“Short-sea” transportation refers to transporting passengers or goods short distances in coastal waters. It includes coastal trade, such as transferring freight from sea shipping to other modes of transport and last-mile transport on inland waterways.

These “short-sea” strategic segments present opportunities for Croatia due to its coastal geography. They also provide a manageable testbed for innovations such as green shipping and smart shipping.
Industry Snapshot

The global maritime industry is recovering from a lengthy period of stagnation, but overcapacity will persist. The industry generated global revenues of EUR 228 billion in 2014, a cumulative growth of 11 percent since the 2008 global financial crisis. Global exports reached EUR 138 billion in 2014. However, demand growth has failed to absorb the numbers of vessels entering the market.

Shipbuilding is important in Croatia. The Croatian maritime industry consists of 233 companies in activities related to manufacturing boats and ships. The industry employed 6,700 people in 2016. The industry accounts for up to 1.8 percent of gross domestic product (GDP) and as much as 15 percent of Croatian exports. The multiplicative effect of the shipbuilding industry on the Croatian economy is around 2.8. EUR 1 million generated in shipyards results in EUR 2.8 million of total production in the Croatian economy.

The Croatian maritime industry is struggling to keep up. Croatia has traditionally been a center for nautical knowledge and shipbuilding. It is still one of the largest European shipbuilding countries. However, this apparent status belies the financial struggles of Croatia’s shipyards. The country lags European counterparts in the transition to specialized, high-value segments.
Global trends are driving change in the maritime industry.
The fortunes of the maritime industry are linked to population growth, urbanization, global trade volumes, free trade, globalization, climate disruption, and digitalization.

Cleaner propulsion systems are replacing diesel engines. No single type of propulsion system is replacing diesel. Instead, there are many alternatives, including electric, hybrid, hydrogen fuel cell, and liquefied natural gas (LNG). Their use varies by route type and conditions.

Population growth and urbanization along the world’s coastlines drive demand for water transport services. Coastal populations are growing much faster than those of inland areas. In China, for example, coastal growth rates have exceeded the national average by a factor of three. Higher economic growth in regions along the shore is driving coastward migration in Asia and Africa. Most of the world’s megacities are within 100 km of the sea.

"Short-Sea"

Transportation close to shore, allowing easy refueling and recharging, more favorable weather conditions, and use of land communications infrastructure

The emerging “short-sea” strategic segment is increasingly attractive considering global trends. The so-called “short sea” refers to travel close to shore, as opposed to across the deep sea. In the right circumstances, proximity to the coast offers several advantages. They include accessibility of refueling or recharging facilities, favorable weather conditions, and the availability of communications infrastructure. However, the advantages of the short-sea strategic segment do not apply to larger seagoing ships. These deep ocean vessels remain an essential sector of the maritime industry overall.

“Short-sea” travel and services will be the testbed for advances in the maritime industry. Climate disruption and digitalization are remaking the maritime business. The industry needs to assess and apply emerging “green ship” and “smart ship” technologies. It will do so in short-sea segments before adapting them for deep-sea uses.

The European maritime industry has carved a niche in constructing vessels in the “short-sea” strategic segment. European producers build ships with specific characteristics for short-sea deployment. The ships use sophisticated, high-tech manufacturing processes. Making them requires linking large networks of specialized suppliers and subcontractors.
MAKING CROATIA COMPETITIVE

Where Is the Value Chain Weak?

Croatia could strengthen its value chain to position its maritime industry for the emerging “short-sea” strategic segment.

- **Need for skills development.** Croatia needs to strengthen capacities and boost R&D in electric, hybrid, and alternative fuel systems and to lay the groundwork for smart, connected ships.

- **Lack of ship systems integrators.** As ships become smarter and more complex, shipbuilders must design entire ship systems around the electrical platform. The electrical systems integrator is emerging as a critical point of contact and holder of the customer relationship.

- **Lack of repair and retrofit expertise.** Repairing and refitting vessels to run on electric, hybrid, or alternative fuel systems could present opportunities. Victor Lenac yard specializes in repair and retrofit.

- **Lack of supporting infrastructure for alternative fuels.** Ships running on electric and hybrid propulsion systems, or alternative fuels such as LNG, need access to the right infrastructure. Charging stations and alternative fueling stations are scarce at Croatian docks and ports.

Critically, building specialized vessels for the short seas would require Croatia to improve its ability to innovate. Emerging “short-sea” strategic segments are knowledge-intensive and reward inbuilt innovation capacity for three reasons:

- **One-off or small batch production.** Buyers in “short-sea” strategic segments often order small quantities of high-technology vessels. Buyers want ships that require customized production processes. Fulfilling these orders requires innovating along the production line.

