The New Characteristics of Seafarers' Labor Market and their Requirements to the Maritime Education

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ABSTRACT

The seafaring market has acquired some very important new characteristics in the era of expanding globalization, rapid development of technologies onboard ships, and political and social pressure for environmental protection and safety: fully global and extremely cost conscious, growing and dynamic, with supply that is far beyond demand, it imposes rising requirements to the qualification of seafarers and its international enforcement.
The goal of the paper is to analyze these new market characteristics and their challenges to tertiary maritime education and training (MET). The suggested MET steps to meeting the market requirements consist of changes of national MET structures and educational management, increase of economic efficiency of education by using the cost advantages of economies of scale and revealing of alternative methods of financing, enrichment of educational contents and improvement of onboard training, cooperation between academic faculties from different countries for the harmonization and quality assessment of maritime education, and further enhancement of standards above the current suggestions. In conclusion the paper stresses on the need for elaboration of global strategy for the development of today's global maritime industry.

1. Introduction

For hundreds of years the purpose of tertiary education has been the forming of small well-educated elites. Nowadays the situation has changed and the education must be guided toward the industrial needs and preparation of larger groups of people for their professional realization. The same can be referred to tertiary MET, which is an important factor for maritime safety and the harmonious development of the maritime industry, including its employment dimension (ITF, 2002). Thus the researches on the relation between the seafaring market and MET become of major importance. Based on this actuality the aim of the present paper is to analyze the new characteristics of the seafaring market, their challenges to tertiary MET, and the road that must be walked off by MET institutes to meet the labor market needs. As the entire fulfillment of this goal requires a more comprehensive analysis that cannot be conducted in the limits of one paper, we consider that our aim will be accomplished if using the economic approach we are able to reveal the frames of the problems, to point out some possible solutions and thus to stimulate and give arguments for a more profound and complete discussion.

2. New Characteristics of the Contemporary Seafaring Market

In the era of expanding international trade and rapid development of technologies onboard ships the seafaring market becomes one of the growing and dynamic labor markets with some very important new characteristics.

Looking at its organization **today's labor market for seafarers is fully global** and buyers of labor have the opportunity to assemble the crews at will. The reasons for this are three. First, the seafaring market is highly inclusive as it works in environment where there is no need to immigrate, and job mobility is both unrestricted by national institutional barriers and low cost. Second, shipowners are free to employ crews from different nationalities and are coerced to do so because of the cutthroat competition and the necessity to hire personnel who have the required skills but also are inexpensive. Third, the seafaring market has a global organization of recruitment by means of extensive arrangements between shipowners, ship managers, manning agencies and MET institutions.

One of the most important results from this widespread multinational crewing and weak correspondence between flag of ship and crew nationality is the inflow of new nations in the seafaring market. The concentration of the maritime business in the developed countries and the traditional bond between the nationality of flag and crew guarantee high and secure incomes for their national seamen. In the conditions of globalization that makes the seafaring market particularly attractive for citizens of countries experiencing economic difficulties. Because the latter are willing to work for less payment the result is not only an increase in their incomes but also a decrease in the incomes of the officers from the traditional maritime nations and their ousting from the global labor market. The data is convincing. Only during the period 1995-2000 the number of officers from OECD countries decreased by 4.3%, while the number from Eastern Europe increased by 10%, from the Indian subcontinent – by 8.4%, from the Far East – by 5.4%. The forecast for the period 2000-2010 is that this tendency will be preserved - the number of officers from OECD countries will decrease by another 34.000 people (23.1%) and their share will go down from 36.4% to 28.5%, while the number of officers from other regions will increase by 27.000 (BIMCO/ISF Manpower Update, 2000). Similar to employment, the changes in payment also follow the logic of the globalizing market. Only over the period 1995-2001 able seafarers' average monthly earnings fell by 53% for the Germans, 51% for the Belgians, 43% for the Danes, 49% for the Dutch, 26% for the Portuguese and 14% for the French (Commission of the European Communities, 2001). All these facts lead to the conclusion that the seagoing career becomes less attractive to the developed and more appealing to the developing nations.

