



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



NASDAQ OMX



SKANSKA



SSAB



TELE2



VOLVO



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 person is sitting and writing in a notebook. The notebook is open, and the person's hand is visible holding a pen. The background is slightly blurred, showing other people in the room.

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

Head of Department
Vinnova



VINNOVA

Q

HOW DO YOU KNOW VINNOVA?



Sweden - A country of transformation



Photo: Anna Sigge/Smart Textiles/imagebank.sweden.se



A top nation for innovation

#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



Photo: Melker Dahlstrand/imagebank.sweden.se



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



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



Bildelning 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 >



VINNOVA

Gästspel i organisationer ska innovativa Nya digitala hjälpm människors funktio

Publicerad: 29 november 2019

Snabba arbetsmetoder
programmerare som :
i en ny Vinnova-satsn
vårdorganisationen ol

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



En bil a

From
local to
global

Andreas Aurelius

Head of Department
Vinnova



From local to global – Vinnova in a global context

EMMA BÄCKE, INTERNATIONAL COOPERATION



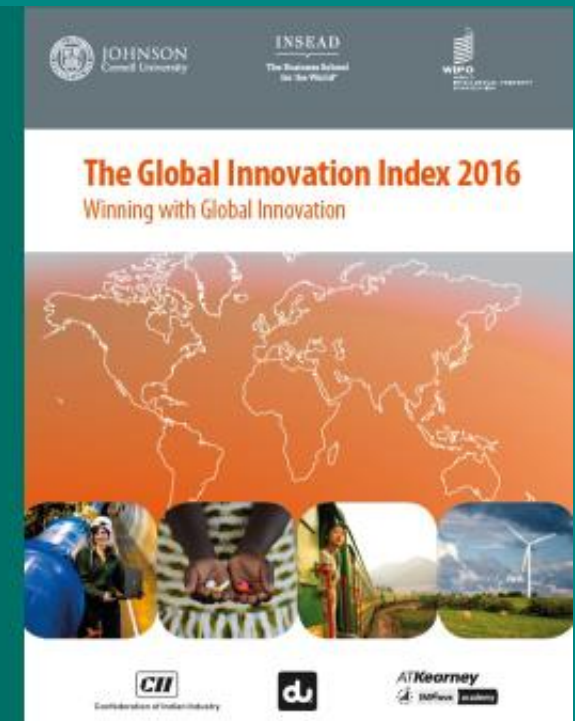
The Global Competitiveness Report 2016 - 2017

