




Reflections on the Benefits of a Regional Development-Oriented University in Maritime: The Case of Tuzla Region

Denizcilik Alanında Bölgesel Kalkınma Odaklı Bir Üniversitenin Faydaları Üzerine Düşünceler: "Tuzla" Bölgesi Örneği

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ÖZ

Üniversiteler yeni roller kazandıkça ve kendilerinden beklentiler arttıkça, bunları karşılamak üzere dönüşüme uğramaktadırlar. Son yıllarda ortaya çıkan beklentilerden biri de üniversitelerin bölgesel ve küresel kalkınmaya katkıda bulunmasıdır. Üniversiteler bu beklentiye cevap verebilmek için çeşitli faaliyetlerde bulunmaya başlamış ve böylece buldukları bölgede ekonomik, sosyal ve kültürel hayatın canlanmasına yardımcı olmuşlardır. Buna paralel olarak, Türkiye'deki bazı üniversiteler bölgesel kalkınma odaklı üniversiteler olarak belirlenmiştir. Bu çalışmada, bölgesel kalkınma odaklı üniversitelerin buldukları bölgeye katkıları denizcilik bağlamında incelenmiş ve benzer misyona sahip denizcilik odaklı bir üniversitenin bölgeye yapabileceği katkılar tartışılmıştır. Tüm bulgular, Tuzla ilçesinde yer alan bir üniversitenin denizcilik alanında bölgesel kalkınma odaklı bir üniversite olarak belirlendiği varsayımıyla analiz edilmiştir. Böyle bir üniversitenin denizcilik kültürünün yaygınlaştırılmasından önemi giderek artan deniz ticareti için yeni paydaşlar yetiştirilmesine, kirliliğin önlenmesinden denizcilik teknolojilerinin geliştirilmesine kadar pek çok alanda katkı sağlayabileceği sonucuna varılmıştır.

Anahtar Kelimeler: Bölgesel Kalkınma, Üniversiteler, Denizcilik, Beklentiler, Faydalar

ABSTRACT

As universities gain new roles and expectations from them increase, they are transforming themselves to meet these. One of the expectations that has emerged in recent years is that universities should contribute to regional and global development. In order to respond to this expectation, universities have started to engage in various activities, thus helping to revitalize economic, social, and cultural life in their regions. In parallel with this, some universities in Turkey have been identified as regional development-oriented universities. In this study, the contributions of regional development-oriented universities to their regions are examined in the maritime context, and the contributions that a maritime-oriented university with a similar mission can make to the region are discussed. Then, all findings are analyzed under the assumption that a university located in Tuzla district is designated as a regional development-oriented university in the maritime field. It is concluded that such a university can contribute in many areas, from the dissemination of maritime culture to the training of new stakeholders for the increasingly important maritime trade, from pollution prevention to the development of maritime technologies.

Keywords: Regional Development, Universities, Maritime, Expectations, Benefits

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INTRODUCTION:

Knowledge, no matter where it is produced, is made available to all humanity, and thus supports global development. Universities are one of the institutions that produce knowledge. For many years, universities have functioned as institutions where knowledge is produced and shared, but recently, with the spread of the idea of entrepreneurial universities, they have become institutions where studies are carried out to use the knowledge that is produced. In addition to producing and disseminating knowledge that they produce, universities have also started to play a role in delivering the knowledge produced by industry or research institutions at the global level to end-users in their region. Accordingly, universities today have assumed the duty to integrate into their region by contributing to the development of regional economic, social, and human capital, in addition to educating highly qualified students who will meet the demands of the age. This requires them to focus on producing the knowledge needed by the region. In addition to the production of knowledge, they can also play a role in the improvement or commercialization of the economic activities of the people around them, and they can be pioneers in determining and implementing the most appropriate activities for the geographical conditions of their environment or be a driving force in the formation of clusters. There is evidence that universities can accelerate development even in the most disadvantaged regions (Goddard et al., 2013; Fonseca, 2019).

LITERATURE REVIEW:

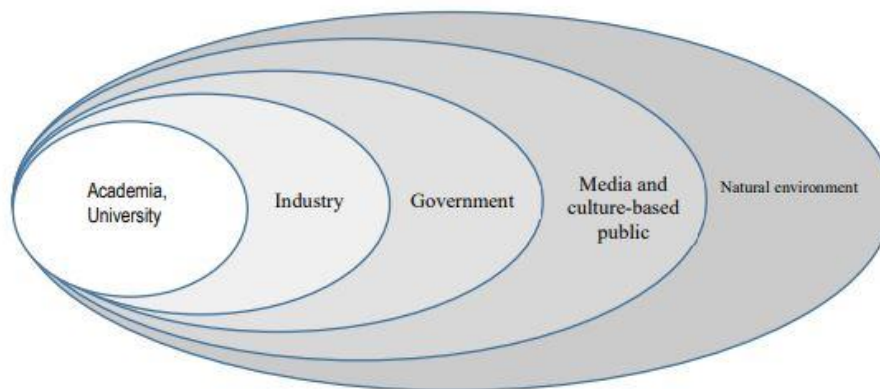
The contribution of higher education institutions to the region where they are located started with the Morrill Act, which is called land-grant colleges, as early as 1862. With this act, each state in the US (United States) was given a large piece of land on which they would build colleges where agricultural, military, and engineering studies would be carried out to contribute to the development of the region (Archives.com, 2022). However, in Europe, the main aim of universities was only to train and educate students at that time. Then, with the establishment of Humboldt University, they had the mission of research as well (Kwiatkowski, 1980). With the knowledge economy, universities' engagement with their regions and the local people there gained importance (Harloe and Perry, 2004). The first detailed study on the relationship between the university and the local community was the *Universities and Communities Report* that was prepared in 1994. It also provided recommendations to both universities and regional governments on the role universities can play in regional development (Garlick, 2000). Frondizi et al. (2019) state that universities have the new mission of contributing to the development of society as well as teaching students and conducting research. This new trend, which is called the third mission, requires universities to focus their activities on the social, cultural, and economic development of the region in which they are located and to adopt regional development as their goal.