- **Concept-based design.** While many ocean-going vessels are highly standardized, specialized ships that operate on short seas are much less so. Orders may be based on a concept rather than detailed specifications. Meeting such requests requires the ability to innovate after signing the contract.

- **Sophisticated production chains.** Manufacturing in the “short-sea” strategic segment differs from mass production processes. Production in the “short-sea” segment involves an extensive network of highly specialized subcontractors. Coordinating this network requires innovating across the value chain.

The maritime industry is now in a period of overcapacity and oversupply that started with the global financial crisis. However, long-term demand conditions are favorable for Croatian producers of specialized vessels in short-sea segments.
Areas for Reform

Certain aspects of the industry ecosystem limit Croatia’s competitiveness in emerging “short-sea” strategic segments.

Demand Conditions

Demand in the maritime industry is cyclical. The maritime industry is now in a period of overcapacity and oversupply that started with the global financial crisis. However, long-term demand conditions are favorable for Croatian producers of specialized vessels in short-sea segments.

Factor Conditions

Croatian maritime labor productivity is low. Croatian employee productivity in the maritime industry is about a third that in the Republic of Korea. It is half that in both Japan and the EU. It is significantly lower than in China.

Croatia may lack adequate human resources. The Croatian maritime industry needs to retool and update its skillset from a focus on conventional shipbuilding. It needs to align with the greening and digitalizing trends of the emerging “short-sea” strategic segment. However, skilled engineers are scarce due to emigration, urbanization, and potential labor market distortions.

Access to finance in Croatia is especially unsuitable for the maritime industry. Financing for buying a ship differs from other transactions in two main ways. One is that the capital cost of new ship construction is high. The other is that manufacturers need financing before building the vessel. (Shipbuilders need to draw funds before the hull is available as collateral.) Government-backed financing schemes play a vital role in the industry. Croatia has not provided such a financing scheme, unlike its competitors.

Strategy, Structure, and Rivalry

Exports have been declining. The Croatian maritime industry is export-oriented. Exports generate 63 percent of the industry’s turnover. Shipbuilding is cyclical. As a result, year-on-year trends do not give a full picture of the industry’s health. Nonetheless, it is notable that Croatia’s EUR 136 million of maritime exports in 2016 was down over 40 percent from 2015.

Related and Supporting Industries

The Croatian public and private sectors engage in little systematic research collaboration. Improving cooperation and cooperation between universities, research institutions, and the private sector is essential to performing focused and relevant R&D.
Recommendations

Croatia could improve its position in emerging “short-sea” strategic segments by:

1. **Incorporating commercial risk instruments into innovation procurements.** The Ministry of Economy Entrepreneurship and Crafts (MoEEC) could implement this recommendation as a partial risk guarantee to cover a portion of private investment (whether from debt or direct capital investment).

   *Estimated timeframe: 7 years.*

2. **Deploying precompetitive procurements (PCPs).** PCPs have driven the innovation and commercialization of alternative propulsion systems on public ferry routes. Implementation of this recommendation would be supported by a comprehensive financial support scheme for public procurement of innovative goods and services (as a technical assistance program through the Ministry of Maritime Affairs, Transport and Infrastructure).

   *Estimated timeframe: 7–10 years.*

3. **Helping Croatian firms face the onset of alternative propulsion systems.** The technical center for the environmental transport sector could play this role.

4. **Providing technology scouting for the “short-sea” strategic segment to find the best technology providers globally.** MoEEC could implement this recommendation (through a technical assistance program) as a matching grants scheme.

   *Estimated timeframe: 3 years.*

5. **Supplying training on the market trends in short-sea movements of cargo and large numbers of people.** MoEEC could contract this training to relevant government agencies as a technical assistance program.

   *Estimated timeframe: includes short- (1 year) and long-term (10 year) programs.*

6. **Providing business mentoring on product innovation, opportunity recognition, risk perception, entrepreneurship, and professional networking.** MoEEC (through EBRD) or the Croatian Chamber of Economy could implement the mentoring program (through a technical assistance program) as a matching grants scheme.

   *Estimated timeframe: 2 years.*

7. **Adopting a regulatory and policy framework to drive change in the maritime industry.** Domestic policy will need to complement—and even go farther than—international conventions and standards. The global benchmarks include the Paris Conference of the Parties (COP) 21 Agreement on climate change and the International Maritime Organization (IMO). MoEEC and other relevant agencies could implement the reforms through public institutions and government agencies.

   *Estimated timeframe: 3 years.*

8. **Conducting market intelligence studies on major nautical hubs (such as Antibes, Parma, and Barcelona).** The studies would gather intelligence on user demand (and willingness to pay for customized products and services related to safety, tracking, and search & rescue). MoEEC and other relevant agencies could commission these studies through private sector firms.

   *Estimated timeframe: 5 years.*

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**NOTE**

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