

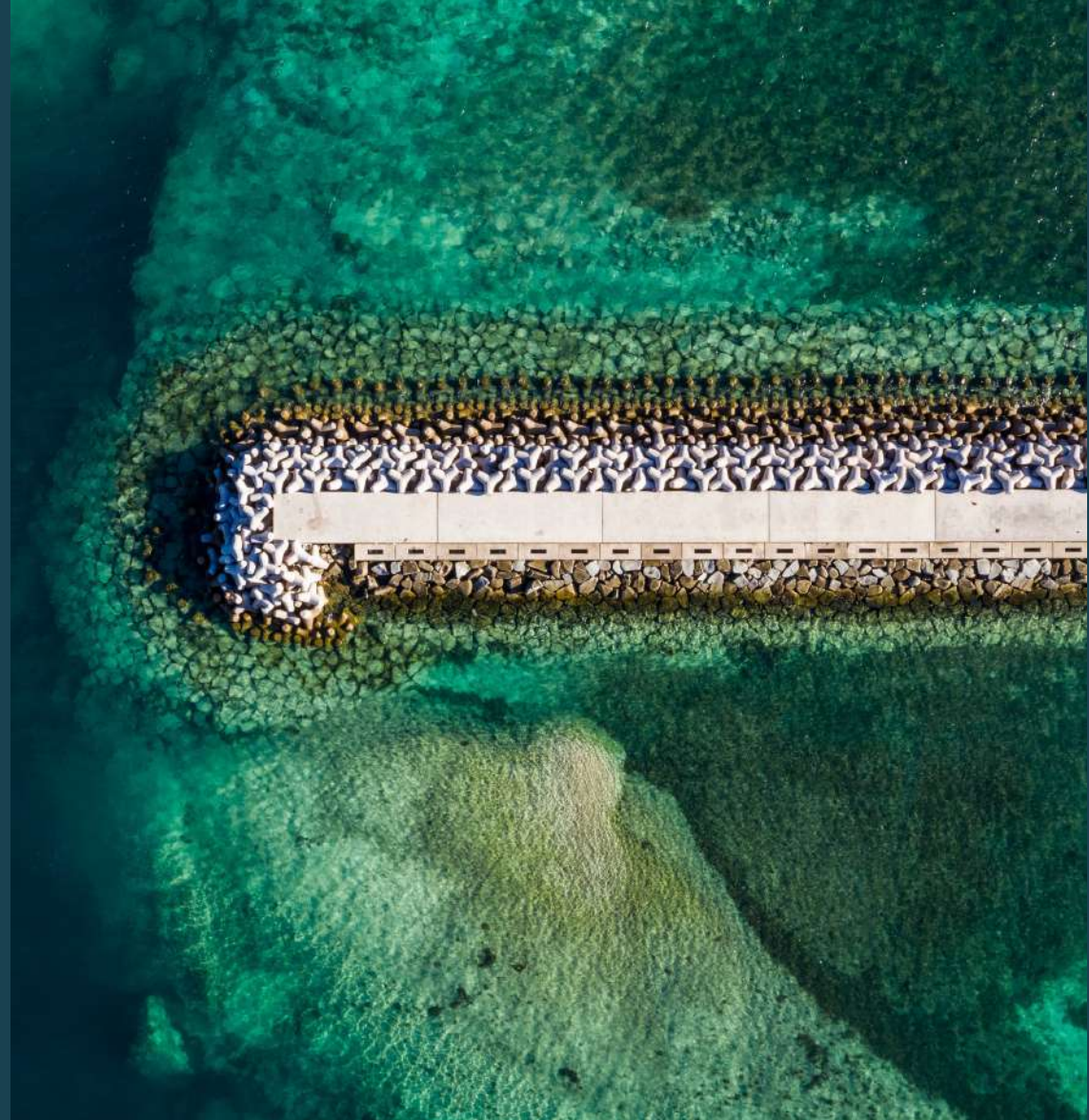
Clean – the Danish Water and Environmental Cluster

Finnish Delegation

Scott Grønnegaard Allison

Head of International

23rd January 2024



Co-funded by the Danish Agency for
Higher Education and Science

 Danish Board of
Business Development

 Co-funded by
the European Union

 **Clean**

- About Clean

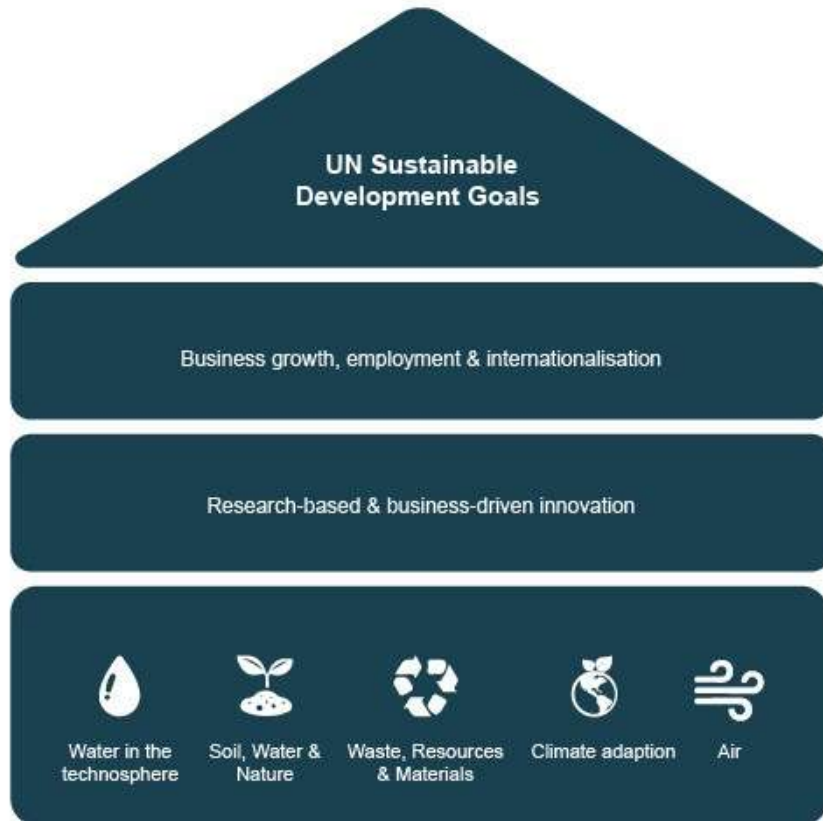
Denmark's Water & Environmental Cluster

Clean is Denmark's Water and Environmental Cluster and our vision is that Danish companies must be world leaders in the environmental field. We are the innovation space for you who develop environmental solutions and who need to solve environmental challenges.

Together with strong partners, we open doors for innovation and business opportunities nationally and internationally and give impetus to companies' growth and the green transition.

- Denmark's Water & Environmental Cluster

Clean



Our Vision & mission

Vision

Danish companies must be world leaders in the water and environmental field

Mission

Clean is The Danish Water and Environment Cluster that connects companies, utilities, knowledge institutions and the public sector to market-driven green innovation in Denmark and internationally

- Our focus areas guides our work

Focus area



**Soil, Water &
Nature**



Climate adaption



Air



**Waste, Resources
& Materials**



**Water in the
Technosphere**

- Focus areas

Clean's Innovation Priorities 2023



Waste, Resources & Materials

Increased recycling of plastics for a globally competitive recycling industry.

