



2018

The nordics as world leaders in sustainable healthcare and why it matters to you

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Sustainability since 1984
Local – Regional – International –
Self-funded – Non-for-profit
Independent - Foundation

Consulting

Trainings

Networks

R&D and projects





NCSH

Nordic Center for
Sustainable Healthcare

History – Sustainable healthcare for 15 years

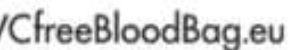
- Sustainable Healthcare by Sweden in London, Berlin, Oslo, Copenhagen
- CleanMed Europe in Malmö 2012
- Different international collaborations and boards
- Working with Nordic hospitals, but also in UK, Taiwan, US etc
- Big international and Nordic network

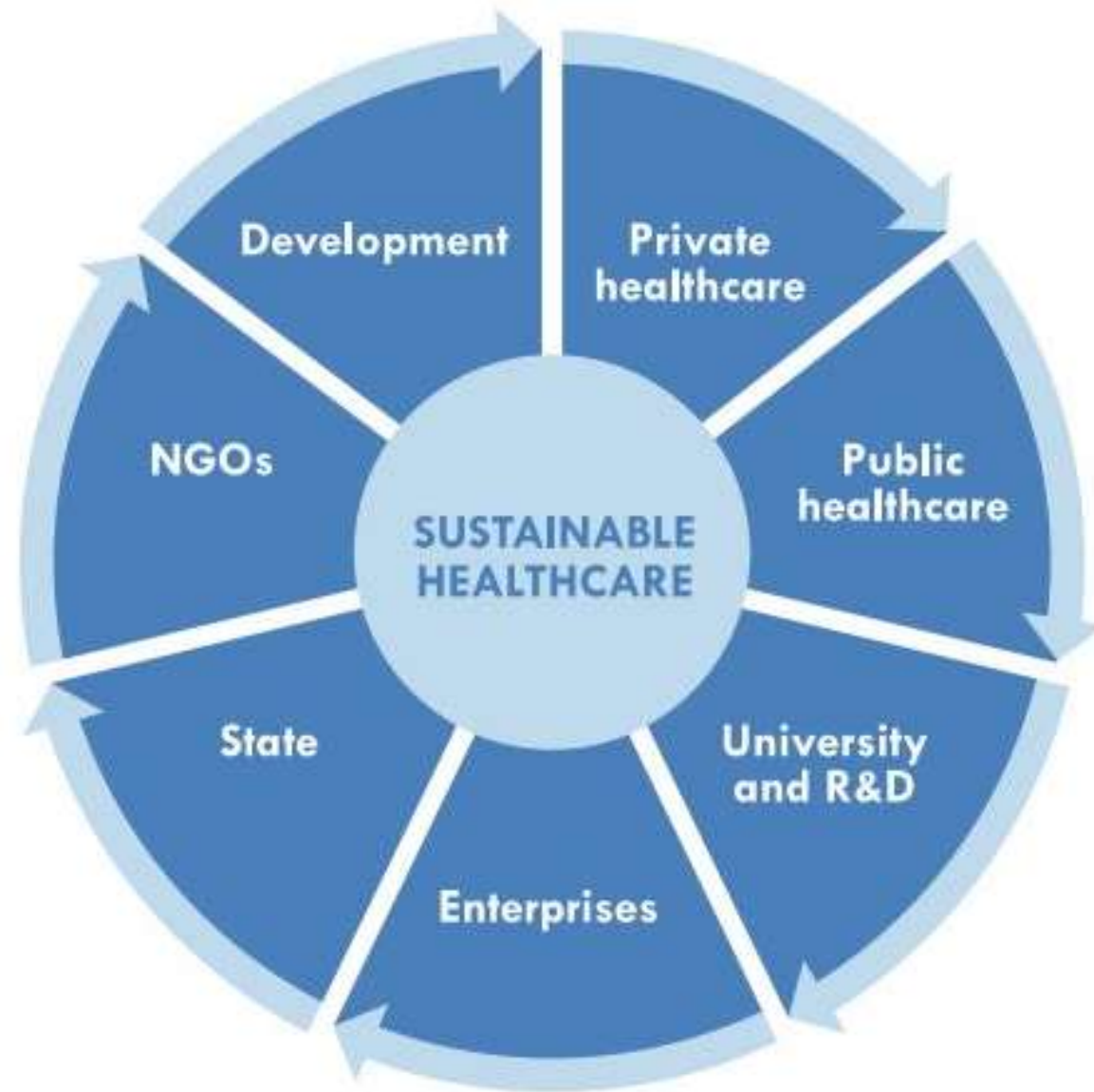
Innovation agenda 2015 – start of NCSH

- Swedish hospitals and regions are very forward
- The Nordics are world leaders and a link to research and innovation.
- Conclusion: Sweden is too small. We need to make it Nordic!



START







 Nordiska
ministerrådet

 Miljø- og Fødevareministeriet
Miljøstyrelsen

 VINNOVA

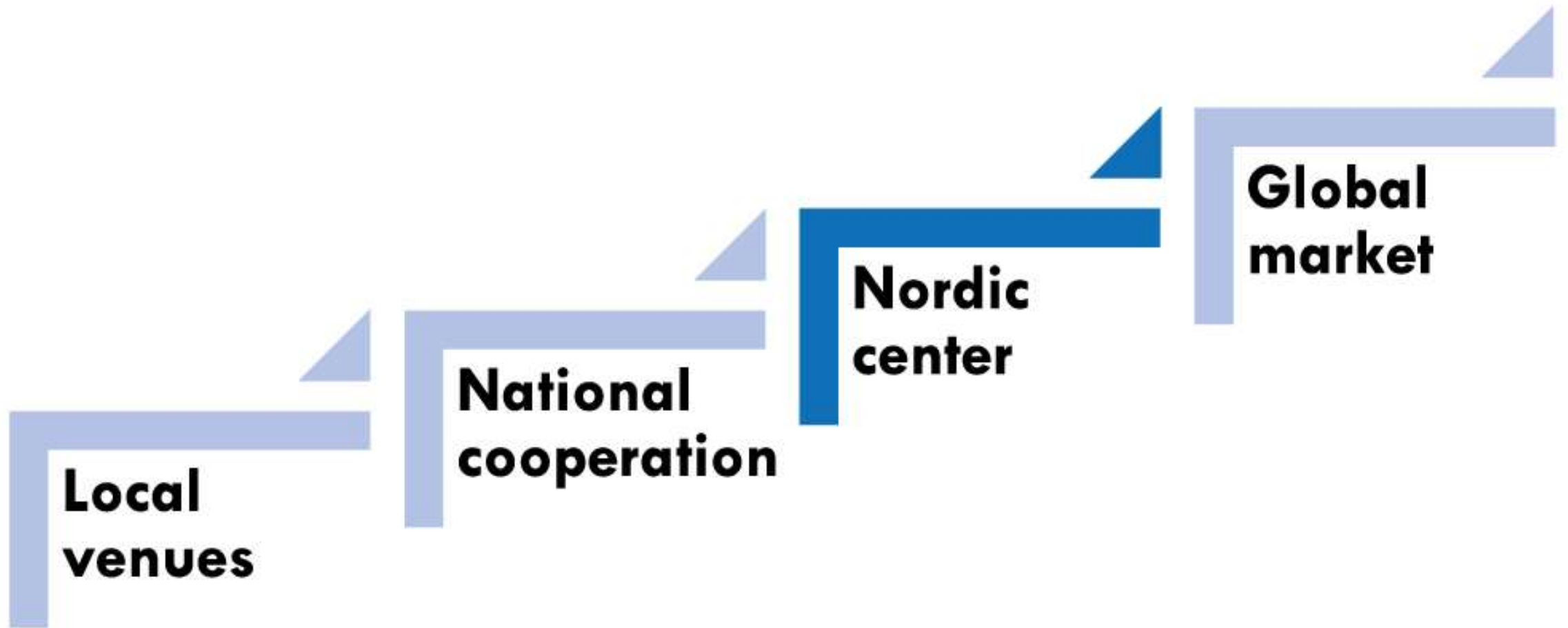
 Swedish
Energy Agency

 Aktuell
Hållbarhet

 Nordic
Innovation

 DAGENS
Medicin

 NCSH
Nordic Center for
Sustainable Healthcare



The Nordic Center for Sustainable Healthcare aims to:

Raise	the status and awareness of sustainable healthcare
Boost	innovation and investments in sustainable healthcare
Bring	world class solutions and ideas to the Nordics
Deliver	Nordic solutions & knowledge to the world

What we at NCSH address

- Energy efficiency in healthcare- and hospital buildings
- Hazardous substances in medical devices
- Transportation in healthcare
- Climate impact from healthcare operations
- Supply chain management and human rights in the supply chain
- Reduction of dangerous chemicals
- Improving the sustainability performance in Med Tech and Life Science
- Waste water treatment and water management
- Single-use items
- Green building design
- Pharmaceuticals in the environment
- Waste management and waste reduction
- Infectious waste treatment
- Innovation & export
- & more

Sustainable Health

- Preventive
- Healing
- Before one becomes a patient
- Take a bike to work and quit smoking...

Sustainable Healthcare

- Hospital
- Patient, Healthcare Staff
- Building, material, technology, effectiveness, indirect, direct

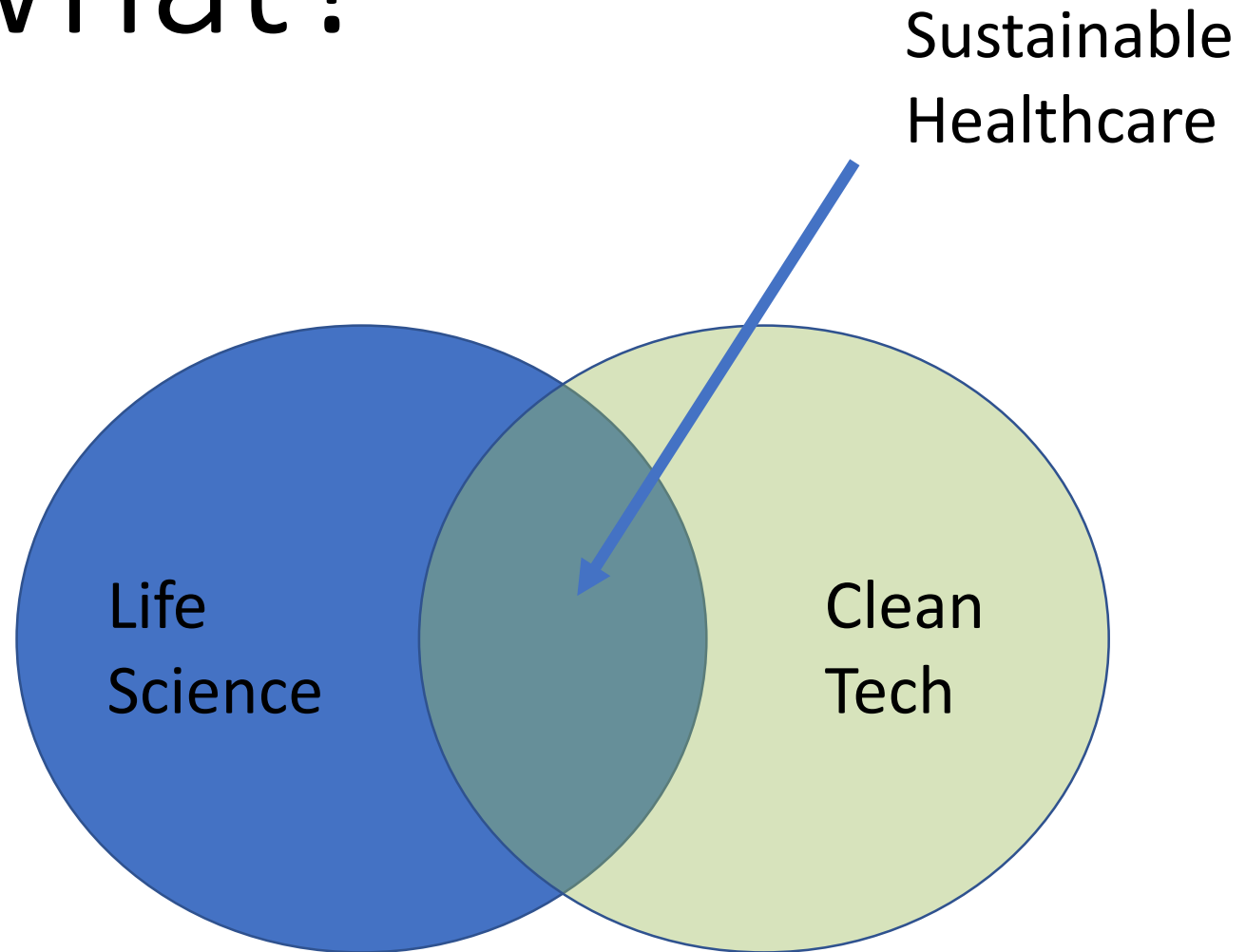
Environmental Health

- Environmental impacts on human health
- Why do we become patients?
- Diseases caused by environmental impacts

Sustainable hospitals	Good environmental performance	Good environmental performance	Applications for healthcare	Good sustainability performance and applications for healthcare	Smart locally produced organic food	Support/boost sustainability performance	Management system, reporting, training
Construction industry	Life Science	Med Tech	Clean Tech	"Regular" Companies	Food Industry	ICT	Management

Horizontal not vertical

What's what?



Delegation and match-making in Israel

- 14-15 November 2018
- Sustainable healthcare as a leverage for smart and circular cities.
- Swedish, Danish, Norwegian and Finnish embassies
- Afeka Institute of Circular Engineering
- Energy, healthcare and innovation ministries in Israel



**Nordic
Innovation**

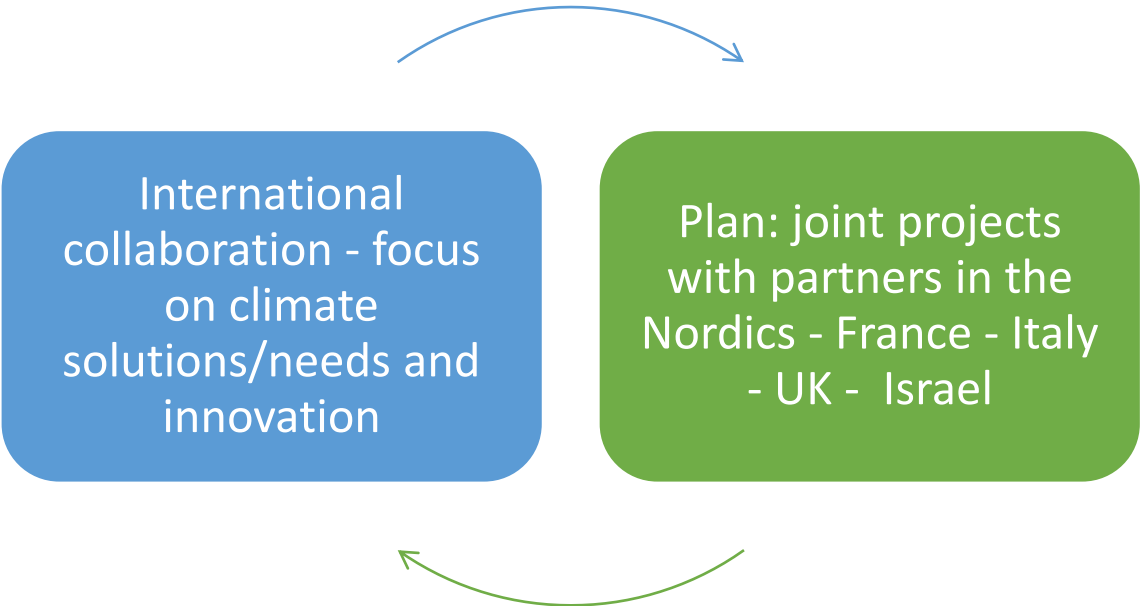
Nordic white paper on sustainable healthcare