This trend has caused an increase in expectations from universities in recent years and has given them new missions (Etzkowitz and Leydesdorff, 2000; Gunasekara, 2006a). One of them is to create knowledge regionally as well as globally. Wyckoff (2013) from the OECD (Organization for Economic Co-operation and Development) defines knowledge as equal to growth, which emphasizes the significant role of universities, which are the creators of knowledge, regionally as well as globally. He emphasizes that it is extremely important for businesses and organizations to grow in a global economy that is competitive and to provide high-wage jobs, knowledge production, and application. Wolfe (2016) supports this idea by stating that universities not only train and educate people but also provide economic growth. They can also trigger the emergence of dynamic regional clusters of firms and contribute to regional economic development. Mora et al. (2015) emphasizes the new role of universities and point out the importance of establishing good relations with the regional stakeholders. Agasisti et al. (2019) also point out that the social, economic, and cultural development of the regions is closely connected with the existence of efficient universities. Compagnucci and Spigarelli (2020) reviewed the literature to see the potential and constraints of the regional

development-oriented universities and concluded that the criteria that are used to decide how successful the universities are in their third mission may vary from country to country and region to region. Papadimitriou (2020) agrees that the criteria used to measure the success of universities in this area are not precise.

Dynamic interactions among stakeholders have been the subject of much research. One of them is the Triple Helix Model, which was developed by Etzkowitz and Leydesdorff (1995). This model is intended to explain the interactions between academia, industry, and government that foster entrepreneurship, innovation, and economic growth in a knowledge-based economy (Etzkowitz and Leydesdorff, 2000). Then another model that recognizes four major actors in the innovation system was developed by Carayannis and Campbell (2009). This model, which includes science, policy, industry, and society, is called the Quadruple Helix Model. The next model, that is the Quintuple Helix of Innovation Model (QHIM), is composed of political, educational, economic, environmental, and social systems. Each helix represents a knowledge subsystem that functions as a spiral, connecting with the other systems, which, in turn, have a national, regional, and global reach (Barcellos-Paula, 2021).

Figure 1. The subsystems of the Quintuple Helix model



Source: Etzkowitz and Leydesdorff, 2000; Carayannis and Campbell, 2012; Harwiki and Malet, 2020

Each dimension in the model in Figure 1 can create knowledge, which comes from input and generates output. It also creates innovation that can help with sustainable development for the creative industries in the region (Harwiki and Malet, 2020).

Some researchers have focused on the experiences of universities as a result of their interaction with their environment. Among them, Chakrabarti and Lester (2002) investigated eight universities in Finland and the US and observed that universities were playing significant roles in local and regional economic development. Ikegami and Romano (2016) analyzed two universities in the Netherlands and Japan to see the cooperation within the Triple Helix Framework. They used a survey to learn about managerial implications. They found that participants from the university in the Netherlands preferred cooperative leadership in their region-related activities, while those from the Japanese university valued shared vision. Benneworth and Fitjar (2019) examined the issue from a different perspective and investigated the ways in which universities benefit society. They found that universities have positive effects on labour market upskilling, innovation networks, encouraging academics towards regional engagement and better regional innovation strategy processes. Adams (2003) investigated the contributions of Stanford University to the rise of Silicon Valley and says the authorities at Stanford shaped their strategy to serve the region starting from the early years and, thus, created Silicon Valley. Fonseca and Nieth (2021) studied four universities focusing on their

interactions with their regions and found that these universities have a lot of common activities with various regional institutions. These universities have declared their intention to support such activities in their strategies and have organized their organizational structures accordingly. Thus, they emphasized the importance of constructive interaction among universities, governmental organizations, and stakeholders for development.

As the undeniable importance of universities in regional development has been recognized, universities have begun to adopt a number of different structures to achieve this goal. As Table 1 shows, Trippel et al. (2015) classify universities that focus on regional development into 2 dimensions and each dimension into 2 categories depending on the activities they focus on.

Table 1. Regional-Development Oriented University Models

Regional Development-Oriented University Models			
Narrow view (economic / technological dimension)		Broad view (social, cultural, societal dimension)	
Entrepreneurial University	Regional Innovation Systems (RIS university)	NPK Mode 2 University	Engaged University

Source: Trippel et al. 2015

2.1 An Entrepreneurial University Model

In this model, universities see economic development as a third task alongside their traditional missions of research and education (Clark, 1998; Etzkowitz et al., 2000). They commercialize the knowledge they produce through spin-off companies, patents, and licenses (Grimaldi et al., 2011). It is a model for university scientists to meet the new business culture.

2.2 RIS (Regional Innovation System) University Model

In this model, universities, which are the main knowledge producers, provide a platform for knowledge exchange between the university and stakeholders in the region. They focus on the knowledge infrastructure of their region and play a key role in interactive innovation processes. This model is based on geographical proximity, which enables the easy production and transfer of knowledge among stakeholders like firms, suppliers, public institutions, and universities. They are important actors in the transfer of knowledge to SMEs and clusters (Uyarra, 2010). The interaction between the region and the university may not be the same in all cases. It is determined by the needs and general features of the region as well as the university's strategy, research and development capacity, and the fields that the university focuses on. That means the role and degree of universities' contributions to regional development vary depending on factors related to both the university and the region (Tödtling and Trippel, 2005).