Sustainable materials design and production

Improved recycling of textiles

Stronger market for reuse of building materials



Water in the Technosphere

The digital and resource-conserving wastewater treatment plant of the future

Efficient and intelligent water supply

The digital sewage system

Innovative industrial symbioses for water recycling



Soil, Water & Nature

Technologies to monitor, prevent, and restore the environment

Effective remediation of generational pollution

Innovative and digital solutions for conservation



Climate adaption

Tomorrow's digital methods of warning and monitoring

Holistic rainwater technology for better water management



Air

Monitoring and reducing emissions from agriculture

Future production and shipping with lower emissions

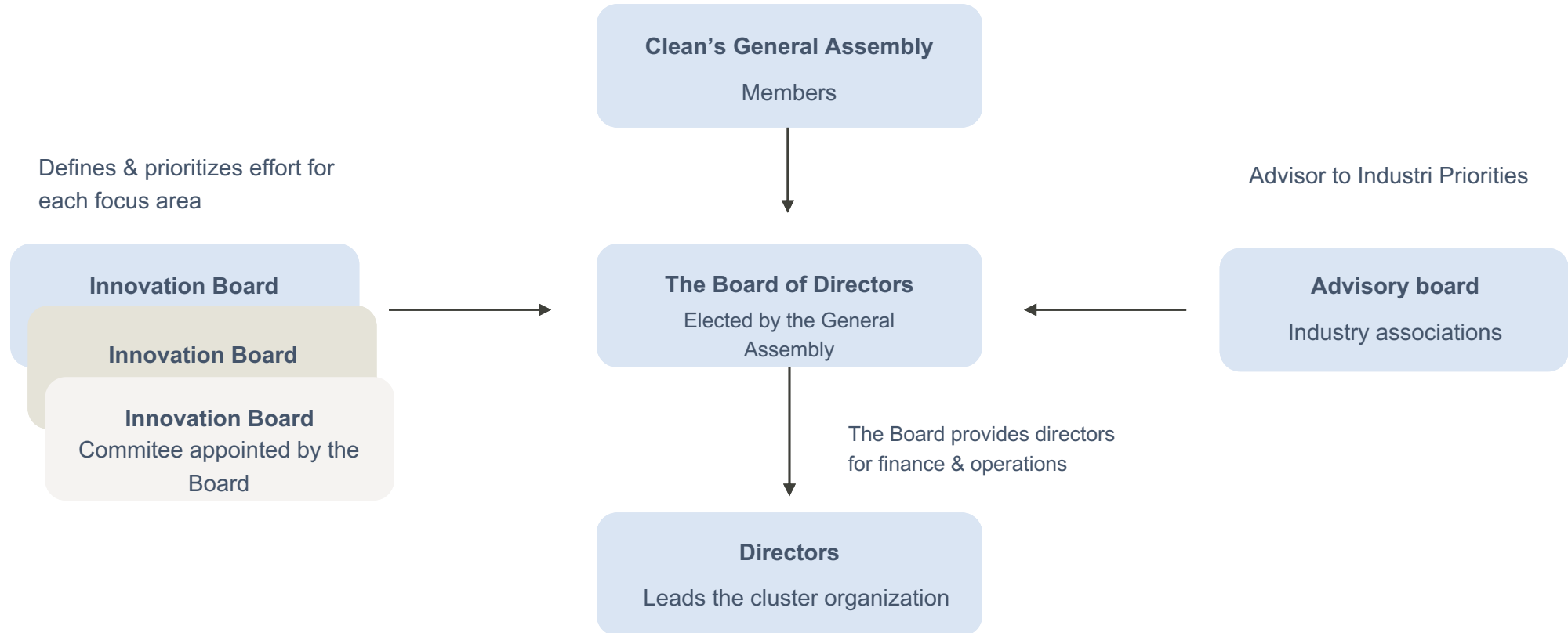


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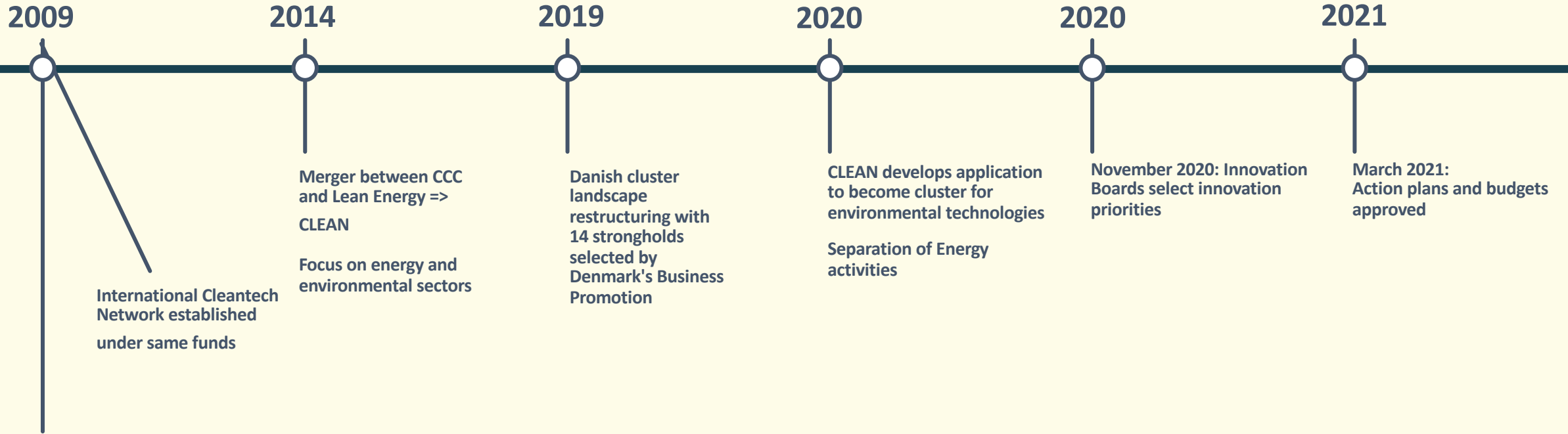
Clean Organisational Structure

- Overview

Clean's governance structure



- **History of Clean**



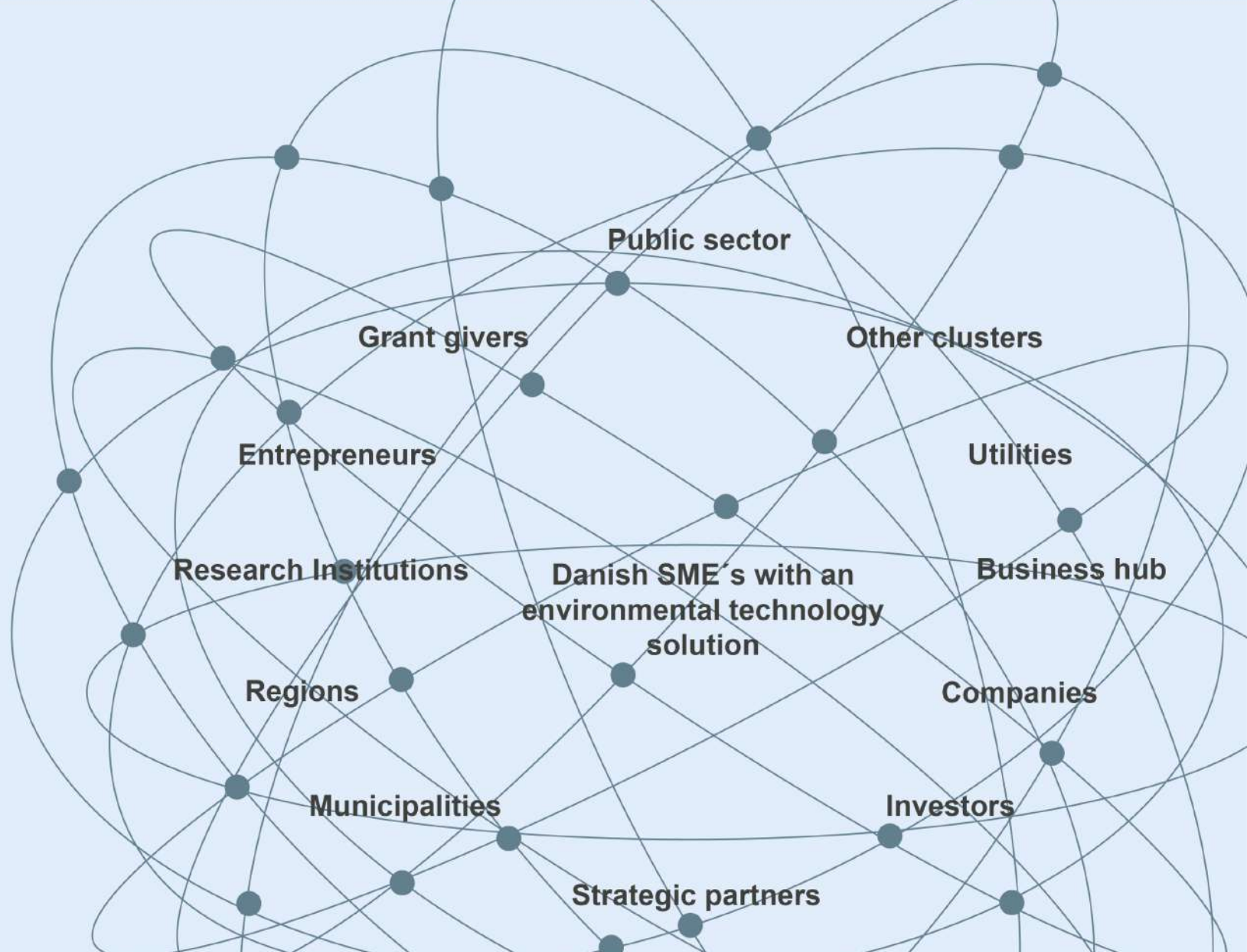
Copenhagen Cleantech Cluster established funded via EU Structural and Investment Funds