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



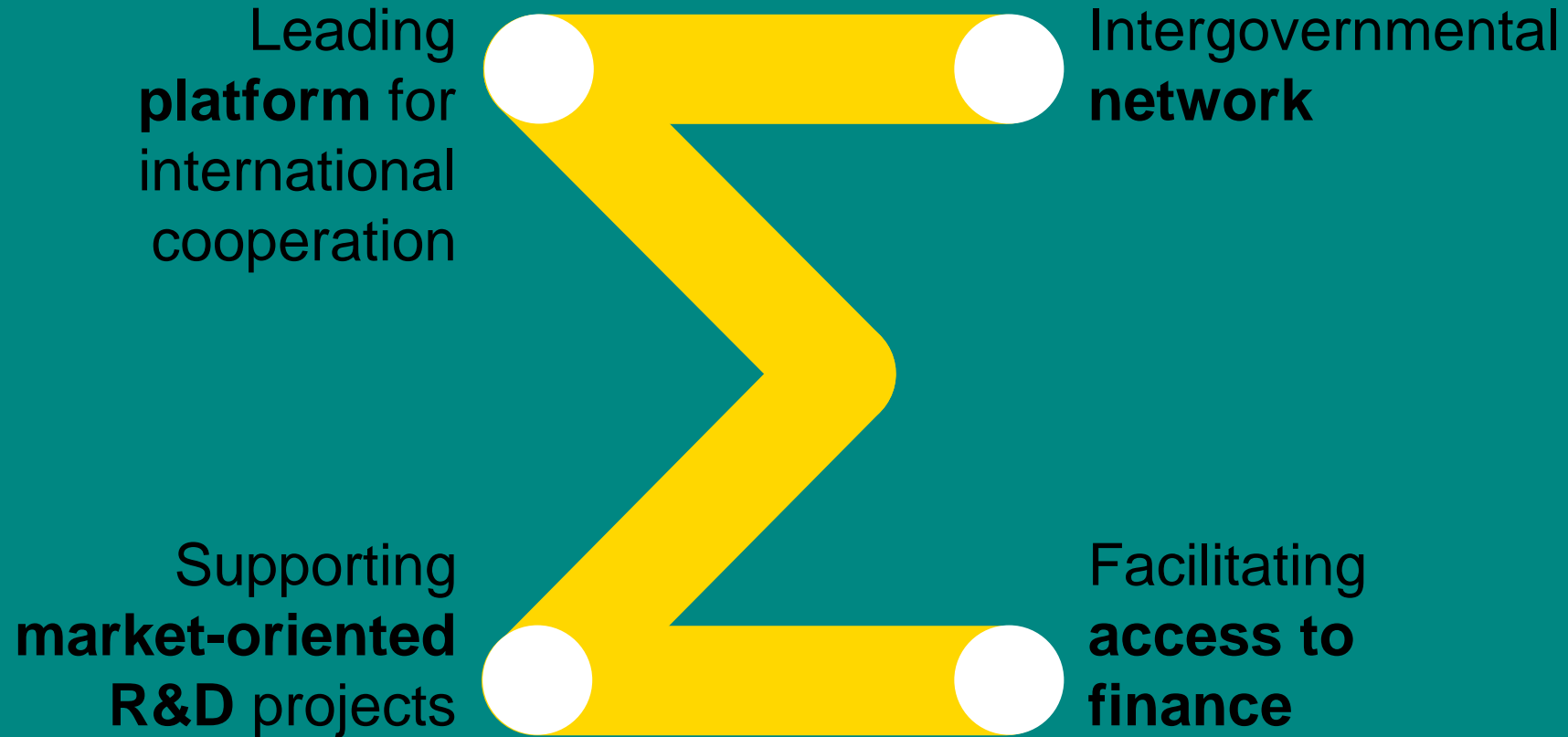
National EU-node



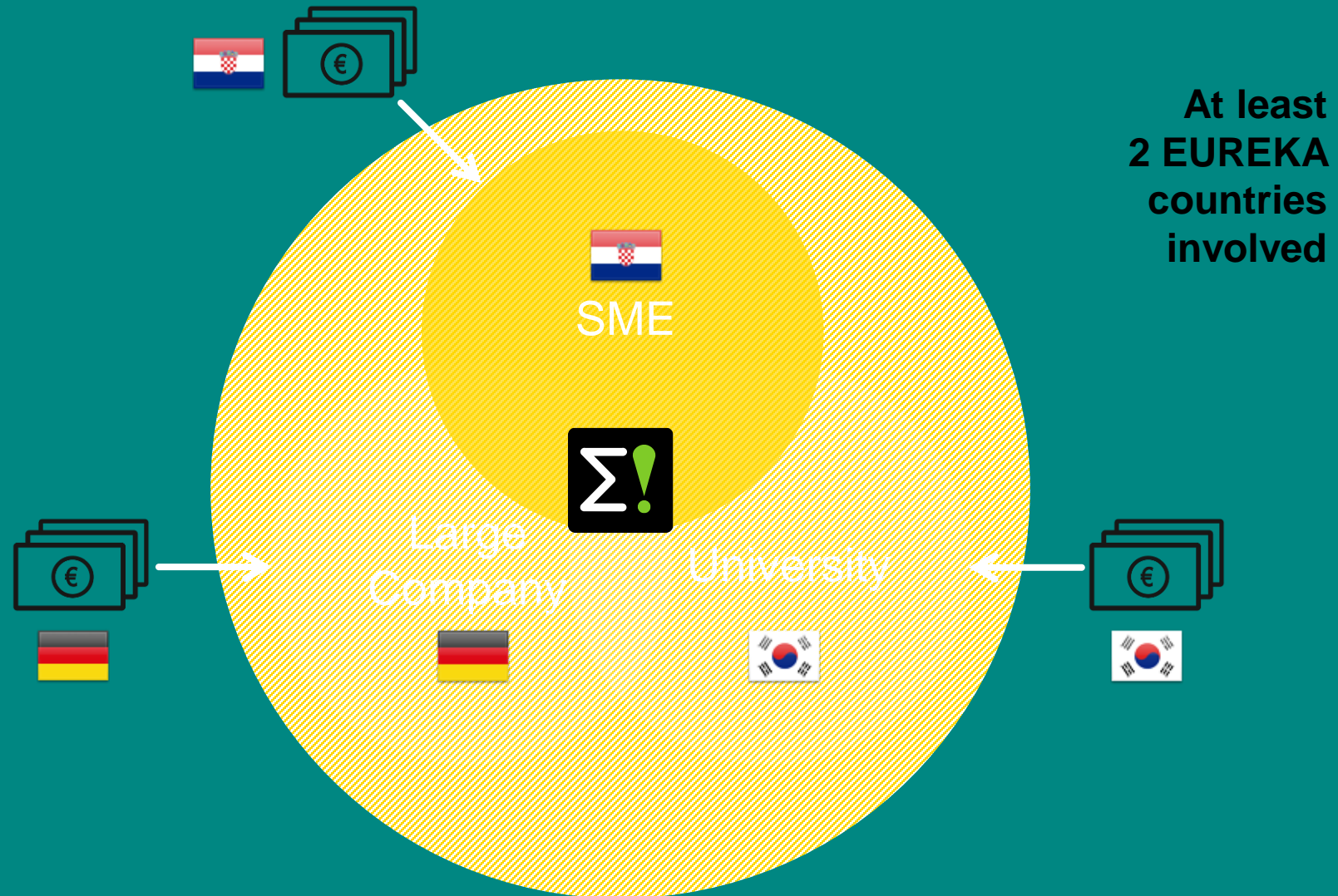
Expert Agency



EUREKA is...