2.3 Mode 2 University Model

There are several approaches that study the role of universities in regional development, which change in line with the change in science. One of them is the New Production of Knowledge (NPK) theory, which studies the relationship between new forms of knowledge production and universities. This is referred to as Mode 2, while the same relation between established forms of knowledge production and universities is referred to as Mode 1 (Gibbons et al., 1994; Nowotny et al., 2001). They argue that the way scientific, social, and cultural knowledge is produced is different from how it

was in the past, which requires collaboration between universities and their environment. This enables them to use new methods and approaches to produce knowledge that their environment needs, that will benefit them, and that will ensure their development. They can also conduct research projects to solve environmental problems.

2.4 An Engaged University Model

In this model, universities function to meet regional needs and focus their activities on the needs of local industry and society. In addition, they can develop programs for the local students' recruitment, coordinate regional networks and provide assistance to the local firms regarding policy making, strategy and research. The degree to which universities engage with their environment is determined by various characteristics of the university, such as its commitment to the region, its age, and its location. Boucher et al. (2003) found that younger universities have a stronger relationship with their regions. This approach is criticized on the grounds that universities that are financed by the state are not always free to direct their studies to the needs of the region since they are not financially free (Gunasekara, 2006b, Tripple et al. 2015).

It is clear that although HEIs have different profiles and strengths, they can all contribute to the development of their societies and communities, not only locally and regionally but also nationally and internationally. Both the HEIs and society will benefit from this partnership, which requires strong leadership and collaboration (OECD, 2008).

2.5 Regional Development-Oriented Universities in Turkey

In 2015, in accordance with the decisions taken at the meetings held by the Council of Higher Education, universities are expected to integrate into the cities and regions in which they are located and develop economic, social, and human capital. For this purpose, there is a need for the higher education institutions to review their missions, to move away from uniformity, to move towards institutional diversity and variety, and to focus on their strengths. In the meetings, it was decided that universities should have their own region-oriented missions so that their future activities can be planned accordingly.

Based on these facts and findings, the Council of Higher Education launched the Mission-Oriented Studies in Regional Development Project in 2016. The project aims to provide universities with new missions for regional development with projects prepared in line with the dynamics of the regions themselves, in addition to their traditional activities, which are education and research.

One of the main objectives of regional development-oriented studies is to ensure that the university leads the creation of new innovations in the region, develops the region with a visionary perspective, and encourages other actors in the region to take an active role in the development. The research capacity of the university, along with researchers and academics, is also of great importance. This group should not only conduct research but also have strong communication and cooperation with stakeholders outside the academy regarding the projects they want to realize. One of the important tasks of academics here is to transfer global knowledge to the regional environment and to bring funds such as EU (European Union) funds, TÜBİTAK (Türkiye Bilimsel ve Teknik Araştırma Kurumu) funds or special industry funds to the region from outside.

A commission was established by the Council of Higher Education to decide which universities would be chosen as the regional development-oriented universities. 40 universities made declarations of intent in the first call. Then the commission members determined the first 5 pilot universities after a three-stage evaluation. These universities were, then, visited on-site by a group from the Council of Higher Education and the Ministry of Development. If they got positive impressions during their

visits, budget transfers were made to universities. There have been 3 calls so far, in 2016, 2018 and 2020, where a total of 106 applications were made and 15 universities were determined as regional development-oriented universities.

METHOD:

First, since this study intends to investigate the possibility of a maritime-focused regional development university and its region-related activities, a list of regional development-oriented universities was made and the areas they specialise in were found. The list of universities and the areas they focus on are given in Table 2.

Table 2. Universities and Their Focus Field for Regional Development

	University	Focus Area for Development
1	Bingöl University	Agriculture and Basin-Based Development
2	Burdur Mehmet Akif Ersoy University	Integrated Development Model for Agriculture and Livestock
3	Düzce University	Environment and Health
4	Kırşehir Ahi Evran University	Agriculture and Geothermal
5	Uşak University	Leather, Textiles and Ceramics
6	Aksaray University	Sport and Health
7	Kastamonu University	Forestry and Nature Tourism
8	Muş Alparslan University	Animal Husbandry
9	Recep Tayyip Erdoğan University	Tea
10	Siirt University	Agriculture and Livestock
11	Artvin Çoruh University	Medicinal Aromatic Plants
12	Bartın University	Smart Logistics and Integrated Region Applications
13	Hitit University	Machinery and Manufacturing Technologies
14	Kırklareli University	Food
15	Yozgat Bozok University	Specialisation in Industrial Hemp

These universities are expected to conduct research, educate and train not only their students but also local people, hold conferences and seminars, and organize various activities in their focus fields to promote their region. The activities or projects they will organize will depend on the general characteristics of the region and the priority needs and demands of the people. Secondly, the activities that were carried out by the universities to contribute to the local development were investigated. On a general assessment, the activities that universities are advised to carry out to ensure regional development can be grouped under the following headings (YÖK, 2020):

- Emphasis on smart specialisation
- Strengthening the research infrastructure in line with their focus field
- Intensive use of information and communication technologies and thus rapid accessibility to international technological developments, creation of idea pools,
- Providing funds to the university, especially outside its own resources (EU project support, TÜBİTAK, SANTEZ (Sanayi Tezleri),
- Taking care to determine the strategies of the projects submitted to development agencies
- Directing the studies in technoparks and innovation centers to the field that is focused
- The training of the labour force in the region on the focus field, increasing the labour force depending on the potential of the region
- Publishing the research carried out in prominent journals
- Cumulative strengthening of post-graduate education in the field that the university focuses on
- Strong integration efforts with the region.