- **Business Promotion in Denmark 2020-2024**

- The strategy *Business Promotion in Denmark 2020-2024* identifies a number of economic areas of business and technology as the future focus of the publicly funded cluster organisations.
- In future, there will only be one publicly funded cluster within each of 14 selected industry. By gathering the efforts across the country, the cluster structure will be more simple, efficient and easy to understand for companies.
- The selection of cluster organisations is done in close cooperation with the Ministry of Higher Education and Science.
- CLEAN together with other key stakeholders were involved in giving input to key focus areas, trends, topics and innovation priorities best on our membership
- CLEAN continues to give input to future strategies as part of key advisory groups

Overview

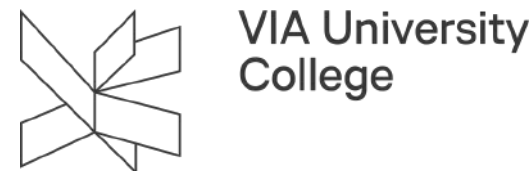
Stakeholders



CO-FINANCING CLEAN



CLEAN KNOWLEDGE PARTNERS



The Danish Ecosystem

Innovation

Business

Political

**INNOVATION
CENTRE
DENMARK**



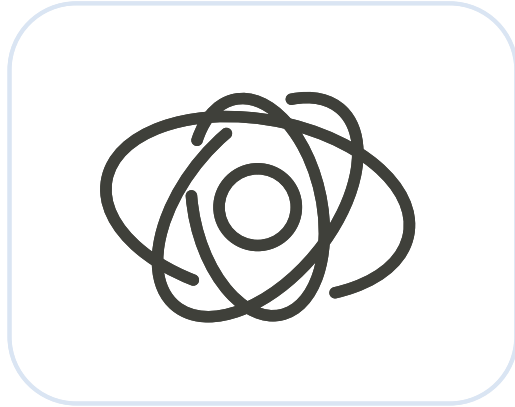
- **What role is Clean Playing?**
- Gathering of ecosystem
- Connecting research and business to lift new innovations
- Engaging national and international partners relevant for members
- Providing resources for members to reduce risks (time, costs etc.)
- Bringing in international knowledge to support capacity building in
- Facilitating co-creation processes to drive innovation
- Provide funding / access to funding for members activities



Clean's Activities

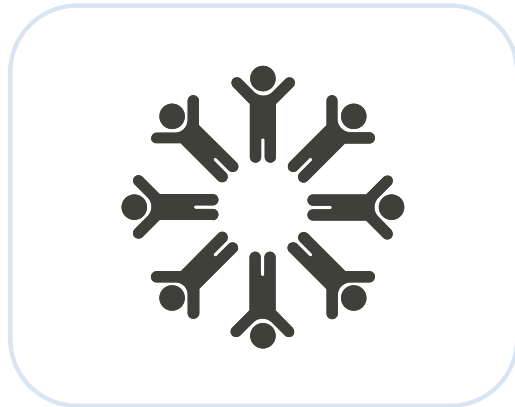
- What we do

Cluster activities



Partner projects

- Cascade Fund
- Circular Business models



Teamwork & networking

- Receptions
- Theme days



Internationalization

- Subsidised travel
- Partners abroad



Knowledge sharing & Skills development

- Theme days
- Integrating R&I proj dev

- Clean offers

Knowledge sharing & skills development



Publications

Through knowledge from projects we share knowledge and inspire you within the environmental area.

Theme days

We bring companies and stakeholders from the ecosystem together. We dive into concrete themes such as e.g., State of the art technologies that can support innovation.

Events

Clean is a co-organizer of one series of events at home and abroad and regularly participates in presentations and takes the members along relevant events.

- Clean offers

Partner projects



Knowledge Bridge projects

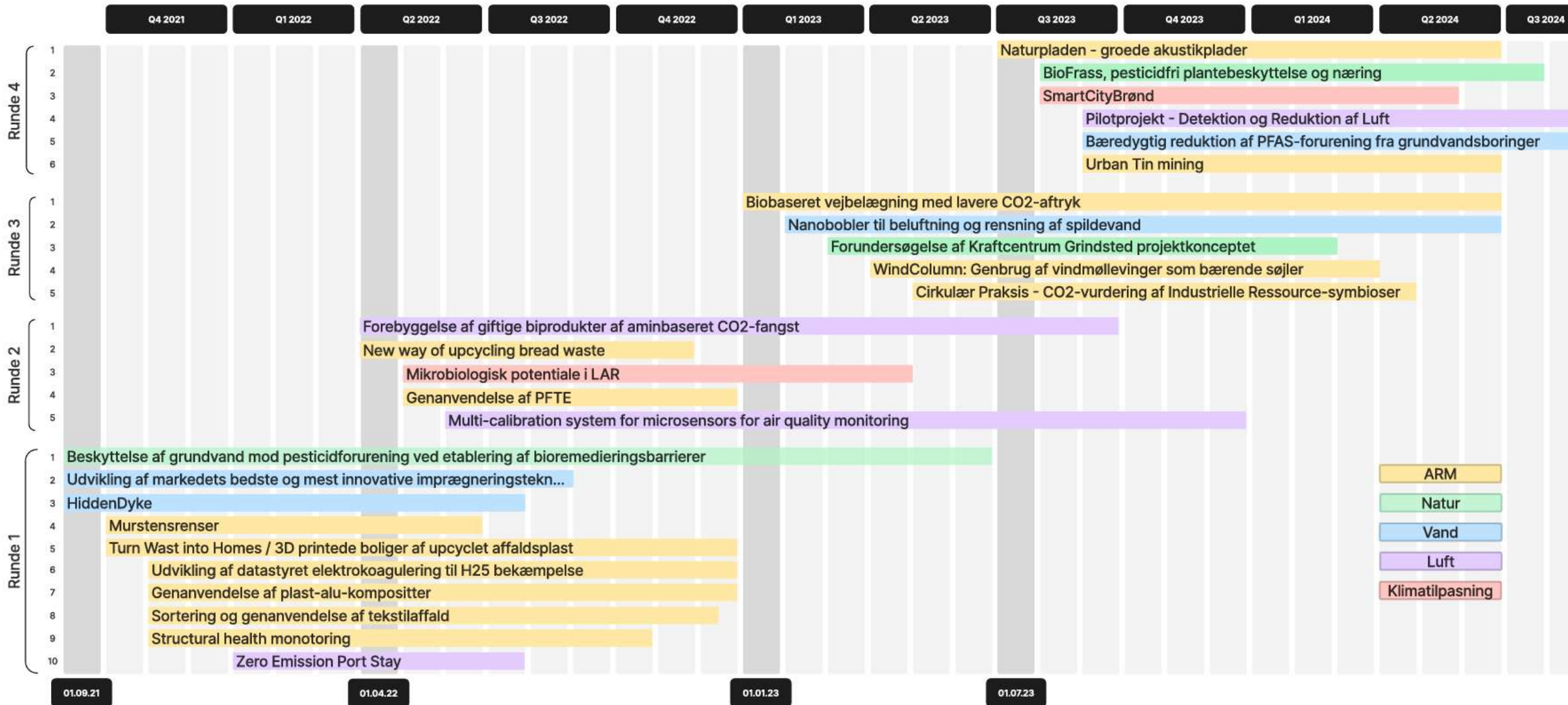
Webinarer hvor virksomheder får inspiration og ny viden fra bl.a. viden partnere og andre virksomheder inden for miljøområdet.

