

## TANK MEETING NR. 48 - 4/12

**How can we strengthen  
Sweden's innovation  
capacity ?**



Goal for  
today

**Innovation is often achieved  
through collaboration**

NETWORK, INSPIRE AND IDEA GENERATE

Goal for  
today

# Explore, understand and future looking

TOGETHER WE CAN CREATE IMPACT AND CHANGE





# Quest of the day:

How can we strengthen Sweden's innovation capacity?

# An amazing country to live in



# A country of multinationals

ABB

AGA



ASSA ABLOY



SKF



Handelsbanken

H&M



NASDAQ OMX



SEB



SKANSKA



SSAB



TELE2



VOLVO

VINNOVA



# A world-class start-up scene

# New types of challenges

Complex social challenges such as climate change, demographical changes, mental ill-health and growing inequality require radically new ways of thinking, cooperating and acting.



”

**Innovation is more  
important than ever and  
necessary to transform  
us into a sustainable  
society**

- DARJA ISAKSSON  
GENERAL DIRECTOR VINNOVA





**GLOBALA MÅLEN**  
för hållbar utveckling

**SUSTAINABLE  
GROWTH**



A lot of people in  
the office today!  
Keep track on  
the room  
switches.

## Agenda part 1

- 9.20 – 10.00 Introduction to Vinnova  
**Ylva Strander**
- 10.00 – 10.30 From local to global – Vinnova in  
a global context  
**Andreas Aurelius**
- 10.30 – 11.00 Mission Possible part 1- What is  
missions? How are we working with it and how  
can you work with it?  
**Andrea Råsberg & Tobias Öhman**
- 11.00 – 12.30 Mission Possible part 2-  
Interactive workshop with the missions team  
**Andrea Råsberg, Tobias Öhman & Filip  
Kjellgren**
- **12.30 – 13.30 Lunch**



## Agenda part 2

- 13.30 – 14.00 AI for good - The governments vision and what Vinnova is doing within the area  
**Daniel Rencrantz**
- 14.00 – 14.45 AI for good - Discussion about AI for good  
**Annie Lindmark & Joakim Skog**
- **14.45 – 15.15 Coffee**
- 15.15 - 16.15 How can we help strengthen Sweden's innovation capacity?  
**Glenn Gran & David Renemark**
- 16.20 - 16.30 Wrap up from innovation pioneers  
**Susanne Fuglsang**

Vinnova  
mission  
& vision

# Ylva Strander

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Head of Department  
Vinnova



Q

HOW DO YOU KNOW VINNOVA?



# Sweden - A country of transformation

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# A top nation for innovation

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#1

European  
Innovation Scoreboard

#3

Global  
Innovation Index

#1

SDG  
Index







**The worlds first fossil free welfare nation  
requires system innovation**



# It's time for a change

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**Vinnova is tasked with promoting sustainable growth by funding needs-driven research and development of effective innovation systems.**

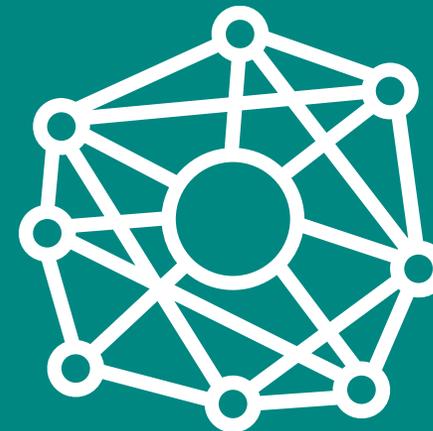
# Three roles



**FINANCIER**



**NATIONAL EU NODE**



**EXPERT AGENCY**

# Vinnova- organization

Näringsdepartementet

Styrelse

Verksledning

Kommunikation

Förvaltning

Verksamhetsutveckling

Avdelningar

Internationellt  
samarbete

Hälsa

Samhälls-  
utveckling

Innovations-  
ledning

Industriell  
utveckling

Enheter

231

232

251

252

261

262

281

283

272

273

Program (ca 50 st)

VINNOVA

Q

EXPERIENCE OF VINNOVA FINANCING?



**Forskning om fordon - FFI ›**



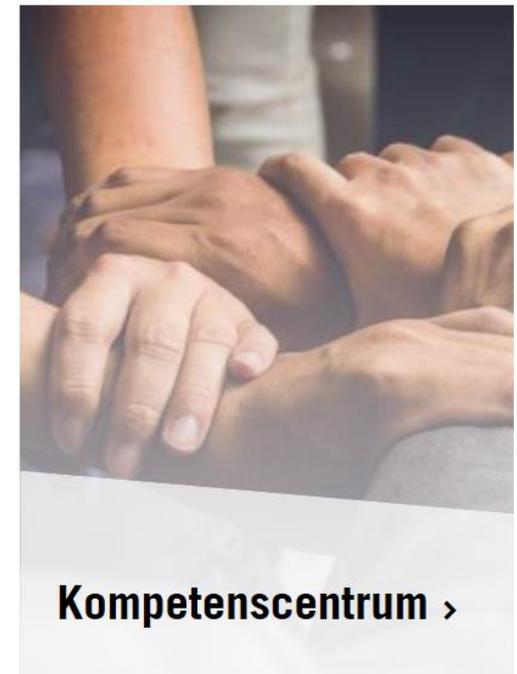
**Strategiska innovationsprogrammen: samarbete för hållbar innovation ›**



**Utmaningsdriven innovation ›**



**Vinnväxt skapar innovation i regioner ›**



**Kompetenscentrum ›**



# In Sweden, smart policy development is paving the way for a sustainable future

Opinion: Sweden's innovation agency is creating policy labs with other departments



Bildning blir enklare efter smart policyarbete >



Skatteverket utvecklar nya regler för delningsekonomin >



Naturvårdsverket tog fram smartare styrmedel med positiva effekter >



Livsmedelsverket skapar nya regelverk som fungerar för rennäringen >



Transportstyrelsen banar väg för självkörande fordon >



# Gästspel i organisationer ska innovativa

Publicerad: 29 november 2019

Snabba arbetsmetoder  
programmerare som  
i en ny Vinnova-satsning  
vårdorganisationen ol

# Nya digitala hjälpm människors funktio

Publicerad: 15 november 2019

Vinnova har beslutat att finansiera 12 nya ir  
som kan öka människors funktionsförmåga c

PRESSMEDDELANDE

# Ny satsning på visionsdrivna innovationer inom hälso Digitala tjänster ska stärka förtroende mellan medborgare och det offentliga

Publicerad: 25 oktober 2019

ildre,

PRESSMEDDELANDE

# 93 startup-bolag får dela på 28 miljoner

Publicerad: 24 oktober 2019

Nu får 93 startup-bolag med innovativa affärsidéer dela på 28 miljoner från Vinnova. Bolagen får finansiering för att vidareutveckla nya lösningar som kan bidra till hållbar utveckling och stärkt konkurrenskraft.

Bolagen får ett bidrag på upp till 300 000 kronor för att till exempel ta fram prototyper eller utveckla sin affärsmodell.

det mellan  
som fördjupar



From  
local to  
global

# Andreas Aurelius

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Head of Department  
Vinnova



# From local to global – Vinnova in a global context

EMMA BÄCKE, INTERNATIONAL COOPERATION



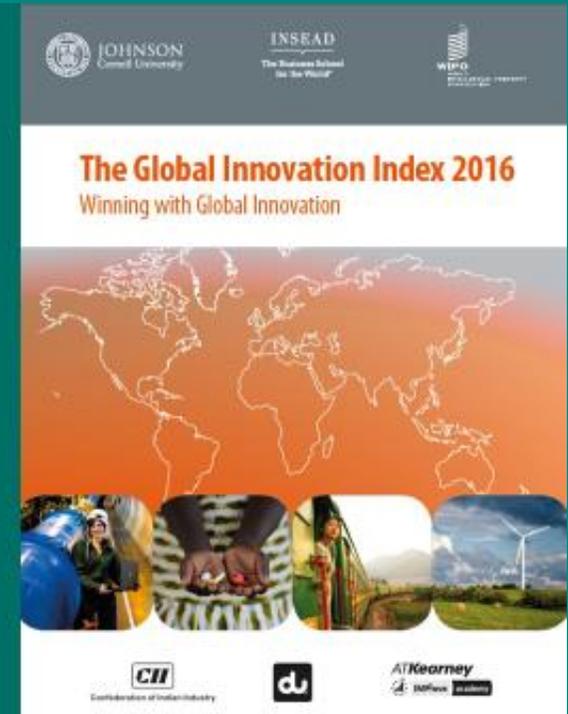
## The Global Competitiveness Report 2016 - 2017

1. Switzerland
2. Singapore
3. United States
4. Netherlands
5. Germany
6. Sweden
7. United Kingdom
8. Japan
9. Hong Kong SAR
10. Finland



## The Global Innovation Index 2016

1. Switzerland
2. Sweden



## The European Innovation Scoreboard 2016

1. Sweden
2. Denmark
3. Finland
4. Germany
5. Netherlands
6. Ireland
7. Belgium
8. Great Britain
9. Luxemburg
10. Austria





# EU and International Cooperation

Vinnova supports the development of international networks for Swedish innovation stakeholders.