These activities were used as a guide by the universities to decide what their objectives and outputs would be in the short, medium, and long term. A summary of these items is given in Table 3. Thirdly, after the items in Table 3 were taken into consideration, a model for a regional development-oriented university for maritime was developed for the Tuzla region.

FINDINGS:

Being assigned as a regional development-oriented university requires a lot of work on the part of the university members since it is necessary to prepare a detailed document indicating all the objectives of the university and get the people at the decision level to believe that they can achieve the goals proposed. It may be even harder to keep these promises since there may be a lot of unexpected obstacles in the way. To become a fully regional development-oriented university, objectives must be fully achieved, and all outputs must be realized. This requires all the long-term promises to be kept.

1. Objectives and Outputs of Regional Development-Oriented Universities in Turkey

Upon the examination of the activities of universities focusing on regional development as determined by the Council of Higher Education (YÖK, 2020), it has been seen that universities have generally set short-, medium-, and long-term objectives and outputs. These objectives and outputs can be seen in Table 3.

Table 3. Objectives and Outputs of Regional Development-Oriented Universities in Different Terms

Terms	Objectives and outputs
Short-term objectives and outputs	Establishing an institutional structure to achieve the determined goals and objectives effectively.
	In order to ensure the sustainability of the programme, the establishment of new research, production, and education-oriented centres.
	Realization of activities to support the focus field determined for the region, for example by establishing R&D (Research and Development) Centers.
	Identification of geographical factors that support and influence the main

	objective.
	Establishing a training centre where theoretical and practical training on the subject will be carried out.
	Establishing new programmes/departments/graduate programmes related to the area of focus, putting elective or compulsory courses in the curriculum.
	Providing post-graduate education.
	Organizing various training programmes, increasing interest in the sector.
	Organizing conferences, panels, workshops, etc.
Medium-term objectives and outputs	The realization of the sub-objectives that are determined to achieve the main objective.
	Identification of the necessary markers for the standardisation of field and region-specific activities.
	Identification of more advanced activities for which sub-activities can be used as steppingstones.
	Organizing festivals and competitions related to the field.
Long-term objectives and outputs	Establishment and accreditation of field-specific R&D and P&D (Product Development) centers
	Establishment of a thematic Technopolis/TEKMER (Teknoloji Merkezi-Technology Center) and Technology Transfer Center or Incubation Center on marine and maritime/sea and shipping within the university.
	Increasing the number of new and specialised trainers.
	Creating new areas of employment, especially for women and young people.
	Making the university and the region a model in the field of maritime and ensuring sustainable development in the region.
	Increasing the number of small, medium, and large enterprises in our province, establishing new enterprises.

2. A Model Proposal for A Maritime-Focused Regional Development University

The seas are the source of life for all living things. They not only vitalize social life but also enliven their surrounding region culturally and economically if they are sufficiently utilized. It can make huge gains, speed up its development, especially in coastal areas, and increase its welfare level if it uses the opportunities that the sea can provide. Universities, along with other institutions, can contribute to the development of coastal areas.

As the literature shows, regional development-oriented universities contribute a lot to their regions. In Türkiye, there are fifteen regional development-oriented universities as of 2022. Although they conduct research on land-based issues related to agriculture, animals, farming, animals, forest, or other natural resources, there is not a university focusing on maritime issues. However, the sea, like the land, is home to many resources that can play an important role in the prosperity of regions.

Therefore, it is important to assign a university that will realize regional development through the resources and riches offered by the sea.

This part of the study aims to propose a model for such a university and make a preliminary study on the benefits that a university with a focus on maritime can bring to its region. To do this, first, the strategies that regional development-oriented universities have taken are reviewed and the objectives that a university aiming at maritime-oriented development can possibly have are given. The potential of a university with its current and future infrastructure may be different from that of others, so an average model aiming to increase its competitiveness in the maritime field while creating an integrated development based on differentiation in this regard was devised. The designed model was presented in terms of short-, medium-, and long-term objectives and outcomes in the following part.

2.1. Short- Term Objectives and Outputs

It should be ensured that the university's mission is clearly understood by all stakeholders and goals are set to achieve it. To this end, maritime-focused R&D and P&D centers within the university should be established. Priority issues that need to be researched from a maritime perspective should be identified, and research centers should focus their efforts on these issues. These centers can work in a wide range of areas and conduct research on specified topics in every field of maritime, from the latest applications in engineering to the prevention of marine pollution, from the use of marine resources for health or nutritional purposes to maritime transportation, or from maritime engineering to marine pollution prevention or research on a certain issue specific to the region. They may also conduct research on a certain maritime-related issue specific to the region.

Another objective that these universities may achieve will be to give post-graduate education to those interested in maritime or related fields. The courses to be included in these programs will both help the instructors collect the most up-to-date knowledge after conducting comprehensive studies on current issues and furnish the learners with them. Research in maritime-related areas can also be conducted by postgraduate students during their education.