Programs

Clean develops and fundraises for programs that support companies' innovation and internationalization.

Innovation projects

The starting point is concrete challenges from industry, municipalities, or utilities. Often it will involve 3-5 partners from the ecosystem. The challenge can be solved with known innovative technologies, services, or new standards.



- Clean offers

Matchmaking & network



Match-to-buyer

Matchmaking course for companies based on a concrete demand from a committed customer or investor.

Match-to-challenge

Based on societal and industrial challenges, companies, knowledge partners, and other stakeholders are brought together to develop new collaborations.

Match-to-talent

Companies are matched with researchers, specialists, or students. We support the retention of foreign talent in Denmark.

Match-to-funding

Matchmaking events that focus on funding, forming collaborations, and new project ideas.

Examples

Some of our active and future offers for our members

Massachusetts Water Resources Authority wastewater technology needs (EU Techbridge)

Seeking innovative solutions for sludge cleaning, new bi-products and energy efficiencies in 1-1 matchmaking

Milwaukee Metropolitan Sewerage District technology needs (EU Techbridge)

Seeking innovative solutions for Conveyance, Treatment Facilities and Stormwater Management in 1-1 matchmaking

Brazilian and Colombian plastic waste solutions (CPAP)

Innovation challenge to develop solutions within the plastic value chain through EU Technology transfer and partnering activities.

Innovation public procurement for public authorities seeking circular solutions (BRINC)

Supporting connection of innovative solutions to public buyers through innovative procurement brokering

Yixing Industrial Park seeking waste and water solutions (SDG)

Connecting and pitching danish solutions for their needs with the aim of partnership development and/or piloting

International Cleantech Network's challenge based programme

Connecting national innovation opportunities for ICN members to international companies through meet-the-buyer / innovation challenges

- **DEB and UFS KPIs**

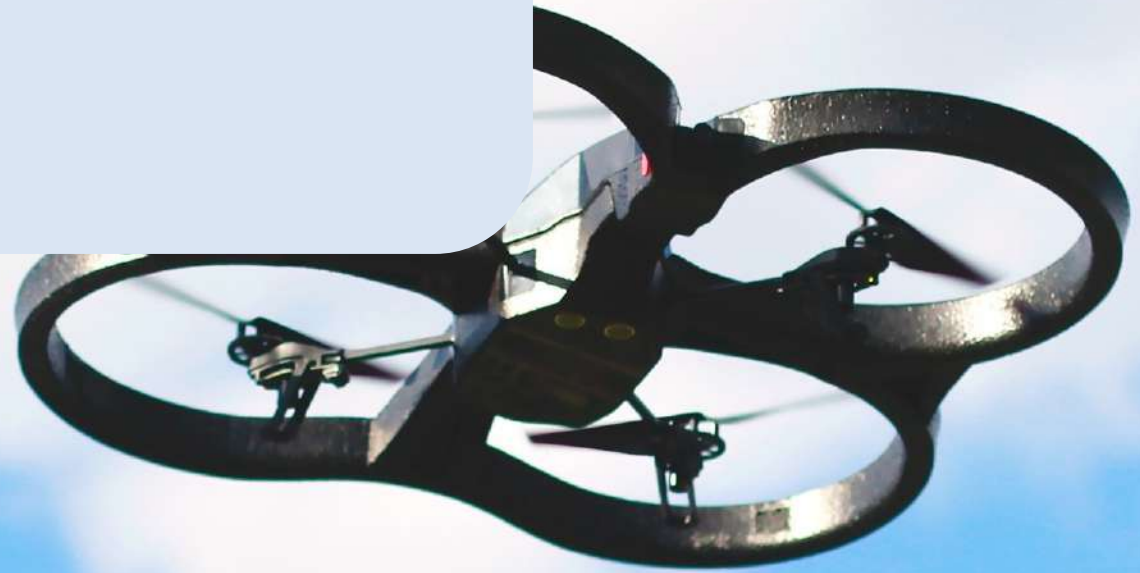
- Focus is on number of Danish companies and Research Institutes involved in activities broken down into our 5 thematics + internationalisation
- Report on:
 - Number of events
 - Number of programme developments
 - Number of innovation collaborations
 - Number of Innovation projects
 - Number of strategic partnerships (International)
 - Number of cluster collaborations (International)
 - Number of delegations (international)

Cleans funding is 35% Clean and 65% to Research Institutes / Companies / Activities for involvement in the above

- Clean offers

Internationalization

We do all of the previous activities internationally



Global Reach

-  Danish Cleantech Hubs
-  ICDK
-  ICN Network + projects (sample)
-  C40 Member (sample)





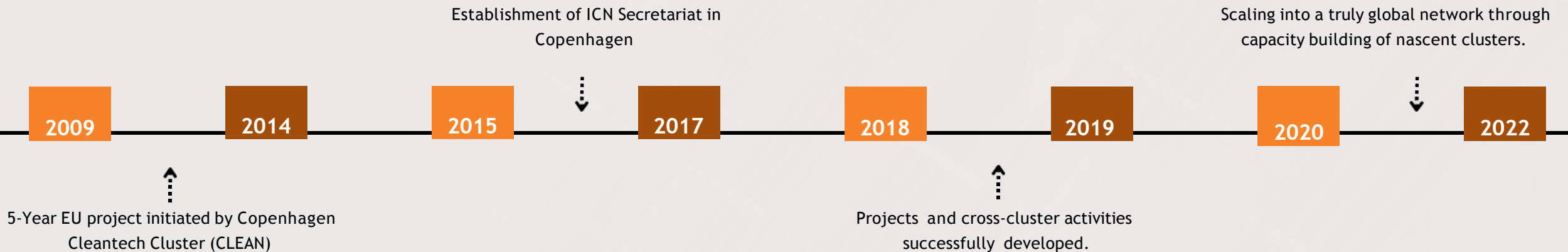
INTERNATIONAL CLEANTECH NETWORK

WWW.INTERNATIONALCLEANTECHNETWORK.COM

ABOUT US

We are an independent non-profit organisation for the world's leading cleantech cluster organisations. We are an **international network of 21 clusters** across 4 different continents with the secretariat based in **Copenhagen**.

The clusters within ICN adhere to the **triple helix framework** whereby their membership consists of **corporations (mainly SMEs), public authorities and also research bodies**. The SMEs belonging to the ICN clusters are **global frontrunners in environmental sustainability** and spearhead the green transition by providing the burgeoning international demand for innovative cleantech solutions.



WORLD LEADING CLUSTER NETWORK



4 Continents

23 Clusters

Triple - Helix Framework

7000 + SMEs

90+ Universities & Research institutes

100 + Public Authorities



ICN THEMATIC GROUPS

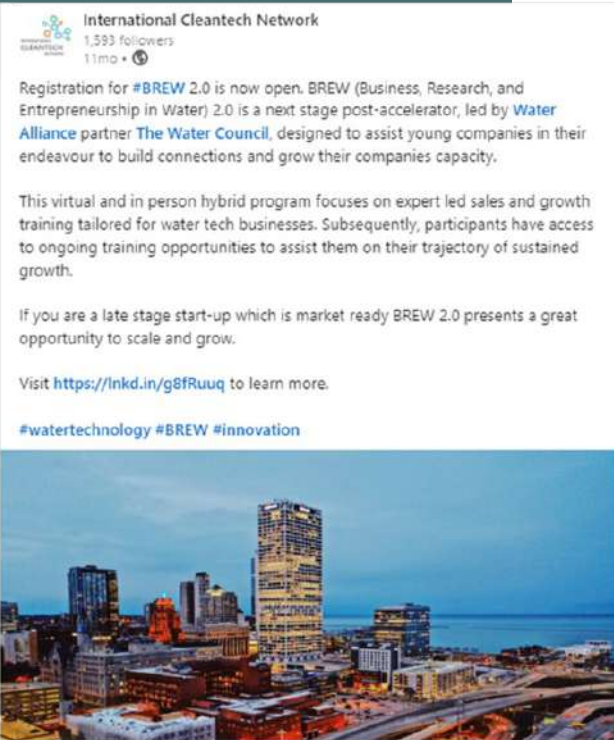
ENERGY

WATER

CIRCULAR
ECONOMY

The thematic groups are platforms where clusters can plan strategically important activities i.e., webinars, challenges, events, and project applications

By being part of the ICN ecosystem, clusters can be strategically involved in:



International Cleantech Network
1,593 followers
11mo • 📍

Registration for #BREW 2.0 is now open. BREW (Business, Research, and Entrepreneurship in Water) 2.0 is a next stage post-accelerator, led by [Water Alliance](#) partner [The Water Council](#), designed to assist young companies in their endeavour to build connections and grow their companies capacity.

