Two new segments offer attractive opportunities for growth:

- ‘Preventive Detection’: safety solutions in densely- and sparsely-populated areas. These solutions constitute advanced preventive security, and relate to the issues of homeland security, counter-terrorism, public safety, border protection, critical infrastructure protection, and territory monitoring for threats to environment such as forest fires or natural disasters. Croatia can find immediately use for such solutions in tourism areas and music festivals.

- ‘Land Remediation’: decontaminating land for reuse, releasing its potential for future redevelopment while protecting the human health and the environment. Land treatment in this segment means using advanced technologies to decontaminate soil in place. Opportunities for Croatian firms are highest where property values are rising or where the environmental contamination is the highest. However, entering these markets will depend on increased knowledge and skills for advanced remediation technologies and processes.
Industry Snapshot

Clearing antipersonnel landmines is a EUR 267 million business globally. The industry requires specialist machinery and equipment to detect and clear mines and service providers that conduct mine clearance. Demand comes primarily from humanitarian ‘mine action programs.’

Profitability is low in Croatia. In 2016, the total profit of demining service providers in Croatia was only around EUR 1 million for the entire subcategory (40 firms). The average net profit margin was only 2.63 percent.
Emerging Strategic Segments

Mine action companies could diversify their businesses by leveraging their core competency of "making things safe". Historically, these firms have focused on detecting mines and clearing explosives. Today, there are emerging opportunities in identifying threats of many kinds (terrorism for example) and clearing areas of many types of hazards (such as pollution). We call these newer segments “Preventive Detection” and “Land Remediation,” respectively.

There are two critical markets for “Preventive Detection” solutions: “Uninhabited areas” and “Inhabited areas.”

“Preventive Detection in Urban Areas”

Focusing on Dense Urban, Metropolitan Areas

The market for “Preventive Detection” solutions in inhabited areas is especially attractive for Croatia. We refer to this as the “Urban Preventive Detection” strategic segment.

In the “Urban Preventive Detection” strategic segment, the threat to safety is unknown. Companies are offering advanced detection systems and quick threat neutralization.

This strategic segment overlaps with homeland security, counter-terrorism, and public safety. At a 13.4 percent compound annual growth rate, Europe’s internal security market will reach EUR 130 billion by 2020.

Dense metropolitan areas, public transport routes and hubs, and tourist destinations require advanced preventive security.
The “Urban Preventive Detection” strategic segment focuses on preventive safety solutions in densely populated and urban areas. Dense metropolitan areas, public transport routes and hubs, and tourist destinations require advanced preventive security. Privately run public spaces—such as stadiums, retail centers, hotels, and commercial areas—require the same vigilance. In these areas, any incidents can lead to the loss of human lives.

Private firms in this strategic segment are assuming some traditional public safety roles. Private companies are cooperating with civil law enforcement to ensure the safety of civilians.

New technologies are coming online in the “Urban Preventive Detection” strategic segment. Innovative products include advanced software for detecting suspicious activities, portable scanning devices, driverless explosive neutralization machinery, and advanced aerial surveillance.

Advanced buyers in this strategic segment have zero tolerance for mistakes. Any errors can endanger lives.

“Land Remediation”

Preparing Contaminated Land for Re-use

Firms in the “Land Remediation” strategic segment remediate contaminated land for reuse. By removing toxins and pollutants, remediation releases land for potential future development.

At a compound annual growth rate of 7.62 percent, the “remediation” market will reach EUR 109 billion by 2022. In Europe alone, there are 3.5 million brownfields. (“Brownfields” are former industrial, commercial, or military sites where environmental contamination limits future use.)

Several factors drive demand for goods and services in the “Land Remediation” strategic segment. Interest in environmental protection has been increasing, pollution is growing, and government regulations are becoming stricter.

Demand for the “Land Remediation” strategic segment comes from many industries. They include real estate, oil and gas, mining, agriculture, forestry, and automotive.

Advanced buyers in this strategic segment can be private site developers or public authorities. Private buyers will demand land remediation services only when the value of the land ensures a profitable return on their investment. Where this is not the case, the advanced buyers will represent public-private partnership arrangements or publicly driven demand.

Both types of buyers demand exacting standards. For both, the final quality of the result is what matters. The remediation work must meet the highest regulatory standards.

By removing toxins and pollutants, remediation releases land for potential future development.
MAKING CROATIA COMPETITIVE

Where Is the Value Chain Weak?

To thrive in the emerging “Preventive Detection” and “Land Remediation” strategic segments, Croatian firms need to evolve their offerings to meet buyers’ demands. Both segments can be strengthened by addressing five gaps:

- National regulation is not yet conducive to developing this industry. Regulation should prescribe high mandatory industrial standards.
- Education, technology transfer, skills, and knowledge improvement are needed to increase the competitiveness of local firms.
- Technology and solutions development are lacking. These two activities in each value chain help capture the biggest profit margins.
- R&D and innovation. Innovative research leads to successful technology and solutions development.
- Testing and certification are limited. Appropriate verification is needed to ensure that the workforce involved in remediating land and providing security is trained following the highest industry standards.