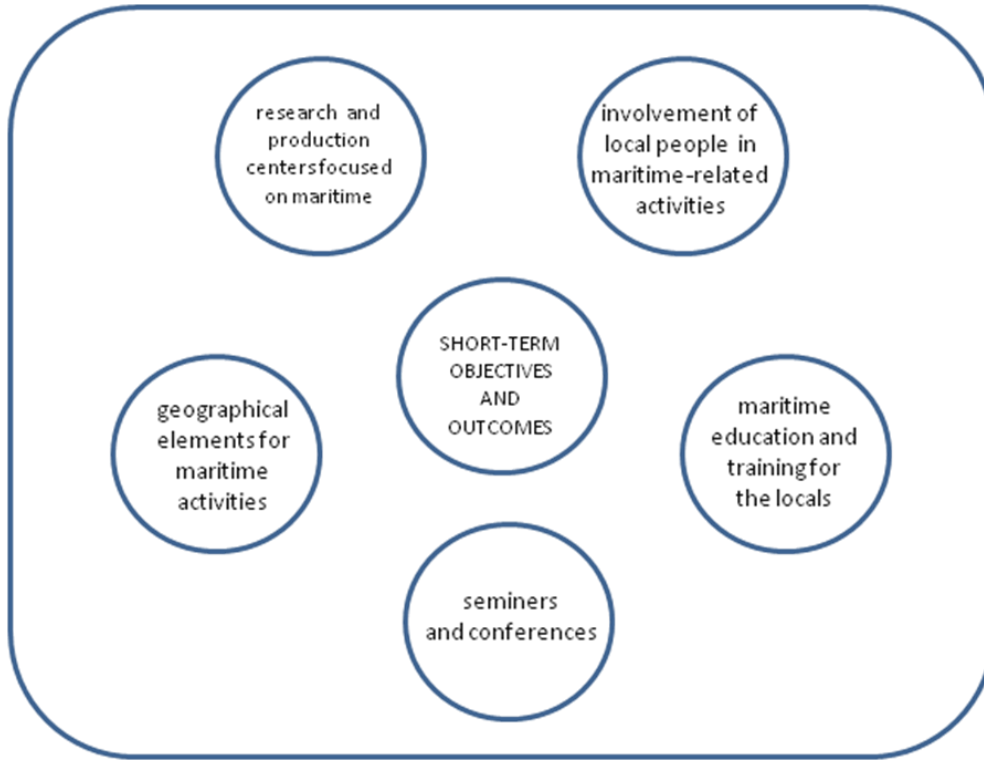
Seminars, conferences, and other similar activities open to the public can inform them about the new horizons that the maritime industry has to offer. They are also ways to make the maritime culture common among the local people. Apart from these, the university can organize short-term training to equip the locals with the knowledge and skills that can help them get a job. This training is especially useful for those who are NEET (Not in Employment, Education, or Training). They may even have a job in maritime-related fields after taking the training, which may furnish them with specific knowledge and skills. In this way, they may help decrease unemployment.

Additionally, the place where the university is located may have great advantages regarding certain kinds of sports. For example, the university can be in a region with very favorable winds and conditions for surfing. In this case, the university can take some measures to facilitate or encourage surfing for its own staff and students as well as for the people living in that region, like providing equipment for prospective surfers, giving them free surfing lessons at certain times, or allowing them to use its facilities.

It would be appropriate for the university to go one step further to make all maritime-related activities widespread. In this respect, establishing a water sports center at the university and making this center available to the local community will help both discover hidden talents and make water sports more widespread. Thus, sports such as surfing, sailing, canoeing, or diving, which are only accessible by people with certain opportunities, will become more accessible for the whole community.

Possible short-term objectives and outputs of a maritime-focused regional development university are seen in Figure 2.

Figure 2. Short-Term Objectives and Outcomes



2.2. Medium- Term Objectives and Outputs

Regarding medium-term objectives and outputs, a university should determine the activities that can be considered as steppingstones for the realization of the main objectives. For example, a maritime university may aim to teach how to swim to the children to give them sailing training later or start by giving a cooking course to the women if the ultimate aim is to train cooks for ships. It can also start by training lifeguards who may later work in sea tourism at various jobs.

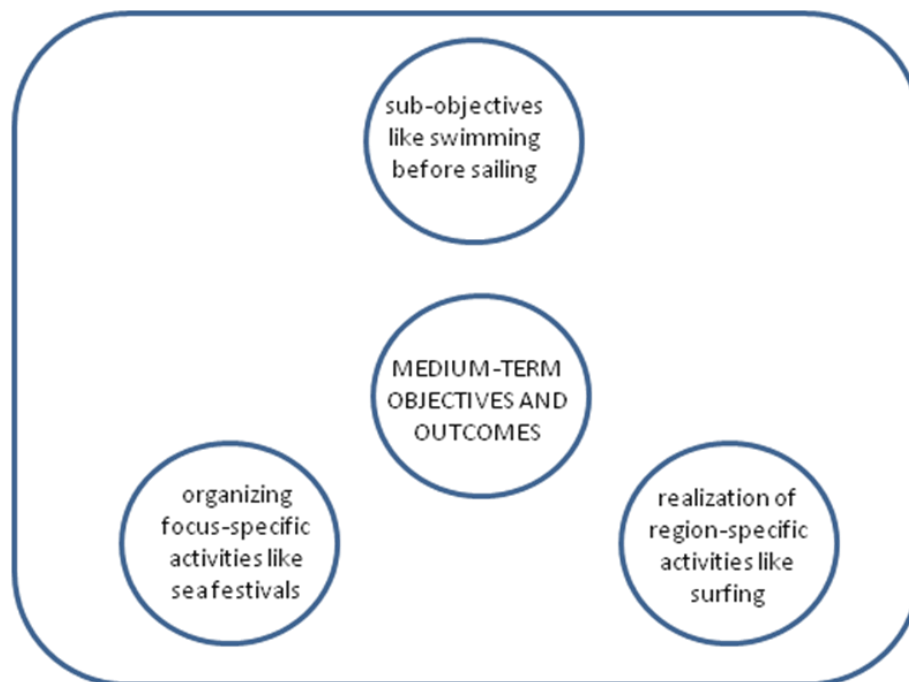
Sometimes, some activities may be better suited to the region where the university is located. For a maritime university in Tuzla, Istanbul, surfing can be an ideal activity to get the local people involved in maritime culture. Another activity may be fishing. In addition to promoting and popularizing sea sports, local people can be informed about small commercial activities related to the sea, and the sea can be considered as a source of income by these people. For example, local people can be trained in fishing using modern methods and equipment, and fishing can become an income-generating activity for them. Region-specific activities may include research in a specific field, such as the prevention of a noxious weed or a type of fish in the area.