# Vinnova offices





# Ongoing International Collaborations



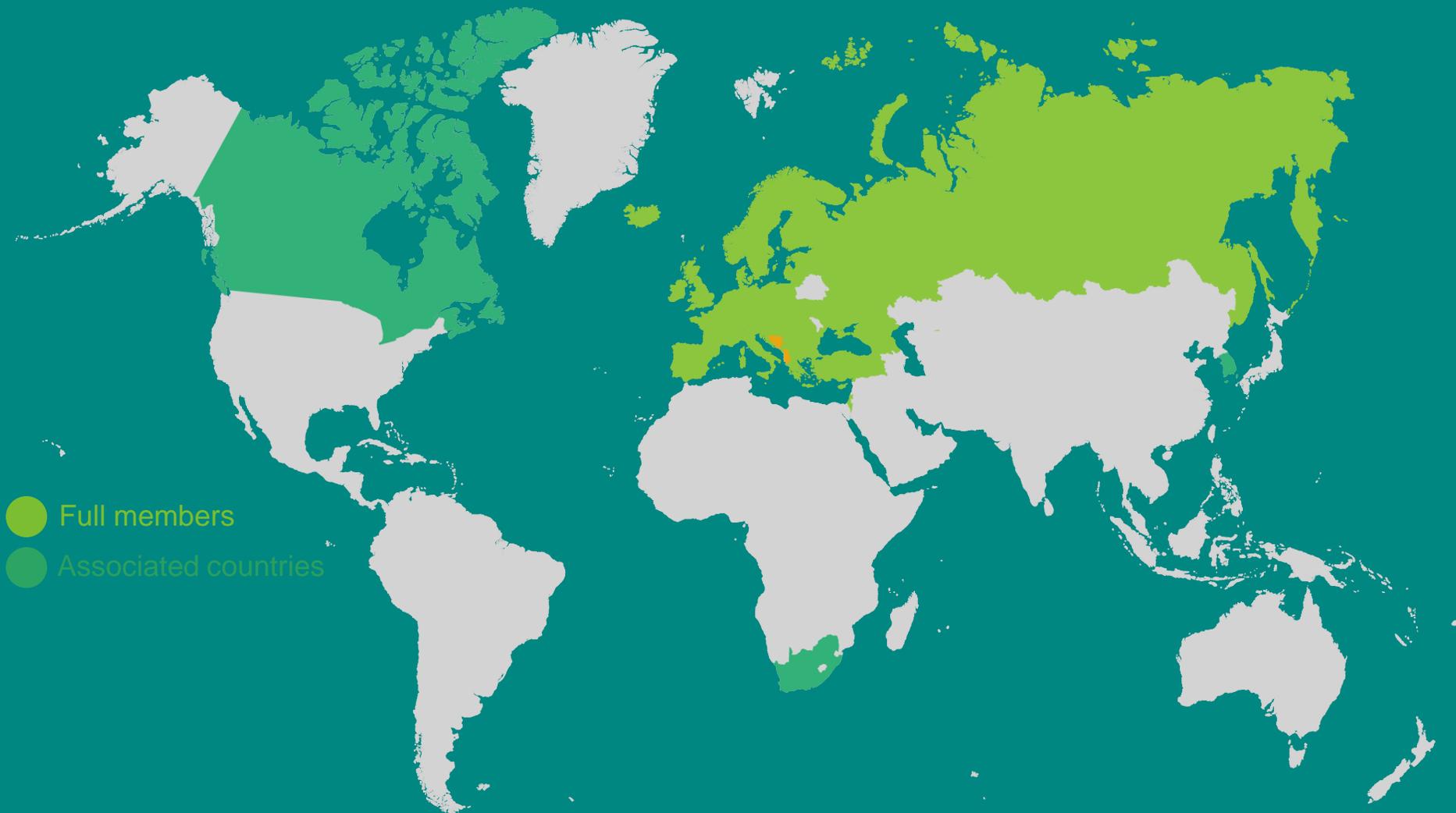
Invest in research and innovation



National EU-node

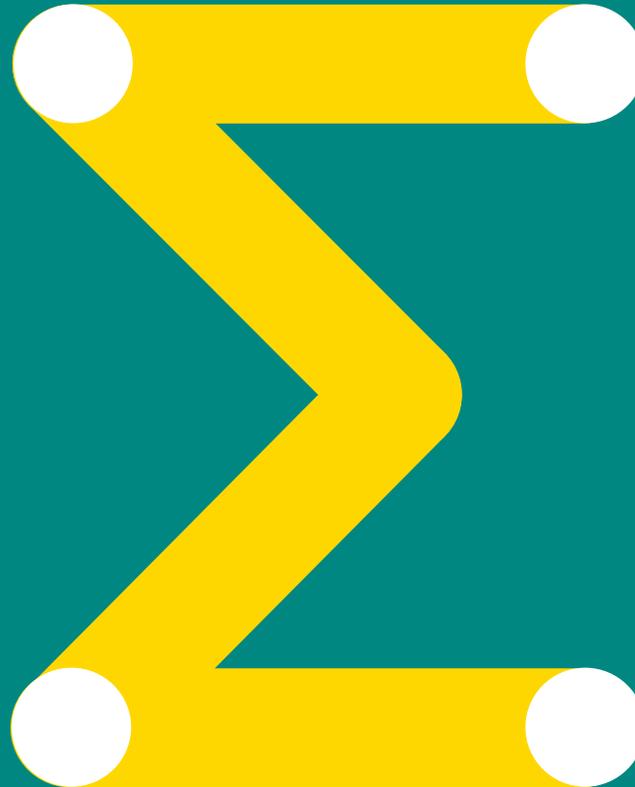


Expert Agency



# EUREKA is...

Leading  
**platform** for  
international  
cooperation

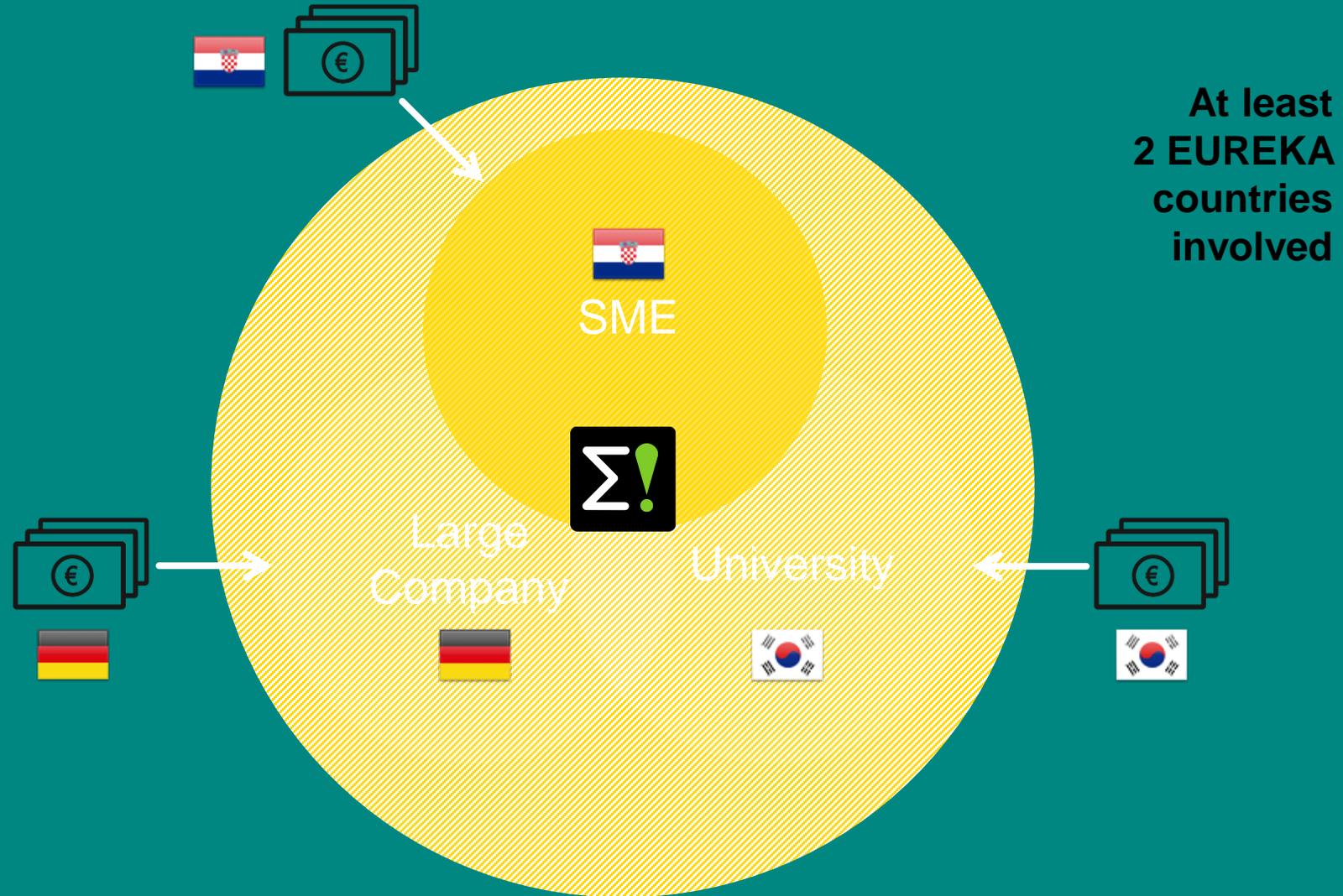


Intergovernmental  
**network**

Supporting  
**market-oriented**  
R&D projects

Facilitating  
**access to**  
finance

# Public-private partnership



# French-Swedish partnership



## **Declaration between France and Sweden on cooperation in European affairs and updating the French-Swedish partnership for innovation and green solutions**

Europe is at a crucial point in time. Multilateralism and the European security order are being tested, basic European values questioned and our planet is facing major threats of climate change. At the same time, European cooperation has never been more needed and support for the European Union is increasing in Europe. The governments of France and Sweden are firm believers in the European Union and agree that many of today's challenges and opportunities are best faced together.

Sweden and France have today taken a new step to further increase our bilateral cooperation, at national level, within the European Union and globally.

In November 2017, France and Sweden entered into a bilateral partnership to spur innovation and green solutions. Today, significant steps are being taken to deepen and advance our bilateral cooperation with an updated partnership. It aims to develop closer ties on sustainable city development, green mobility solutions, world-leading research infrastructures, sustainable digital transformation and artificial intelligence, green financing and space innovation. The partnership will also foster cooperation on life science and health care and encourage innovative solutions through small- and medium-sized companies.

Sweden and France consider social dialogue to be a key driver for inclusive competitiveness and innovation, where initiatives such as the Global Deal and the Paris Peace Forum are important examples. We will always stand up for democratic and open societies and we will fight all types of discrimination. We remain deeply concerned about the rise of antisemitism in Europe and beyond, which we consider a threat to our democratic societies. France and Sweden are committed to working together in the preparation of the Malmö International Forum on Remembrance of the Holocaust and Combating Antisemitism.

With a view to the next Strategic Agenda for the European Union, France and Sweden are committed to delivering on our citizens' needs and expectations. We will strive for a Union that defends democracy and the rule of law. A Europe that shows solidarity in times of need, decisiveness in times of challenge, optimism in times of change and above all, a clear vision for the future of the EU. We want the EU to be a leader in climate transition, to foster a





1. Smart sustainable cities

2. Green mobility solutions (batteries and electric roads)

3. World-leading research facilities

4. Sustainable digital transformation and AI (5G, life science and smart mobility)

5. Green finance

6. Space as an enabler of innovation and sustainable development

7. Optimal health outcomes

8. Innovative solutions through SMEs

9. Sustainable mobility and energy

10. Collaborative decision-making processes at all levels of governance

11. Inclusive and social economy innovation

# German-Swedish partnership



# Background to the Call-for-Proposals

*Innovation and cooperation for a sustainable future  
A German & Swedish partnership for innovation  
(31 January 2017)*



“The German & Swedish partnership for innovation is an important step for bilateral cooperation between our countries. It brings together governments, businesses and institutions, and paves the way for deepened future cooperation”



SWEDEN-INDIA  
INNOVATION PARTNERSHIP

- The Governments of Sweden and India have agreed to deepen the collaboration in the field of innovation through a strategic innovation partnership, signed April 17, 2018
- Several thematic and cross-cutting fields are included
- Vinnova has been assigned by Swedish Government to operationalise a significant part of the partnership – "Smart Cities"
  - Joint activities will start from 2019



# Differences in funding mechanisms may affect the activities supported in Sweden and in India



## INDIA

- Funding through "Royalty Based Conditional Grant"
  - A sort of convertible "loan"
- Good possibilities for the results to reach market, chance to pay back if successful
- "Technology Readiness Level"
  - TRL ~6-8
- Closer-to-market activities allowed on the Indian side

## SWEDEN

- Funding through grants, no requirements for return
- EU state aid rules (GBER art 25)
  - Industrial Research
  - Experimental Development
- "Technology Readiness Level"
  - Up to TRL ~6 (experimental dev.)
- Swedish partners must ensure that financing of R&D activities beyond "Experimental Development" are covered from other sources (internal, other funding mechanisms, etc.)

# An example of local going global

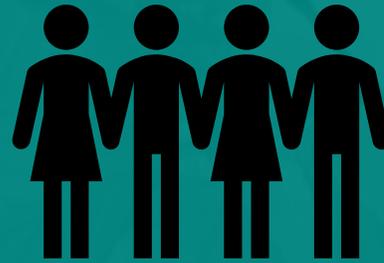
## *Challenge driven innovation going global*



Challenge in focus



Innovation with System perspective



Cross collaboration



Long-term funding in three steps



To contribute to the SDG's

Mission  
Possible

# Andrea Råsberg Tobias Öhman

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Missions team  
Vinnova





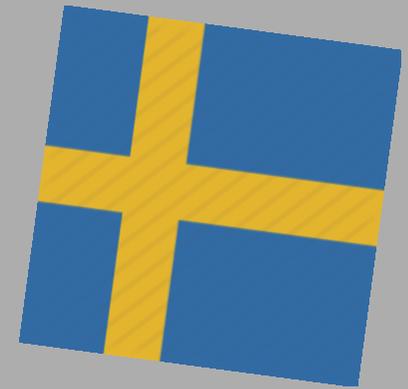
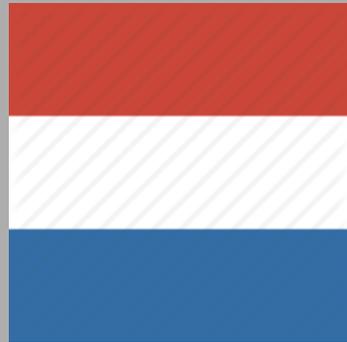
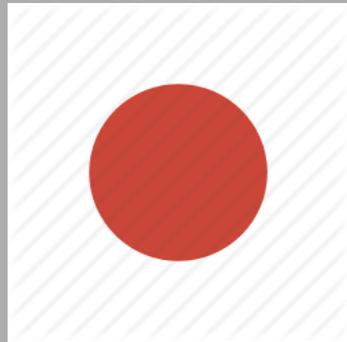
We are taking 21st century challenges,  
evaluating them with 20th century ideas,  
and responding with 19th century tools.