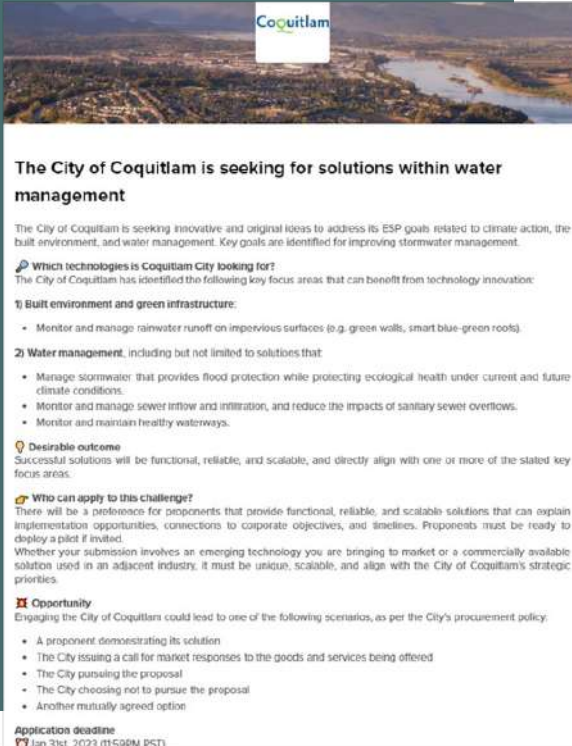
This virtual and in person hybrid program focuses on expert led sales and growth training tailored for water tech businesses. Subsequently, participants have access to ongoing training opportunities to assist them on their trajectory of sustained growth.

If you are a late stage start-up which is market ready BREW 2.0 presents a great opportunity to scale and grow.

Visit <https://lnkd.in/g8fRuuq> to learn more.

#watertechnology #BREW #innovation

EVENTS



Coquitlam

The City of Coquitlam is seeking for solutions within water management

The City of Coquitlam is seeking innovative and original ideas to address its ESP goals related to climate action, the built environment, and water management. Key goals are identified for improving stormwater management.

Which technologies is Coquitlam City looking for?
The City of Coquitlam has identified the following key focus areas that can benefit from technology innovation:

- 1) Built environment and green infrastructure:**
 - Monitor and manage rainwater runoff on impervious surfaces (e.g. green walls, smart blue-green roofs).
- 2) Water management,** including but not limited to solutions that:
 - Manage stormwater that provides flood protection while protecting ecological health under current and future climate conditions.
 - Monitor and manage sewer inflow and infiltration, and reduce the impacts of sanitary sewer overflows.
 - Monitor and maintain healthy waterways.

Desirable outcome
Successful solutions will be functional, reliable, and scalable, and directly align with one or more of the stated key focus areas.

Who can apply to this challenge?
There will be a preference for proponents that provide functional, reliable, and scalable solutions that can explain implementation opportunities, connections to corporate objectives, and timelines. Proponents must be ready to display a pilot if invited.

Whether your submission involves an emerging technology you are bringing to market or a commercially available solution used in an adjacent industry, it must be unique, scalable, and align with the City of Coquitlam's strategic priorities.

Opportunity
Engaging the City of Coquitlam could lead to one of the following scenarios, as per the City's procurement policy:

- A proponent demonstrating its solution
- The City issuing a call for market responses to the goods and services being offered
- The City pursuing the proposal
- The City choosing not to pursue the proposal
- Another mutually agreed option

Application deadline
📅 Jan 31st, 2023 (11:59PM PST)

CHALLENGES



EU TECHBRIDGE



EU Techbridge

Matching North American water and energy challenges with innovative solutions from European SMEs

PROJECT DEVELOPMENT



[IWA World Water Congress & Exhibition 2022](#)

ICN was represented by its members CLEAN, Water Alliance and GreenCape at the IWA World Water Congress & Exhibition - The world's largest water event for water professionals covering the full water cycle. The 2022 congress took place in Copenhagen and counted with the participation of more than 8,000 participants, companies, actors and authorities from all over the world. The key focus was the digital economy, smart and liveable cities, entrepreneurship and diffusion of innovation, climate change adaptation, community and customer engagement, and sustainability.



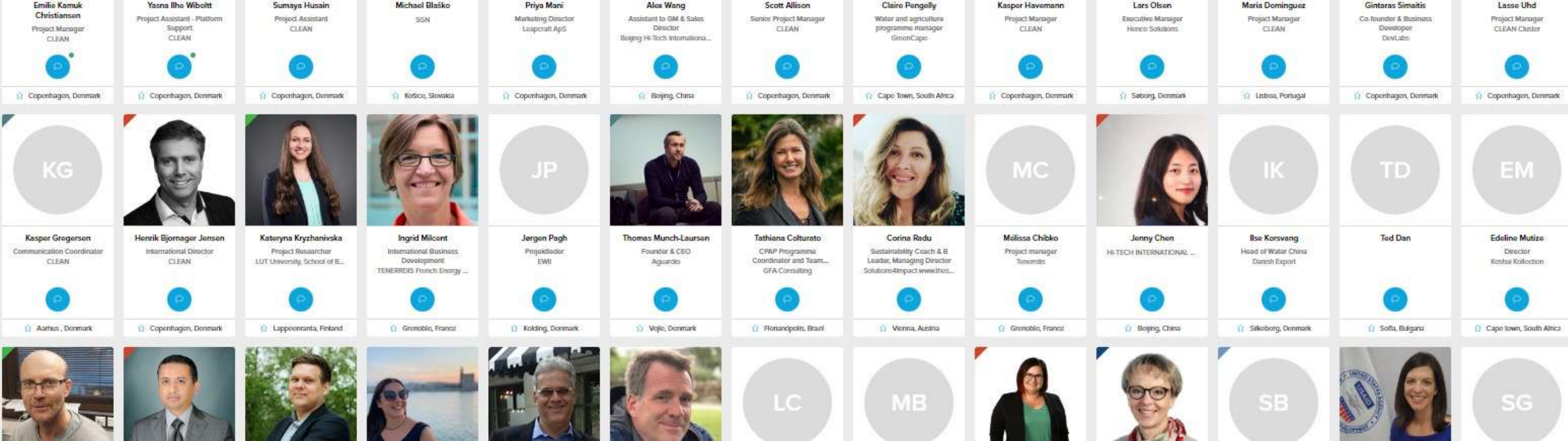
COP 27 - The 2022 United Nations Climate Change Conference

2022 was also marked by the participation of ICN at COP27 - the largest global event where international leaders come together to take action towards achieving the world's collective climate goals as agreed under the Paris Agreement and the Convention. The Conference took place from 6 November until 18 November 2022 in Sharm El Sheikh, Egypt.



European Water Technology Week 2022

Between the 19th and 22nd of November, ICN and some of its members were also represented at the European Water Technology Week 2022 (EWTW 2022) in Leeuwarden, the Capital of Water Technology. The global water technology sector came together, with more than 500 participants (from 31 countries) on each congress day. During the event, it was reinforced the idea that International collaboration is key to successfully tackling the world's environmental problems - and that is why it is one of the key pillars of ICN work.



CHALLENGES

ICN matches innovative global SMEs with end-users/corporate buyers which are looking for innovative water and energy solutions. By setting up an intensive matchmaking programme (virtual and physical), concrete challenges from world corporate buyers will be matched with innovative solutions from global SMEs.