One of the most important contributions that universities focused on regional development in the maritime field can make is to raise public awareness about the importance of the sea and the wealth it provides people with. People may be more conscious about marine pollution and take steps to prevent it. This may include all locals, no matter what their age and background are. If solid steps are taken to prevent marine pollution, which threatens marine life and people and undermines tourism and fishing, not only the region but also the whole world will benefit.

Organizing festivals and competitions related to the field is another way regional development-oriented universities can do their part to serve their purpose. These are activities that embrace and motivate all the people in the region, raise awareness about the richness of the region, and contribute to the formation of a spirit of unity while ensuring socialization and cultural development.

Figure 3 shows possible medium-term objectives and outputs of a maritime-focused regional development university.

Figure 3. Medium-Term Objectives and Outcomes



2.3. Long-Term Objectives and Outputs

From the perspective of a university aiming at regional development in the maritime field, the long-term goals that are expected to be realized, but not limited to these, can be summarized as follows:

First and foremost, the university must be properly equipped as it is only possible to achieve the goals if it has the right equipment and the right human resources. Then, it is necessary to provide the university with lecturers who can use the equipment properly and communicate effectively with both students and the local community. The efforts and hard work of these faculty members will play a key role in achieving the university's goals. Because of the quality of the research to be conducted, the effectiveness and continuity in product and process development can only be possible with a willing and determined academic staff. For this reason, promotion and training should start with the staff and continue with students so that they can be motivated to serve the local community and realize regional development regarding maritime.

The faculty members who will work in a maritime university should first have knowledge about maritime issues and focus their research on them and on solving problems encountered in the maritime field. Faculty members who know or want to know the subject well can approach problems from different perspectives and produce more effective solutions, which means they can be more effective and creative in the research areas that can range from maritime transportation to training human resources for the maritime sector, from exploring the possibilities of turning their region into a maritime transportation base to providing maritime skills to the people in the region and making

them job owners by increasing their competencies. In this way, the maritime sector will be able to play an important role not only in the commercial field but also in the field of tourism and in the social and cultural development of the region.

In the research centers, new and complementary products for the maritime sector can be created by blending the natural resources of the region with the cultural wealth of the people of the region, and these products can be patented. For example, in a region that is suitable for diving, a piece of equipment that will be useful for divers can be invented, or in a region where seafood is abundant, a dish unique to the region can be made. One can even come up with a recipe that is very different in terms of nutritional value or vitamins.

Above all, a higher education institution aiming at regional development in the maritime sector can be a role model for other higher education institutions with its strategy and achievements. In our country, which is surrounded by seas on three sides, if the maritime-oriented regional development efforts of universities succeed and set an example for other universities, this development, which can be described as regional, can turn into a nationwide development in a very short time.

Our country has rich maritime resources that have not yet been utilized to their full extent. However, our people may not always have the level of education and consciousness to benefit sufficiently from the riches offered by the sea. There is a prejudice against the sea, not only in the interior parts of the country but also in the coastal regions, and there is an unwillingness arising from ignorance. Sea sports and marine tourism were listed as activities reserved for the rich. In addition to focusing on activities for the economic development of the region, universities should also try to ensure its cultural development.

In Figure 4, possible long-term objectives and outputs of a maritime-focused regional development university can be seen.

Figure 4. Long-Term Objectives and Outcomes



3. A Case Study for Tuzla Region

The shipbuilding industry is a very broad sector and includes shipbuilding for cargo and passenger transport, as well as maintenance and repair, ship dismantling, and excursions and marine tourism. In our country, the shipbuilding industry has a history of approximately 900 years. In the 1950s and 60s, private-sector shipyards were established around the Golden Horn and the Bosphorus, but these were insufficient to meet the increasing demand over time. For this reason, a new settlement has been sought. On September 22, 1969, Tuzla/Aydınlı Bay was allocated as the "Shipbuilding and Supply Industry Zone" and declared as the "Private Sector Shipyards Zone" by the decision of the Council of Ministers. From then on, not only shipyards but also all the supporting facilities related to shipbuilding started to take place in the region. Among them are shipbuilding sub-industry facilities, schools (2 universities with maritime faculties, a maritime vocational high school, the Turkish Naval Academy, a maritime foundation course, and a maritime high school), commercial centers, and an inspection authority. There are shops to meet all the ships' needs, from food to textiles, technical materials to cleaning supplies. There are also hotels in the area for those who come to work in the shipyards. In addition, Tuzla has a marina with a 750-boat mooring capacity and a holding capacity of five anchors. It offers mooring service for boats up to 80 meters with its floating pontoons and berths.