An essential source of the indicated seafaring market globalization is the presence of **enormous and sustainable demand for suitably trained personnel**. As a consequence of the growth of international trade, decreasing costs for transportation of goods by sea, modernization of ports, formation of new regional networks and overloading of other transport, there is and will be a long standing raise in seaborne transportation (Dirks, 1999). Only for the period 1990-2003 the world seaborne trade increases from 3.977 million tons and 17.121 billion tonne-miles to 5.671 million tons and 23.694 billion tonne-miles (Fearnleys, 2003). Thus the current number of ships is near 50.000 (Precious and Holt, 2003), and despite technical innovations, increasing size of ships, and reduction of crews this creates an enormous and sustainable demand for deck and engineering

officers. According to some estimates the worldwide demand for seafarers is 420.000 officers in 2000 and the forecast for the next ten years is an additional increase to 443.000 officers, from which the main part is coming from the OECD region – 37.5 % and countries from Africa/Latin America – 30.2 % - region with many open registers such as Panama and Liberia (BIMCO/ISF Manpower Update, 2000).

Staying on the demand-side of contemporary seafaring labor market we can add to the above mention quantitative features some qualitative characteristics of demand for suitably trained personnel. The competitive pressure for efficiency, along with the increasing political and social pressure for environmental protection and safety impose **new and higher requirements to the qualification and motivation of seafarers** (Lane, 2000). The ships of today are extremely complex and have to be controlled by highly educated and trained workforce, who possesses the knowledge, technical competency and practical marine skills to operate these vessels cost effectively and safely. Thus the quality of seafaring personnel is critical and people become the most important component of maritime business. They need appropriate qualification acquired through investments in MET and credible certification through international standardization and regulation of minimum skills. If there is no such international regulation and standardization, less ethical operators will be in a position to exploit the global seafaring market with little regard to the quality of seafarers and the overall level of environmental protection and safety will be reduced. To cope with this problem the governments concerned have developed the international Convention on Standards of Training, Certification and Watch keeping for Seafarers (STCW'78), whose 1995 revised version imposes uniform standards of competence and training for crews on issues of safety. Nowadays these standards are necessary to guarantee both individual qualification and their international acceptance.

A significant role in the functioning of the seafaring labor market holds not only the level but also the **specificity** of the required qualification of the officer staff. No matter whether the specificity is because of the special features of equipment, technologies, group relations or the organizational rules of communication, thanks to it the employers acquire monopsony power. The lack of other application of the specific qualification allows them to receive economic rent, to behave opportunistically and to pay low wages, limited not by the labor productivity, but by its alternatives. Because of the limited international mobility on the other labor markets the variation of alternative incomes in different nations is significant and leads to considerable national differentiation of seafarers' earnings, even if they have similar qualification. Thus the highest earnings are for the officers from the developed countries, where the alternatives of sea-going are most valuable, and the lowest are for the officers from countries encountering serious economic difficulties. Although among the factors for emerging wage differentials an important role is played by some safety considerations, technical standards onboard and cultural links (Dirks, 1998), the role of labor market segmentation, caused by the required specific qualification, is also undoubted. Only this role can explain why despite the global character of the market the employment costs of OECD seafarers are so high in wage terms, when compared to other major seafarer supply centers - e.g. a typical monthly wage cost for a Master from Croatia, India, The Philippines and Russia is between $4200 and $6300, whereas a typical monthly wage cost for a Master from such countries as Denmark, France, Germany, Japan, Norway and the UK is not less than $8500 and may be as much as $11.000 (Precious and Holt, 2003).