ICN PAST CHALLENGES

SOME EXAMPLES



BlueArk Challenge

Jointly organised by the BlueArk Entremont Innovation Cluster, The Ark Foundation and ALTIS, the BlueArk Challenge is a call for projects that aims to use innovative ideas and technologies to solve the various water management challenges facing professionals in the field, particularly municipalities and industrial services. To this end, a dozen challenges are published on the BlueArk Challenge website. They are related to water supply, reprocessing of resource optimisation.



The City of Coquitlam is seeking for solutions within water management

The City of Coquitlam is seeking innovative and original ideas to address its ESP goals related to climate action, the built environment, and water management. Key goals are identified for improving stormwater management.



[FINISHED] Los Angeles Bureau of Sanitation Hyperion 2035 water reclamation plant

Los Angeles Bureau of Sanitation (LASAN) is the City's producer of recycled water. LASAN's four water reclamation plants currently provide recycled water for a range of beneficial uses, including: potable reuse, saltwater intrusion barriers to protect our groundwater aquifers, environmental uses, and urban irrigation for parks, median strips, and athletic fields.

Mayor Garcetti announced the LA's Green New Deal in 2019. One of the goals is to increase sustainable and environmental-friendly local water supplies. On average 275 million gallons of wastewater enters the Hyperion water reclamation plant on a dry weather day and peak wet weather flow of 800 million gallons. Transforming Los Angeles Hyperion for the City to enjoy a reliable and sustainable source of water 100% water recycling by 2035 is a major challenge and sustainable opportunity.



Zero Waste Demonstration Site Challenge

There is an urgent need in Vancouver to identify and implement new waste solutions. The Vancouver Landfill was projected to reach its overall tonnage capacity limit by 2037; however, at current rates of fill, closure could occur earlier, thereby significantly limiting waste disposal options within the Metro Vancouver region. Innovation in zero- and low-waste technologies will be critical to help avoid waste issues and extend landfill capacity.



