EUR 3.452.000 funds and aim to establish platforms for cooperation between business and education at local/regional or transnational level to develop and implement concrete actions to close the skills gap, tackle the unemployment challenge and raise the attractiveness of "blue careers" among students.

Some EU projects are started and covering both higher education and vocational training have been selected and have started at the beginning of 2017 (https://ec.europa.eu/maritimeaffairs/policy/skills-career-development_en).

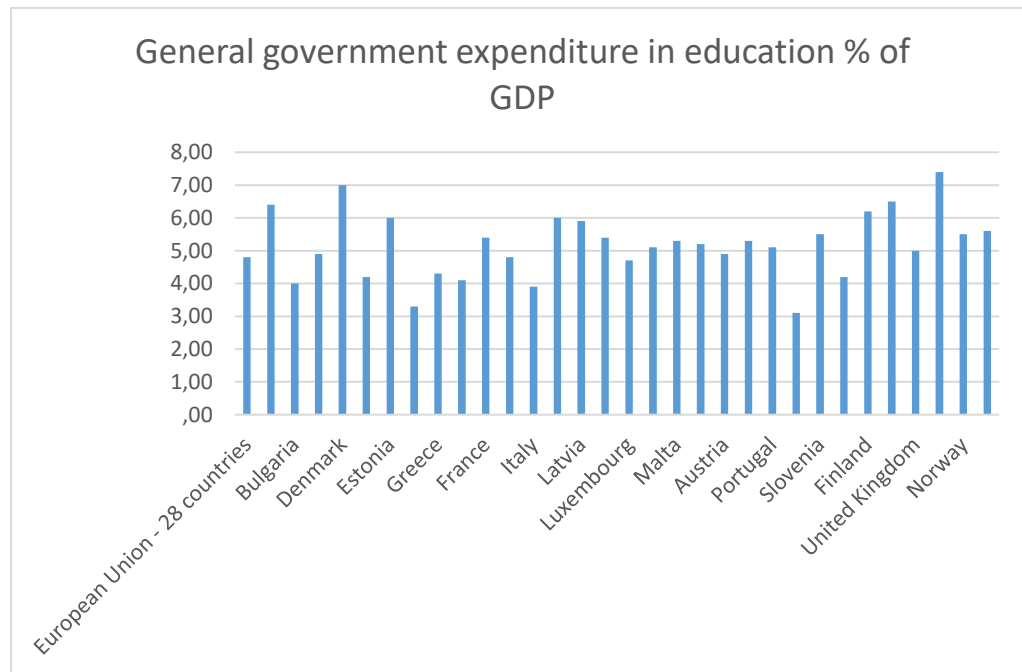
4 Technical training in Italy

Today in Italy “we have a good network of technical institutes for transport and logistics (ex-nautical), many of whom have adopted the maritime option (from which the official car and deck officers will come out) and who are certifying in quality ISO 9001. According to the requirements of EMSA, they are able to insert and certify, part of the skills defined by the STCW (in relation to sections A 1 / II and A1 / III, referring to the navigation and engineer officers). This is a good result, but in Italy, unlike other European countries, there is a "recognized and certified" training system that accompanies official students, also through a 12-month training course on board concerning the "guard activity until the professional title of Officer is obtained”.

Today, this path is, largely, completely individual: research for boarding, increasingly difficult; attainment of the compulsory certifications at their own expense, specialization in English that is often lacking since upper secondary school, private lessons to face the professional qualification exam with peaks, in some cases, of failures that reach 90%. What must the educational system do to adapt to a growing sector? Empirical studies (OECD 2017) have shown that changes in levels of education explain a significant part of changes in income between countries. Many causes and phenomena can affect income. In this there is a "reverse causal link" that exists between the two sizes (countries with a higher GDP offer better educational services). The cuts to education certainly contribute to reducing the numerator of the two "cursed relations" - between deficit and GDP and between debt and GDP. Too often we forget that improving the educational and university system is an investment that in the long term can contribute to the increase of the denominator of these relationships, the GDP, making public finance more sustainable. Investing in the education system and in the University is good for the economy (Musso 1996), even for the transport sector, of course. The thing to be promoted by the government is blocking cuts to expenses more easily attacked, where the attack depends mainly on the ability to "defend themselves" from social categories and groups of power that benefit the most from these expenses. Practically, priorities in economic cuts seem to have been fixed more by the balance of power between the various social actors than for reasons of economic efficiency.

