

Port city innovation ecosystems

A symbiosis of capital

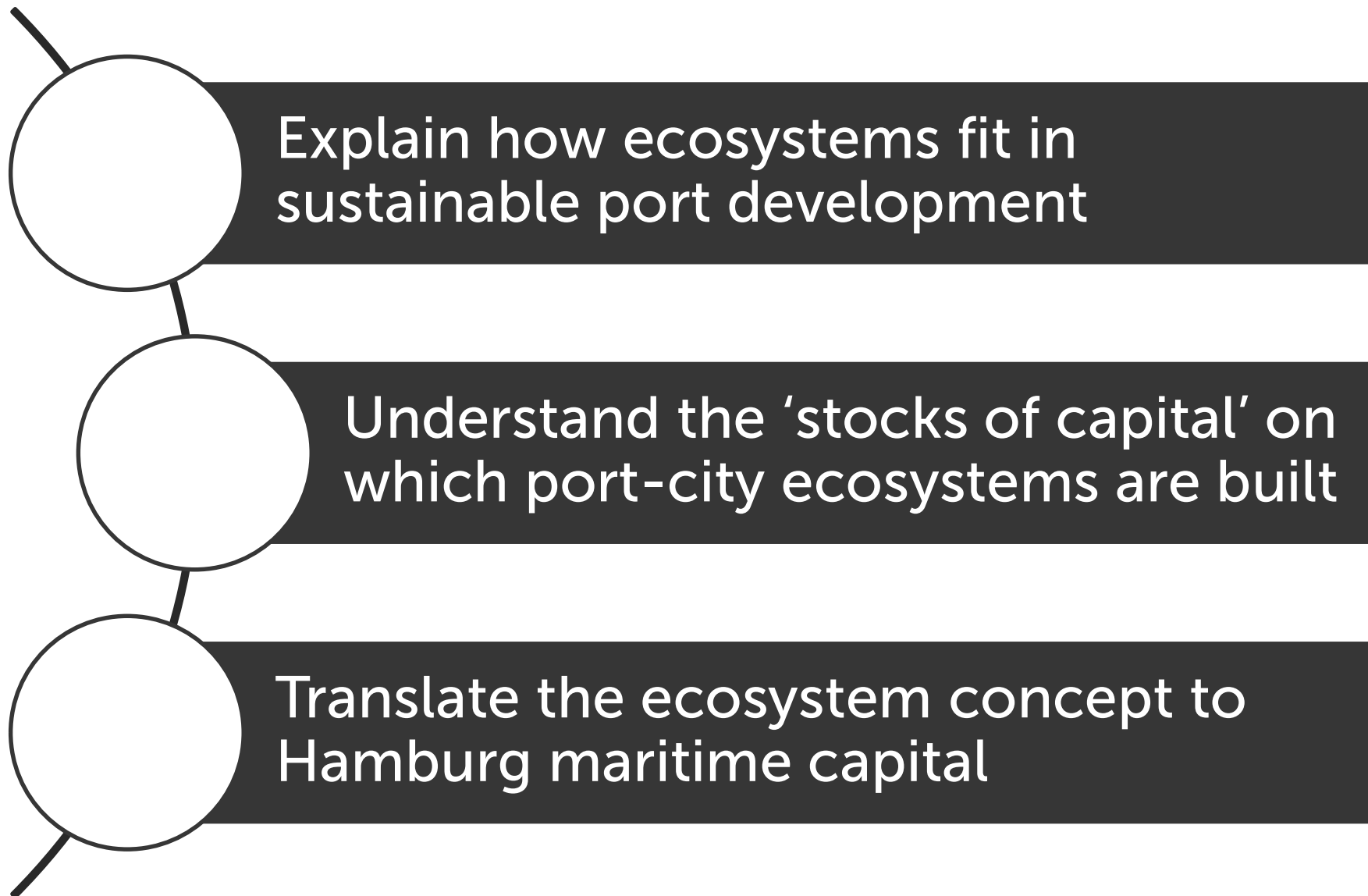
Maurice Jansen

14. Landesfachtag Geographie

April 24, 2021



Today's objectives



A port city is in transition all the time



Waalhaven, Maximilien Luce, Rotterdam (1908)

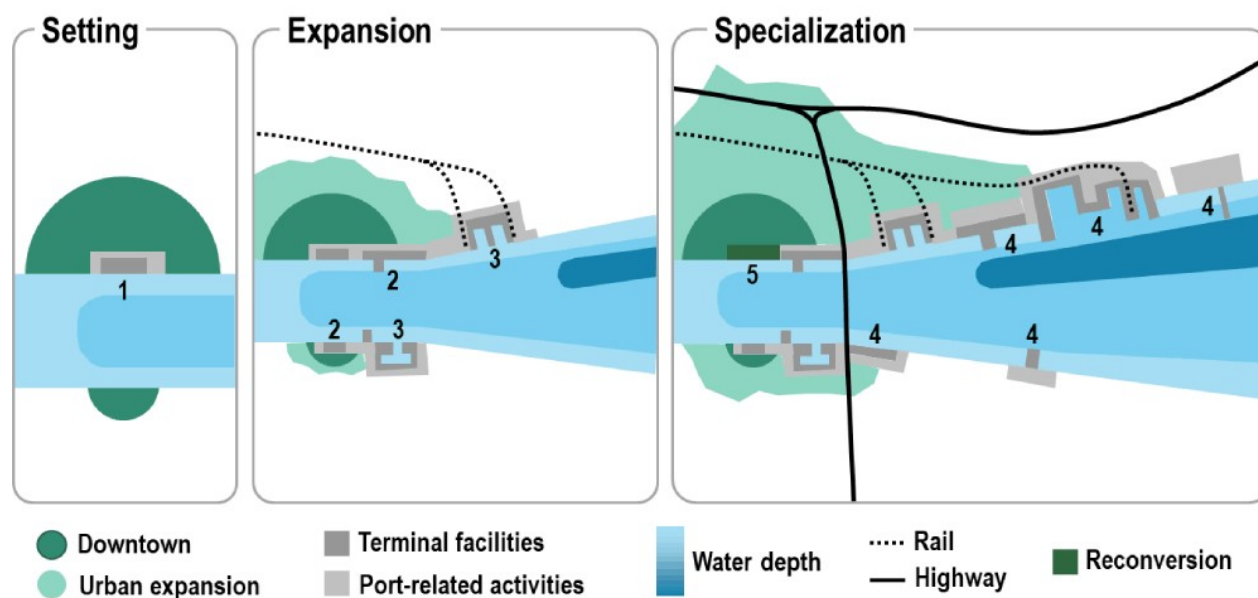


Maasvlakte 2, Boskalis (2008-2013)