- Part of the Nordic Prime Minister initiative on targeting the SDG:s.
- All Nordic countries and territories:
 - Iceland
 - Norway
 - Denmark
 - Finland
 - Sweden
 - Åland
 - Greenland
 - Faero Island



**Nordic
Innovation**

Internationalisation of innovation clusters



Nordic Conference on Sustainable Healthcare 2019

Probably Helsinki or Oslo



Rosemary Kumwenda

Coordinator, Task Team for Sustainable Procurement in the Health Sector, UNDP



Joakim Larsson

Professor of environmental pharmacology at the University of Gothenburg



Tore Havellen

adviser, Oslo University Hospital, Oslo



Joe Bialowitz

National Environmental Program Leader, Kaiser Permanente



Charlotta Brask

environmental manager, Stockholm Country Council



Jodi Sherman

MD, Professor of Anesthesiology, Environmental Compliance Officer, Yale School of Medicine, USA



Avi Blau

Head of Afeka Institute of Circular Engineering & Economy, Israel



Rachel Stancliffe

CEO, Centre for sustainable healthcare, Oxford, UK



Daniel J. Vukelich

President Association of Medical Device Reprocessors, USA

New hospital in Grønnsköpingkið city

- 453 000 inhabitants – 1,5 million in the region
- University hospital
- Totally new on a new location
- ER, maternity ward etc
- Planning to be built in 2021

Will be the **greenest hospital in the world** with state of the art solutions

All solutions must exist in a Nordic hospital and be available on the market





<p>Energy efficiency</p> <ul style="list-style-type: none"> - Nordic hospitals are very energy efficient, you will see the solutions that make that possible. - We already have some examples listed here 	<p>Energy supply and production</p> <ul style="list-style-type: none"> - Solar cells, geothermal energy, wind mills, heating and cooling from aquifers - Nordic hospitals has it all. - We already have some examples listed here 	<p>Waste solutions</p> <ul style="list-style-type: none"> - From waste bins to circular waste streams, we can handle hospital waste.
<p>Materials and chemicals</p> <ul style="list-style-type: none"> - New materials, circular materials, less harmful chemicals. We are working with that to. 	<p>Pharma</p> <ul style="list-style-type: none"> - Pharmaceuticals is for patients, not the nature. The Nordics are working with that problem as well. 	<p>Transportation and logistics</p> <ul style="list-style-type: none"> - How do we in the Nordics get staff, stuff and patients back and forward in the most sustainable way?
<p>MedTech and medical devices</p> <ul style="list-style-type: none"> - MedTech with a sustainability focus - less energy, better materials, less materials, less travel. 	<p>ICT - solutions</p> <ul style="list-style-type: none"> - E-health, surveillance, reporting, statistics, digital solutions, AI - the future is here today. 	<p>Water treatment and supply</p> <ul style="list-style-type: none"> - Clean water, we have it, how do we do it?
<p>Waste water treatment</p> <ul style="list-style-type: none"> - State of the art waste water solutions. 	<p>Architecture & construction</p> <ul style="list-style-type: none"> - The best Nordic green design & construction with focus on hospital buildings. 	<p>Maintenance</p> <ul style="list-style-type: none"> - How do we keep a green hospital green?
<p>Climate</p> <ul style="list-style-type: none"> - How do we reduce our climate impact besides the solutions above, and how do we prepare for climate change? 	<p>Single use items</p> <ul style="list-style-type: none"> - We have too much, but we are working on it. Solutions that reduce the amount of waste. 	<p>Interior design</p> <ul style="list-style-type: none"> - World famous Nordic and sustainable design - also for hospitals.
<p>Innovation arena</p> <ul style="list-style-type: none"> - With solutions not quite yet on the market, but very promising for the future. The solutions you want tomorrow. 	<p>International arena</p> <ul style="list-style-type: none"> - We all need help from our friends. Here we have excellent solutions from outside the Nordics eager to contribute to Nordic sustainable and green healthcare. 	<p>Food</p> <ul style="list-style-type: none"> - We also eat, but we try to do it greener and more sustainable. How?