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

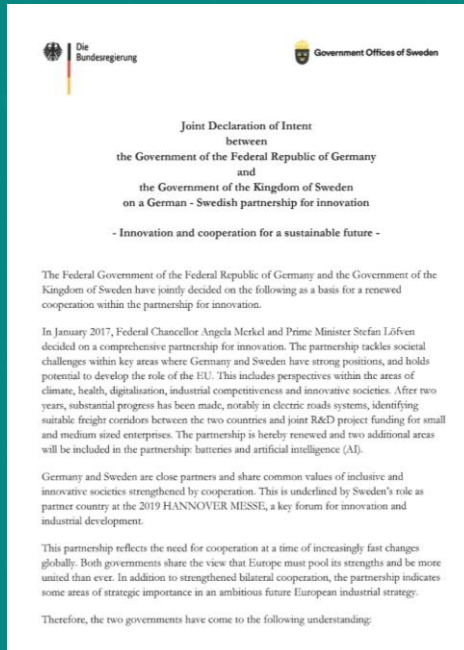
8. Innovative solutions through SMEs

9. Sustainable mobility and energy

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

11. Inclusive and social economy innovation

German-Swedish partnership

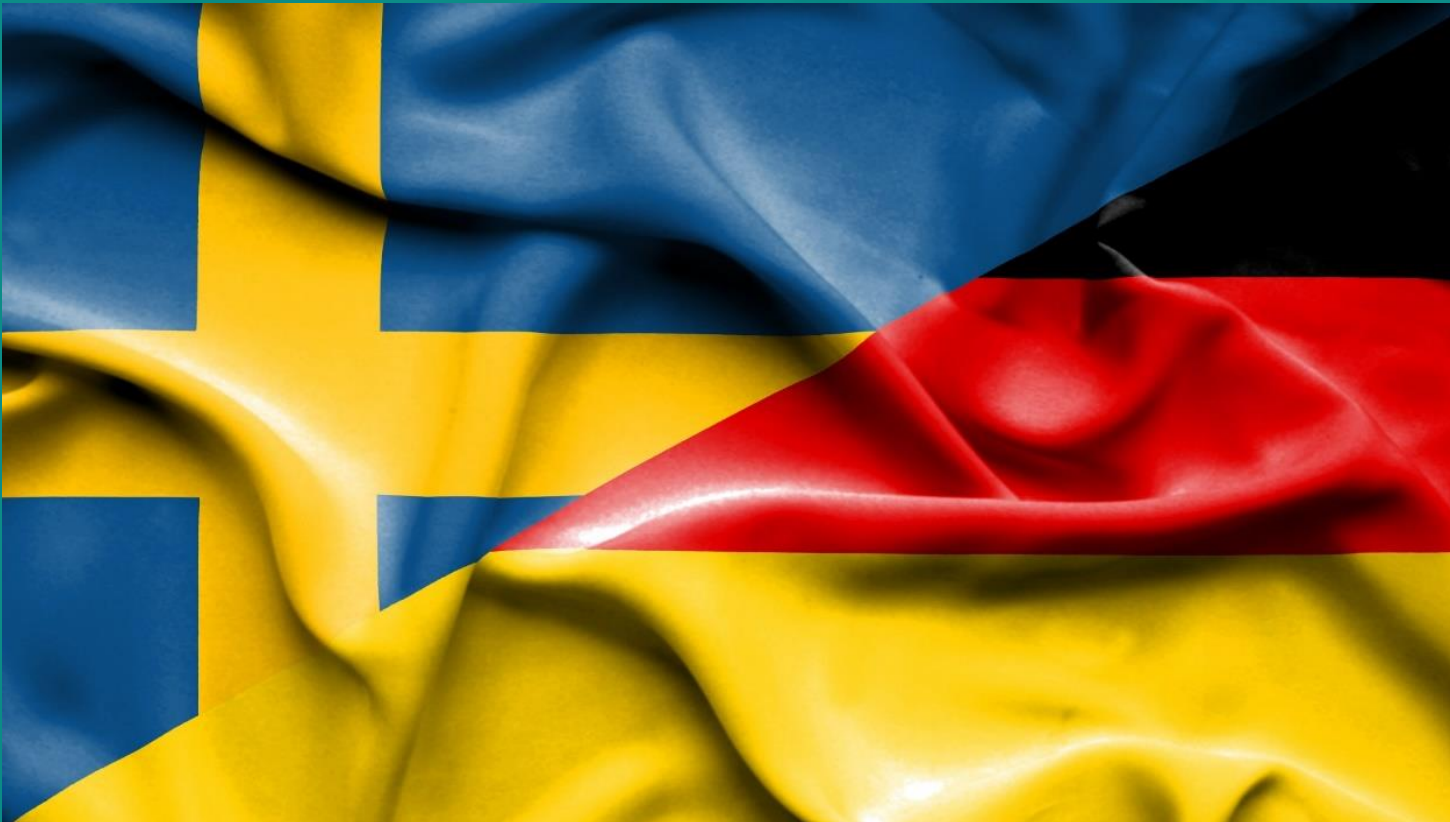


Background to the Call-for-Proposals

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”

Photo: Henrik Montgomery, TT

VINNOVA