The lack of alternative applications of the specific knowledge and skills and the danger that the employers will use opportunistically their strong position harm the interests of the seafarers and make unattractive the alternative of sea-going career and acquisition of specific marine skills. One solution of the problem is compensation of the employers' strong position by delegating them some educational expenses. As a consequence the termination of employment relations will bring high expenses to both sides: the labor suppliers will not be in a position to find valuable application of their specific skills and knowledge outside the industry, which will motivate them not to quit, and the employers will not be able to hire other personnel with the same qualification without additional expenses, which will motivate them to conform with the interests of the qualified seamen and to offer them more favorable working and payment conditions. Unfortunately the realization of such a solution is complicated. The reason is that although the officer staff's qualification is specific compared to other industries, it has general attributes inside the maritime industry. This allows the officer staff to freely transfer from one company to another and if a given shipowner decides to cover the educational expenses, he risks not to recover his investment: trained seafarers would be bid away by other companies due to the mobility of their higher qualification (Becker, 1993). In such a situation **the competitive labor market cannot provide specific training**. Therefore the road to providing of this training is to develop special institutions that will guarantee the returns for the one, who has invested in specific qualification (for example long-term employment contracts), to undertake measures reducing the specificity of training, and to create conditions for alternative application of received seafaring qualification by planning and developing a long-term marine career, which includes both sea service and shore based employment.

Related to the analysis of demand for marine officers and the required level and specificity of their qualification is the emergence of a new and growing labor market problem – the **insufficient supply of skilled seafarers**. Here, similar to any other occupation, determining factors for the choice of profession are the relative levels of compensation, the non-monetary characteristics of labor conditions, and the required qualification for entering and career development in the field. Nowadays seafaring loses a lot of its former attractiveness in comparison to other professions because of the growth of more attractive career alternatives, the improvement of job opportunities, pay and employment conditions ashore, and the higher career expectations of young people (AMSA, 2002). At the same time the employment conditions aboard become more inferior by reasons of the implementation of new exploitation practices in the sea transport, the increase labor intensity and the decreasing stay in ports, the extended absence from home and social isolation during work in small, policultural and polilanguage crews (Morris, 2001). In addition requirements for seafarers increase and future maritime officers are not only obliged to acquire a fair amount of information to start their career but also to be ready to constantly maintain their skills and to meet previously unknown, but increasing qualification prospects. Furthermore the knowledge obtained is mostly specific which limits its alternative applications and creates risks for unacceptable opportunistic behavior of shipowners. In that situation monetary compensations are not able to create sufficient incentives for choosing the marine officer' profession as they decrease in the developed nations and are enough only for officers from the countries facing economic difficulties, whose qualification is low and whose capability to replace the most qualified seamen from the traditional marine nations is not satisfactory. As a consequence the inflow of new nationalities on the seafaring market satisfies the necessities at lower levels, where the replacement of traditional nations is notable, but cannot do it at higher levels of qualification. The

result is the formation of a considerable excess supply of ratings and excess demand for officers, which is 4% of the total workforce (16.000 officers) in 2000 and is expected to reach up to 12% shortfall (46.000 officers) by the year 2010. Especially alarming are the facts for the OECD countries, where the shortage of officers is expected to reach one third or 54.000 persons (BIMCO/ISF Manpower Update, 2000).

In conclusion, before we proceed to the role of the MET system for meeting the requirements of the seafaring labor market, we can summarize the major challenges, which the labor market puts before MET. First, the labor market requires more officers in order to meet the significant market demand. Second, these officers have to possess high competence and worldwide acknowledged and accepted qualification. Third, the maritime education ought to compensate the negative image of the seafaring profession, to motivate for long-term career and to give opportunities for professional mobility. Fourth, the education itself should not pose a serious barrier on the willing to opt for the profession of marine officers. It is obvious that these challenges are serious and that the current MET system cannot meet them completely. The significant shortage of officers is a proof that it cannot provide the quantity demanded in the market, and the frequent incidences with serious economic, human and ecological consequences, caused by human mistakes, prove that there is still a lot to be required both from the quality and the preparation of marine personnel. What are in this situation the reactions of the MET institutes and further solutions of these problems?