Grøn is the Danish word for green with the Nordic letter ø

Köping is a common part of old Swedish city names and refers to trading - typical Swedish ö

ð is a letter used in Icelandic, Faroese and Elfdalian. It was also used in the rest of Scandinavia during the Middle Ages.

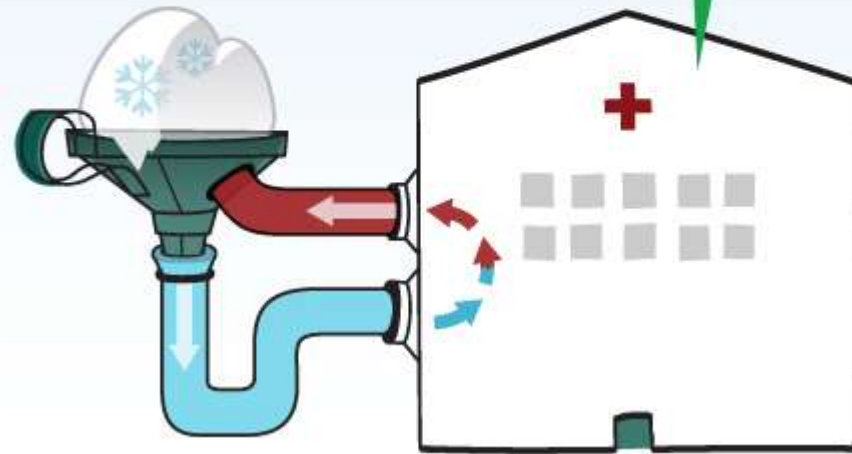
(Grøn)(n)(köping)(ki)(ð)

If you add an n to the Danish Grøn you get the Norwegian word for green - **Grønn**

ki is the last part of Helsinki - the Finnish capital and the last part in the Finnish word for city - kaupunki



90%
less energy is consumed in the cooling of the hospital facilities





Why are the Nordics frontrunners?

Can others learn something?



Culture – Politics - Legislations

We want to do the right things

Everyone has a relation to nature

First EPA in the world – long traditions

Trust – Nordics have trust in the state and in each other

Strong legislations

Politicians can make unpleasant decisions

- The most expensive gas in the world?

- EU's toughest EU laws?

Hospitals at the forefront

- Public procurement is a strong tool
- Management – sustainability is present
- Organisation – from environmental managers to 250 environmental coordinators
- Systems for environmental performance:
 - Environmental management systems – structure - Chemical management systems
 - Statistics on almost everything
 - Testbeds – Innovation procurement etc
 - Reports