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

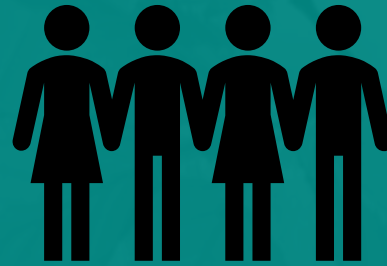
Challenge driven innovation going global



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

Missions team
Vinnova



VINNOVA



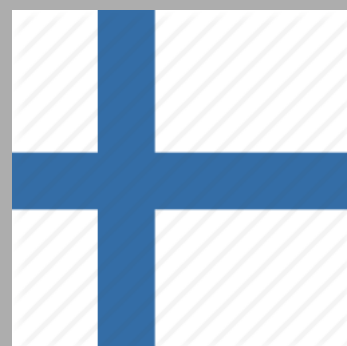
We are taking 21st century challenges,
evaluating them with 20th century ideas,
and responding with 19th century tools.

Madeleine Albright, Former US Secretary of State, 2013



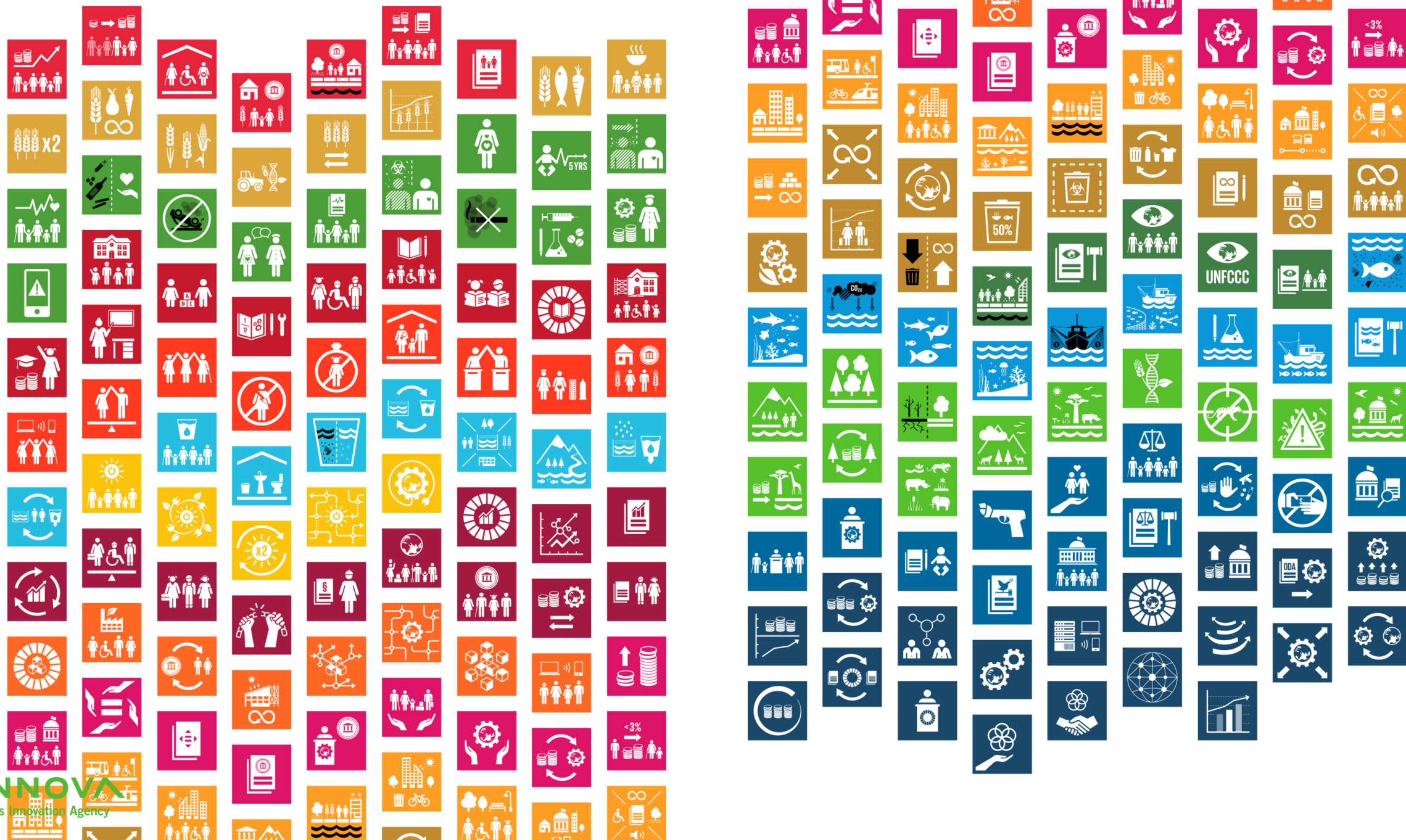
We must innovate
how we innovate.

