

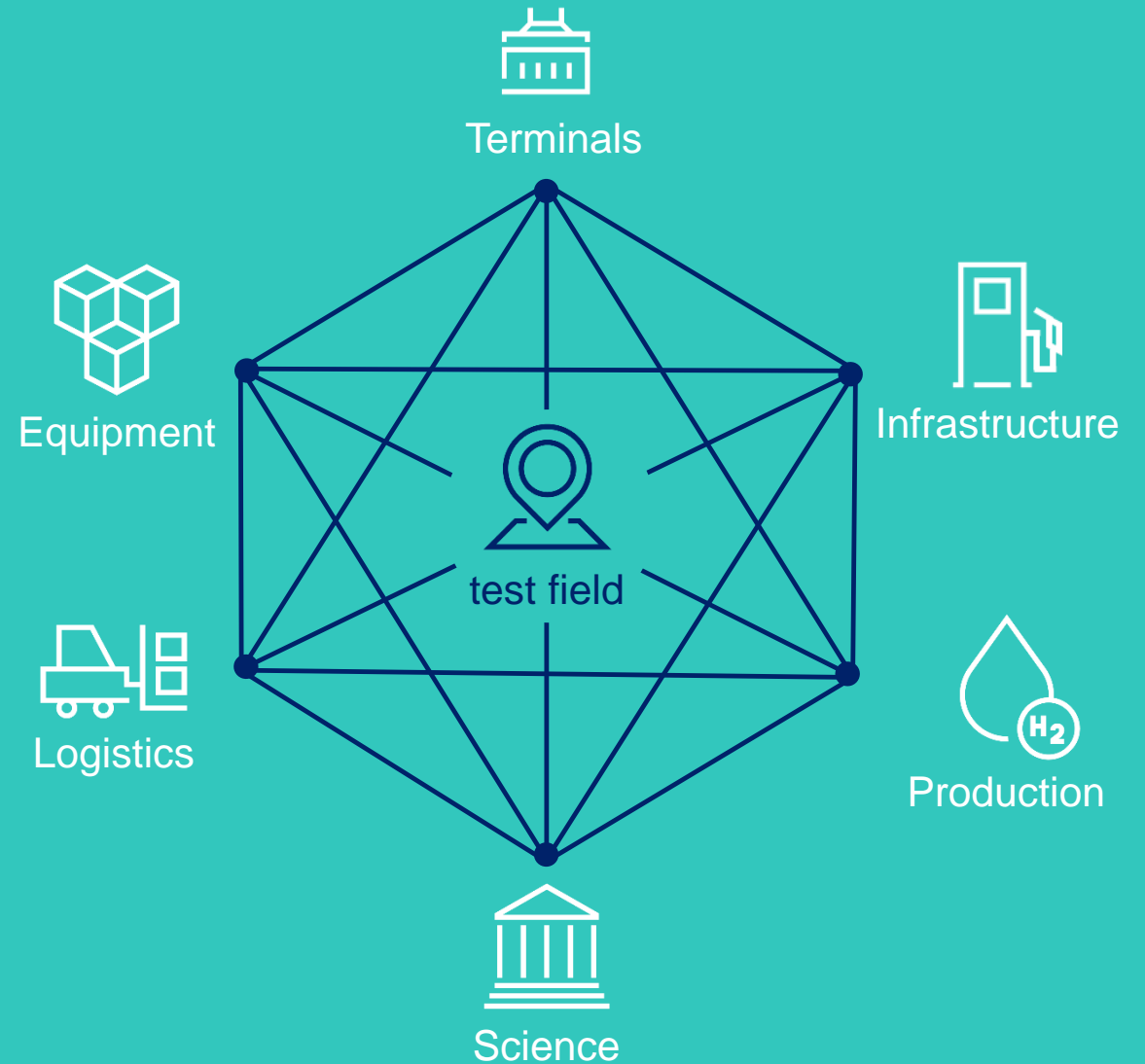


# Clean Port & Logistics



The nucleus of the "Clean Port & Logistics" cluster is a test field where hydrogen-powered terminal equipment for port handling and heavy goods transport can be trialled in **real operation**. All parties involved will be able to interlink with each other surrounding the test field.