3. The Reaction of Tertiary MET System

All new requirements of the seafaring market necessitate and lead to substantial changes in MET. Although the maritime education system in each country is unique and the length as well as the organization of educational programs and course curricula vary significantly (because of traditional and cultural differences and differences in each country's educational system), there are some common elements that characterize the current state of maritime education and its response to the new challenges of the seafarers' labor market.

Globalization and the mass demand for qualified seafarers turn the MET sector into a **new, open, expanding and exceptionally attractive market**. The answer to that on tertiary MET level is different and takes under account the geography of the supply of marine specialists. In the developed countries the low reputation of the seafaring profession leads to reducing the admission in educational institutions, closing of numerous centers, especially those preparing low-level staff, and an aspiration for admission of foreign students. Meanwhile in the East European and Far Eastern countries the maritime institutes expand through increasing their capacity and establishing nontraditional structures like new private academies, certificating organizations, training centers, etc. Although in these countries the level of financing is low and this hampers the achievement of the standards of education in the developed nations, the transformation of the marine education in a national priority and the cooperation between their governments, marine administrations, national and foreign shipowners and manning agencies manage to provide a significant progress in the training of marine personnel (JMC, 2001). Similar development and expansion of the supply of maritime education create an effective market for educational services and with the help of new information technologies, which overcome the limits of time and place, this market

becomes global. Today the global educational market allows knowledge to faster and cheaper eliminate national boundaries and this diversifies to a great extent student's choices of institution, form of education, and country. It increases the opportunities for each MET institute to sell its educational product, but at the same time it enhances the competition and causes a danger to lose quickly the existing positions, if their product is not competitive enough. Thus the overcoming of this danger and providing for the future positions of the global maritime educational market are among the objectives of each MET establishment. There are several ways for achieving these objectives.

First, nowadays the competitive positions of maritime educational institutes depend to a great extent on their ability to provide **modern educational management**, focused not on the self-interests of academic bodies and MET leaders, but on the students' needs and market requirements. In this relation the major goal and evaluation criteria for the educational institutions should be the satisfaction of their students. The latter ought to be considered not as a group of people who are supposed to be grateful because they are admitted, but as clients who should receive what they want and what will be valued by the future employers, whenever and wherever they need it. The technologies for achieving this are well-known: active educational marketing that creates a positive image of the profession, motivates the potential candidates and attracts the most capable of them to apply for the marine academies; constant communication and cooperation between MET institutes and the shipping industry to identify new technologies and commercial needs; support for individual development of the graduates and provision of lifelong learning; application of modern educational technologies that not only make the mastering the increasing amount of knowledge easier, but also succeed in attracting, motivating and retaining students; building of a model of interactions between academic staff and students in the educational process that will increase students' autonomy and responsibility, stimulate the active attitude to teaching and adjust the educational methods to the individual students' characteristics and abilities; implementation of nontraditional organizational structures, aiming to reduce the objective threat of bureaucratization and to further transform the educational institutions into efficient market-oriented organizations.

The second requirement toward the modern MET institutions is the **economic efficiency** of their activity. Today under the conditions of a global educational market the maritime education is not a social activity but an attractive business in which the MET institutes create and transfer the knowledge in the form of educational products and services. Economic efficiency, active marketing of educational products and control over the costs are vital for each MET institute because of the strong competitive pressure. The key for success here is the use of all the advantages of economies of scale and adequate financing. A vast field for advancement exists in both directions.

At present many MET systems don't utilize the whole **economies of scale**: the number of educational institutes is too large, most of them do not fully use its capacities, and the number of students is rarely above 1000. This makes the education very expensive, imposes a hard workload for the lectures, requires economies in the quantity of supporting staff, deprives the professors of the opportunities to specialize in a given area and to do research or consultancy jobs in order to produce new knowledge and to strengthen the reputation of the MET institution, stimulates the good lecturers with general qualification to quit, and leads to significant difficulties in recruiting

qualified faculty in disciplines such as Economics, Management, Law, Informatics, English (Schröder, 2001). The result is high cost, low quality and worsened reputation. The way to avoid this is optimization of national MET systems, concentration of resources in a smaller number of educational institutions, sharing costly equipment between institutions situated closely, even if they are in different countries, exchange of professors and joint organization of students' practices.