All these facilities indicate that Tuzla has a lot to offer concerning maritime-related fields. That gives a lot of opportunities for universities to concentrate on regional development, which means they can be home to R&D centers that will carry out research for the solutions to the problems experienced in the sector, work on innovative projects in maritime, work hand-in-hand with the industry to determine what is needed by them and offer training to the local people in parallel with the demand.

Tuzla also inhabits a variety of governmental and civilian institutions like GİSBİR (Gemi İnşa Sanayicileri Birliği- Turkish Shipbuilders' Association), Turkish Llyod, Port Authority, and Harbor Master. Some workshops with the participation of these authorities can be held to determine regional needs, problems and solve them.

"Open Campus" days can be organised, and local people in Tuzla who are invited to the campus within the scope of these days will be welcomed and hosted by the authorities and informed about the university and its activities. They can be encouraged to take part in the activities, competitions, or conferences held by the university.

Younger people can take part in marine sports activities like surfing or sailing led by the university, while the elderly can enjoy other free time activities like ship modelling. Even housewives can find something for themselves in the cooking courses with a focus on seafood offered by the university. These may be the first steps for them toward a permanent job.

These activities will get the local people in Tuzla acquainted with a part of the maritime culture that they may not be familiar with, which will give way to the development of the region along with the development of themselves.

Projects can be developed not only in the technical field together with the shipyard and its sub-industry, but also in the field of tourism together with the marina. Through research, some technical problems can be solved and projects that provide employment to local people can be realised.

In short, the designation of one of the universities in the Tuzla region as a regional development-oriented university in the maritime field will bring liveliness and energy to the region in economic, social, technical, and cultural terms. Not only the region and the people of the region, but also the

university staff will be positively affected, and sustainable development will be achieved through the research to be conducted, projects to be developed, and graduate programmes to be opened.

CONCLUSIONS:

This paper explored the roles universities have assumed in regional development and tried to examine the goals they intend to realize in the short, medium, and long terms. The question of what kind of contribution a maritime-oriented regional development university can make to the region was also explored in the paper. It is inevitable that such a university will make significant contributions to the region in different ways.

First of all, such a university will conduct research through its infrastructure, such as R&D or P&D centers and bring scientific solutions to maritime-related regional problems through its infrastructure. Academic opportunities will attract scientists and researchers interested in maritime studies to the region, which will ensure that the research infrastructure of the university is robust and effective. Activities will be carried out more efficiently with more scientific methods in a shorter time, which means the problems encountered, especially local ones, will be solved permanently with scientific methods, thus paving the way for economic development. Some region-specific or sector-specific inventions or startups can be created and patented.

Activities aimed at the development of human capital in maritime-related fields will be organized. Preliminary education and training will be provided for the local people, especially for the unemployed, so that they can have jobs in the maritime sector, where there is a high demand for a qualified work force.

By using the facilities of the university, sea sports such as swimming, sailing, and diving can be popularized, thus spreading maritime culture and raising healthier generations.

Festivals and competitions can be held on maritime-related issues so that people may have an awareness of the sea and related issues such as the importance of marine life or marine pollution prevention. These activities are also instrumental in spreading peace and brotherhood among the people in the region.

The university can be a model for other maritime-oriented universities so that regional development in coastal areas can be realized. The country's rich maritime resources can be utilized for the benefit of the country's economy, which contributes to both regional and national prosperity.

Etik Standart ile Uyumluluk

Çıkar Çatışması: Yazar, kendileri ve diğer üçüncü kişi ve kurumlarla çıkar çatışmasının olmadığını beyan eder.

Etik Kurul İzni: Bu çalışma için etik kurul iznine gerek yoktur.

REFERENCES:

- Adams, B. A. (2003). Regionalism in Stanford's contribution to the Rise of Silicon Valley. *Entrepreneurship & Society*, 4(3). DOI: 10.1093/es/khg025
- Agasisti, T., Barra, C. & Zotti, R. (2019). Research, knowledge transfer, and innovation: the effect of Italian universities' efficiency on local economic development 2006–2012 *Journal of Regional Science*. 59. 819-849. DOI: 10.1111/jors.12427