Port evolution models

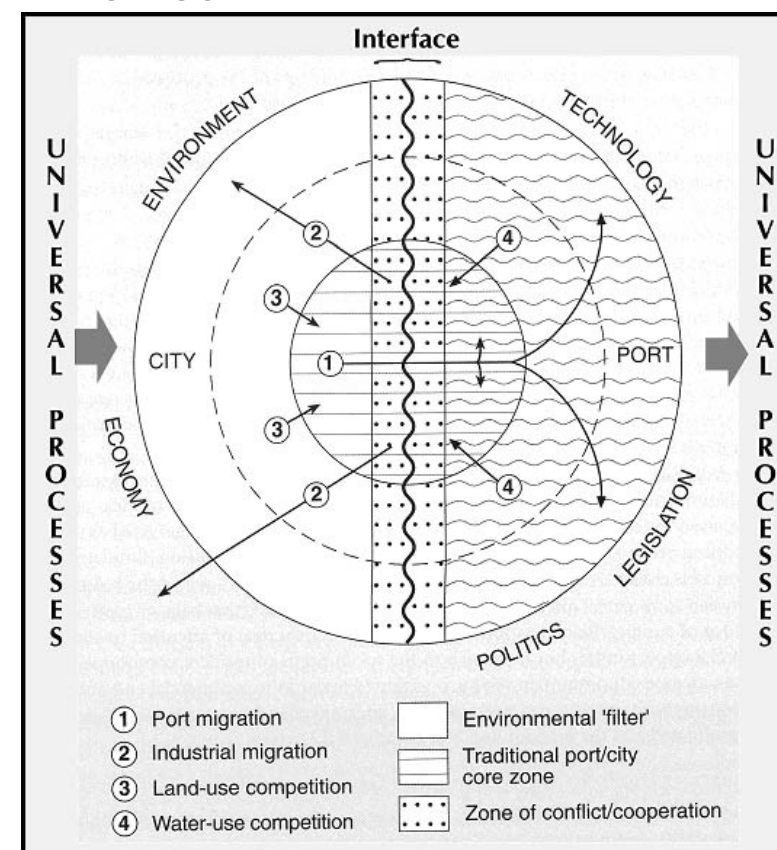
Anyport Model (Bird, 1963)

Evolution of a port: setting, expansion, specialization



Hayuth (1982, Hoyle (1989)

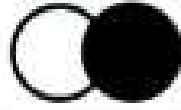
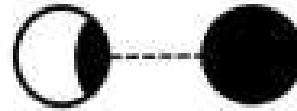
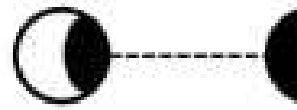



Reconciliation of conflicting influences, objectives and interests involved.



Port evolution and where we are heading towards

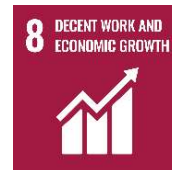
- We are witnessing a **renaissance of the port-city links**, which translates in various approaches to re-develop the old port areas for new purposes and new economic activities.
- These areas seek **active participation** of stakeholders, primarily entrepreneurs and knowledge workers
- At the same time there is an ongoing **widening** of the port and the traditional port-city, as can be observed with **port expansion projects** such as in Rotterdam, Shanghai or Jakarta (Great Garuda Project).
- The future is **not one-directional** and will be based on combinations of port functions.
- The art is how port authorities (or port development companies) can develop **new business models** while not ruining the revenues of existing port users.

Stages in port/city evolution (Hoyle 1988)

I		< 19 th C.	Primitive port/city
II		19 th – early 20 th	Expanding port/city
III		mid-20 th	Modern industrial port/city
IV		1960s – 1980s	Retreat from the waterfront
V		1970s – 1990s	Redevelopment of waterfront
VI		1980s – 2000+	Renewal of port/city links

Basic model

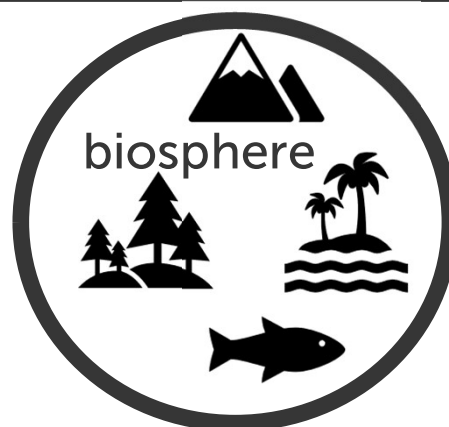
The ecosystems approach is embedded in the **SDG framework** and distinguishes three hierarchical layers. The economy is built upon the society, where the society is built on the biosphere (Stockholm Resilience Centre, 2020).



Industrial (working) capital



Creative capital
Cultural capital
Human capital
Social capital



Natural capital

Changing port-city relationships - conflictive or creative tensions?



There is a bottom up movement coming to surface that can either become reactive or proactive

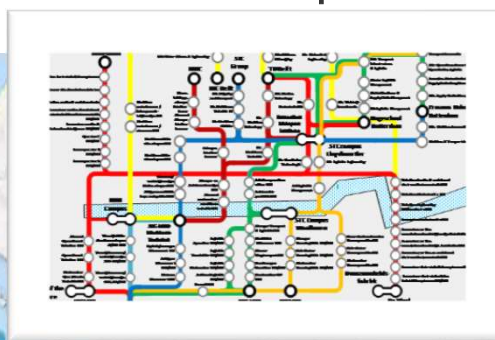
A capital perspective of the port city innovation ecosystem

An inclusive approach to port development starts with the port's inherited resources, the stocks of capital, its favourable location for human activities, whether it be a location for settlement, for clusters of industry or a gateway for trade and transport.

Industrial (business) capital



Human capital



Social capital



Creative capital



Cultural capital



Natural capital (location)

Natural capital is related to favourable location in the delta



- The natural capital is defined as the stock of renewable and non-renewable resources, such as air, water, land, minerals and forests as well as biodiversity and ecosystem health, that combine to yield a flow of benefits to people (Natural Capital Coalition, 2020).

Industrial (working) capital



'It is important that we all pull together on this. Not only do we want to speed up the development of hydrogen in the Netherlands, we also want to make sure our country plays a pivotal role in the renewal of Northwestern Europe's energy system.'

— Allard Castelein, COO Port of Rotterdam Authority



Competition



Collaboration

The industrial capital perspective on ecosystems regards port cities as clusters of economic activity, which are competing in a global marketplace, however prosper on the basis of collaborative action and shared value creation within the cluster.