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

A full-page background image of an astronaut in a white spacesuit standing on the lunar surface. The astronaut's helmet reflects the Earth. The ground is dark and rocky, and the sky is black.

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

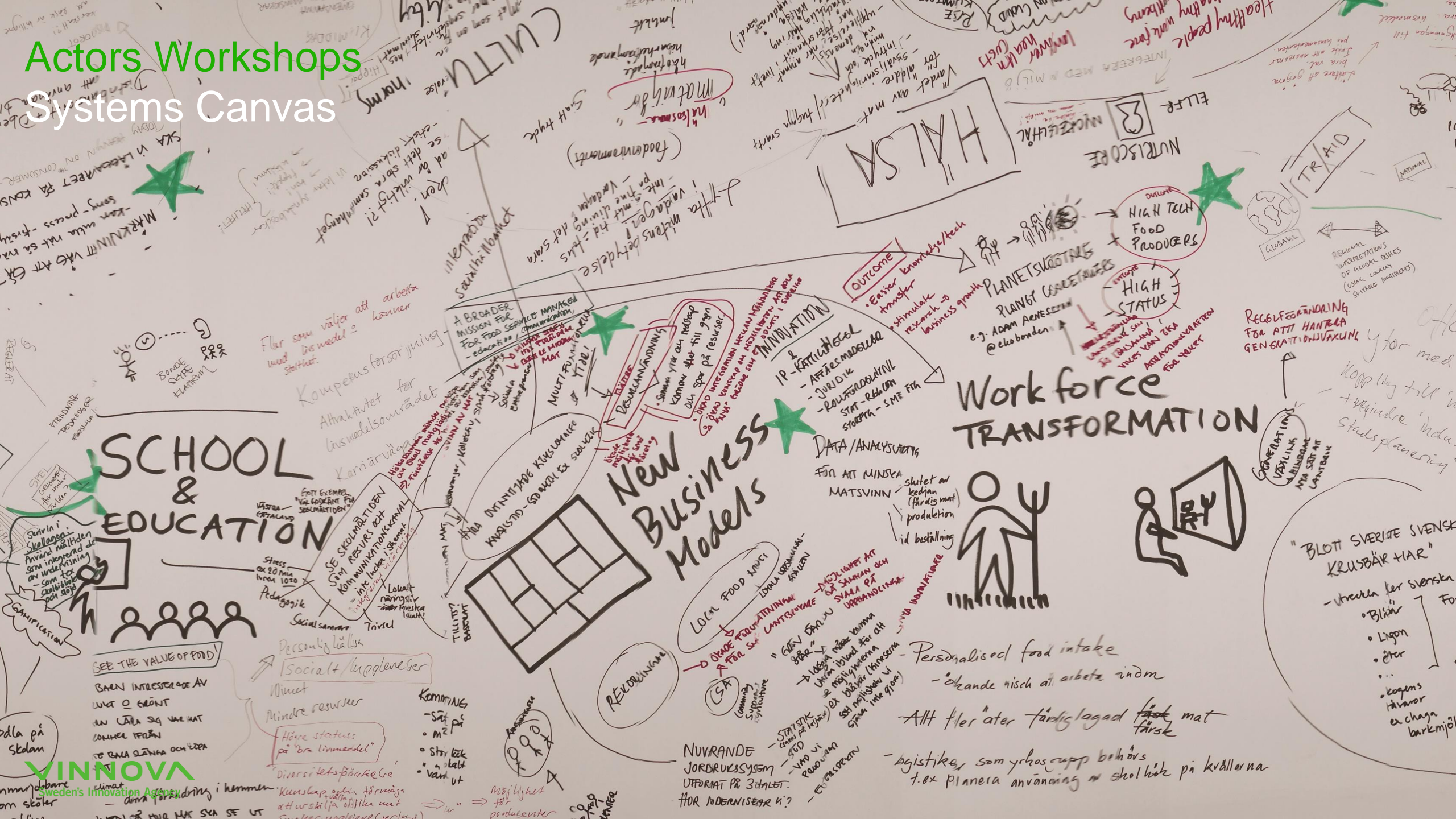
Angles

Actors Workshops

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

Actors Workshops

Systems Canvas



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

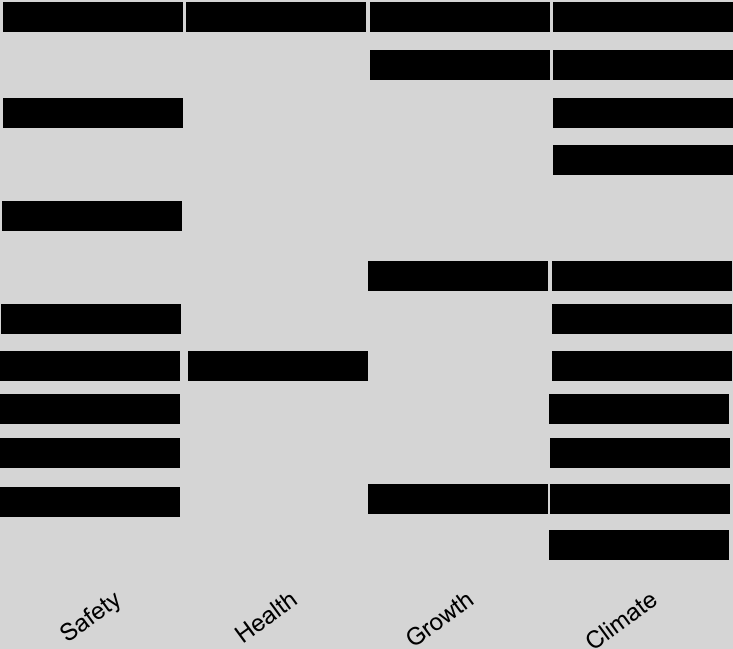
1 / National/municipal 'airgap'

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 personkorterna 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

Head of Department
Vinnova





Context

Artificial Intelligence in Swedish Business and Society

Analysis of Development and Potential

FINAL REPORT

VINNOVA
Sweden's Innovation Agency

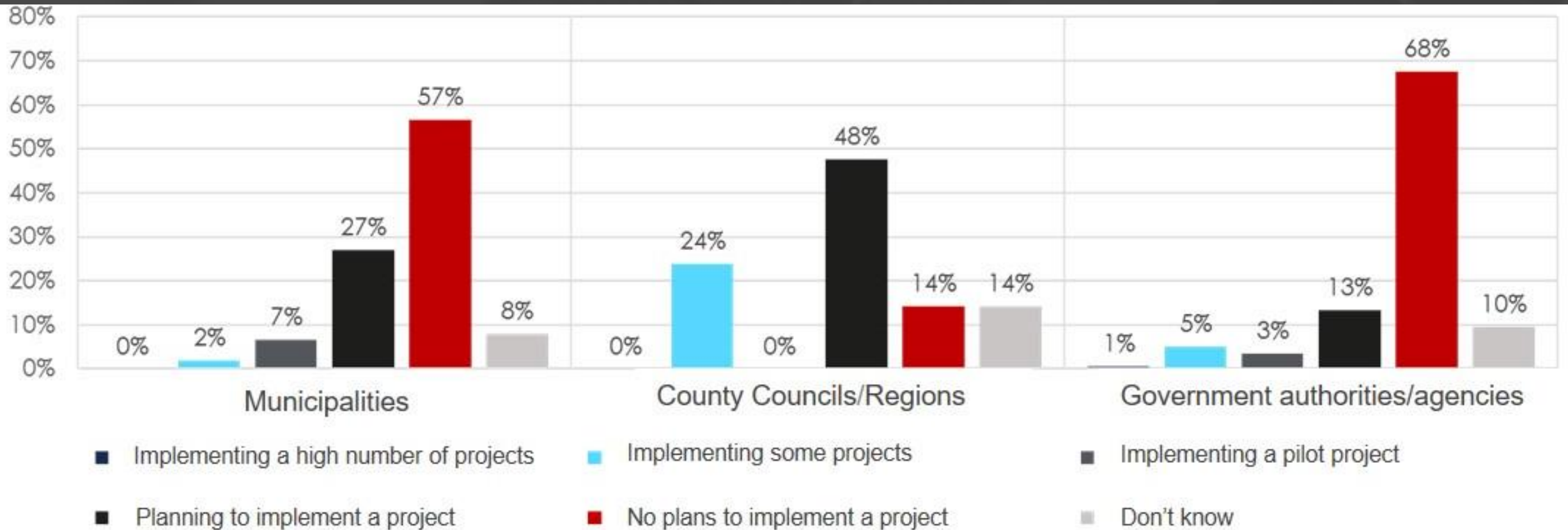
Sweden's AI capability

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

VINNOVA

Source: conclusions from Vinnova's report "Artificial intelligence in Swedish business and society" in 2018