The question of **adequate financing** of the marine education is also difficult. The major responsibilities of modern MET institutes are to meet the increasing demand for qualified maritime personnel, to take advantages of the newest technical facilities, and to provide a competitive maritime education, completely complying with the standards of the STCW 95 convention. Accomplishment of all these requirements needs substantial financing, as well as efficient allocation of resources through optimizing the contribution of all beneficiaries – the state, the students and their families, the business, and the educational institutions themselves. With regard to this governments should further subsidize maritime education to a considerable degree but in the era of globalization and limited public funds the efficiency principle calls for development of alternative financial sources and schemes. As there are no uniform solutions, their forms have to render an account of countries' specificity.

For example most important under the Bulgarian conditions (Kanev, 2003) is providing funds from the EU programs. This is well known from the practice of countries like Greece, Spain and Portugal. Another source of alternative financing is transmitting greater part of the expenses for education to the students and their families. Increasing the absolute value of the students' contribution is inevitable, if we want to provide adequate and efficient financing, but in order to be just and to preserve the access to maritime education for everyone, it is required to be supplemented by loan mechanisms. Next, the adequate and efficient financing of maritime education demands a number of financial responsibilities especially in conducting the seafaring practices that should be covered both by shipowners and manning firms. Taking under consideration the already existing difficulties in finding enough places for practical training, the best method is their contracts, as well as the government support, to be law based. Last but not least, the educational institutions should conduct a serious reform in the maritime education financing. Because of the restrictions of the public sector and the market orientation of the conducted reforms, they should not count on more public funds, but be adequate in attracting more direct investments from the maritime industry, government, international donor organizations, investment funds etc.; to provide the access of the capable students to maritime education, widely applying the High Tuition – High Grants strategies; to compete for the trust of their students, partners and employers in the sector and on this basis to develop relations with them and to encourage philanthropy; to match the offered educational products with the demand on the maritime market; and to consider in a greater degree the economic efficiency and the benefit from their activity for students, business and society.

In order to achieve the abovementioned **a favorable government strategy concerning the maritime education** is required. This strategy has to encourage the educational institutions to employ and develop the available resources and individual abilities in the efficient manner. It should grant the educational institutions the rights to determine both tuition and admission rules, as well as the educational technologies employed; to chose those management structures that will make

possible the transition from policy of survival and satisfaction of national needs to dynamic development and participation in the world maritime educational market; and to shift from traditional, based on professional expertise, academic management to market-oriented governance that supports individual efforts, assistance and loyalty of academic staff. In most countries a similar strategy requires deregulation that will decrease the government interference in the MET management. It is possible because the sector is under strong international regulation and is necessary because in that situation unlimited national regulation can worsen the positions of national educational institutions on the global MET market.

The third great challenge facing MET is matching the **educational content** with the modern requirements of the labor market and the necessities of the students. The problems in this direction are well illustrated by the facts that 60% of the ship officers consider that the training of seafarers in their country is inadequate and that there exists a perception amongst most sectors of the industry that the training of seafarers is inappropriate (PAL and Knightsmart, 2003). In order to overcome this situation, special attention should be devoted to technical and management skills, mastering the safety standards in seafaring, standards for preserving the man's life and environment at sea, as well as the graduates' motivation for realization in the maritime profession and the capabilities for educational and professional transfer.