Industrial capital – what to do with existing assets?

Het Financieele Dagblad | Dinsdag 20 maart 2018

HAVENBELEID



Nieuwe raad Rotterdam kan energietransitie haven versnellen

Wethouder ziet na discussie kolenoverslag toch rol voor politiek

“The transition to renewable energy is an irreversible process. I strongly advise to reconsider the old port vision (2011), but we have to balance energy transition with economic development and employment”.

Wethouder ziet na discussie kolenoverslag toch rol voor politiek

De Rotterdamse havenwethouder Adriaan van der Plaats heeft na een discussie met de gemeenteraad besloten om de rol van de haven in de energietransitie te versnellen. Hij ziet na de discussie over de kolenoverslag toch een rol voor de politiek. De wethouder heeft de raad verzocht om de rol van de haven in de energietransitie te versnellen. Hij ziet na de discussie over de kolenoverslag toch een rol voor de politiek.

Bij de overgang naar een minder fossiele haven, of juist het behouden van de huidige situatie, vindt de wethouder dat de raad een rol speelt. Hij ziet na de discussie over de kolenoverslag toch een rol voor de politiek.

In de nieuwe kijk op de haven zou volgens Visser een breder systeem van kortingen en heffingen aan de orde kunnen komen om de haven schoner te maken. De overgang naar een minder fossiele haven kan zeker een versnelling gebruiken. Je kunt ook industrie uitfasen. Contracten die er nu zijn, hebben een einddatum. Je kunt dan met elkaar afspreken: de eindtermijn is ook echt de eindtermijn. Een mogelijkheid is zelfs om bij contracten die nog een lange looptijd hebben te kijken wat het kost om die op termijn niet verder te verlengen. Maar Visser benadrukt dat het van groot belang is goed te kijken op het evenwicht tussen energietransitie en de economische ontwikkeling en werkgelegenheid. Hij wil wel de industrie die nu aan de oever van de haven zit, maar ook onder direct toezicht van de gemeente, laten weten dat de overgang naar een minder fossiele haven staat nog slechts aan het begin, maar is in de ogen van Visser 'onomkeerbaar'. De vraagtekens die voorzitter Steven Iak van ondernemersorganisatie Deltalings daar eerder dit jaar bij zette, geven volgens Visser geen pas. Je moet het hebben over hoe snel we kunnen gaan. Voor de Rotterdamse havenwethouder is één ding duidelijk: 'Wie er niet aan meedoet, hoort er ook niet bij. Die is af.'

FOTO: MICHEL DE GROOT/FD

PvdA, D66, CDA, NIDA, Partij voor de Dieren, ChristenUnie en SP stemden voor de motie die van GroenLinks was ingediend. Aan het aan opsteller Arno Bonte (raadslid van GroenLinks) is de volgende tekst toegevoegd: "We have to prepare a plan as soon as possible to bring down coal storage/stevedoring in Rotterdam. Only then can the port contribute to reaching the Paris agreements."

Alleen zo kan de haven bijdragen aan de uitvoering van de afspraken die zijn vastgelegd in het klimaatakkoord van Parijs, zegt Bonte. Volgens die afspraken moet de economie in 2050 nagenoeg CO2-neutraal zijn.



Operator Rotterdam coal-fired power station takes State to court due to closure 16 April 2021

Human capital

- There is a strong relation between regional income levels and **technology, talent and innovation** (Florida & Mellander, 2020).
- **Smart cities** investing in human and social capital and traditional and modern (ICT) infrastructure (Caragliu, Chiara and Nijkamp (2011),
- Cities speed **innovation** by **connecting** their **inhabitants** to each other (Glaeser, 2011)
- **Education hubs**, developing human talent is a way to compete in the global knowledge economy (Lee, 2015)
- **Brainport**, the focus on coordinated efforts by governments, businesses and knowledge initiatives in advanced technology innovation (Horlings, 2014).



The human capital perspective on the ecosystem is centred around the bundling of talent and technology into 'smart ports', 'smart cities' also referred to as 'knowledge cities' and 'brain ports'.