Madeleine Albright, Former US Secretary of State, 2013



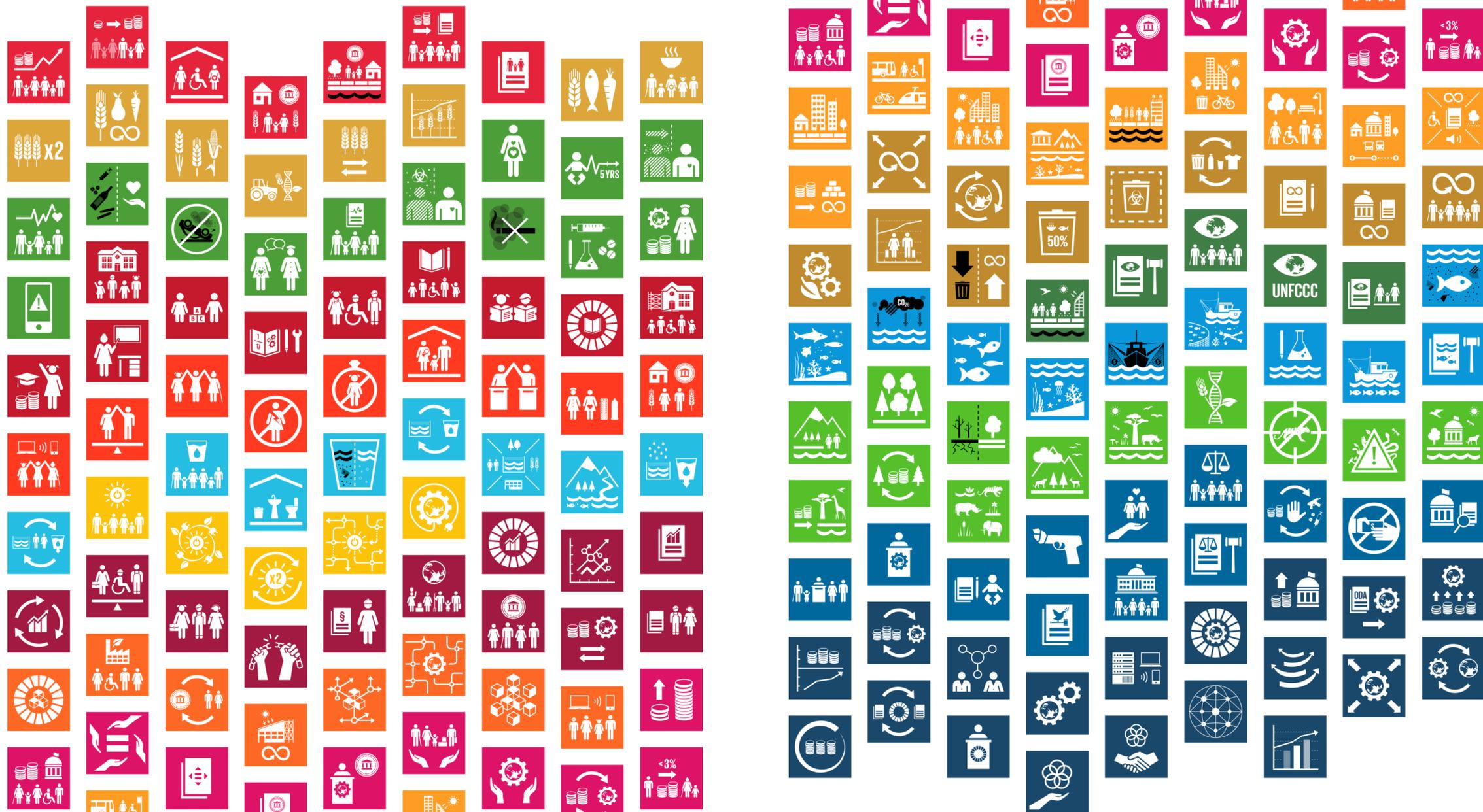
We must innovate  
how we innovate.

We are prototyping mission-oriented innovation practices, working with many others. We are placing a strong emphasis on learning through doing.



Missions are bold, inspirational, with wide societal relevance. They indicate a clear direction, ideally targeted and measurable, with ambitious innovation actions.

They are delivered through multiple top-down and bottom-up solutions, and co-created via cross-disciplinary, cross-sectoral and multi-level relationships and activities.



Targets → Action

Missions  
Example

Apollo missions (1961–73)  
“Land a man on the Moon by the  
end of this decade and return him  
safely to the Earth.”

Missions  
Example

Miljonprogrammen (1965)  
One million affordable new  
dwellings by 1974.

Missions  
Example

Vision Zero (1995–)  
No one should die or be seriously  
injured in traffic.

Over May and June, we engaged over 75 diverse organisations in various exercises to define new forms of systemic intervention in healthy sustainable mobility and healthy sustainable food.

# Overall design process

Understanding phase

Design phase

## Angles

Participative design processes, supported by sector analysis, to identify portfolio of angles and initiatives

## Initiatives

Participative process to design toolkits for initiatives whilst constructing networks for delivery

## Prototypes

Prototyping and platform-building processes

## Demonstrators

Angles

Actors Workshops

The Actors Workshops produced a 'systems canvas', indicating key angles for systemic change



The process is noisy and involves far more open-ended and contentious meetings than traditional production cycles—and far more dialogue between people versed in different disciplines, with all the translation difficulties that creates

# Desktop analysis

## Insights from strategies and roadmaps

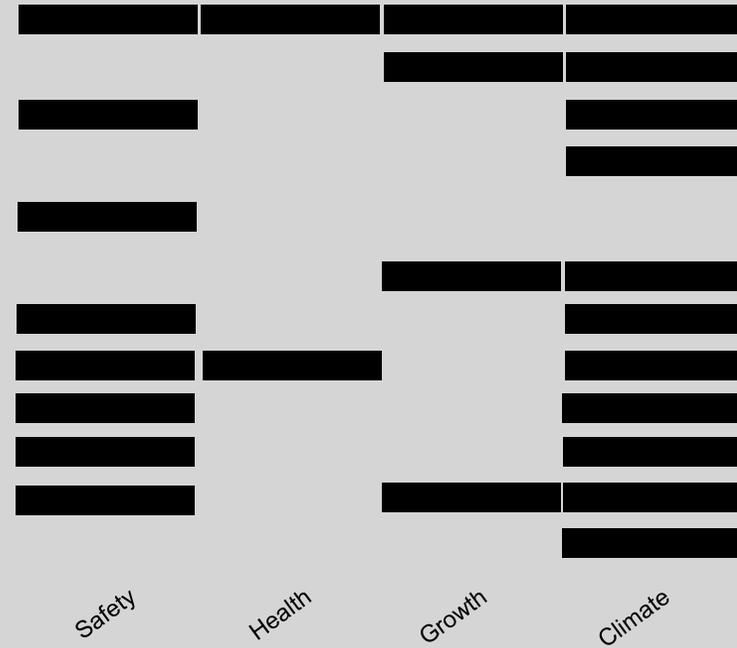
### 1 / National/municipal 'airgap'

National

Regional

Municipal

### 2 / Research and innovation in 'silos'



### 3 / Bias away from implementation



In October, the second wave of actor workshops, featuring 30+ organisations, start developing initiatives via a design-led process.

And in this case, with various  
system actors co-designing the  
School Food initiative

Ensure every street in Sweden  
is healthy, sustainable and  
vibrant by 2030.





Ensure every student in Sweden eats healthy, sustainable and tasty school food by 2025.

Now it's your turn!

## Workshop goal

Co-design integrated initiatives which can steer complex systems towards societal outcomes.

Or

Work across silos for shared outcomes.

Or

Six months in ninety minutes.

Introductions (5 min)

Create a mission (15 min)

Design interventions (30 min)

Assess outcomes (15 min)

Reflection (10 min)

# Introductions (5 min)

- Namn och organisation
- Dela med dig av din senaste kontakt med bordets tema

# Create a mission (15 min)

- Läs igenom exempelformuleringen på ett mission och titta på de globala, nationella och regionala målen
- Skapa bordets egna mission

# Design interventions (30 min)

- Läs starten på historien ... och fortsätt berättelsen
- Beskriv ett händelseförlopp i en värld som styr mot ert mission.
- Använd personkortet om ni vill.
- Komplettera berättelsen genom att rita på kartan

# Assess outcomes (15 min)

- Markera de nyttor som uppstår till följd av er berättelse på kartan
- Använd nyttoplupparna
- De tomma plupparna kan ni själva fylla med innehåll (skriv bredvid)

# Reflection (10 min)

- Reflektera runt bordet kring övningen
- Var det något nytt som kom fram som berörde er?

AI for  
good

# Daniel Rencrantz

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Head of Department  
Vinnova





# Context

## Artificial Intelligence in Swedish Business and Society

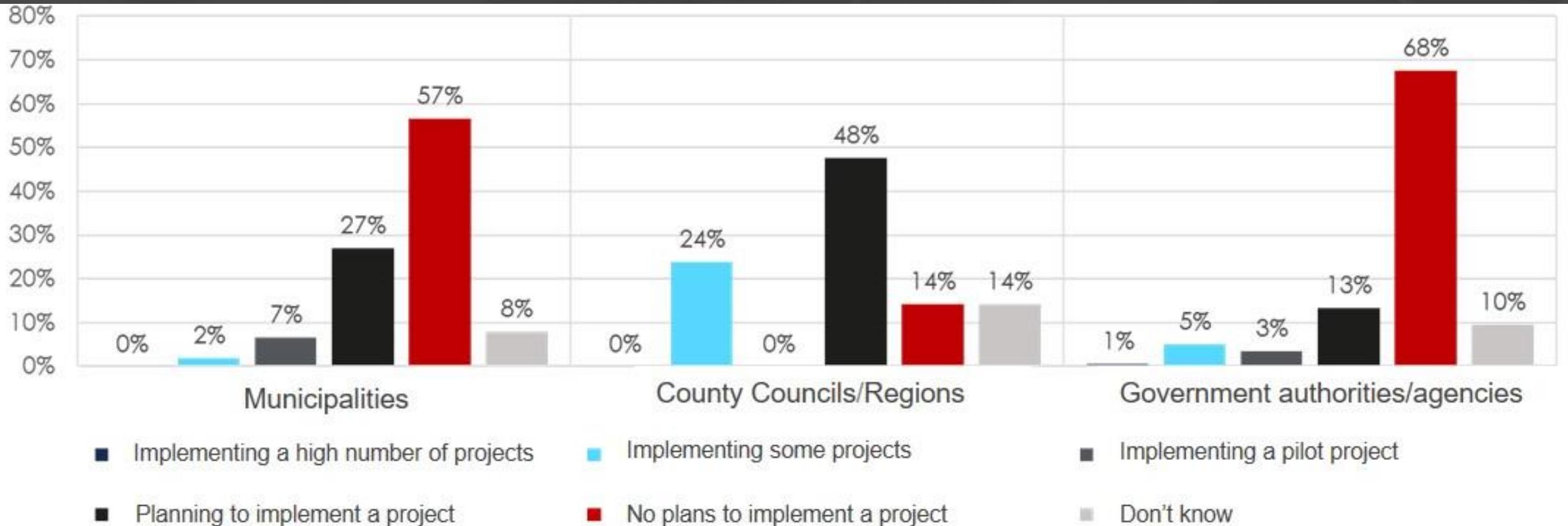
*Analysis of Development and Potential*

FINAL REPORT

# Sweden's AI capability

- Digitalisation in society
- Competence base
- AI-patent
- Industry
- AI-related research
- Research priorities
- Supplementary education in AI
- Public sector