CLP aims to get hydrogen powered heavy-duty-vehicles and terminal equipment market ready in a **short time frame**.



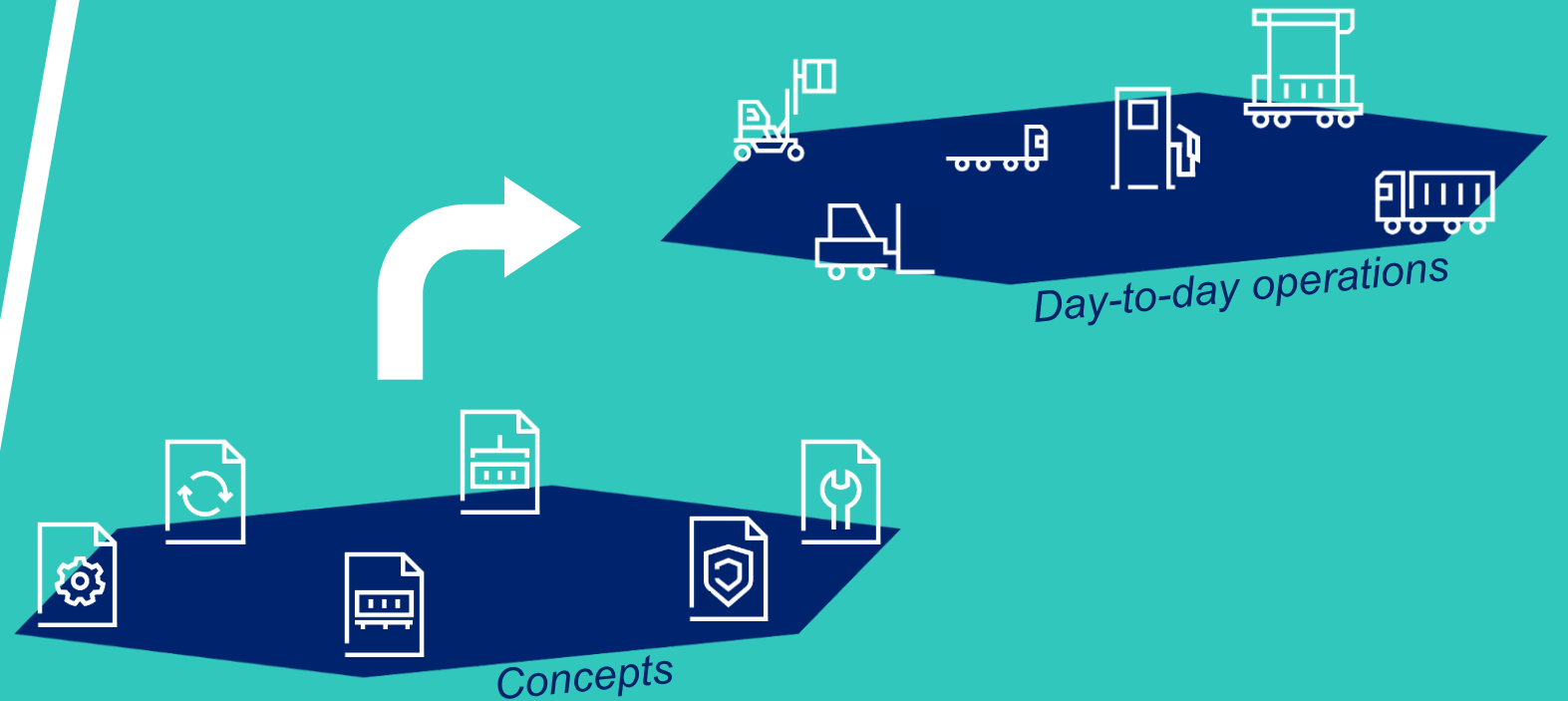
The test field of the CPL cluster is located in the north of the **Container Terminal Tollerort**, right in the heart of the Port of Hamburg.