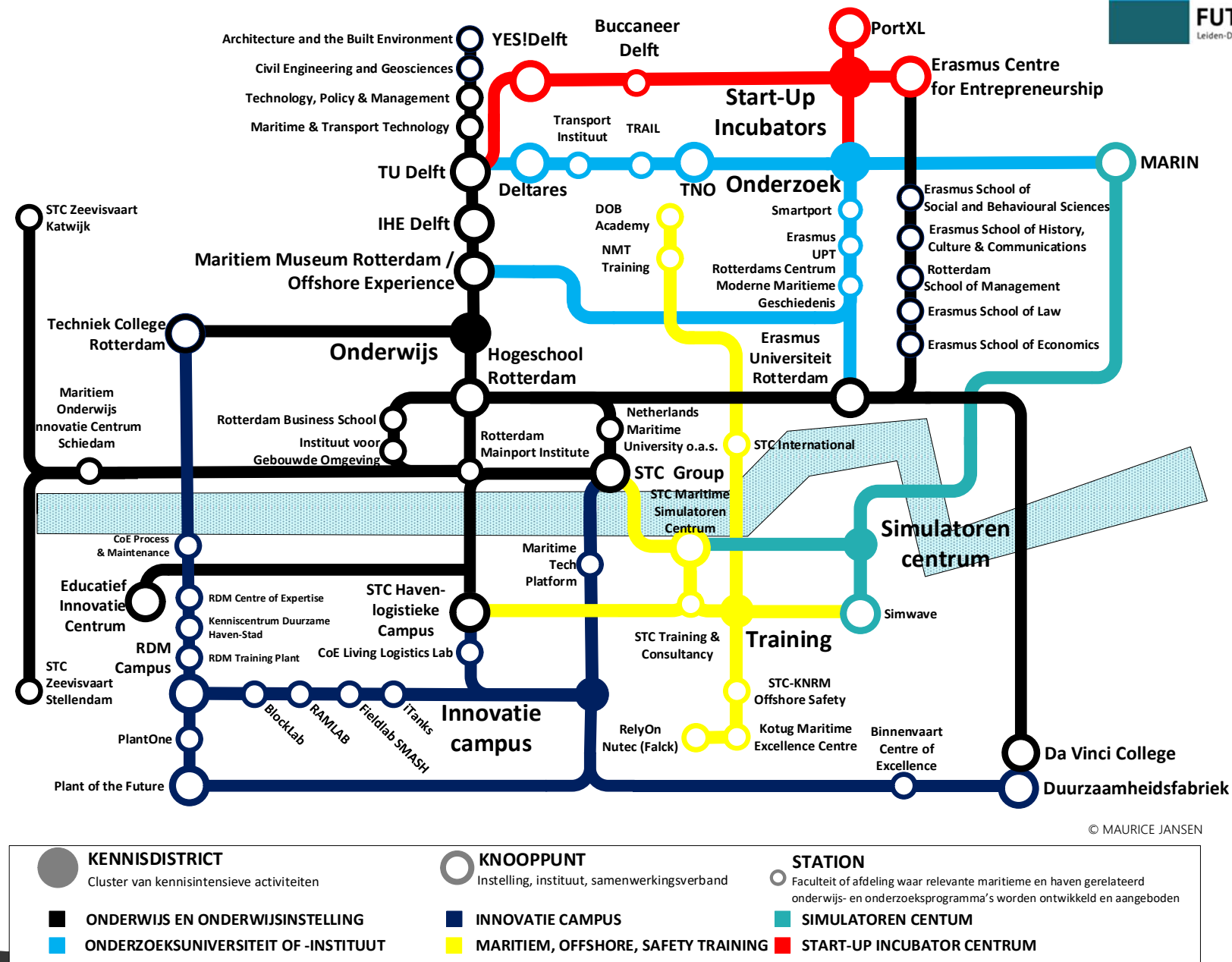
Human Capital map

Extensive maritime innovation ecosystem:

R&D, incubators, accelerators, funding.

Broad fieldlab infrastructure; leading in application of disruptive technologies in port and maritime sectors

Maritime-related:
14 Master degree
8 Bachelor's degrees
34 Vocational programmes
11,000 students



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Social capital



Rotterdam River Cleanup #2

Over 40 people got together on World Cleanup Day to keep our rivers clean!

Autonomous Shipping Event

A beautiful evening with top conversations and networking

Networking Pub Quiz

Our first networking Pub Quiz was a hit!

2019 Welcome Drinks Networking Event

A fantastic evening with our friends and peers at the belly of Vessel 11.



Closed

Horizontal



Open

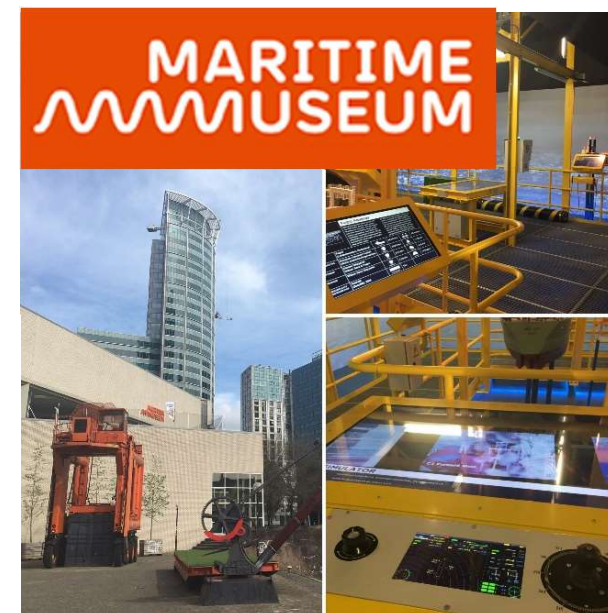
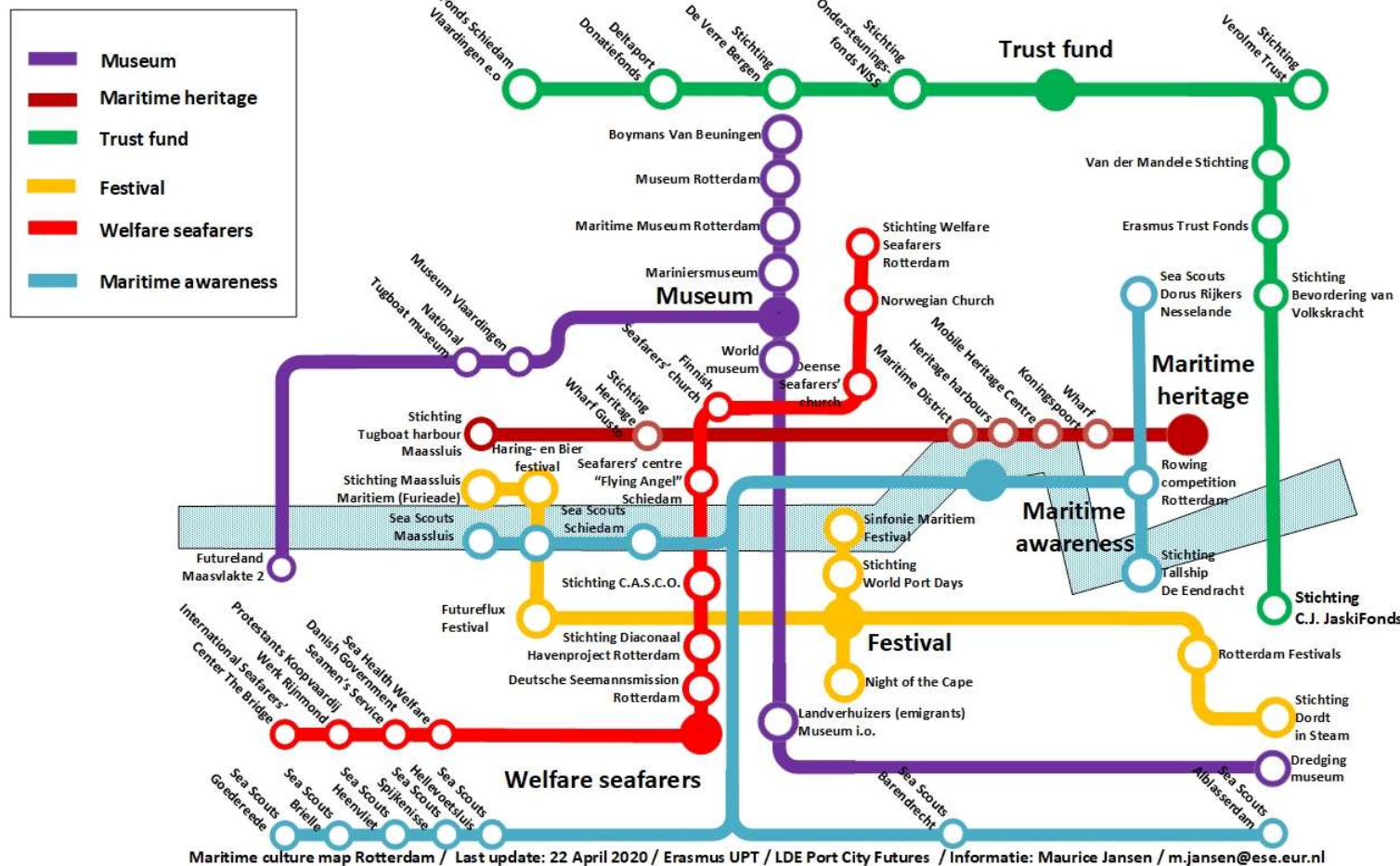
Vertical

Vice-mayor Kathmann of Rotterdam launches Young Maritime Board



The social capital of the city comprises the networks and the horizontal and vertical connections that are present within professional groups and associations and that, as such, act as lubricants between institutions. Successful port cities know how to effectively utilise this capital, and in such a way that social problems are minimised.