Connecting
digitally

DIGITAL PLATFORMS


7

TOTAL USERS

1500+

ACTIVE OPPORTUNITIES

30+

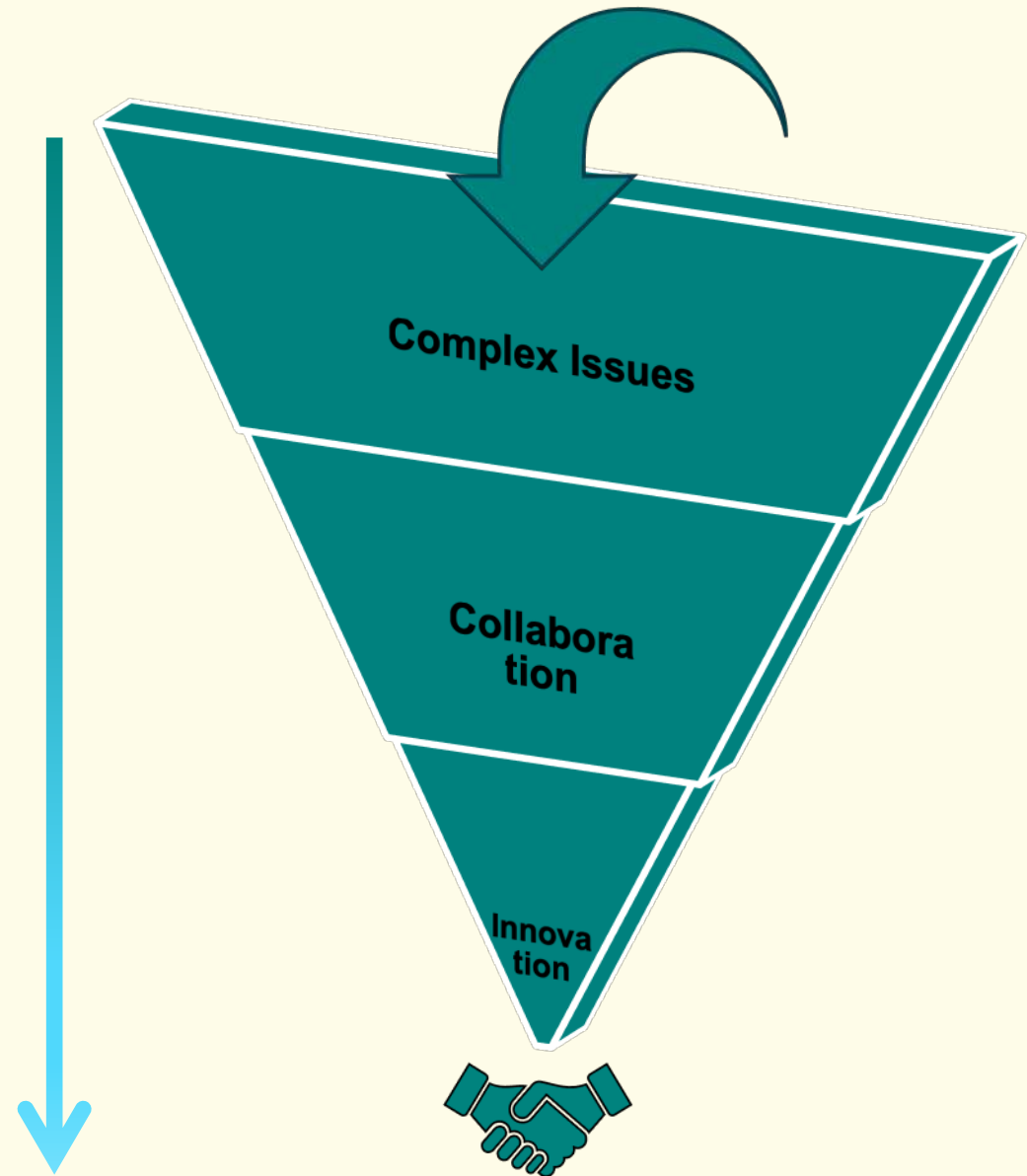


How do we work with Innovation

- **CLEANs Role in the Triple Helix**

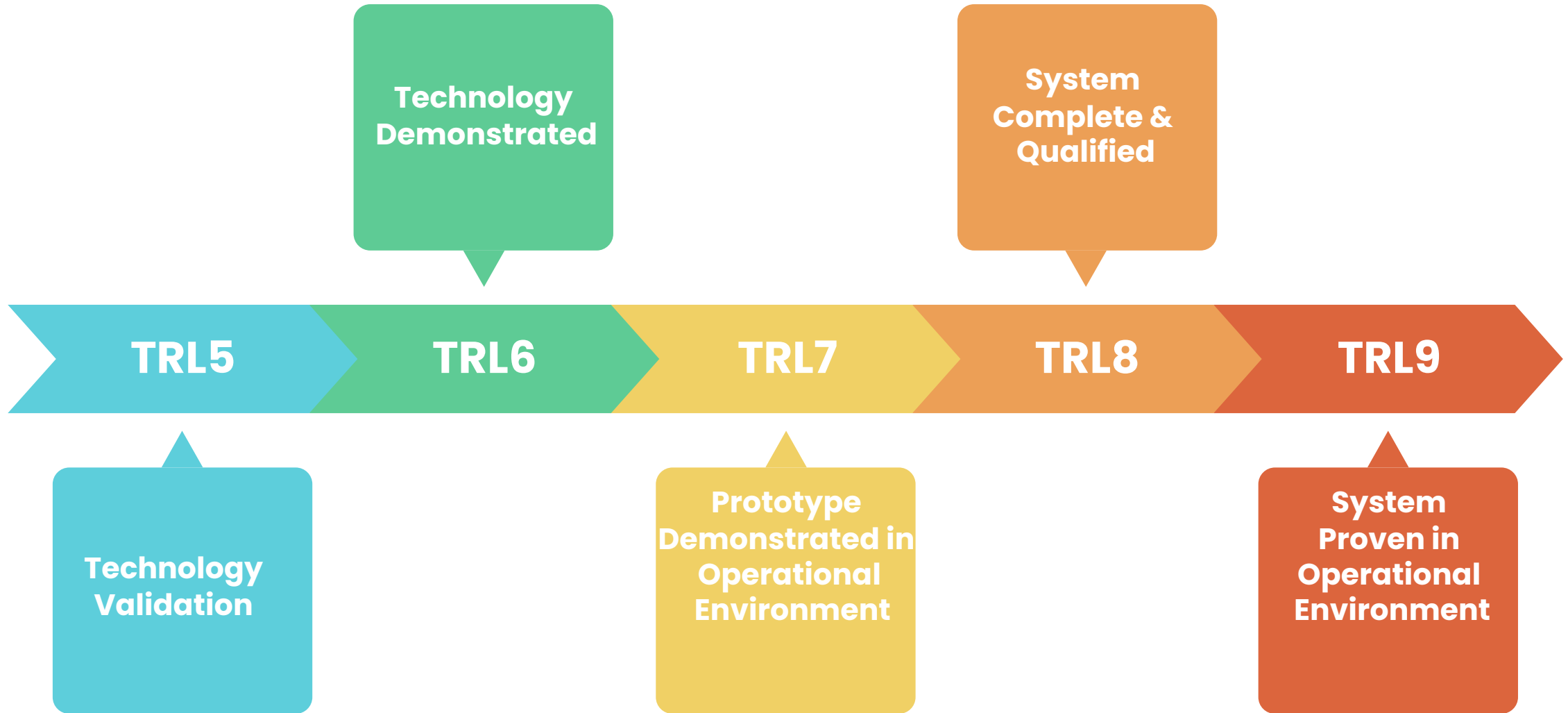
Facilitation and driving actions

Via our tools and methodologies



Innovation Development

HIGHLY STYLIZED!!

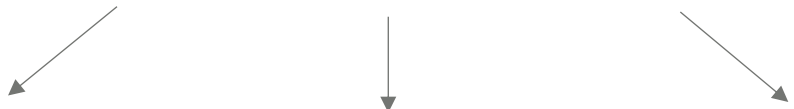


Interventions

Or: How can we influence innovation?

Tech Push 

- Access to knowledge partners
- Access to Collaboration Partners
- Technical validation services
- Business training
- Access to R&D financing

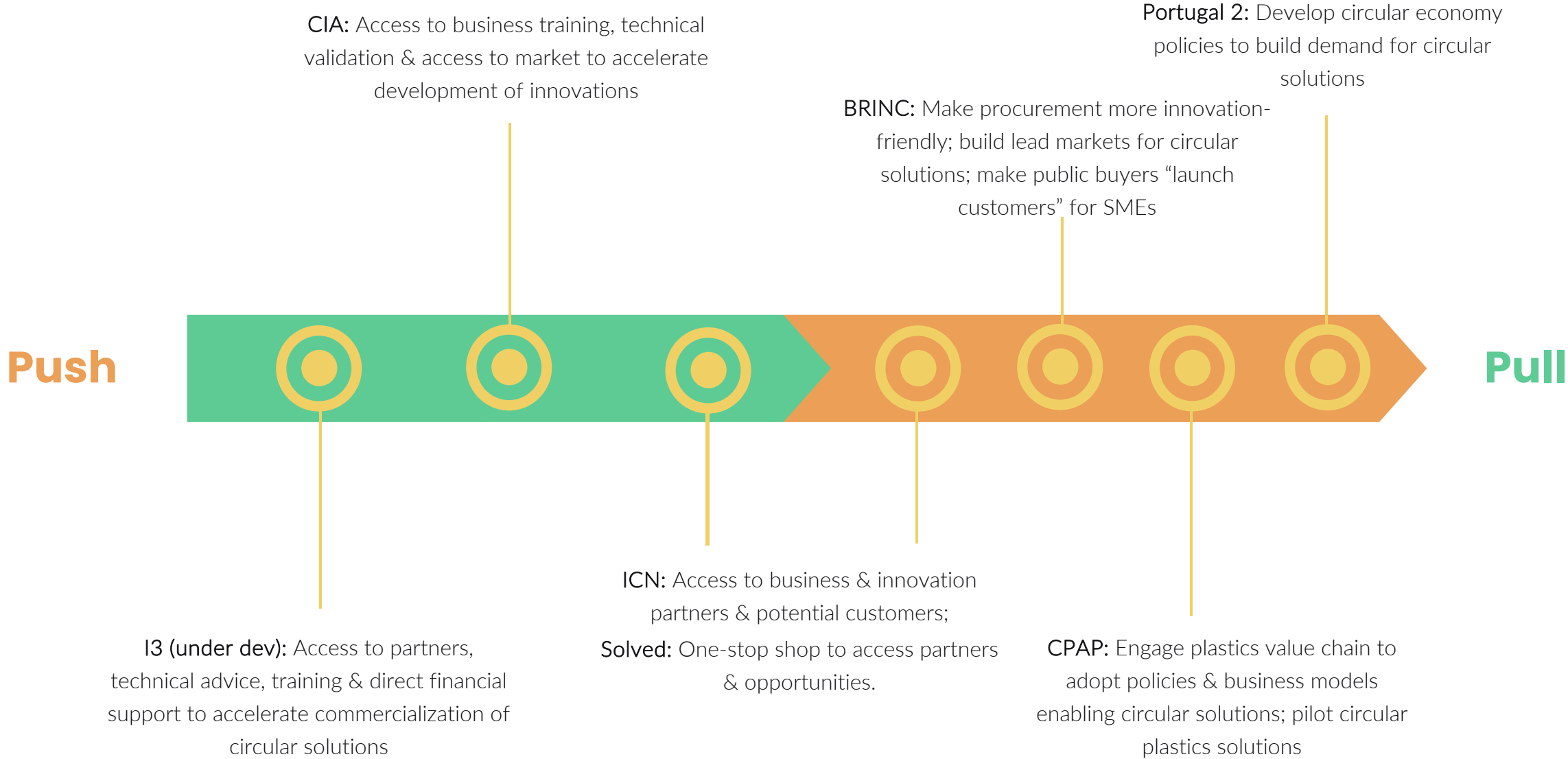


Demand Pull 

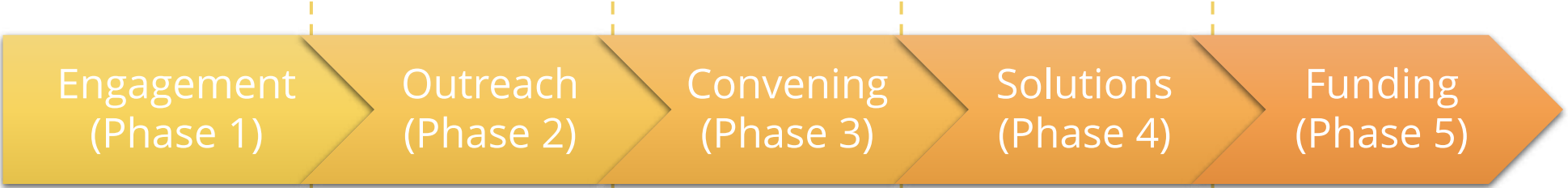
- Policy frameworks
- Procurement Processes
- Access to Buyers
- Access to Collaboration Partners
- Access to Pilot Funding

Project Portfolio

Circular Solutions



International Challenge Processes



Engage with challenge owners and scope needs

Narrow need →
Present the challenge to the SME ecosystem

Complex need →

Application of SMEs for 1 on 1 meetings

Challenge workshop

1 on 1 meetings

Systems solution development workshops

Funding for Development, Demonstration & Piloting

C40 Cities and CLEAN have developed the **City Solutions Platform (CSP)** to support early engagement between cities and climate solution providers to accelerate the development and implementation of innovative and scalable **climate solutions**.

By providing cities and solution providers a **non-commercial space** for working together on cities' most urgent climate challenges at an earlier stage than usual, the CSP ensures a common understanding of the challenges in order to **co-create implementable solutions** and work towards the same goals.

The CSP has successfully run an **innovation process** in **12 cities**; Addis Ababa, Athens, Copenhagen, Helsinki, Melbourne, Milan, Rio de Janeiro, Seattle, Sao Paulo, Stockholm, Sydney and Tel Aviv, engaging **over 600 international solution providers** to co-create solutions for challenges including flood management, urban heat island effect, renewable energy, waste management and mobility.