# The public sector



Graph illustrates ongoing/planned AI projects  
Source: Governo

# AI-roles for the public sector

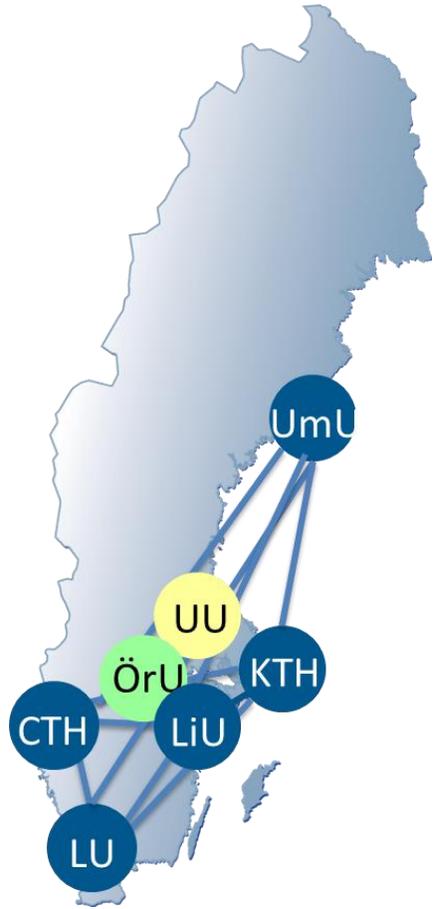
Innovation management

Innovation in the organization

Dissimination and  
implementation

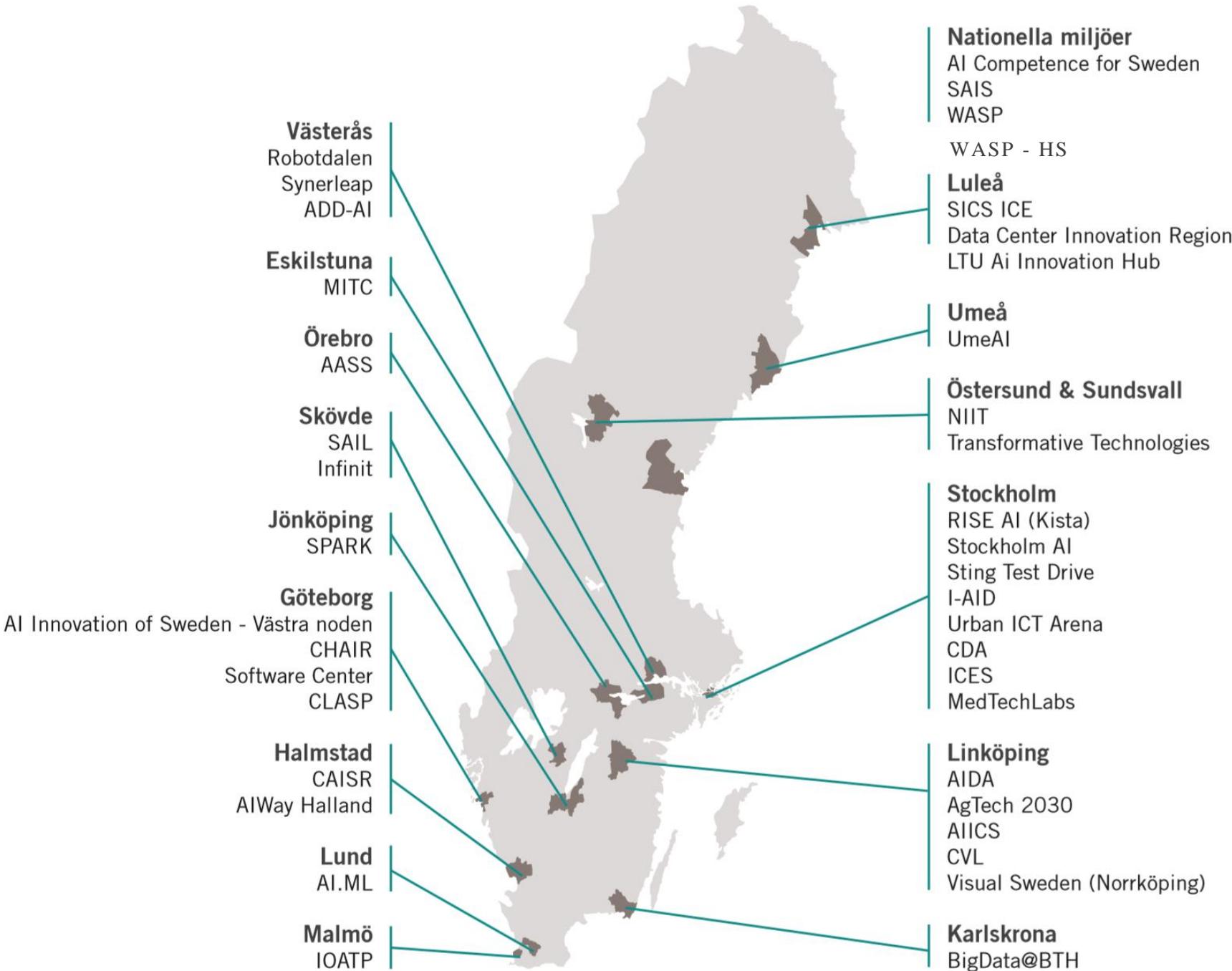
Policies, laws and rules

# AI Competence and Research in Sweden

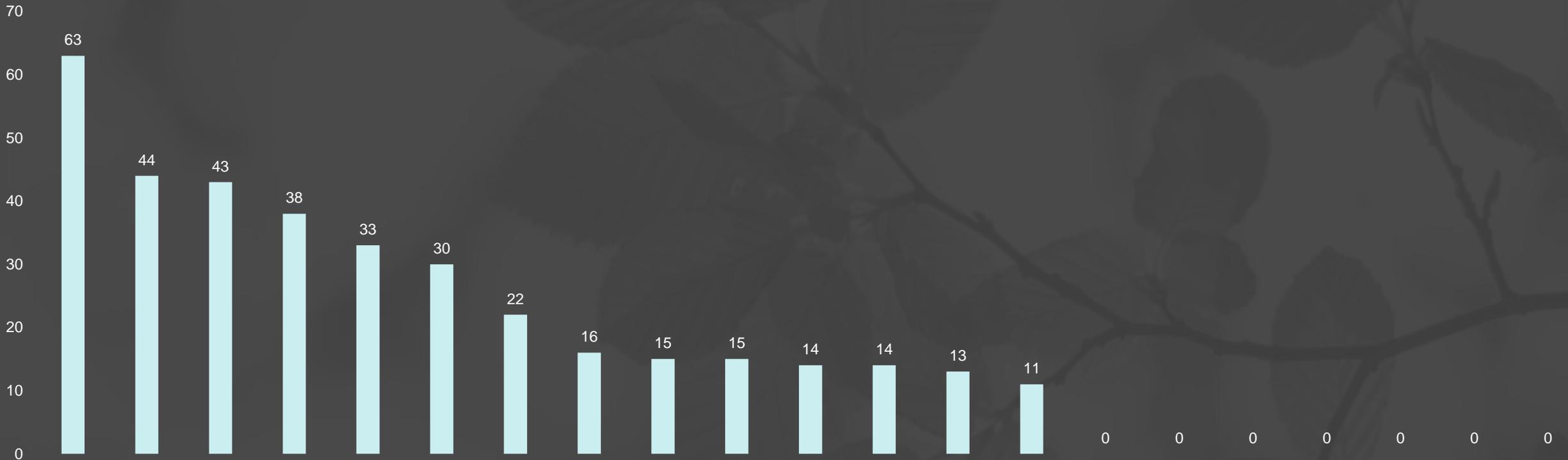


Elements of AI

# AI-milieus



# No of women in management group (%)



# Where is the innovation potential?



Vinnova

**10**  
**(28,8)**  
bn SEK

**0,9**  
**(2)**  
bn SEK

**319**  
projects

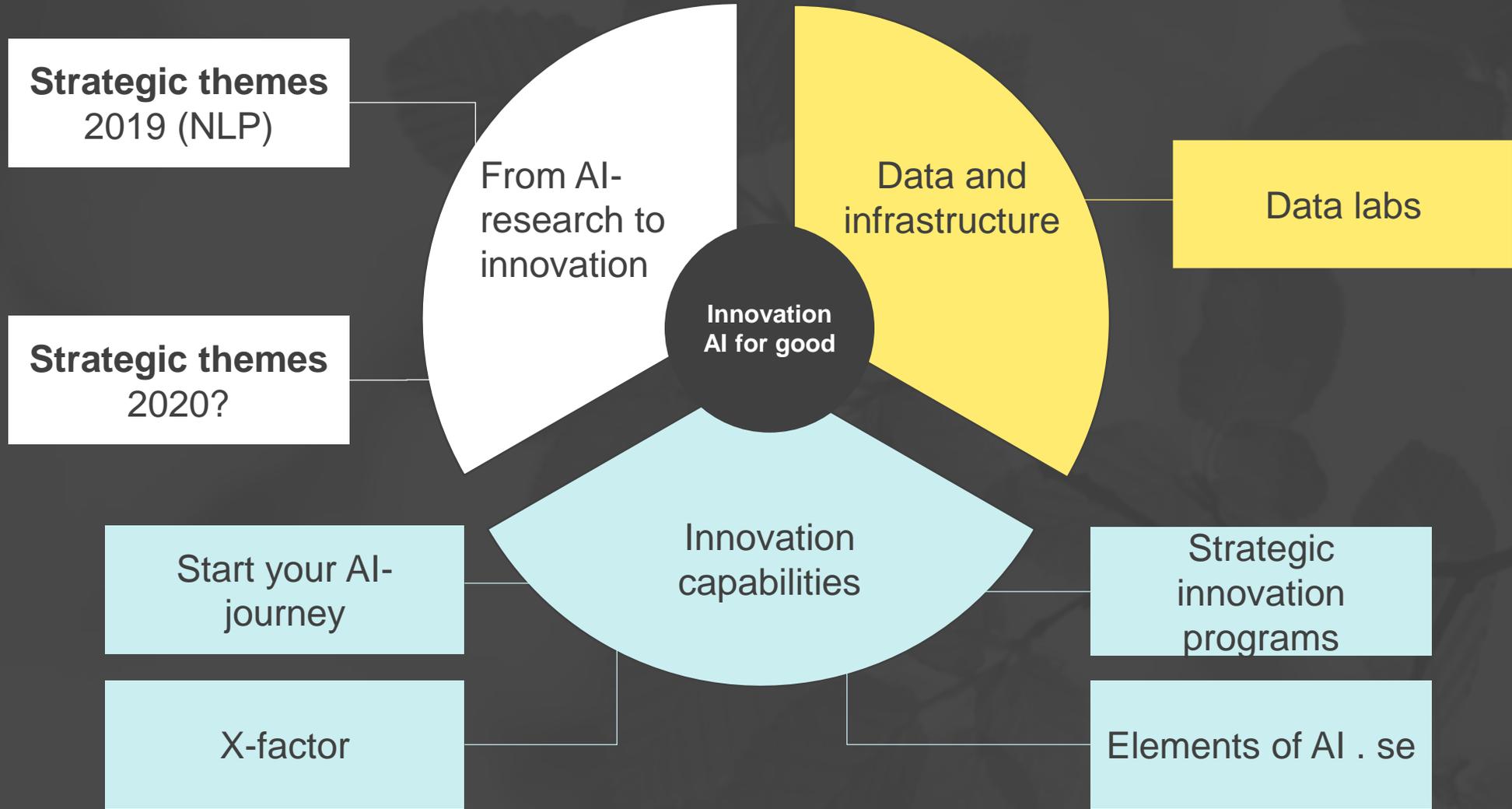
**2921**  
projects



**GLOBALA MÅLEN**  
för hållbar utveckling

**Direction?**

– how to reach change at the system level



AI INNOVATION of Sweden

How we strengthen the  
Swedish AI eco-system

# Vision

*Sweden is a leading nation in the holistic application of AI solutions in industry and society, and internationally recognized from an innovation, ethical and security perspective.*