Cultural capital



For port cities cultural capital provides the shared identity, shared values. Knowing the history and passing on stories from part times connects generations. Maritime museums play an important role in bridging the distance newcomers, migrants and children may have towards the maritime industry

Creative capital

- Creative capital denotes the ability of economic actors to generate **scientific, technological and artistic innovation** on the basis of relational assets which are socially produced within a city or urban region (Kratke, 2011).
- Companies cluster in order to draw from **concentrations of talented people** who power innovation and economic growth (Florida, 2011)
- Driving forces for the knowledge city are universities, society entrepreneurship, knowledge cafes/cathedrals (meeting places), diversity, strange attractors (marketing, branding) and ICT and multimedia infrastructure



Creative capital forms the top layer of the ecosystem, it flourishes from the nurturing of deeper layers of capital. When cities nurture their talent well, it facilitates creatives and entrepreneurs and creates value through innovation.

Creative capital is found in startups, incubator and accelerator programmes

ROTTERDAM 2019

EUROPEAN TECH LANDSCAPE

Startups and Scale-ups

Ecosystem infrastructure

Network support

Events

Academies

Corporate leaders

Investors and VC firms

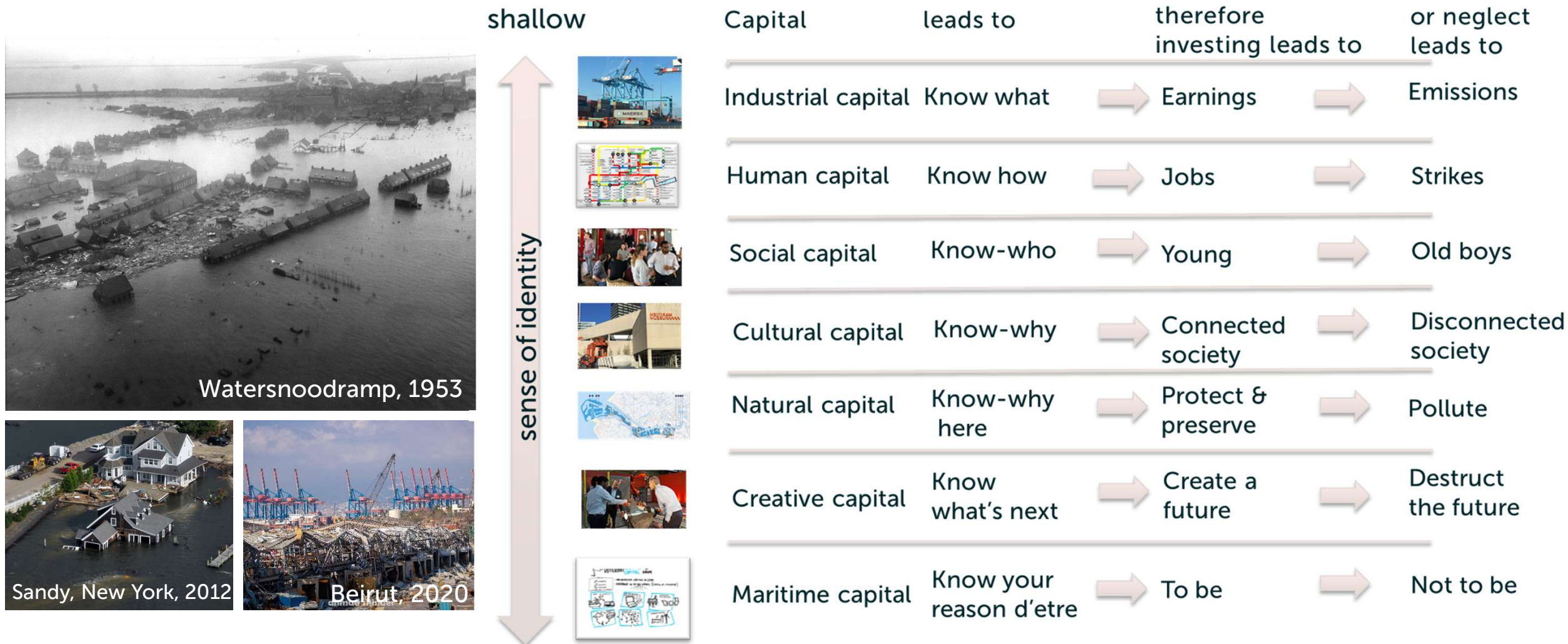


CHALLENGE OVERVIEW

We collect on this page the challenges from the following sectors – both anonymous, well-known ones or from our corporate partners. We believe that transparent challenge-sharing is key to a well functioning and thriving industry ecosystem – with the goal to improve the economy while sustaining the ecology.