Italy is among the latest on a European scale for investments in training: around 4% of GDP, below almost a percentage point compared to the EU average (4.9%) and just over half of what is invested by Denmark (7%), Sweden (6.5%) and Belgium (6.4%). An average that slightly exceeds the total expenditure of individuals, equal to 3% of GDP (see the latest OECD surveys, EUROSTAT 2017). The data are calculated on the total resources allocated to the "education" segment by the

governments of the European Union. Member states spend a total of € 716 billion on the sector, a share of 4.9% of continental GDP and the fourth item of expenditure after social protection (19.2%), health (7.2%) and services public (6.2%).



Eurostat, 2017

Worse than Italy, only Romania (3.1%) and Ireland (3.7%), while Germany remains at similar percentages (4.3%). The prospect, however, becomes a bit 'different when you look at the absolute values: the German government puts on the plate almost double of Italy, € 127.4 billion against € 65.1 billion in Italy. At least two are the negative consequences: on the one hand, the institutes form fewer specialized profiles and are appealing to companies in sectors with more possibilities for expansion, especially in the technological field; on the other hand, the lack of resources penalizes the provision of scholarships and other social mobility instruments, discouraging the choice of courses that could have an immediate impact on economic development. A reduced investment in training, coupled with insufficient spending on research, means that Italy is not able to be a leading country in several industrial sectors. Different matter for the maritime sector, because this sector is very international, even here we have human resources with respect to the demand, it is one of the few economic instruments for growth ".

5 Employment policy, skills, knowledge and education in EU

Promotion and support of the European social dialogue between port workers and their employees and of training. The Commission helps the EU Social Dialogue Committee in the Port Sector to work on health & safety, training and qualifications, gender issues and promotion of female employment and attractiveness to young workers. Representatives of port employees and port employer's work together for instance to produce common guidelines for training as well as national health and safety requirements. Another project of the Committee, financed by the Commission, is identifying the key challenges that EU ports are facing and how the industry is adapting to change and preparing for the future (https://ec.europa.eu/transport/modes/maritime/ports/ports_en). European Union wants to develop the education system and invest in education, to do this it is necessary for Europe to promote cooperation between institutions providing education and training for marine and maritime professions. There are around 355 educational and training institutes in the 21 Mediterranean countries (EU data base, 2018), both in HE, also because the maritime education and training offer appears rather fragmented and traditional. The cooperation landscape consists of both project-based as well as structural initiatives, with a focus more so on higher education. Despite the many barriers identified, a strong interest in cooperation and integration exists amongst practitioners. We need strong HE cooperation, we need investment to modernise the educational sector.

The European HE needs to engage in such cooperation in maritime sector that is intricate. The complexity of maritime education and training in this area due: first to the variety of maritime economic sectors involved, such as (nautical and coastal) tourism, maritime engineering (shipping, ports, energy sector), coast guard and security (including monitoring) as well as life sciences required for advancing aquaculture, fisheries and biotechnology, but second for the geographic diversity and big distances across this large-scale sea basin; third for the big difference between private and public sector; finally the problem of the long time to improve the curricula.

To keep out for the times we need to improve and to modernise the education and this is a strong economical effort. Overall, maritime education and training involves high capital costs, required for the necessary infrastructure including teaching materials, training simulators, laboratories, vessels, etc. The financing structure for the sector is vulnerable. Longer-term investments are needed, as the current training offer is often outdated and not following pace with the technological developments in the sector. Cooperation offers concrete opportunities for economies of scale, sharing and pooling of resources and the European Union strongly promotes this policy.