The international researches in the area of maritime education (CIIPMET, EASTMET, METHAR, and METNET) confirm the attention paid to safety issues, mentioned in the STCW'95 Convention. In the meantime the STCW'95 requirements are not enough to guarantee the quality of the maritime education. Some data even indicate that their implementation decreases the level of education, where it was higher than the standard (AMRIE, 2001). The analysis of the continuing incidents also proves that the training of the human factor and the mastering of the organizational procedures are not at the required level and must increase. The same is required because of constant implementation of new technologies aboard, increasing the speed and complexity of marine operations and the turning of the international terrorism into a serious new threat for the shipping industry. The problem that arises is that the greater attention on the safety issues will cause an inevitable increase in educational costs. As shipowners normally want to hire less expensive crews, often with education and training limited only to the mandatory level, it will collide with short-run profit maximization and will be impossible if there is no adequate change in international standards. Thus to improve qualification on issues of safety we need a revision of IMO standards in the direction of **rising the level of mandatory requirements**.
More serious are the problems of unrelated to the IMO safety standards seafarers' knowledge and skills. As it was revealed by the formerly quoted research by Precious Associates Limited and Knightsmart Limited, present day training and development of seafarers needs to be reviewed in areas other than safety. Insufficient engineering knowledge of new equipment and technology, lack of emphasis on human relations, inadequate interpersonal, management and IT skills are reported as those areas where extra skills are required (PAL and Knightsmart, 2003). In addition MET should not only emphasizes on knowledge and skills but should also stress on attitude development and value enhancement through a balanced and integrated curriculum (Khalid, 2000). The way for achieving this is to include such knowledge, skills, attitude and values in the obligatory requirements for training of future maritime officers, by accepting the proposal for **enrichment of MET and studying subjects like Management, Economics, Logistics, Maritime Administration**, **Organizational Behavior**, etc. (Schröder *et al*, 2001).

Because these disciplines provide broader education, which is very valuable ashore, among the additional benefits from them are increasing educational and professional mobility, creating opportunities for development of modern career structures within the wider maritime transport sector, improving the attractiveness of the marine profession, attraction and retention of more capable young people. We have already commented the current low interest toward the profession especially in the developed countries and its incapability to attract enough qualified personnel in the marine academies. In MET an indicator for this is the low number of young men applying for education and the high percentage of those failing to complete the courses. For example the average dropout rate in the EU is between 22% and 32%, but can be as high as 60% or 70% in some Member States (Commission of the European Communities, 2001). In these conditions the proposals for **increasing of general qualification delivering by MET and academic and professional mobility** are timely and should be quickly adopted. It should be taken into account, that they could cause two problems. The first comes from the fact that in order to maintain stronger position in the labor relations the shipowners would prefer the education and the training of the hired crews to be specific, not to provide educational degree and not to have many applications. Thus they would not cover financially the education of the seamen to provide professional mobility. As the alternative to cover the costs by increasing the students' tuitions is not applicable (it will compensate the positive effect from increasing the general character of their training and will limit the attractiveness of maritime education), the broader educational fundament should become compulsory and its provision will need further public financing. The second problem is that under the availability of broader education and easy professional mobility it becomes possible to adopt the marine profession for a short period of time and only as a first step toward employment ashore. If this tendency expands, the labor market for maritime specialists will further experience shortage of officers. Of course the proper reaction is not to limit the mobility but **to apply new educational technologies such as distance and e-learning that allow the students to enter the marine profession earlier and to be promoted in shorter time frames.**

Other problems that cannot be left behind are the **practical training of seafarers** and the provision of their problem-solving capabilities. The formal education in classrooms can hardly offer such knowledge and capabilities because of two reasons. The first is that they cannot perfectly reproduce the specificity of the equipment, technology, crew and atmosphere aboard. The more appropriate environment here is learning during the process of work. The second reason is that most often those who possess specific maritime knowledge and skills can describe, demonstrate and transfer them to the others only by means of examples. These are experienced people, not having professional pedagogical training on educational techniques, employed in formal education. Thus the specific marine training is acquired and transferred most efficiently by onboard learning-by-doing methods. Of course, because the specific knowledge is valuable for teachers and learners, the problem for bilateral dependence between those having specific maritime qualification and their employers occurs again. The first are the only ones, who have and are able to transfer this knowledge, and the second are the only ones, who need it and are willing to pay for it. In this case, because of their limited rationality and the aspiration for achieving personal benefit, both sides can behave opportunistically. Examples of the latter are the frequent cases when the officer staff does not fully cooperate and does not provide efficient onboard training. The solutions are the financial stimulus and the binding of the career development with the degree to which officers succeed in their involvement in practical training of young cadets.