The public sector



Graph illustrates ongoing/planned AI projects
Source: Governo

AI-roles for the public sector

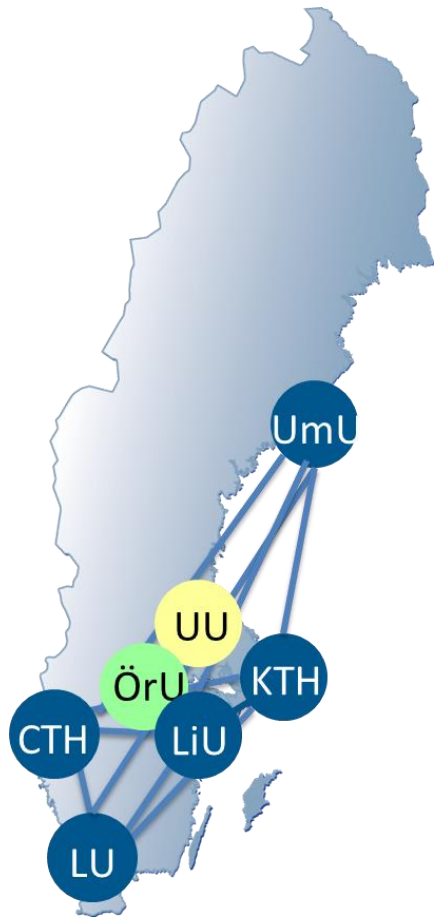
Innovation management

Innovation in the organization

Dissimination and
implementation

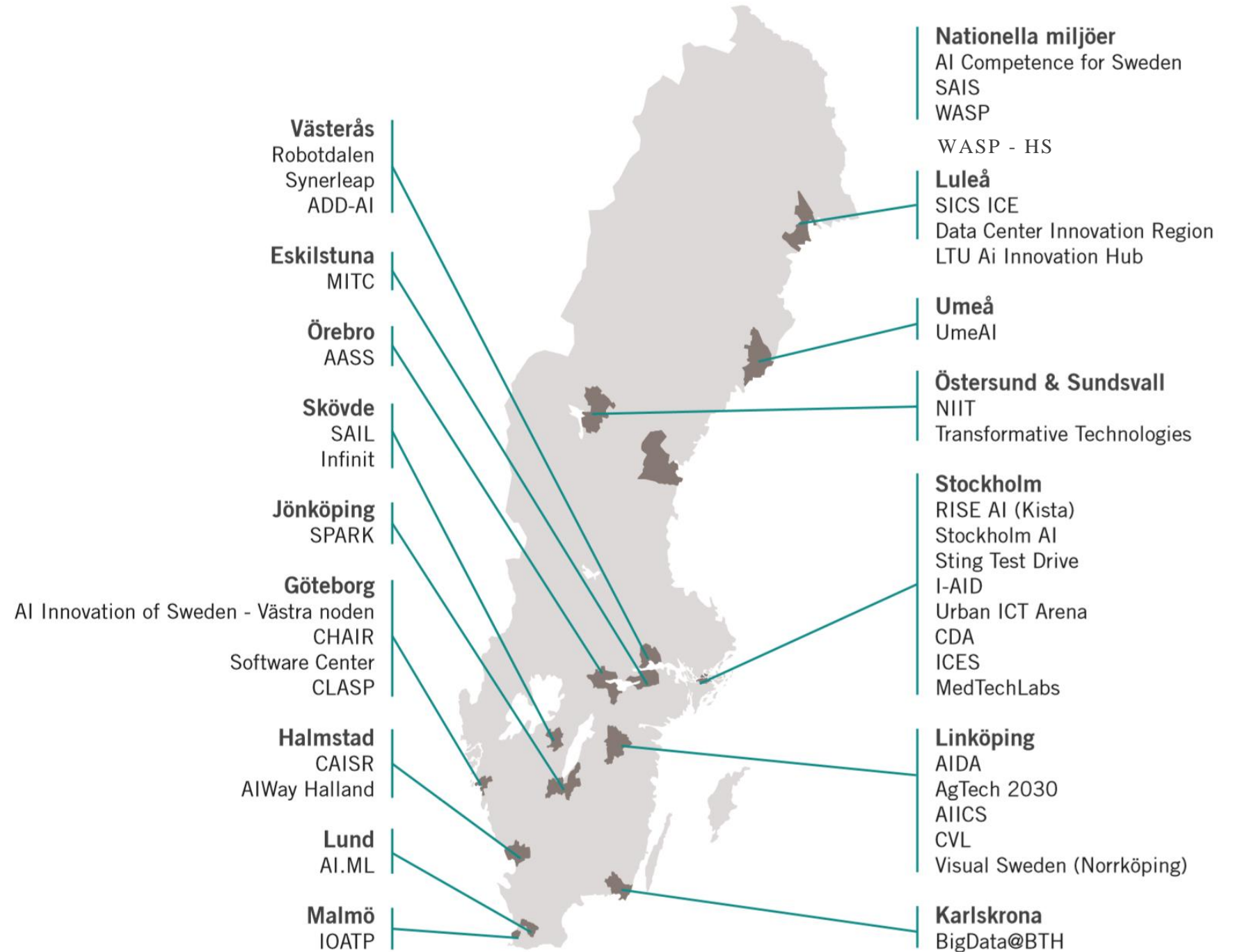
Policies, laws and rules

AI Competence and Research in Sweden

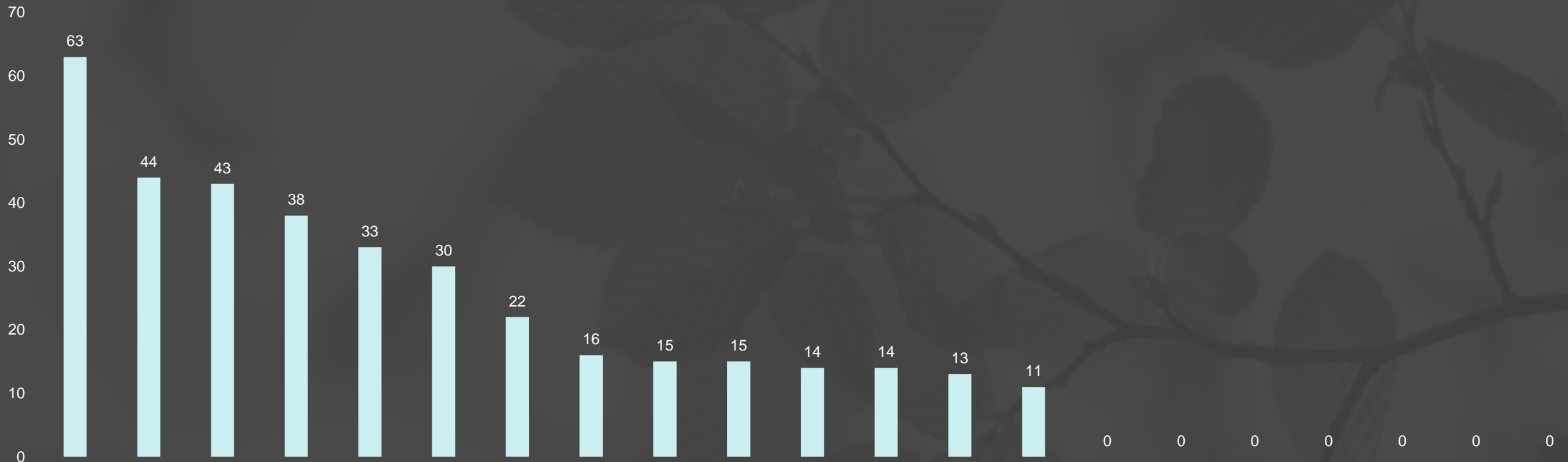


Elements of AI

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

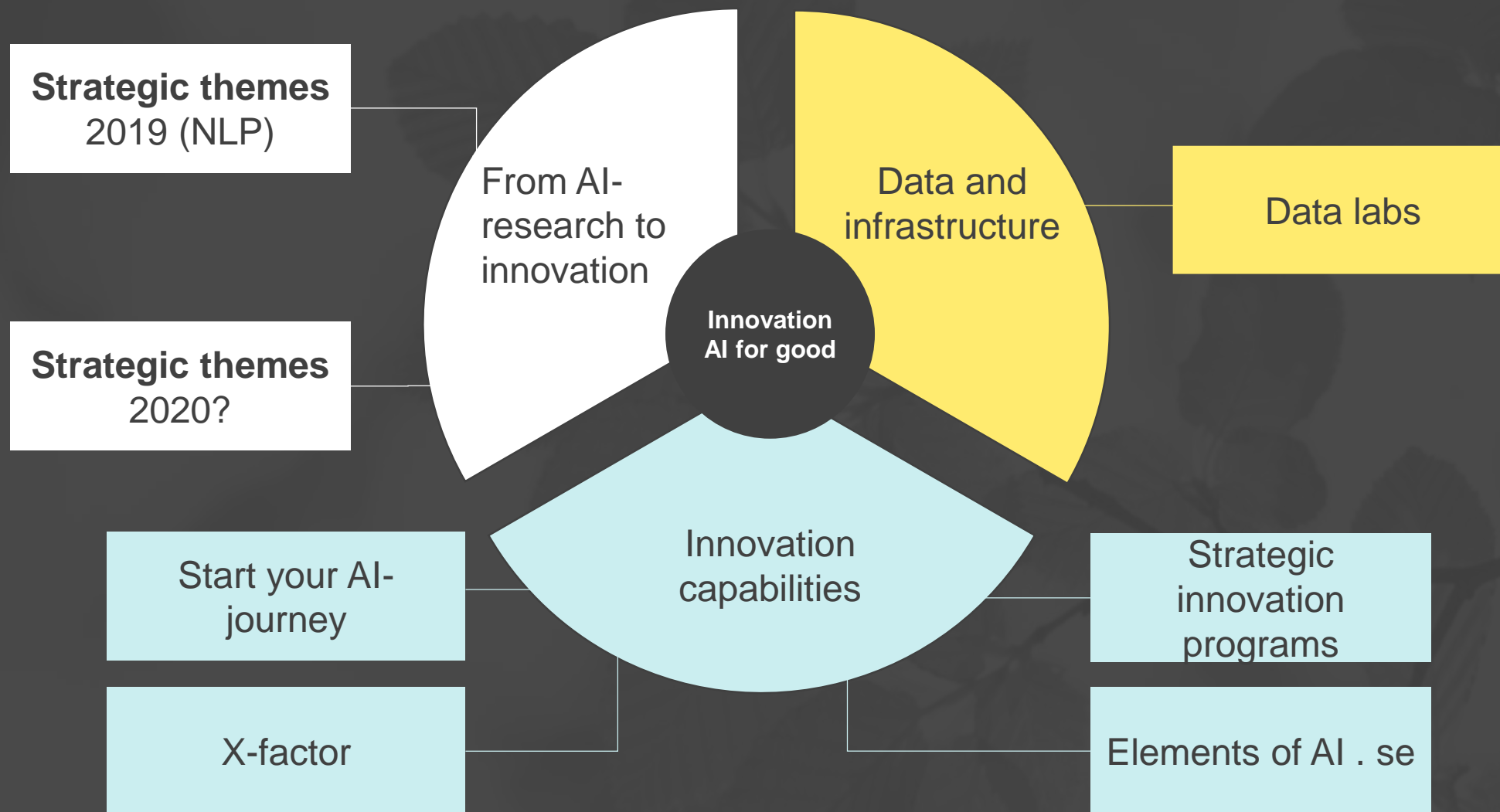
2921
projects



GLOBALA MÅLEN
för hållbar utveckling

Direction?

– how to reach change at the system level



A blurred background image showing two people, a man and a woman, sitting at a table and working on laptops. The man is on the right, wearing glasses and a dark shirt, looking at his laptop. The woman is on the left, wearing a green sweater, also looking at her laptop. Overlaid on the image is a glowing blue network graphic with nodes and connecting lines. The text 'AI INNOVATION of Sweden' is written in large, light-colored letters across the top right.

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



Partners

Lifelong Learning

Corporate

Public funding

Core technology partner

Public organizations

SMEs & Startups

Academia &
Research Institutes

Medium sized companies
& Consulting



Partners



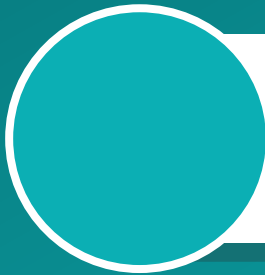
Accelerate through horizontal resources



Knowledge

Thought leadership,
network, seminars, education

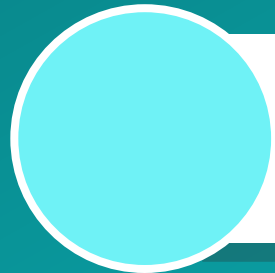
- Competence for excellence
- Best practices
- General knowledge