*Together we ignite the Swedish AI ecosystem*

*Andy Uggø*

# Partners

Lifelong Learning

Corporate

Public funding

Core technology partner

Public organizations

SMEs & Startups

Academia &  
Research Institutes

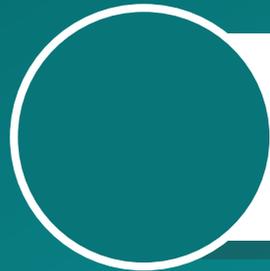
Medium sized companies  
& Consulting



# Partners



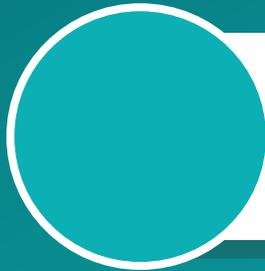
# Accelerate through horizontal resources



## **Knowledge**

Thought leadership,  
network, seminars, education

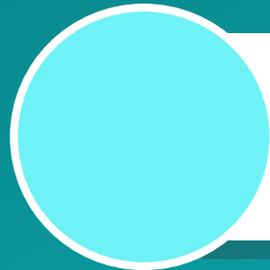
- Competence for excellence
- Best practices
- General knowledge



## **Data Factory**

Accessible data &  
infrastructures

- Basic infrastructure
- Partner data and dedicated data sets

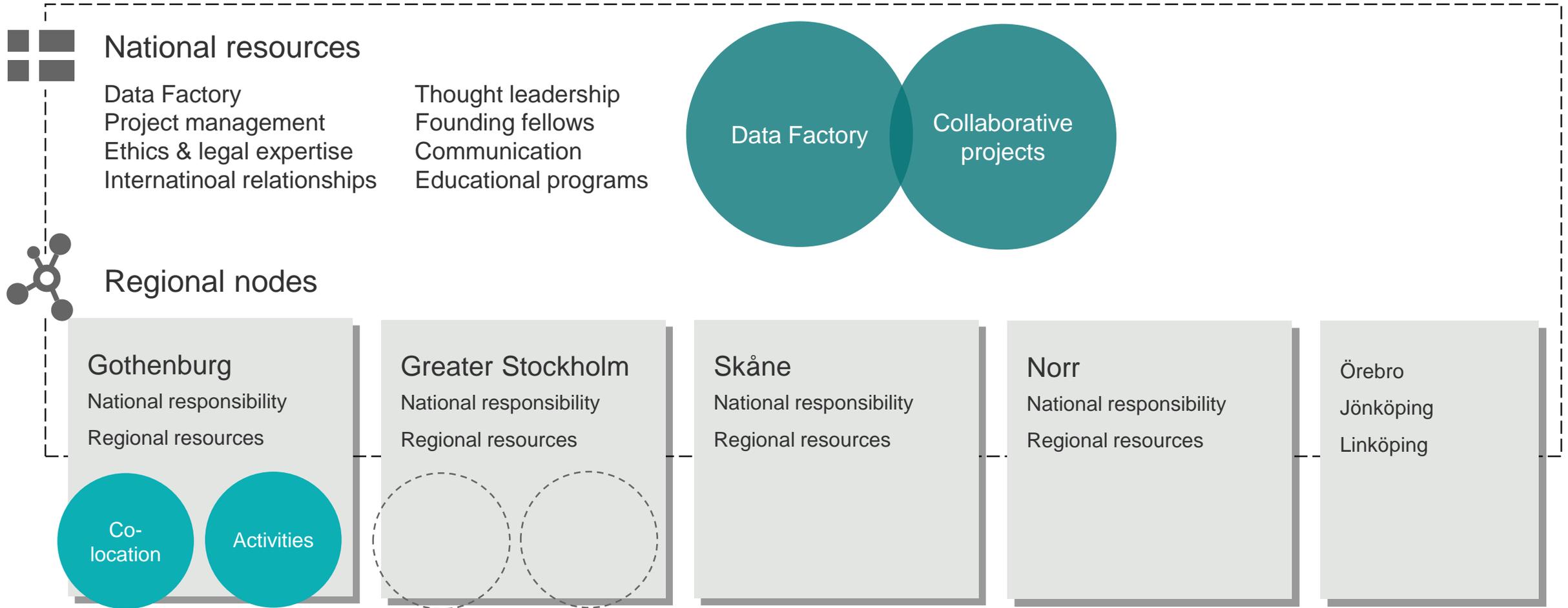


## **Collaboration**

Project management and  
regional co-locations

- Active facilitation of collaboration on project basis
- Access to funding
- Co-location of researchers and teams

# Accelerate through horizontal resources



# Our shift in focus

Collect



Store



Publish (api)



Learning, decision, service



# Important barriers (examples)

## Rules and regulations (in general and GDPR in specific)

- Data that contains personal data is hard to share, in particular after processing by partners in collaboration (e.g. contracts, accountability and responsibility distribution when sharing data)
- Format, standards and APIs

## Storage capacity

- Datasets are generally large (e.g. Zenity 500 TB) resulting in costly storage and management

## Computational capacity

- Active research and innovation accelerates in a dramatic fashion when actors can access relevant infrastructure. Albeit needs are still unclear.

## Competence

- Numerous competencies required for effective development, e.g. annotation. Few organizations have the needed competencies inhouse.

**#1**

**Challenges/Missions**

**Base data**

**#2**

# Base data

- Geospatial data, e.g. maps and postcodes
- Earth observation and environment
- Meteorological
- Statistics
- Company and ownership
- Mobility

# Challenges/Missions

Anti-corruption and public sector

Healthy and climate-neutral mobility

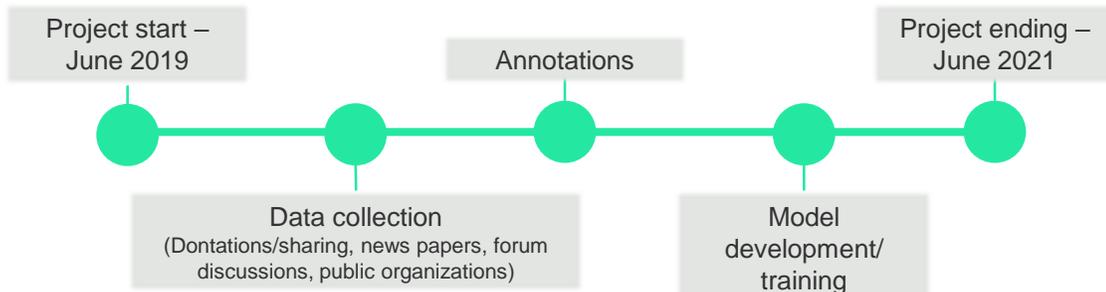
Healthy and climate-neutral food

Healthy and climate-neutral buildings

Precision health for all

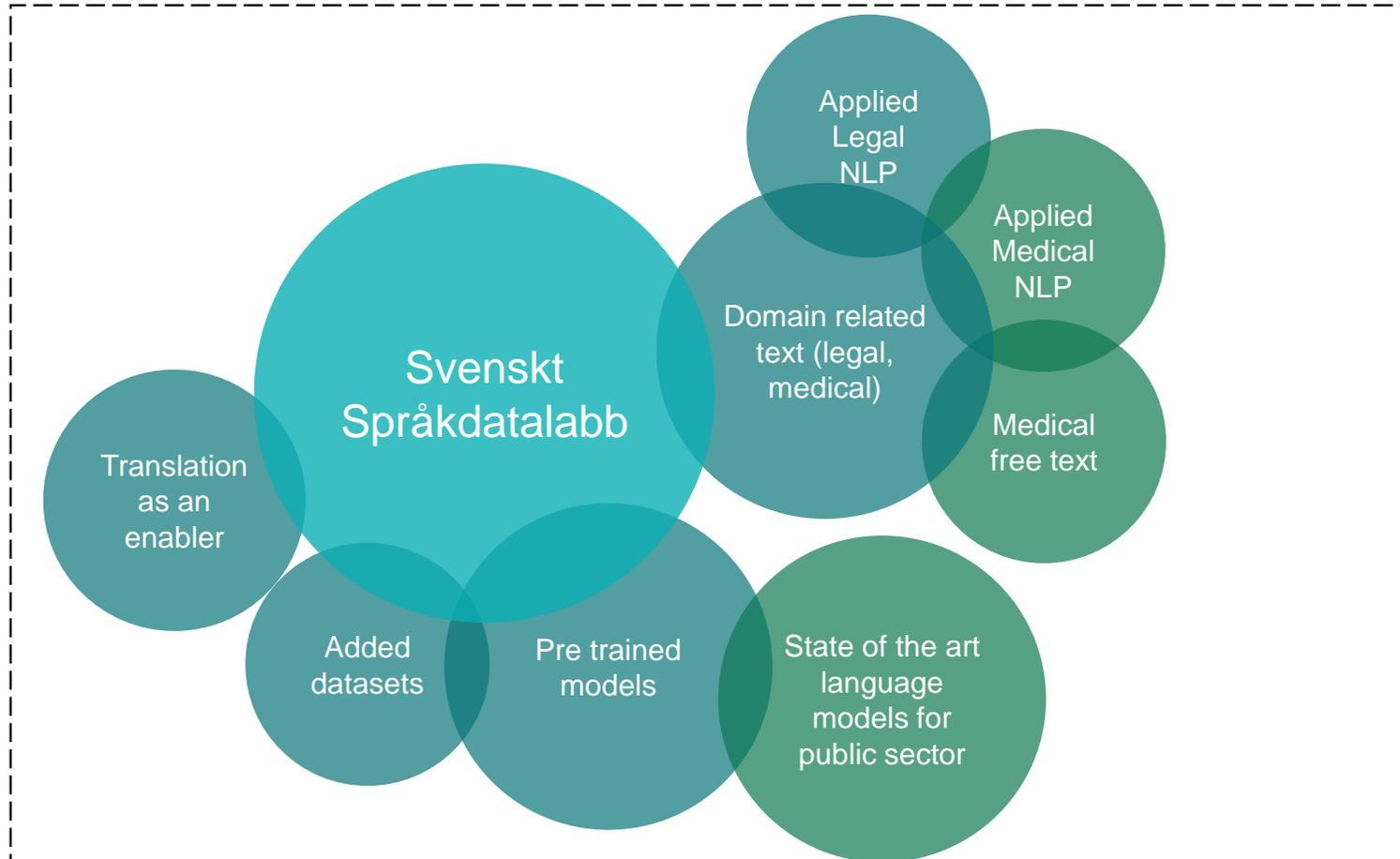
# Swedish Language Data Lab

- Provide access to annotated, classified Swedish text data, and fully trained models in our Data Factory
- Establish a national knowledge node within Natural Language Processing (NLP) Develop Swedish reference datasets and models for NLP
- Data collection (donations/sharing – news papers, forum discussions, public organizations) – annotation – models