In conclusion of this section we should consider another factor, which will become of more importance as a characteristic of future MET. That is the **increasing harmonization** of the training modules, methodology, assessment practice, and quality assurance systems in maritime education. The main driving forces for this new tendency are the introduction of mandatory minimum requirements for training in the field of safety, the need for worldwide recognition of received education and training, as well as the necessary opportunities for academic and professional transfer. This doesn't mean that the specificity will be killed by standardization. Quite the opposite - globalization is based on differences and if educational institutions want to succeed in the global competition, they ought to prove their uniqueness and individuality and build specific academic environment and sense of affiliation within their graduates. At the same time the trend for further harmonization is inevitable and force on development of environment of **mutual trust, confidence, and cooperation between MET institutes**. The activities of the IAMU and the advancement of such international projects like METHAR and METNET are good bases for attaining this end and many forums have already cleared up the areas for future collaboration - development of information database for use in all countries and early identification of new MET needs; development of common syllabi/curricula, including exploitation of modern technology in teaching nautical and marine engineering syllabuses; development of special courses for common use, for extension and enrichment of MET; development of maritime English back-up material for use at MET institutions in countries where English is not the official language; development of teacher training courses (MIF, 2002). Furthermore in addition to the above areas it is reasonable to extend the cooperation in: development of common model of MET, with comprehensible scheme of comparative educational degrees and diplomas and guarantees for professional realization on the global seafaring market; elaboration of common procedures for academic recognition, based on the credit transfer system for measuring and comparing learning achievements, and transferring them from one maritime institution to another; mass exchange of academic staff and students that will change MET institutes into a copy of today's multinational crews; creation of a common maritime scientific area by collective references of scientific production, joint publications and projects, and international conferences and other forums. What remains for MET institutes is to walk their way from ideas to concrete projects ant to build up with cooperative efforts an integrated educational environment, in which academic staff and students are completely mobile, there are no national barriers for the creation and the transferring of maritime knowledge, quality of educational and scientific products is guaranteed, reputation of MET institutes is high, and available physical and human resources are shared and used in an optimal way.

4. Conclusion

The present paper submitted a number of different ideas that could be useful as an MET answer to today's seafaring market challenges. In accordance with the evolution of the industry and fully responding to the technology, safety, environmental and human requirements of contemporary shipping, the labor market needs a large number and more qualified and motivated specialists. The role of MET institutes and their cooperation in achieving this is beyond dispute. In the condition of rising competitiveness of educational environment they have to develop and implement new strategies, intended to make maritime education more attractive, qualitative, efficient, and harmonized. At the same time most of the seafaring market problems are results not only of the state of MET but also of the crisis in the entire maritime sector. Therefore to cope with them we

need widespread efforts on the level of nowadays-fully-global maritime industry. From the viewpoint of MET the crucial mission of these efforts is to limit the retreat from the profession and to increase its attractiveness to the young people. The road to this is: optimizing the contents, labor relations and employment settings by raising the ILO standards for the level of compensations, job security and onboard live conditions; building up efficient internal labor markets and offering long-term maritime career to the youth; ensuring additional life-long learning, which will make faster career promotions possible; further liberalization of the sector and its opening to the foreign labor force in order to supply the excess demand in the national seafaring markets. To travel this road is an important prerequisite as otherwise MET efforts will be unproductive. The same is true for the efforts from the industry – they will be effective only if the efforts of the MET system are an integrated part of them. For that reason the overall solution of the seafaring market problems will depend on our ability to build up together – MET institutes, maritime business, national governments, and international institutions in the face of IMO and ILO – a common global approach and a roadmap to the development of the contemporary maritime industry.

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