

Vulnerability Analysis

PORT AND LOGISTICS INDUSTRY



How Vulnerable are the Port and Logistics Industries in the Metropolitan Region Bremen-Oldenburg?



The economic activity in the ports and the port related logistics is a key driver for economic growth in the Metropolitan Region Bremen-Oldenburg, North-West Germany. Due to its significance, the capacity to adapt to climate change is an essential criterion for ensuring its competitiveness.

Dimensions of exposure and adaptation

The Port and Logistics Team examined the port and logistics industry in terms of four dimensions. The first two dimensions Elements of business supply chains and Critical infrastructures cover the individual exposures of

participating business actors. The second two dimensions Structural shifts and Spatial functions can be seen as the result of individual exposure, and hence as an impact on the entire region.

Dimension	Explanation	Impact upon
Elements of business supply chains	Operational elements of the port and logistics infrastructure, such as means of transport, cranes and storage space	Economic actors, port operators, infrastructure providers
Critical infrastructure	Such services or structures as roads, railways, or canals	
↓ ↓ ↓		
Structural shifts	Distribution of power and functions between actors	Entire region
Spatial functions	Position of the cluster in the global system, i.e., in competition with other regions	

Conclusion: The port and logistics industries are in a good position

Overall, vulnerability is assessed differently for the four dimensions: The elements of the business supply chains can be assessed as having medium to low vulnerability, due primarily to their high capacity for adaptation. By contrast, the critical infrastructure sector has medium to high vulnerability. Here, damage could cause the failure of entire transport chains; moreover, adaptive capacity is hampered by difficult state regulation procedures and

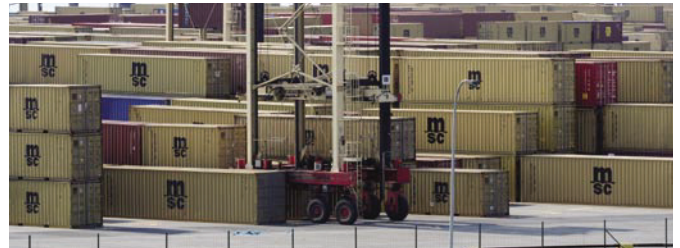
by financing bottlenecks. As a result, structural shifts are possible: the withdrawal of key actors from the region could cause entire transport chains to breakdown in the region. This is connected to a loss of spatial function. Thus, critical infrastructure is a key element in determining the vulnerability of the cluster. Especially this area is primarily dependent on political decisions made at levels above that of the region, which regional actors cannot determine alone.

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Overview of the results of the vulnerability study of the port and logistics industries

Vulnerability results from the combination of exposure and adaptive capacity. The following table shows a detailed analysis of these two categories for the four dimensions examined. A detailed analysis will shortly be available under www.nordwest2050.de (German only).



Dimension	Exposure	Adaptive capacity	Vulnerability
Elements of business supply chains	Extreme weather events can lead to damage of facilities, services, means of transport, business sites and values. → Medium-level exposure	The good networking that exists among the affected actors includes the exchange of experience and the innovation capacity of the product and service sectors. → High-level adaptive capacity	
Critical infrastructure	Extreme weather events could limit the usability of ports, canals, motorways, railways, inland logistics zones and coastal protection facilities → High-level exposure	The participation of a wide variety of actors' groups and the joint-decision-making in the federal political system of Germany will cause conflicts of goals. → Medium-level adaptive capacity	



Dimension	Exposure	Adaptive capacity	Vulnerability
Structural shifts	Loss of key skills in the region due to emigration of key actors within supply chains. Especially sectorally oriented ports are at risk due to this dependence. → Medium-level exposure	The region has high performance regional/local structures and has reserves of institutional capacities. However, joint-decision-making restricts the efficiency of the federal political system. → Medium-level adaptive capacity	
Spatial functions	Loss of the current position with regard to competitiveness with other regions. → Medium-level exposure		

■ low ■ medium ■ high vulnerability



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