System solutions

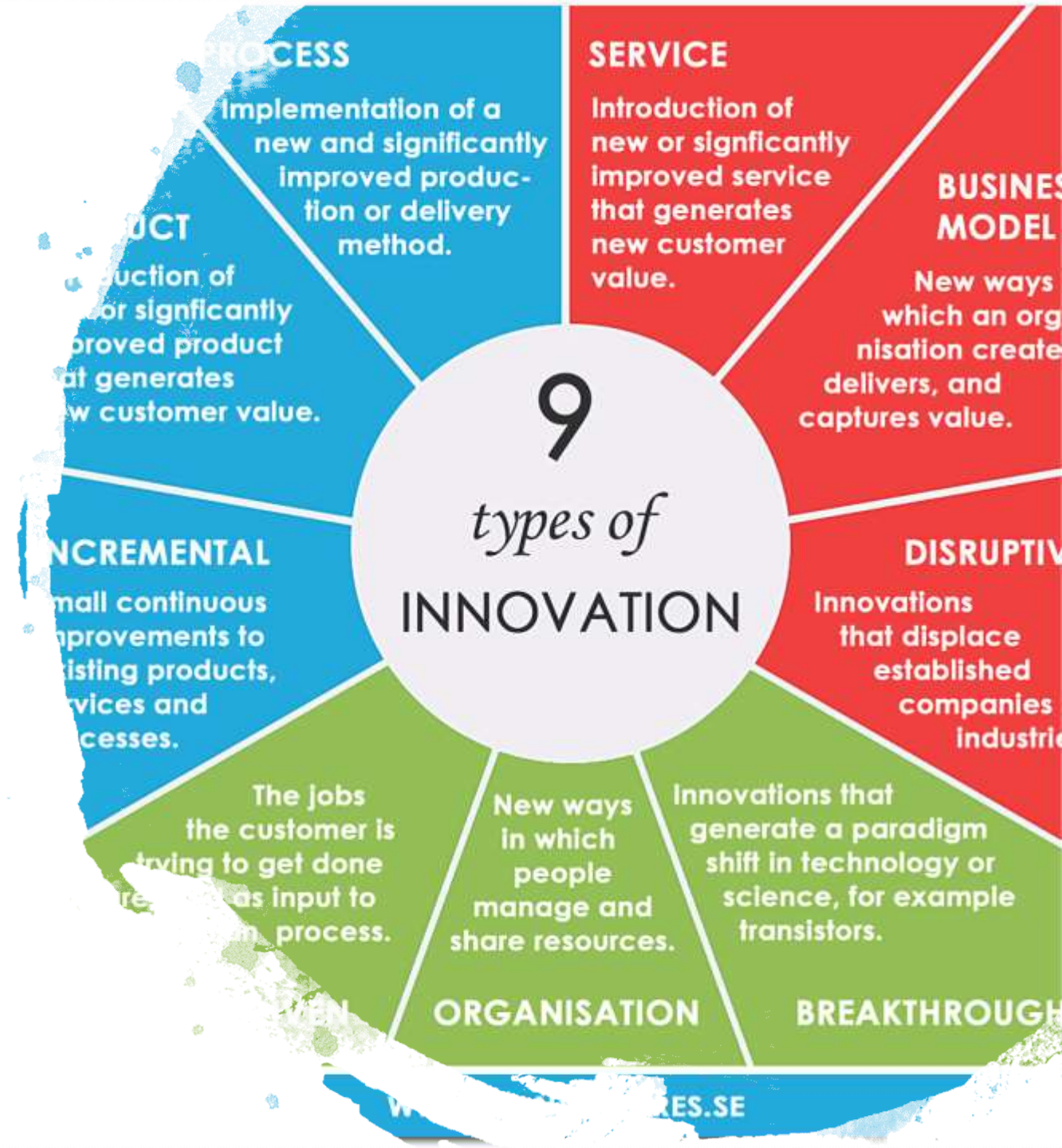
The hospital does not act alone. Part of an eco-system:

- District heating
- Distric cooling
- National recycling programs
- Regional biogas digestion
- Waste water treatment
- Clean energy
- Clean water
- Clean transportations



Innovative companies

- CleanTech with solutions for healthcare
- Medtech with good environmental performance
- Outside hospital technology – waste water treatment – energy etc.
- Authorities promote and fund innovations, testbeds etc.
- Sustainable healthcare is identified as 1 of 4 export strongholds



1. **Sustainable & innovative hospitals:** This stronghold consists of different industries that participate in the construction and maintenance of hospitals – architects, companies within construction and engineering, solutions providers for increased energy efficiency and environmental performance, logistics providers and producers/suppliers of medical equipment.
2. **Smart digital solutions:** E-health and solutions that facilitate communication in the health sector.
3. **Ambient assisted living/care technology:** Monitoring, self-care solutions, rehabilitation equipment, etc.
4. **Personalized care:** Products based on collection and/or use of big data to create personalized health solutions.