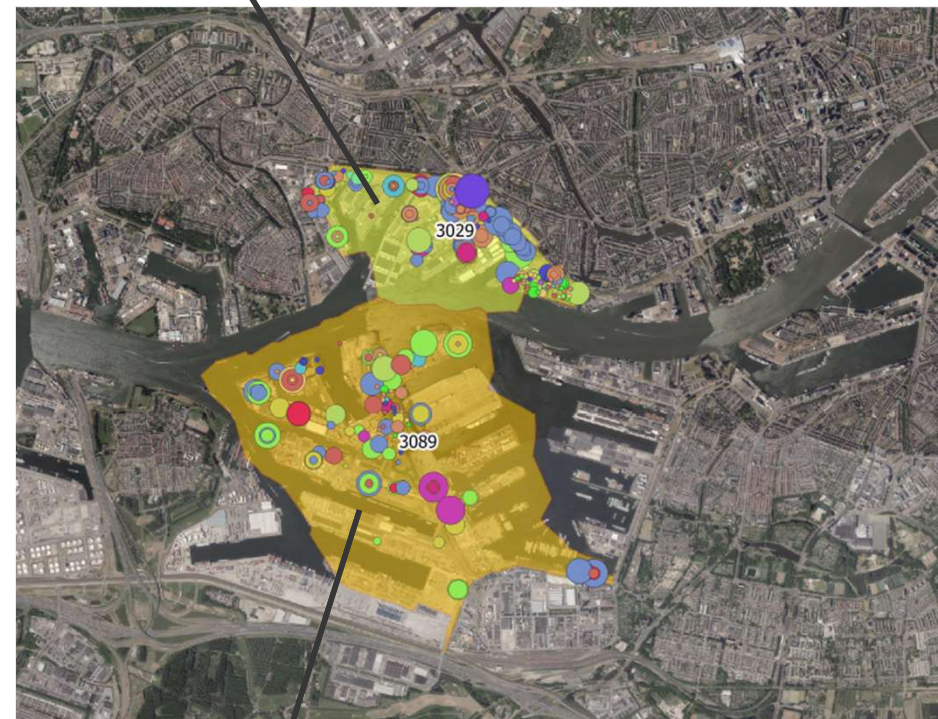
A symbiosis of capital means to re-connect to the ecosystem



RDM Makers District rejuvenates old port areas in Rotterdam



Merwe Vierhavens



RDM Campus

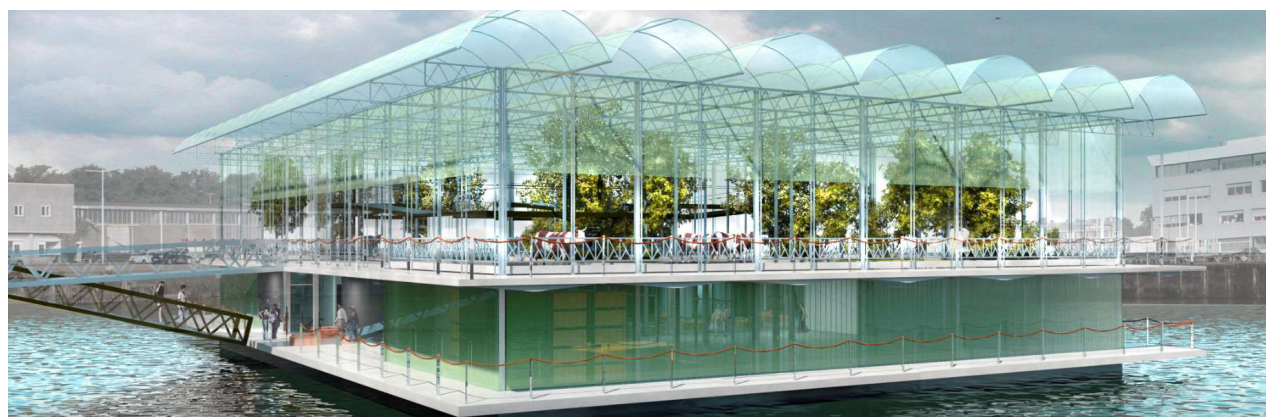
Merwe-Vierhavens is still an active logistics port (fruit & vegetables, breakbulk) but is in transition

Port-area in transition

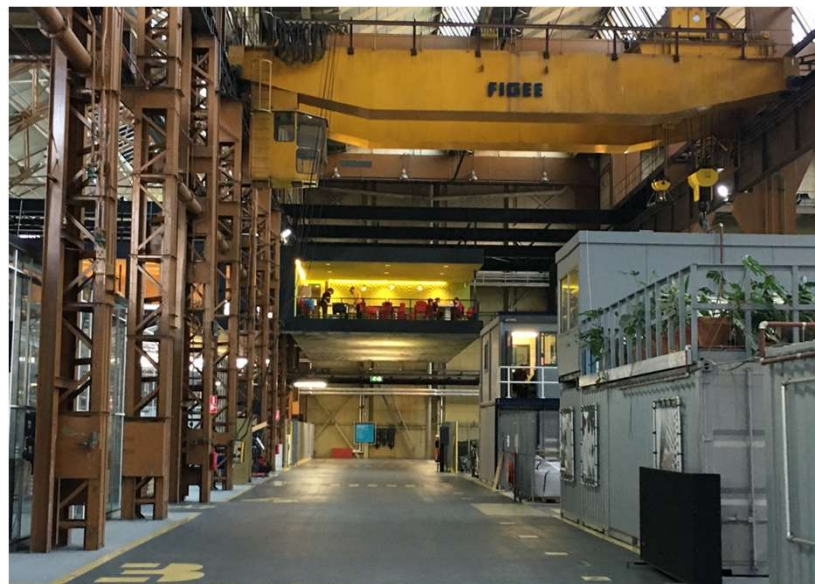


Towards circular economy

- 3+1 Flows: Construction, Agri-food, Textiles + Energy
- First pilots have landed: Floating farm, but challenge is to build a cluster of businesses (value chain)
- Symbiosis between port and city
- Circular business model only possible through partnerships



RDM Makers District rejuvenates old port areas in Rotterdam



What about sustainable growth?

The Interceptor unveil event, Oct 26, 2019 Rotterdam, NL



THE OCEAN CLEANUP™



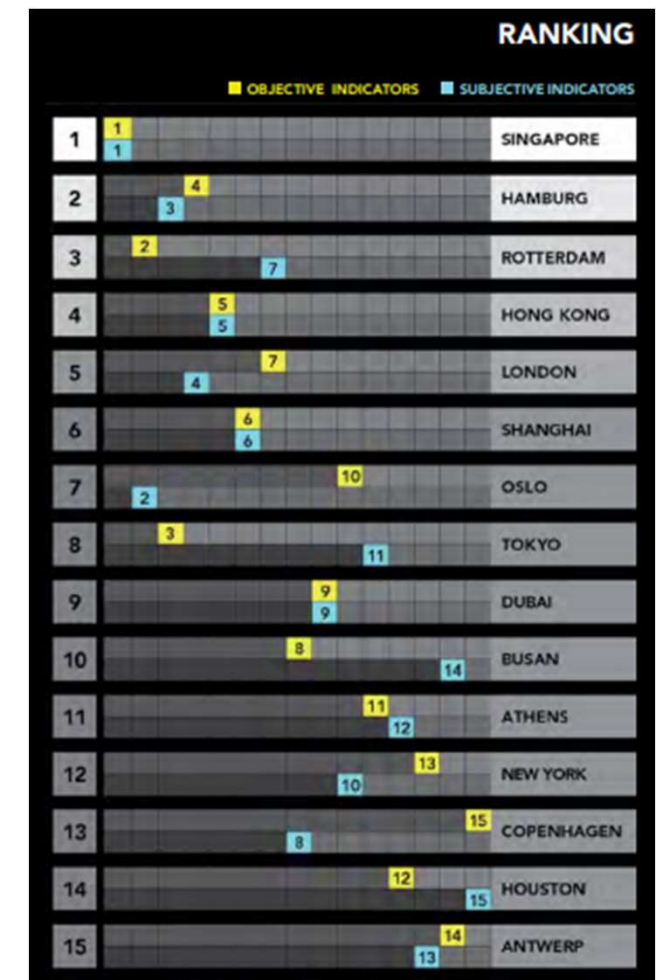
What about the port-city ecosystem in Hamburg?