# Swedish Language Data Lab

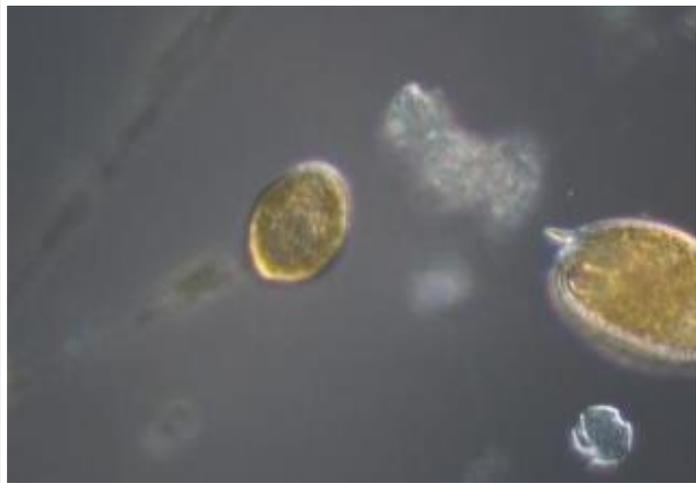
## Road Map



Project

# OCEAN DATA FACTORY

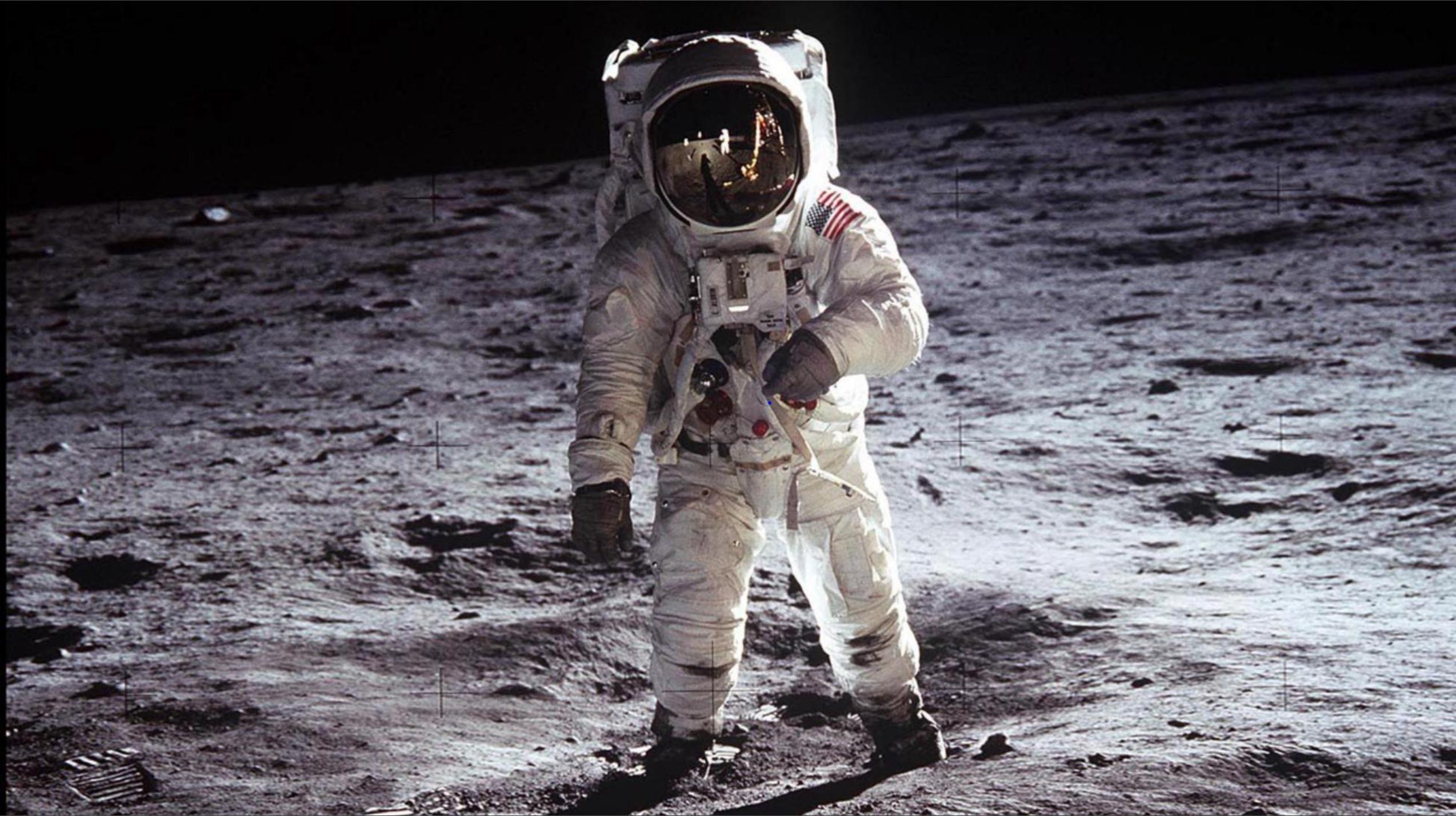
*”make Sweden a global enabler for  
sustainability and innovation in the digital blue economy”*

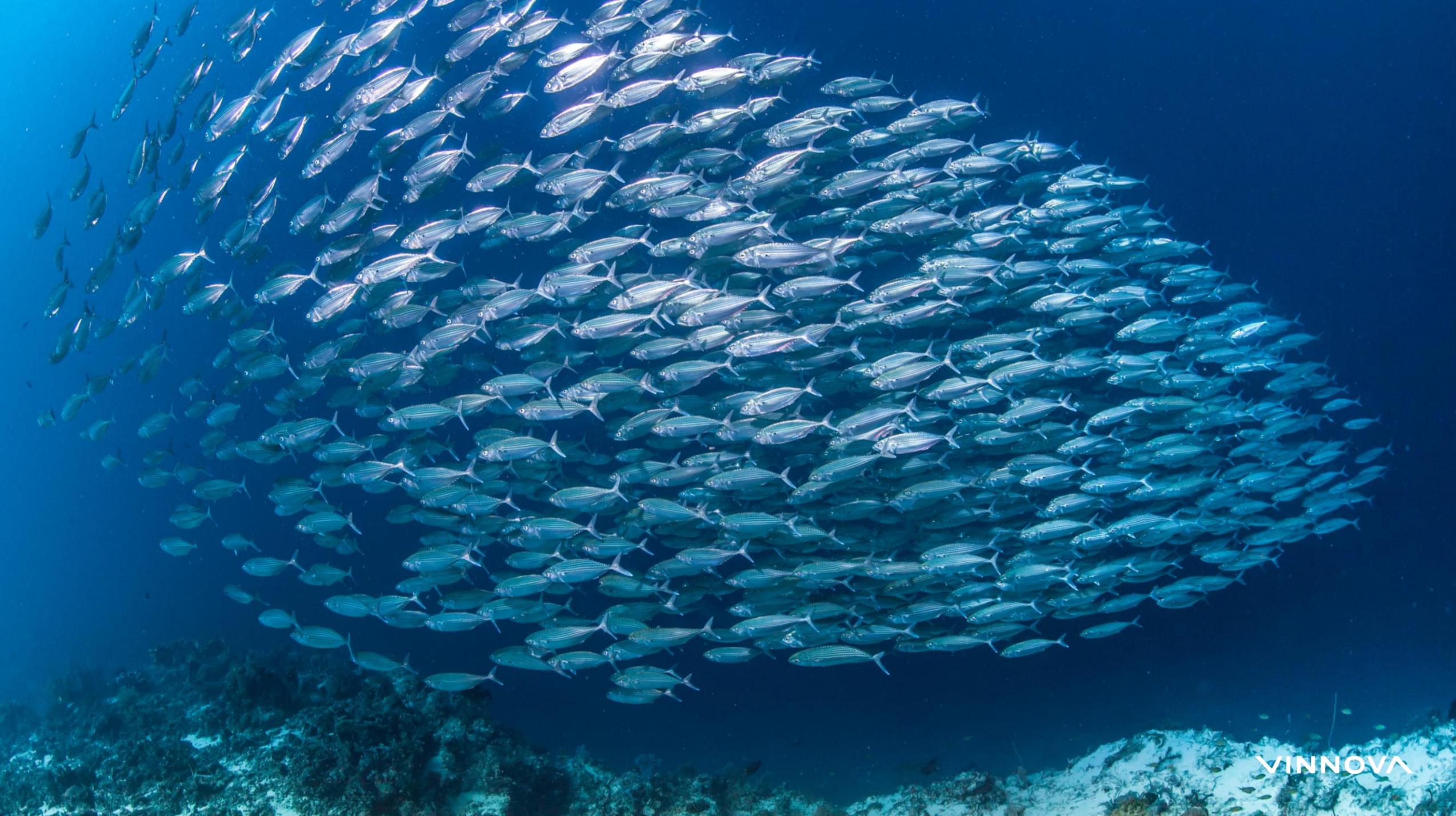


# 2019

- A Sustainable Use Case
  - Focus on 2 Invasive Species
  - Use Open Data (physical, biological, shipping)
  - AI to Help Preventing Spread
- Getting Settled
  - Establishing Work Flows
- Hackathon
  - Open Sea Lab (Belgium; EMODnet)
  - 'Sillgrisslor' (Göteborg; AI Innovation of Sweden)

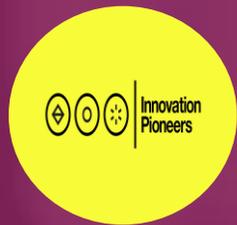
In sum





VINNOVA





## TANK MEETING NR. 48 - 4/12

**How can we strengthen  
Sweden's innovation  
capacity ?**

AI for  
good

# Annie Lindmark Joakim Skog

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Open Innovation  
Vinnova



# Open Innovation



**Data labs**



**Innovation challenges**



**Makers**



**Hack 4 Sweden**

## Artificial Intelligence in Swedish Business and Society

*Analysis of Development and Potential*

FINAL REPORT

# Sweden's AI capability

- Digitalisation in society
- Competence base
- AI-patent
- Industry
- AI-related research
- Research priorities
- Supplementary education in AI
- Public sector



DISKUSSIONSFRÅGA

**What are your challenges when it comes to AI?**



VINNOVA

# Finding solutions to societal challenges in all areas

## Aktuellt om våra AI-satsningar



Nu startar de sina första AI-resor! >



AI ska hjälpa banker med jämställd finansiering >



Ny satsning ska utveckla AI-lösningar för svenska språket >



Drönare kan kartlägga växthusgaser >



Satsning på datalabb ska snabba på utvecklingen inom AI >



Individrörlighet ska sprida kunskap om AI >



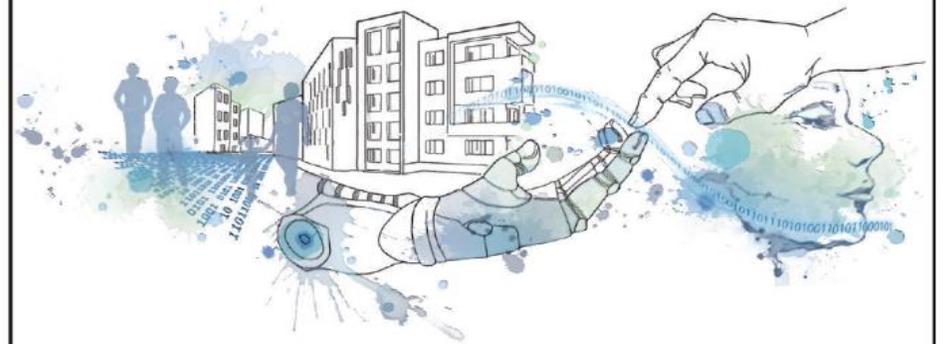
Användning av AI kan minska dödligheten i hudcancer >