In fact, in order to stimulate economic growth, education and training providers need to ensure the knowledge and skills that support the sector. This is not easy,

since the demand from the economy and labour market can change rapidly, while education and training institutions need a long time to adjust. Curricula and testing systems have a long life cycle: changing a curriculum or developing a new programme can take years.

Therefore, the first employment policy in the maritime sector will have to be oriented towards the investment in skills and knowledge, which means to really renovate the Italian educational system from school to university, making these institutions less referential and more oriented to the employability of people, thus bringing the educational system and the maritime transport system closer together and having the educational system and the Labor Market inter-linked.

The training policy should be radically changed also at a local and sectorial level and not just at the national level. Over the coming years we need to focus the attention on the training offer to the training demand, because at the centre there must always be the person and the inclusion in the Labour market, especially at a time like the current one characterized by great technological transformations. Although, in fact, the last legislature has been characterized by many measures and controversial judgments, the Italian Labour market remains particularly static and employment, although it has increased, has still grown less than other European countries or industrialized economies. If we want to focus on the investment in the transport system, we cannot think twice about investing in the training system of the transport sector. Training cannot be delegated; the labour market must be closely monitored and must interact with the corresponding educational system. The system must have integration processes, the investments must progress together, and the benefits will be common.

Education is an investment. The importance of knowledge and learning has been recognized since the beginning of time. Education and Training: more investment needed to spread the benefits of education across society. Education is truly one of the most powerful instruments for reducing poverty and inequality and it sets the foundation for sustained economic growth. Let's start investing in it more, efficiently in areas that can lead to development, the transport system is and certainly will be.

6 Conclusion

In conclusion, what are the questions that we must ask ourselves, especially Italians, but also Mediterranean and European ones to develop a strategy of development in the maritime sector? We must first ask ourselves the question of whether we are able to meet the challenges imposed by the new international regulations? What impact do new technologies have on life on board and, above all, on the training of workers? and finally ... in the preparation of the crews are we more behind or ahead of other countries? Not easy to give answers. Certainly, for the future maritime training, will see high-level interventions, must arouse great interest in the professionals of the maritime sector.

The issues of training are increasingly complex. Seafarers today the labor market requires great skills in the field of legislation and technology, as well as a strong specialization and flexibility. Their growing need for training and updating, however, are not always adequately understood, a change in mentality is needed, with the forum we try to give a signal ". There are also new forms of training such as e-learning, where there are more effective ways to teach new generations, the complex international legislation on maritime training, then touch on more traditional sectors such as the blue economy, environmental issues, security and cyber security.

Unfortunately, the time available and dedicated to training by marine technical personnel is very limited, while factors such as age, education and costs make it difficult to use at times. Finally, the aspect of digital and digital training is also important; as is the use of "augmented reality" and the new technologists are framed with the use of "serious games" as simulators and virtual reality. Today, 80% of accidents at sea are because we are in front of human errors, the use of simulators during training leads to a significant reduction in their number.

The Italian strategy can only refer to European Union (EU maritime transport policy until 2018 (COM (2009) - 0008), and it is focusing on the question of human resources, skills and maritime know-how: the possible strategic measures to be taken should include in particular, the improvement of the attractiveness of the maritime professions, the improvement the training of seafarers, the promotion of lifelong career prospects in the maritime sectors, the improvement of the navigation image and therefore the creation of access to professional skills.

The key word for training in the maritime sector will be: Flexibility. Here is what will be required to young people who approach the professions of the sea in the coming years (Clocchiatti, Policy advisor of the European Commission "DG SEA", 2018). The basis of the union policies is, for example, the development of the blue economy, linked to the sea. In any case, Italian and European companies continue to invest in training. Today we need ambitious and prepared people, this is what the market is asking for.