- Archives.com. 2022. Retrieved from <https://www.archives.gov/milestone-documents/morrill-act>
- Barcellos-Paula, L., De la Vega, I. & Gil-Lafuente, AM. (2021). The quintuple helix of innovation model and the SDGs: Latin-American countries' Case and its forgotten effects. *Mathematics*, 9(4) 416. <https://doi.org/10.3390/math9040416>
- Benneworth, B. & Fitjar, R. D. (2019) Contextualizing the role of universities to regional development: introduction to the special issue. *Regional Studies, Regional Science*, 6(1), 331-338, DOI: 10.1080/21681376.2019.1601593
- Boucher, G., Conway, C. & Meer, E. (2003). Tiers of engagement by universities in their region's development. *Regional Studies*, 37, 887-897. 10.1080/0034340032000143896.
- Carayannis, E.G. & Campbell, D.F.C. (2009). 'Mode 3' and 'Quadruple Helix': Toward a 21st century fractal innovation ecosystem. *International Journal of Technology Management*, 46, 3-2.
- Chakrabarti, A. K. & Lester, R. K. (2002). Regional economic development: comparative case studies in the US and Finland. *IEEE International Engineering Management Conference*, 2. 635-642
- Clark, B. (1998). *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. New York: Elsevier.
- Compagnucci, L. & Spigarelli, F. (2020). The third mission of the university: a systematic review on potentials and constraints. *Technological Forecasting and Social Change*. 161, DOI: doi.org/10.1016/j.techfore.2020.120284.
- Etzkowitz, H. & Leydesdorff, L. (1995). The Triple helix – university-industry-government relations: a laboratory for knowledge-based economic development. *EASST Review*, 14, 14–19. Retrieved from <http://www.leydesdorff.net/th1/index.htm>
- Etzkowitz H., Webster, A., Gebhardt, C. & Terra, B.R.C. (2000). The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. *Research Policy*, 29, 313-330.
- Etzkowitz, H. & Leydesdorff, L. (2000). The dynamics of innovation: from national systems and "Mode 2" to a triple helix of university-industry-government relations. *Research Policy*, 29(2), 109–123. DOI: 10.1016/S0048-7333(99)00055-00054.
- Fonseca, L. (2019). Designing regional development? Exploring the university of Aveiro's role in the innovation policy process. *Regional Studies, Regional Science*, 6(1), 186–202.
- Fonseca, L. & Nieth, L. (2021). The role of universities in regional development strategies: A comparison across actors and policy stages. *European Urban and Regional Studies*, 28(3), 298–315. DOI: 10.1177/0969776421999743
- Fronzizi, R., Fantauzzi, C., Colasanti, N., & Fiorani, G. (2019). The Evaluation of Universities' Third Mission and Intellectual Capital: Theoretical Analysis and Application to Italy. *Sustainability*, 11(12), 3455. MDPI AG. <http://dx.doi.org/10.3390/su11123455>
- Garlick, S. (2000) Engaging universities and regions: knowledge contribution to regional economic development in Australia. Evaluations and Investigations Programme, Report 15, Department for Education, Training and Youth Affairs, Canberra.

- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: the dynamics of science and research in contemporary societies*. Sage Publications, Inc.
- Goddard, J., Kempton, L. & Vallance, P. (2013). Universities and smart specialisation: challenges, tensions and opportunities. *Ekonomiaz*, 83(ii/13), 83–102.
- Grimaldi, R., Kenney, M. & Siegel D. (2011). 30 years after Bayh-Dole: Reassessing academic entrepreneurship. *Research Policy*, 40, 1045-1057.
- Gunasekara, C. (2006a). Universities and associative regional governance: Australian evidence in noncore metropolitan regions. *Regional Studies*, 40(7), 727–741.
- Gunasekara, C. (2006b). Reframing the role of universities in the development of regional innovation systems. *Journal of Technology Transfer*. 31, 101-113.
- Harloe, M. & Perry, B. (2004). Universities, localities and regional development: the emergence of the 'mode 2' university?*. *International Journal of Urban and Regional Research*. 28(1), 212-23
- Harwiki, W. & Malet, C. (2020). Quintuple helix and innovation on performance of SMEs within ability of SMEs as a mediator variable: A comparative study of creative industry in Indonesia and Spain. *Management Science Letters*, 10, 1389-1400.
- Ikegami, M. & Romão, J. (2016). Universities and knowledge-based regional development: a comparative study on the triple helix framework in Amsterdam and Sapporo. *Studies in Regional Science*, 46(1), 101-113.
- Kwiatkowski, S. (1980). The organisational problems of combining teaching and research: Humboldt, Weber, and the Polish experience. *European Journal of Education*, 15(4), 355– 61. <https://doi.org/10.2307/1502809>
- Mora, JG., Ferreira, C., Vidal, J. et al. Higher education in Albania: developing third mission activities. *Tert Educ Manag* 21, 29–40 (2015). Retrieved from <https://doi.org/10.1080/13583883.2014.994556>
- Nowotny, H., Scott, P. & Gibbons, M. (2001). *Re-Thinking Science: Knowledge and the Public in an Age of Uncertainty*. Polity Press.
- OECD (2008). Higher education management and policy. *Higher Education and Regional Development*, 20(2) OECD Publishing, ISBN 9264043209, 9789264043206
- Papadimitriou, A. (2020). Beyond rhetoric: reinventing the public mission of higher education. *Tertiary Education and Management*, 26, 1–4.
- Trippel, M., Sinozic, T. & Lawton-Smith, H. (2015). The role of universities in regional development: conceptual models and policy institutions in the UK, Sweden and Austria. *European Planning Studies*, 23(9), 1722-1740.
- Tödtling, F. & Trippel, M. (2005) One size fits all? Towards a differentiated regional innovation policy approach. *Research Policy*, 34, 1203-1219.

Uyarra, E. (2010). Conceptualizing the Regional Roles of Universities: Implications and Contradictions. *European Planning Studies*, 18, 1227-1246.

Wyckoff, A. (2013). Knowledge is Growth. Retrieved from <https://www.oecd.org/science/knowledge-is-growth.htm>

Wolfe, D.A. (2016). *The role of universities in regional development and cluster formation. Creating Knowledge, Strengthening Nations: The Changing Role of Higher Education*, (Ed) by Glen A. Jones, Patricia McCarney and Michael L. University of Toronto Press

YÖK. (2020). *Yükseköğretimde yeni YÖK projeleri, yükseköğretimde ihtisaslaşma ve misyon farklılaşması. Bölgesel kalkınma odaklı üniversiteler. YÖK Raporu*. Retrieved from https://www.yok.gov.tr/Documents/Yayinlar/Yayinlarimiz/2020/bolgesel_kalkinma_odakli_universiteler.pdf.