The **planned equipment classes** for the test environment are a straddle carrier, an empty container handler, a forklift truck, a reach stacker, a terminal tractor and trucks. There is flexibility for testing other classes of equipment.

Concepts developed for operating, safety, repair, maintenance, refuelling and supply are **tested and optimised** in the day-to-day business of a container terminal.

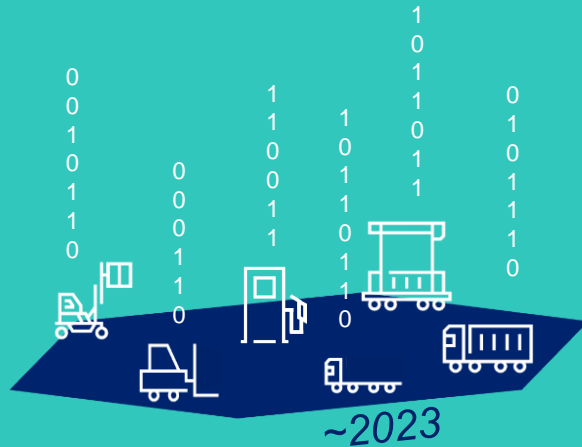


*Create a robust foundation for decision-making*



~2024

*Proof of concepts and generate data*



~2023



*Development of concepts and initiate cluster*



~2022

The **kick-off** is planned for mid 2022, while the start of operation of the test field is scheduled for early 2023. It is expected that the end of the cluster will be in 2024.



## Added values for equipment manufacturer



Direct Access to customers in the logistics sector with a **significant business potential**



**Many customers** are reached with the demonstration of one equipment unit



Direct feedback and different test scenarios lead to a **rapid market readiness**



**Representing the interests** in terms of hydrogen with a greater community



## Added values for terminals, logistics companies and the industry



**Specified test scenarios** and duty cycles can be trialled on the test field in daily terminal business



The Findings could provide a robust **foundation for decision-making**



Developed concepts can be used for the conversion of **own equipment**



**Representing the interests** in terms of hydrogen with a greater community





## Added values for infrastructure provider



Direct Access to customers in the logistics sector with a **significant business potential**



**Many customers** are reached with the demonstration of one equipment unit



**Direct feedback** on price sensitivities of potential customers.



**Representing the interests** in terms of hydrogen with a greater community



## Added value for scientific partners



Picking up *new questions* directly from the operators



Practical data for the *refinement of models* and simulations

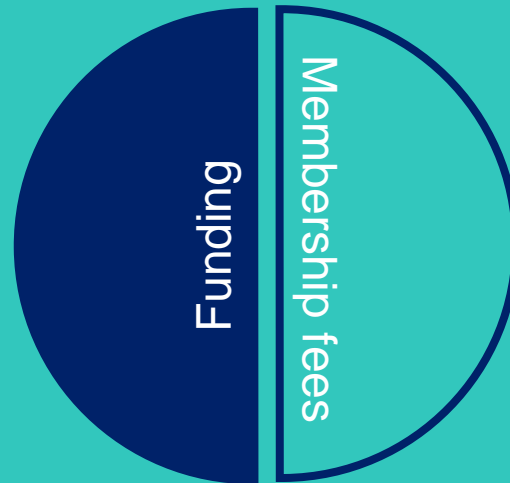


Direct contact to equipment manufacturers and other logistics companies for *possible F/E projects*

## Budget



## Financing



A large part of the costs is covered by a grant from the BMDV.



	A	B	C
receive regular information about the findings	X	X	X
participate in the annual cluster meeting	X	X	X
mentioned in press releases and similar communication activities	X	X	
present topics in cluster meetings	X	X	
propose alternative performance profiles for the equipment to be evaluated in the test facility.	X		

In case of a material contribution	T€ 1 / y	T€ 1 / y	T€ 1 / y
In case no contribution is made	T€ 15 / y	T€ 10 / y	T€ 1 / y

creation of training concepts **optional**

The option to participate is open to any interested party on a non-discriminatory basis. Thereby, participants can choose between levels A, B or C. Their contribution can be **reduced to 1,000 € per year** if they significantly support the cluster.



# Thank You

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# Thank You

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