There are not only the shipping companies: even the boating is rightfully in the category of sea professions. Progress is inevitable, things will change, but there will always be a need for a good seafarer and selection must be made more on the qualitative than quantitative level. Today the new generation of young Italians lacks specific technical skills that serve the transport professions, to the benefit of foreign human capital that sector companies use it.

In conclusion, we try to understand the data on education and how much should be the investment in the educational system and in the maritime sector. In Italy, for example, there are about 190 thousand maritime companies, equal the 3% of the Italian economy, producing an added value for 44.4 milliard Euro (maritime sector, the figure of the last few years has fluctuated on 32 milliards of GDP). The total number of employees between direct and connected sector is 800 thousand, equal to 3.5% of the total national quota (VI Report on the Economy of the Sea).

In EU 640,000 people work directly in the maritime industry and the shipping industry contributes for 57 billion Euro to the European GDP (Oxford Economics, 2015). Taking into consideration the connected sector, in Europe the marine sector jobs offers is increasing to 2.1 million (European Community Ship-owners Associations 2016). The EU member states spend around 716 milliards Euro on the education sector, for an average equal to 4.9% of the continental GDP (the fourth item of expenses). In Italy if we want to have equitable and right investment in training in maritime sector we need to spend in addition to improve the current expenditure (oriented towards European trend) and to invest around 5% of the GDP of the maritime sector, therefore to invest more than 2 milliard Euro per year. We hope that the message will be take in consideration by the politics and decision makers, even though the new transport strategy carried out and proposed in these days by China (China's global economic effort, called the Belt and Road Initiative “BRI”, a new silk road).

Table 1 Figures of employ offer in maritime sector

Total directly employed and connected sector	2.100.000
Directly employed in EU	640.000
Employed by connected sector	1.460.000

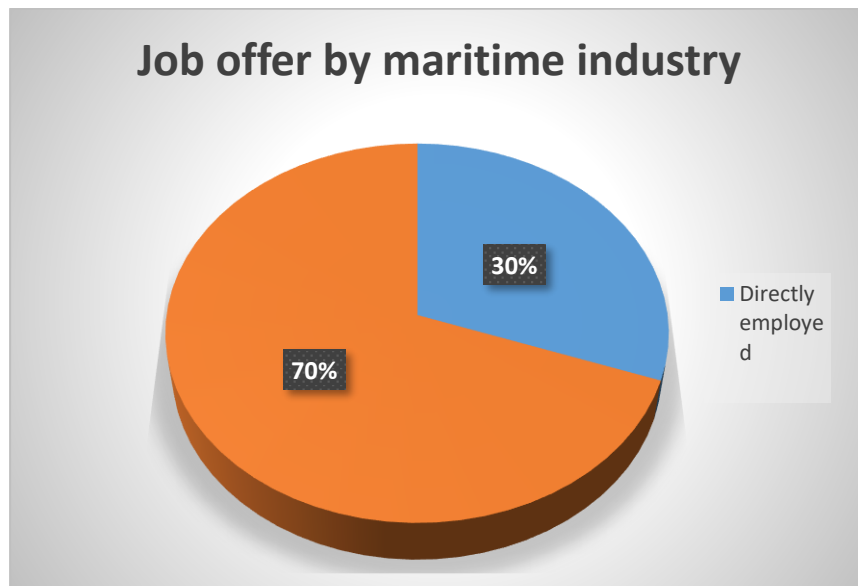


Table 2 Contribution to GDP by maritime industry in Europe

	EURO
Contribution to EU shipping industry GDP by directly empl	57 billion Euro
Total contribution to EU GDP	716 milliards Euro

Table 3. Investment in Education GDP

Europe	4,9 % of GDP
Italy	3.9 % of GDP

Table 4. Italy maritime sector and Education

GDP by maritime sector Italy	32 milliards Euro (an average in the last years)
Investment in education	65,1 milliards
Actual GDP investment in Education	3.9%
What GDP should be invested in education in order to be competitive in Maritime Sector	5%
Italy should invest in Maritime Education	2 milliards euro

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