Maritime capitals of the world – is this the new competition?



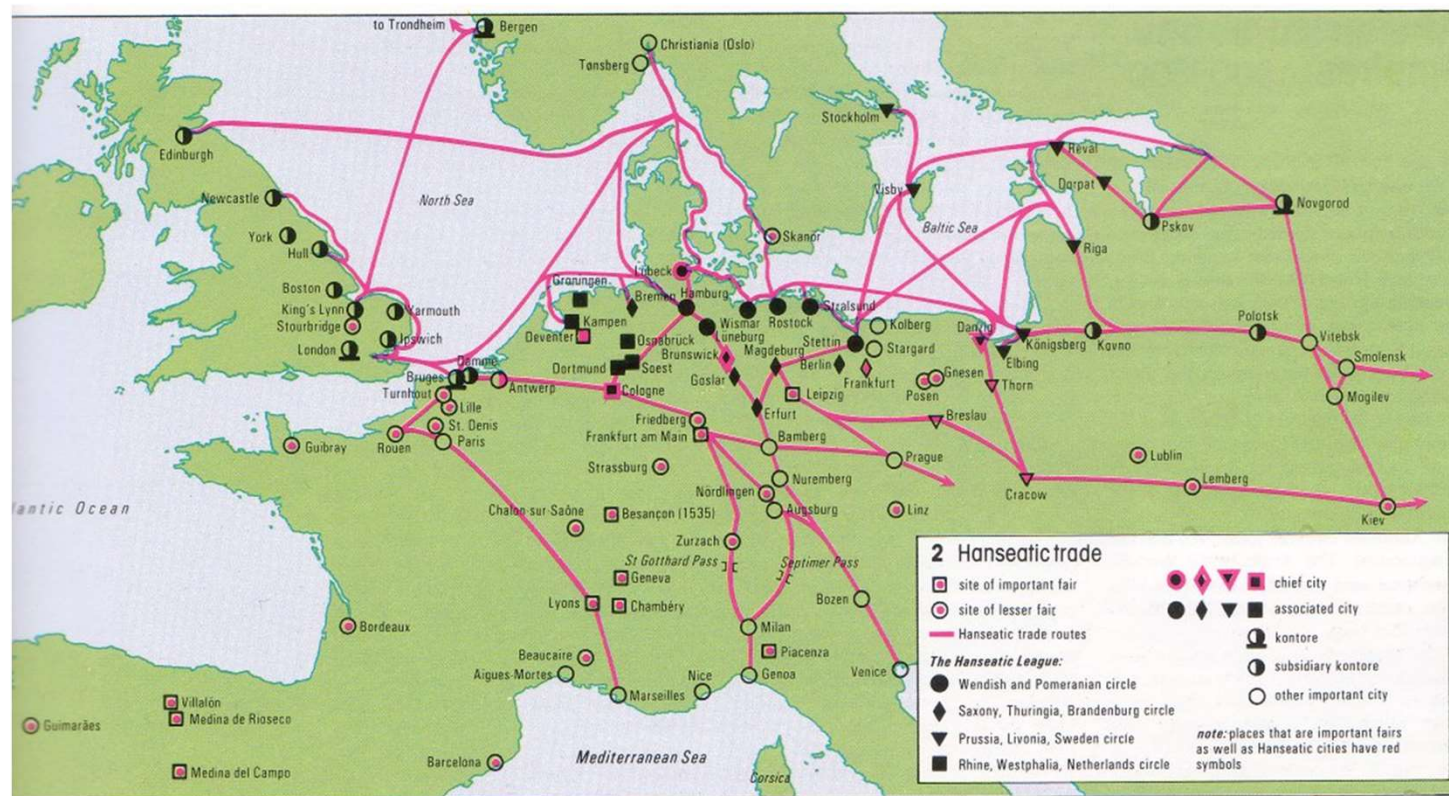
RANK	SHIPPING	FINANCE AND LAW	MARITIME TECHNOLOGY	PORTS AND LOGISTICS	ATTRACTIVENESS AND COMPETITIVENESS	OVERALL RANK
1	SINGAPORE	LONDON	OSLO	SINGAPORE	SINGAPORE	SINGAPORE
2	ATHENS	NEW YORK	LONDON	ROTTERDAM	COPENHAGEN	HAMBURG
3	HAMBURG	OSLO	HAMBURG	HONG KONG	LONDON	ROTTERDAM
4	HONG KONG	HONG KONG	BUSAN	SHANGHAI	ROTTERDAM	HONG KONG
5	SHANGHAI	SINGAPORE	TOKYO	HAMBURG	HAMBURG	LONDON



Menon / DNV GL, 2019

Hanseatic League is existential to the maritime capital of Hamburg

Maritime capital during Hanseatic League era



This cultural capital is the link between Hamburg's past and present industrial capital