”

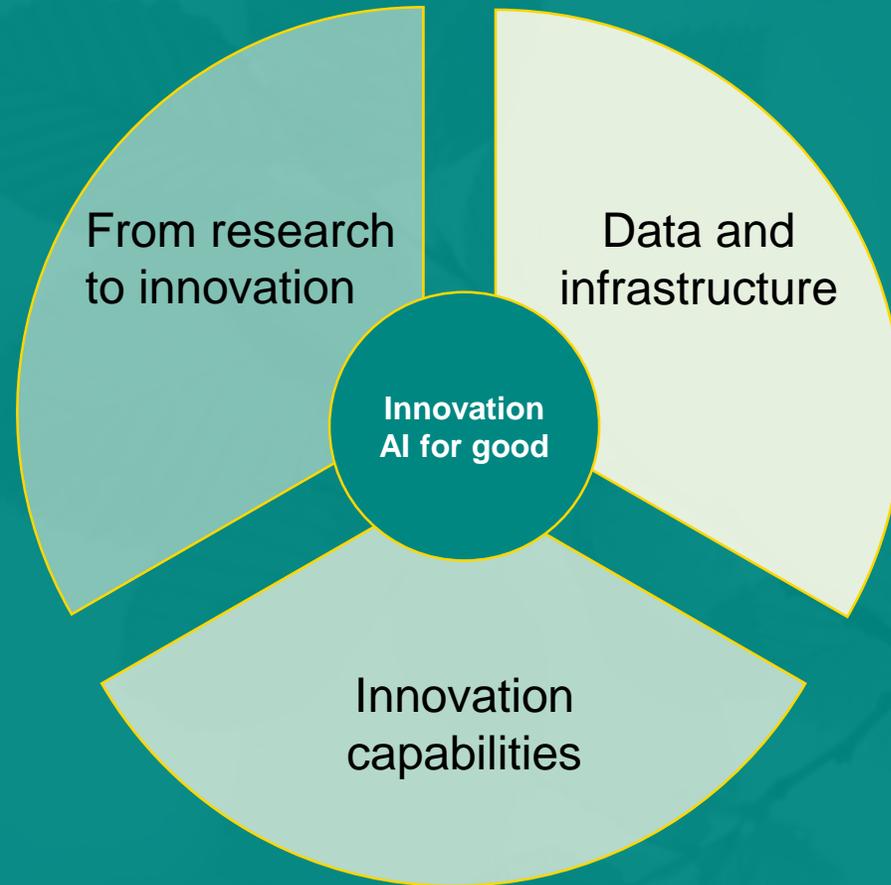
**Sweden should be an international leader in taking advantage of the opportunities of using AI can give, with the purpose of strengthening both the Swedish welfare and the Swedish competitiveness**

MAY 2018

Nationell inriktning  
för artificiell intelligens



# Three parts





DISKUSSIONSFRÅGA

**What can Sweden do to take the leading role in the development of AI for good?**



VINNOVA

# COFFEE BREAK

BACK KL15.15 | NOBEL

Quest of  
today

# Glenn Gran David Renemark

---

Innovation Management  
Vinnova





# Quest of the day:

How can we strengthen Sweden's innovation capacity?

The background of the image is a dark, almost black, space filled with numerous translucent, glowing bubbles. The bubbles vary in size and are primarily colored in shades of vibrant blue and emerald green. Some bubbles are in sharp focus, showing their spherical shape and the way light refracts through them, while others are blurred into soft, out-of-focus bokeh lights. The overall effect is one of dynamic movement and organic growth, suggesting themes of innovation, science, or natural processes.

# **Innovation Management Support**

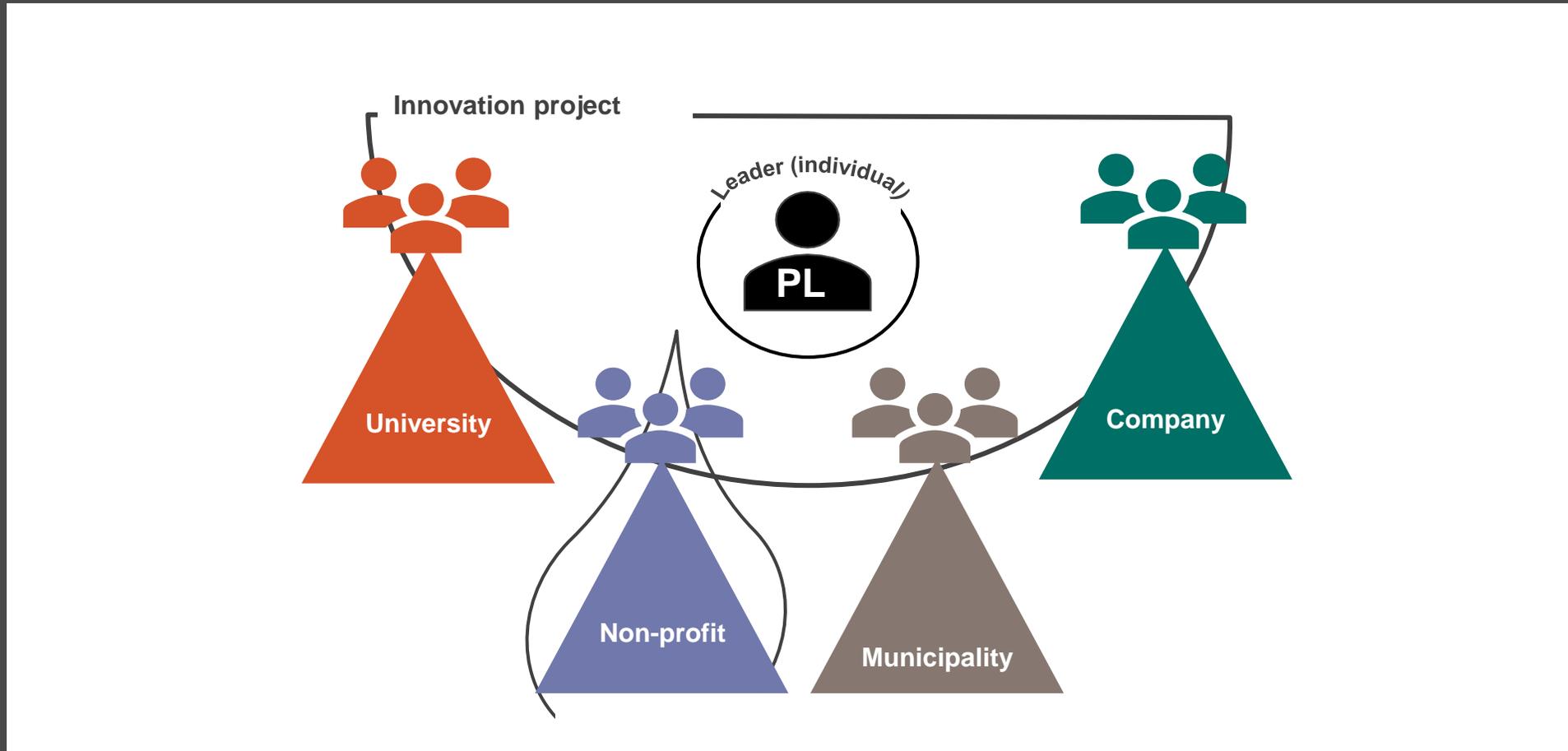


## Support for increased impact during project-life-cycle

'Package' research-based knowledge from the innovation management programme.

1. Develop an innovation management support for Vinnova-funded projects
2. Test tools, models to strengthen the innovation capacity in Vinnova-funded projects
3. Improve the capacity to collaborate within and between organisations to overcome silos and lock-ins

# Support at different levels



# Needs-assessment



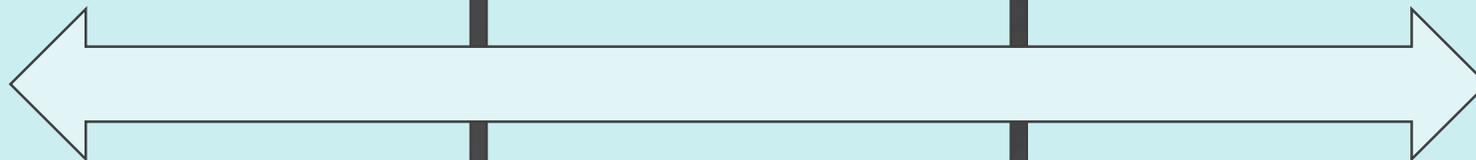
Workshop 1 –  
identify needs  
(½ day)



Survey  
– capture needs



Workshop 2 –  
verify needs  
(½ day)



# MODULE

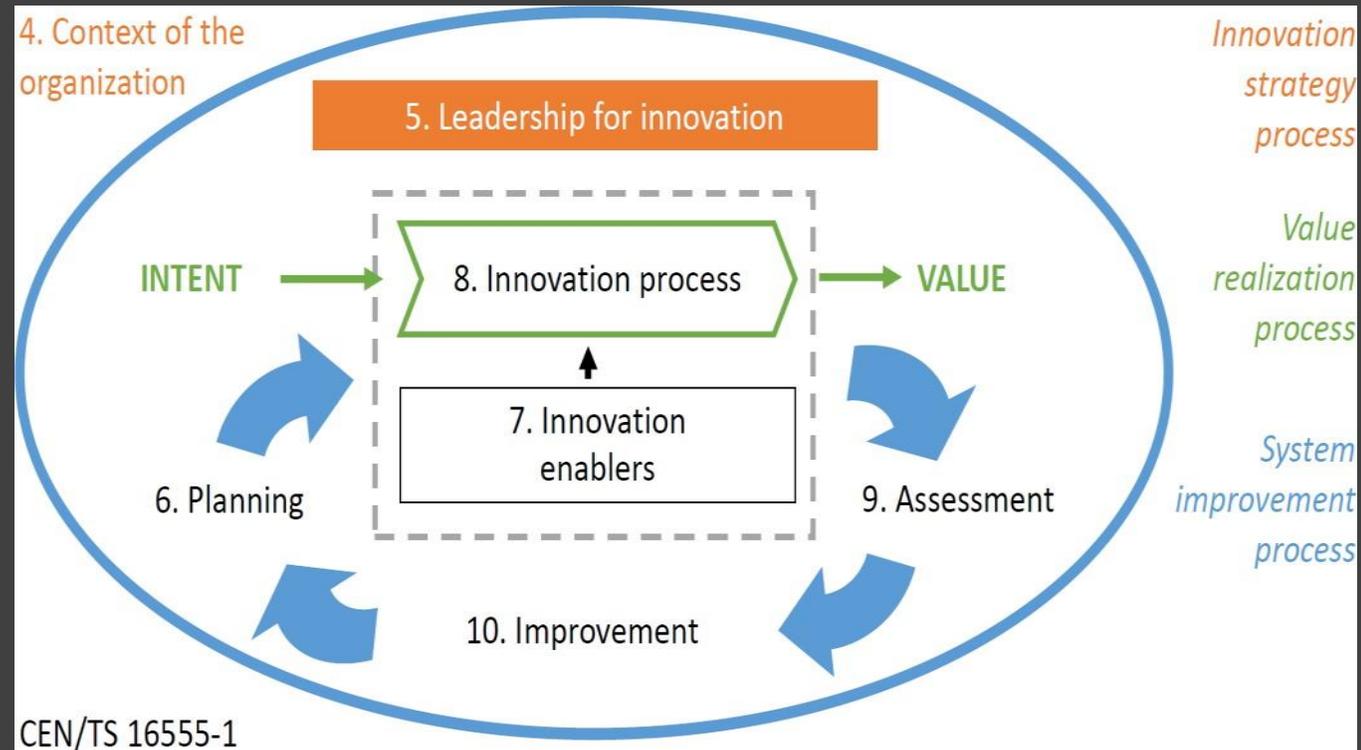
## 1

Understanding  
how to  
develop innovatio  
n capacity  
(strategic level)