In the “Preventive Detection” strategic segment, several activities need strengthening:

- Croatian firms do not yet provide active, technology-driven threat prevention and detection. Applying these cutting-edge technologies is crucial to competitiveness.
- Croatia does not have many skilled private security providers. Public law enforcement bodies cannot handle the complexity of recent threats alone, but Croatia does not have firms ready to help them.

In the “Land Remediation” strategic segment, several further activities need strengthening:

- Croatia does not have a comprehensive and updated registry of contaminated brownfield sites. A database that holds detailed information on contaminated sites is vital.
- Local firms use old technology. Local firms should adopt the latest industry standards for on-site investigation and risk assessment. This could be in partnership with advanced foreign firms.
- Croatian firms have low capabilities for land remediation. There are many remediation methods. Understanding the technologies and their tradeoffs is essential to selecting the right approach to use in a given context.
- Croatia lacks a regime for inspection and quality verification. Quality verification is independent proof that the treated land is no longer a threat to the local population or the environment.
- Croatia lacks diverse sources of financing. Different types of sites require different sources of financing, to carry the upfront cost burden of remediation work.
Areas for Reform

Certain aspects of the industry ecosystem limit Croatia’s competitiveness in the “Land Remediation” and “Preventive Detection” strategic segments.

Demand Conditions

There is strong international demand for these new segments, including in the EU, where Croatian firms have free access. Inside Croatia, demand is relatively weak but can be improved. For the ‘Preventive Detection’ segments, demand in Croatia can be strengthened by a public regulatory framework and public bodies that require high security standards. For “Land Remediation” segments, the registry of contaminated brownfield sites is a prerequisite for growing the industry.

Factor Conditions

In the “Preventive Detection” segments, knowledge and capital resources will need to be improved.

In the “Land Remediation” segment, many vital factor conditions are missing, including human resources, knowledge resources, or supporting infrastructure. Professionals will need to be trained, and technology will need to be adopted.

In both segments, vocational education and training could be better matched to the new segments’ needs. Access to finance by small and medium enterprises (SMEs) in Croatia compares moderately unfavorably to other European countries.

Strategy, Structure, and Rivalry

While there are currently some local companies involved in the new segments, there is a limited participation and understanding of export opportunities. The needs of newer segments are generally met by foreign suppliers.

In “Preventive Detection” strategic segments, the local firms offer a relatively basic level of service while foreign firms often seize more demanding opportunities. However, there are unrealized export opportunities for Croatian innovative firms.

Clustering would help increase competitiveness and create an environment for local firms to innovate, improve and share skills.

Related and Supporting Industries

Participation in the new segments requires several related industries, including machinery, logistics, and supporting technologies.

In the “Land Remediation” strategic segment, cutting-edge mechanization is needed to offer competitive services; but this does not need to be developed or produced locally, as long as the local workforce is trained to use and apply it.

To successfully provide “Preventive Detection” solutions, prompt logistic and information exchange is critical. Modern telecommunication infrastructure enables fast information exchange in the value chain.
Recommendations

Croatia could improve its position in the emerging “Preventive Detection and “Land Remediation” strategic segments by:

Preventive Detection

1. **Public Procurement for Innovation.** Fostering the strategic turnaround of the local companies towards the more attractive preventive detection segments and successfully developing a new solution that will be chosen and procured by the public body to tackle the precisely defined threat. A public agency could issue a tender for Croatian companies to develop integrated technologies and response capacities for specified threats (e.g. fires in natural areas, or a bomb in stadiums/arenas).

2. **Innovative Research Call.** Funding development of preventive threat detection technologies. The research call should incentivize the companies to do research and develop the new innovative technologies in the areas such as improvised explosive device (IED) detection, weapons detection, fire and natural disasters detection, or border protection threats detection. The emphasis in this call is on the completely new solutions that are not yet present on the market. The public sector with this instrument is buying R&D activities from several suppliers at the same time to steer innovation in the determined area, gather knowledge about advantages and disadvantages of different solutions, create competitive supply and enhance export potential of local firms.

Land Remediation

3. **Recommendations on improving the regulatory framework for land remediation industries.** The regulatory framework can safeguard environmental requirements while also creating incentives for Croatian firms to engage in land remediation work. Needed measures include: (i) developing a database of all contaminated sites and (ii) adopting a Soil Protection Act.

4. **Brownfield remediation and capacity building project.** This action would remediate several pilot brownfield sites and bridge the knowledge, technology and skills gaps of the local firms through partnerships with established firms. The project would provide a real-world platform for education of local companies, and would combine theory and practice.

**NOTE**

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