Maritime capital in 21st century



Cultural and human capital bring new life in HafenCity

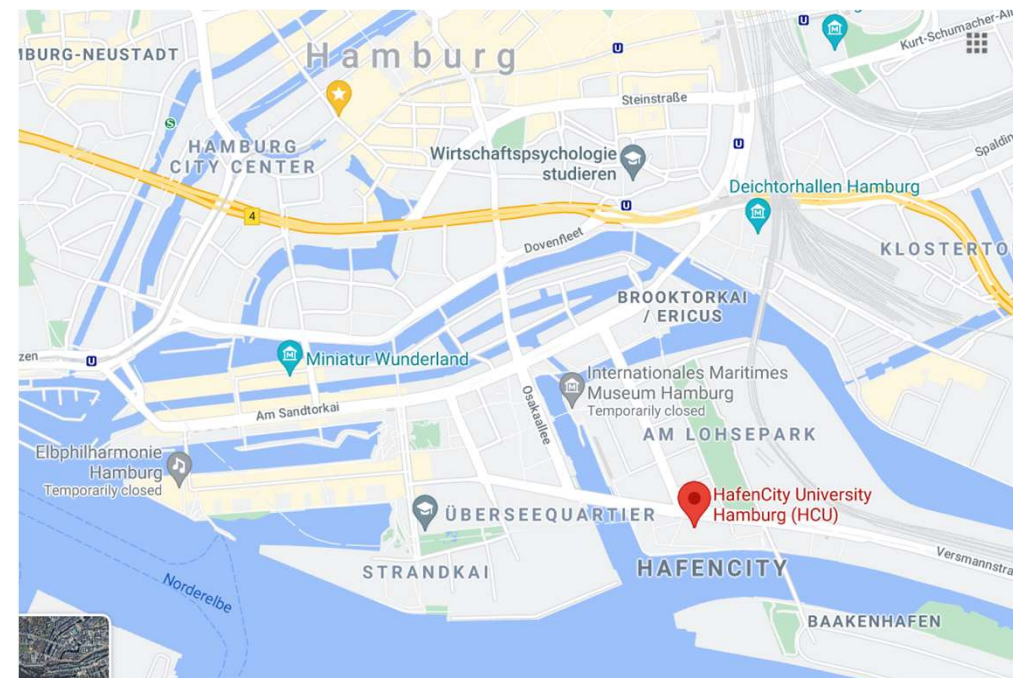
International Maritime Museum



HSBA Hamburg School of Business Administration



Berufliche Schule für Spedition, Logistik & Verkehr



Kühne Logistics University

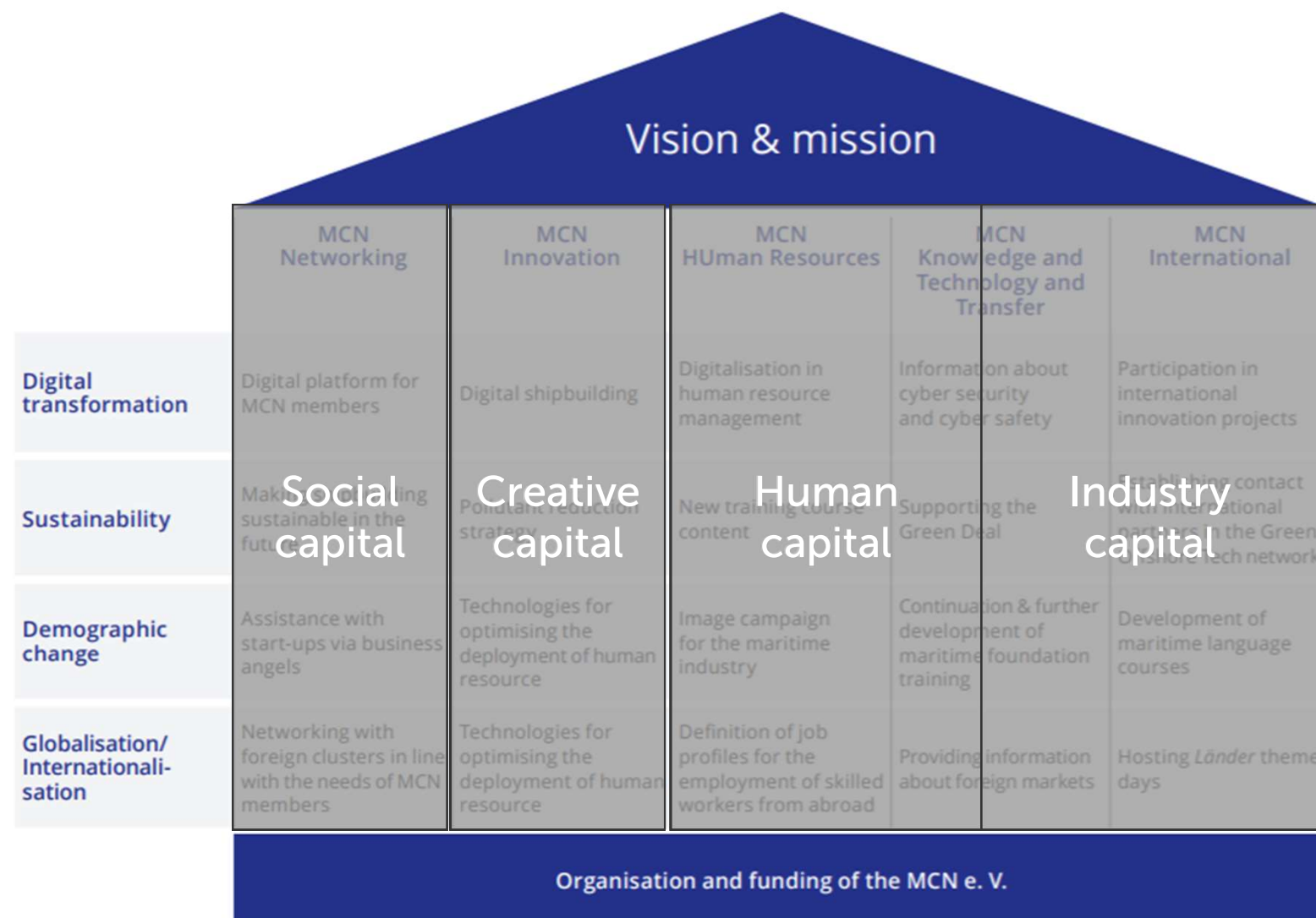


HafenCity University



Maritime Cluster Northern Germany follows similar path

“Our vision for 2025 is a global maritime hotspot in Northern Germany, a maritime industry that is strong and competitive on a global basis, one that is characterised by innovation, sustainability, efficiency, international competitiveness and an attractive working environment; moreover, we see the MCN e. V. developing into a highly professional, powerful and ever-growing network that offers its members significant added value”.



Matrix of the MCN Agenda 2025, list of possible courses of action

Summary and food for thought

1

- The **ecosystems view** of port cities provides a fundamental understanding **on sustainability and innovation**. How stakeholders can create value for themselves and for others considering the scarcity of resources and space in port cities is one of the wicked problems and requires further research.

2

- Rotterdam was used as a case study in which we have chosen to reflect on the **stocks of capital** and how they can be visualised. How to **visualise the other layers**. We have tried to relate this ecosystems approach to **Hamburg**, being a **maritime capital** in the world

3

- What **mechanisms** are at play in creating a successful innovation ecosystem? How strong is the **influence of port authorities and municipalities** is on the innovation ecosystem? What are the effects of investing in one area in respect to other areas where **investments** are not done?

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