SUPPORT MECHANISMS	FORMATE
Market analysis	Training
Understanding the challenges in innovation projects	Training
Framework / management system for innovation	Training+Model
Measure collaboration	Method
Measure innovation capacity	Training+method
Develop innovation strategy and action plan	Method

# Exampel: Strategic support

*ISO 56002 offers a framework to systematically develop innovation capabilities in organisations.*



# Innovation Management Principles



Realization  
of value



Exploiting  
insights



Future-focused  
leaders



Strategic  
direction



Systems  
approach



Adaptable  
structures



Innovation  
culture



Managing  
uncertainty

ISO 56000:2019

VINNOVA

# MODULE 2

Managing the  
innovation  
process  
(operational  
level)

SUPPORT MECHANISM	FORMATE
Dealing with lock-ins	Training+method
Cooperation between small and large organisations	Model/Method
R&D partnership	Tool
Develop teams	Model
Developing ecosystems	Tool
Developing circular flows	Model
Cluster development	Training

## MODULE 3

From idea  
generation to  
implementation  
(operational  
level)

SUPPORT MECHANISMS	FORMATE
Design Thinking” and user-driven innovation	Method+training
Idea generation	Modell/Metod
Idea managment	Modell/Metod
Prototyping and implementation	Metod

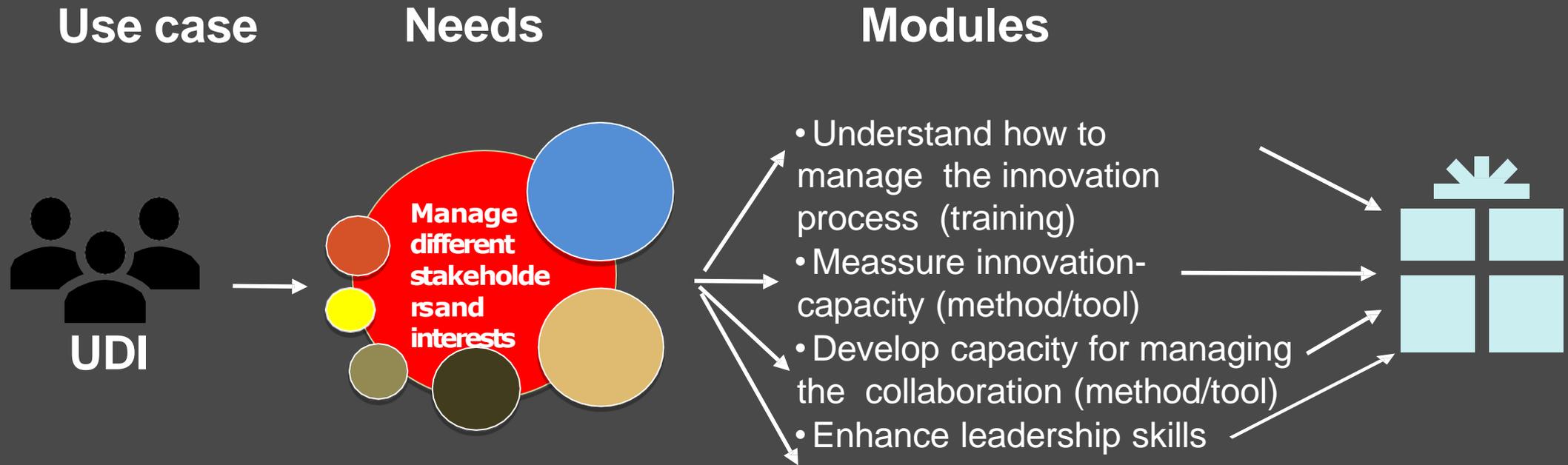
## MODULE 4



Support for  
innovation  
managers  
(individual  
support)

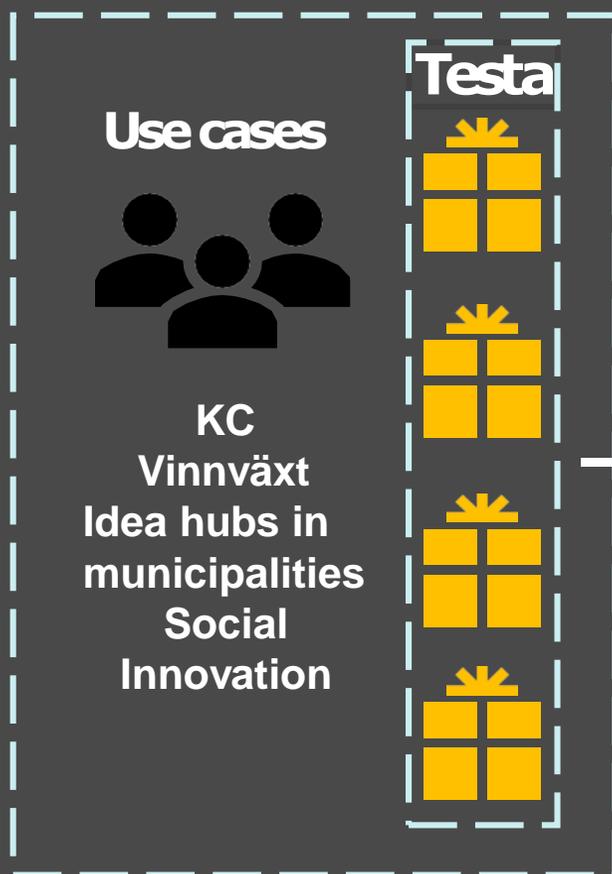
SUPPORT MECHANISM	FORMATE
Project-/process management	Training
Innovation management	Training
Innovation coaching	Coaching
Mentor network	Mentoring

# Needs-driven packaging



# Testing innovation management support

## Testing and verifying



Offered to all Vinnova funded programs



New actors offering innovation management support (public procurement, calls, innovation cheques)

Offered externally?

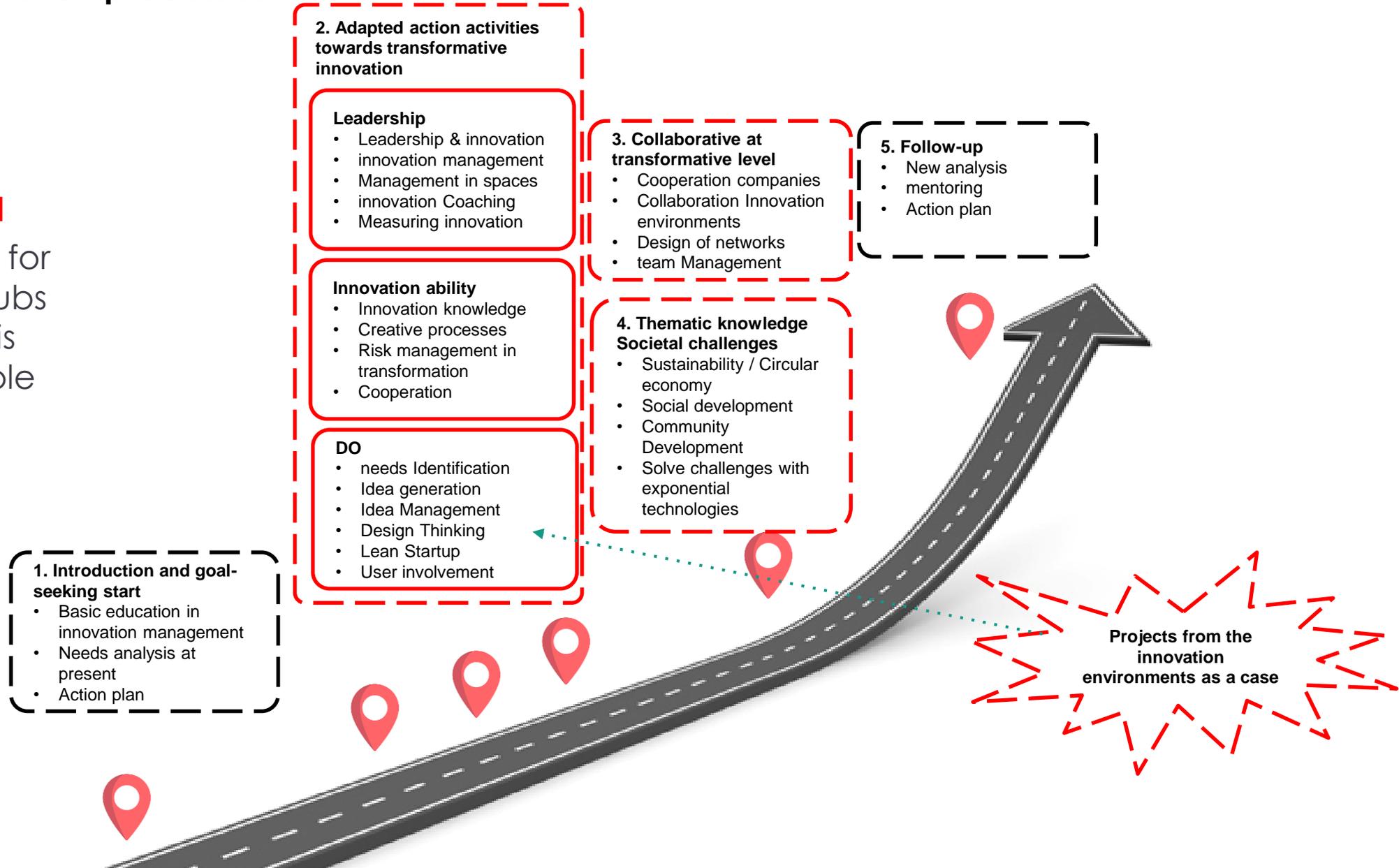


# Leadership in a fast-moving world - increased ability to lead innovation and transformation processes



--- Modules procured

--- Modules for which iHubs Sweden is responsible



## **TASK 1. *WHAT DO YOU DO TODAY?***

Reflect upon what your organisation is currently doing to strengthen Sweden's innovation capacity (5 min)

## **TASK 2A. *WHAT ARE THE MAIN CHALLENGES?***

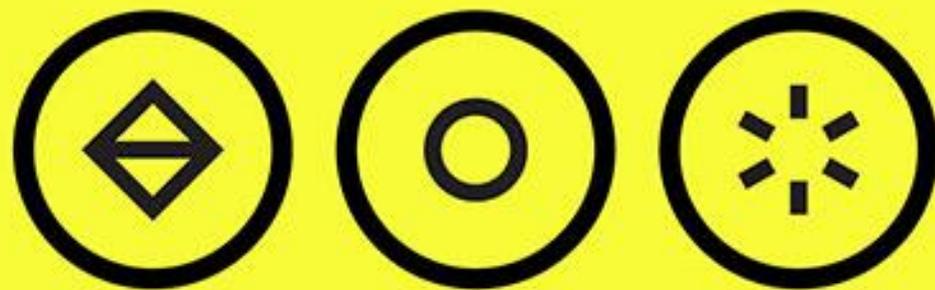
Discuss what is hindering your organisations from contributing further to strengthen Sweden's innovation capacity (10 min)

## **TASK 2B. *WHAT CAN YOU DO TOGETHER?***

Discuss how you could work together to strengthen Sweden's innovation capacity (10 min)

## *WHAT CAN WE DO (VINNOVA)?*

Suggestions to Vinnova on how we could better facilitate cooperation between different stakeholders and further strengthen Sweden's innovation capacity



# Innovation Pioneers

# Thank you!

**VINNOVA**  
Sweden's Innovation Agency



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