**City
Challenge
Scoping**

City climate challenge scoping
City climate challenge launch

Full analysis of the proposed
climate challenge
Set the project objectives

**CSP
Innovation
Process**

Webinar & workshop activity
Climate solution co-creation
Implementation pathway

Wide range of solution
providers
Collaboration and solution
development

**Knowledge
Dissemination**

Route to solution
implementation
Knowledge sharing

Proposed solutions
designed and developed
Solutions scaled across the
C40 city network

C40 CITIES CLIMATE LEADERSHIP GROUP

City Solutions Platform



Melbourne

The City of Melbourne plans to develop the under-utilised and central Arden-Macaulay precinct in order to **create the best examples of urban regeneration internationally.**



FAST FACTS ON THE CHALLENGE

- Urban renewal of Arden-Macaulay (Arden) to facilitate the development of the area and become a strategic area for the proposed future **employment expansion** of Central Melbourne
- **14,000** new jobs in Arden by 2031.
- **43,500** new jobs in Arden by 2051
- Urban Forest Strategy: to increase Melbourne's urban forest by **40%** or more by 2040
- The need to deliver vibrant, active spaces that enhance the sense of place, create connected spaces, and optimise the use and resilience of open space.

CSP PROCESS



COMPANIES INVOLVED INCLUDED:



Melbourne results

“The City Solutions Platform gave a kick-start to a new strategy in the city. City Solutions Platform outcomes have led to informing council plan actions”

Candace Jordan, Sustainability Support Officer, City of Melbourne

Additional **\$25,000 funded research** on a Climate Response Framework for Arden

\$65,000 tender awarded to Rambøll to conduct further analysis and feasibility studies for Arden

42
SOLUTION PROVIDERS
ATTENDED THE WORKSHOP

The Rambøll partnership resulted in a **high-level cloudburst masterplan focussed on innovative flood management solutions** for the Arden-Macaulay precinct, which will be **integrated into future city planning: the Arden Vision.**

The next stage Arden Climate Response Plan will require funding from a range of stakeholders beyond city procurement

Athens

The City of Athens aims to **reduce the urban temperature and mitigate urban heat island effect (UHI) within the city.**



FAST FACTS ON THE CHALLENGE

- Between 2005 and 2014, Athens experienced **32** days per year with daily maximum temperature over **35°C**
- For every **1°C** temperature increase in Athens there has been a: **5.2% increase** in mortality rates between 2000–2012; **6% increase** in smog; **10% drop** in sales; **4.1% increase** in the use of electricity in the city
- The hottest parts of the city are along the northern and western edges
- **3.75 million** people affected by Athens' Urban Heat Island

CSP PROCESS



COMPANIES INVOLVED INCLUDED:



Athens results

“We have had a lot of local and international interest and a lot of great ideas have been developed through the workshop”

Elissavet Bargianni, Landscape Architect, City of Athens

66
SOLUTION PROVIDERS
ATTENDED THE WORKSHOP

HORIZON 2020
Application developed to
ensure further research
into the the nature of UHI

Presentation from the City of Athens
to 39 webinar participants, including
international city representatives, during
the 2019 Cool Cities Network Webinar

€60,000 project being developed between Rambøll and
Athens, with an additional **€5,500** initial study funded by
the City of Athens to demonstrate Rambøll technology
in a selected school in Athens

The City of Athens aims to leverage
€3 MILLION
city funding for urban flora
and green infrastructure
investment in solutions

Circular Cities

Driving triple-helix innovation to meet the Paris Agreements

DDOC

clean



Realdania



Details

Aims

The purpose of the project is to accelerate the green and circular change in Danish cities by making Danish municipalities active frontrunners in creating sustainable cities through systemic circular solutions by engaging the private and research sectors:

- Construction and building materials
- Resource optimization of energy and water consumption in buildings and industries
- Waste management of construction and industrial waste
- Optimization in construction and the built environment
- Architecture and urban design of public areas
- Green infrastructure and mobility



DK 2020 in the applications

Towards climate neutrality before 2050

In 2019 Realdania started the DK2020 a project, aimed at driving Danish municipalities to develop C40-approved climate action plans.

The aim is to have all Danish Municipalities to commit and develop action plans to meet the Paris Agreement.



Process

Circular Innovation through early engagement

Phase 1: Mobilising municipalities

Phase 2: Scoping systemic circular challenges

Phase 3: Open co-creation and innovation bootcamps

Phase 4: Solution development and route to implementation

Phase 5: International capacity building

...skytter NB-101/ LTE-M teknologi
og kan virke som **gateway** for andre bluetooth
sensorer i lejligheden.

- **Lang batterilevetid** med mulighed for
recycling af elektronik

”

We gained direct access to the decision-makers through CLEAN's Meet-the-buyer concept. This has resulted in an order from Anglian Water.

- Thomas Munch-Laursen,
Director in Aguardio





MEET-THE-BUYER

Innovative companies get direct access to pitch their solutions to larger companies

CHALLENGE

In a Meet-the-buyer process with Anglian Water, Aguardio applied to become one of the companies that gained access to direct dialogue with Anglian Water. Anglian Water was scouting for solutions that could help save water in a region of the UK where water resources are under pressure.

SOLUTION

Aguardio develops solutions that nudge people into using less water. They were selected in the screening and pitched their solution for Anglian Water.

The Meet-the-buyer concept opened doors directly to decision makers and Aguardio received an order of 2000 nudging units.



MEET-THE-BUYER

Find innovative solutions to your environmental challenge

CHALLENGE

Danfoss was scouting for new service solutions within sensors, measurement, and optimization of buildings and technological solutions in relation to optimization of data analysis. They joined a "Meet-the-buyer" course.

SOLUTION

Through a Meet-the-buyer process, Danfoss gained insight into five innovative solutions matching their specific needs. Danfoss continued in dialogue with three of the five matched companies.

Beyond Beta

FLOW

The biggest startup program for water-related startups
Beyond Beta REACT, CLEAN Incubator

 Danmarks
Erhvervsfremmebestyrelse

DEN EUROPÆISKE UNION
Den Europæiske Socialfond



DEN EUROPÆISKE UNION
Den Europæiske Fond
for Regionaludvikling



Finansieret som et led i EU's reaktion
på COVID-19-pandemien

Vi investerer i din fremtid

FLOW

CLEAN Incubator
Content

Where are you now?

With help from actors from the startup environment, we assess your starting point



Competencies

Learn how to startup and develop your business fast and market oriented



Water network

To help you develop and scale your business



Product/market fit

What is your core product/ service?

What is your market(s)?



Voucher

Up to 75.000DKK to help you learn more and help you achieve your goals



5 workshops

Giving you the tools to get *the* competitive edge



FLOW

What's in it for me?

Business plan

Focus on:

- Your business,
- Your customers,
- Your market and
- Your ambition



International aim

Participate on study trips, international projects and get to think global



A strong mentor team

- Big companies
- Universities,
- DHI,
- Water Valley Denmark



Slush'd

Get access to the biggest startup event with +700 startups, investors and companies in Aarhus



Incubation spot, wherever you are

- The Spring
- Klimatorium
- DHI



25 WATER STARTUPS TO WATCH

Water management tools

ReMoni



WaterCare Guard
our water, our future

Dryp.

APX[®]



sensors
Early Warning Analytics



WaterWebTools
software for water utilities

Consibio

ZEDIMENT

klarifi

SulfiLogger

BactiQuant

Water Supply and Wastewater

BIOMEND



Micro
Change

NORDPHOS

ROBSUB
AUTOMATED UNDERGROUND SOLUTIONS

BioScavenge

Household and house developers

GWS
Grey Water Solution

Aguarda

flow loop

Life
Safe Water. Safe Life

Urban flooding and coastal protection

LNH water



Production

E-CIP Concept

Environmental
Economical
Effective
Easy

Contact

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sca@cleancluster.dk





Scott Grønnegaard Allison

Climate Innovation - Head of International and China
Project Manager CLEAN - Innovating Green Solutions



Thanks for today!

www.cleancluster.dk