Core qualities

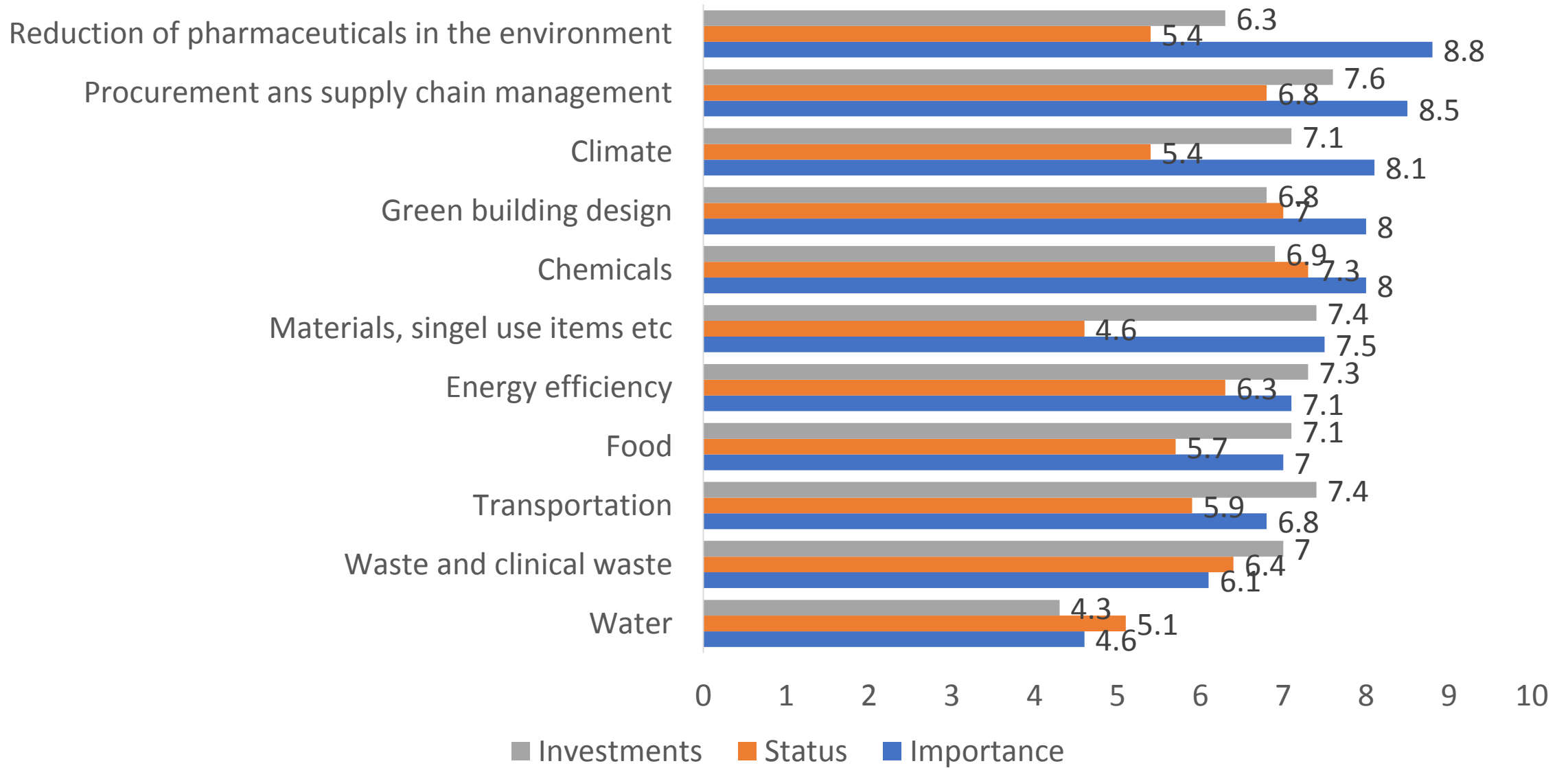
The Nordic countries have some characteristics that makes the region attractive for research, testing and production of health tech.

- Equitable healthcare to all
- High quality and knowledge
- Early adopters of new tech
- Strong demand for welfare tech
- Strong tech environment
- Sustainable healthcare



In short

- The Nordics are most likely world leaders in Sustainable Healthcare
- How do we export that knowledge?
- How much is built into the society – system solutions etc?
- No one can act alone – we need solutions and ideas from others
- MedTech & Life Science are lacking behind
- Companies are a key factor to success
- There are differences between the countries in the Nordics



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Foto: Daniel Eriksson