Data Factory

Accessible data &
infrastructures

- Basic infrastructure
- Partner data and dedicated data sets

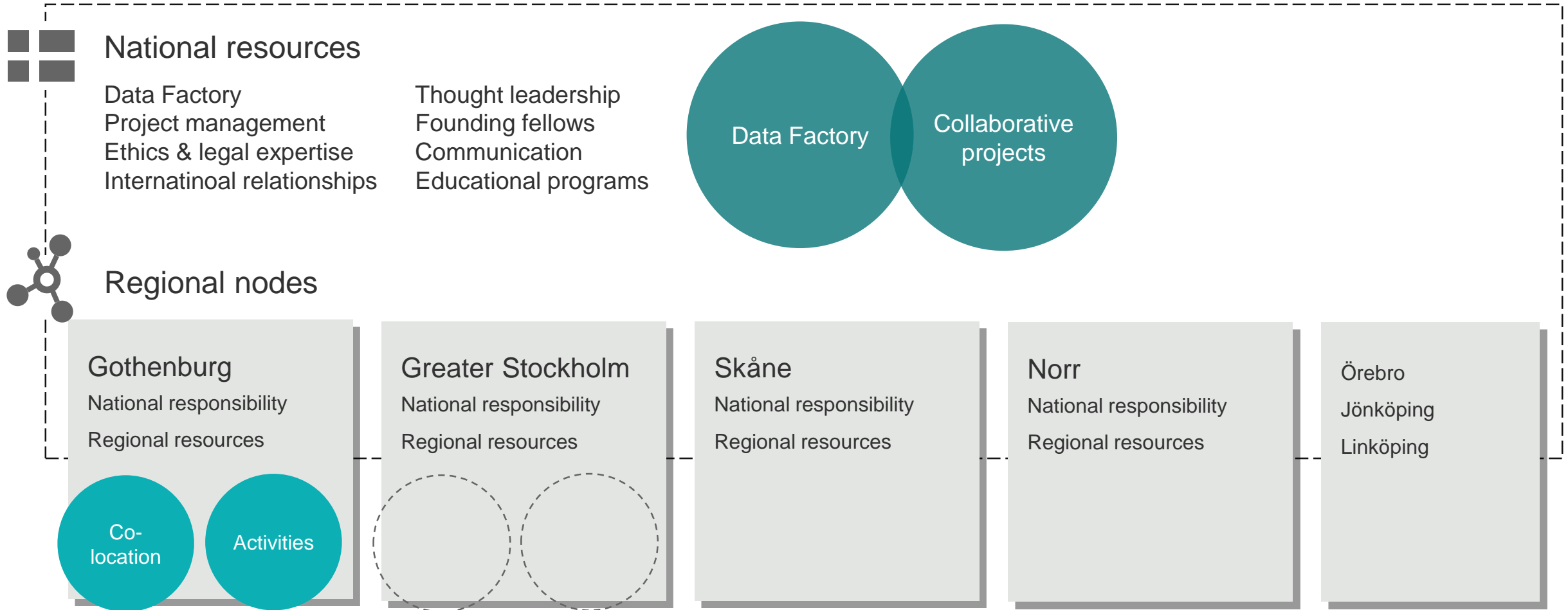


Collaboration

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. Zenuity 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

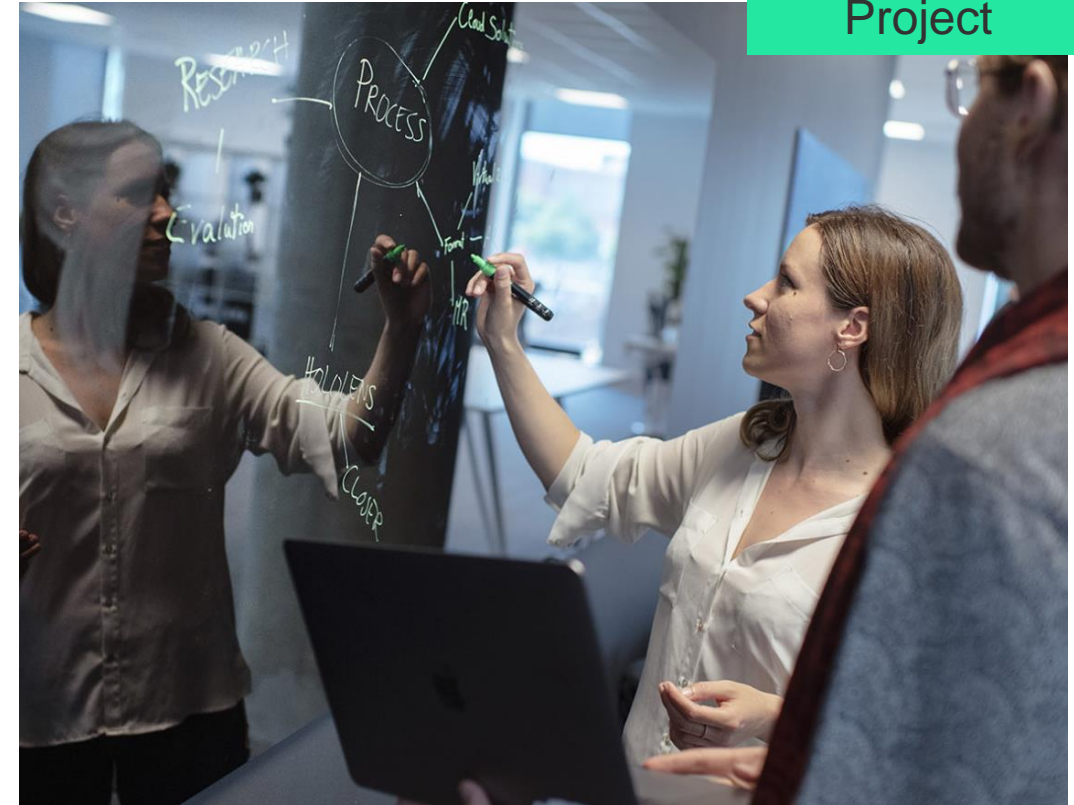
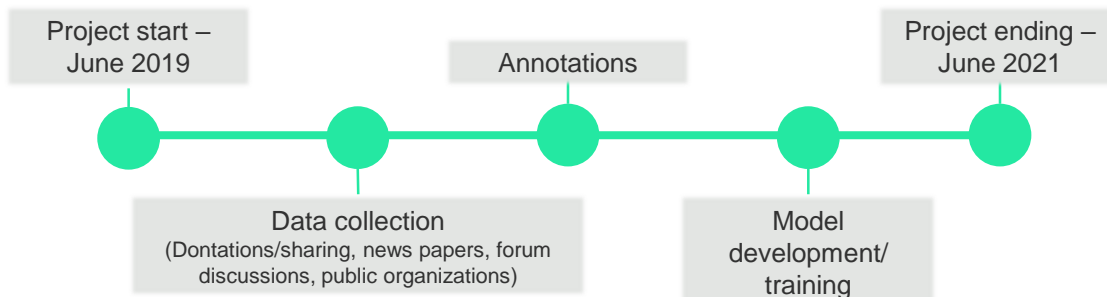
Healthy and climate-neutral food

Healthy and climate-neutral buildings

Precision health for all

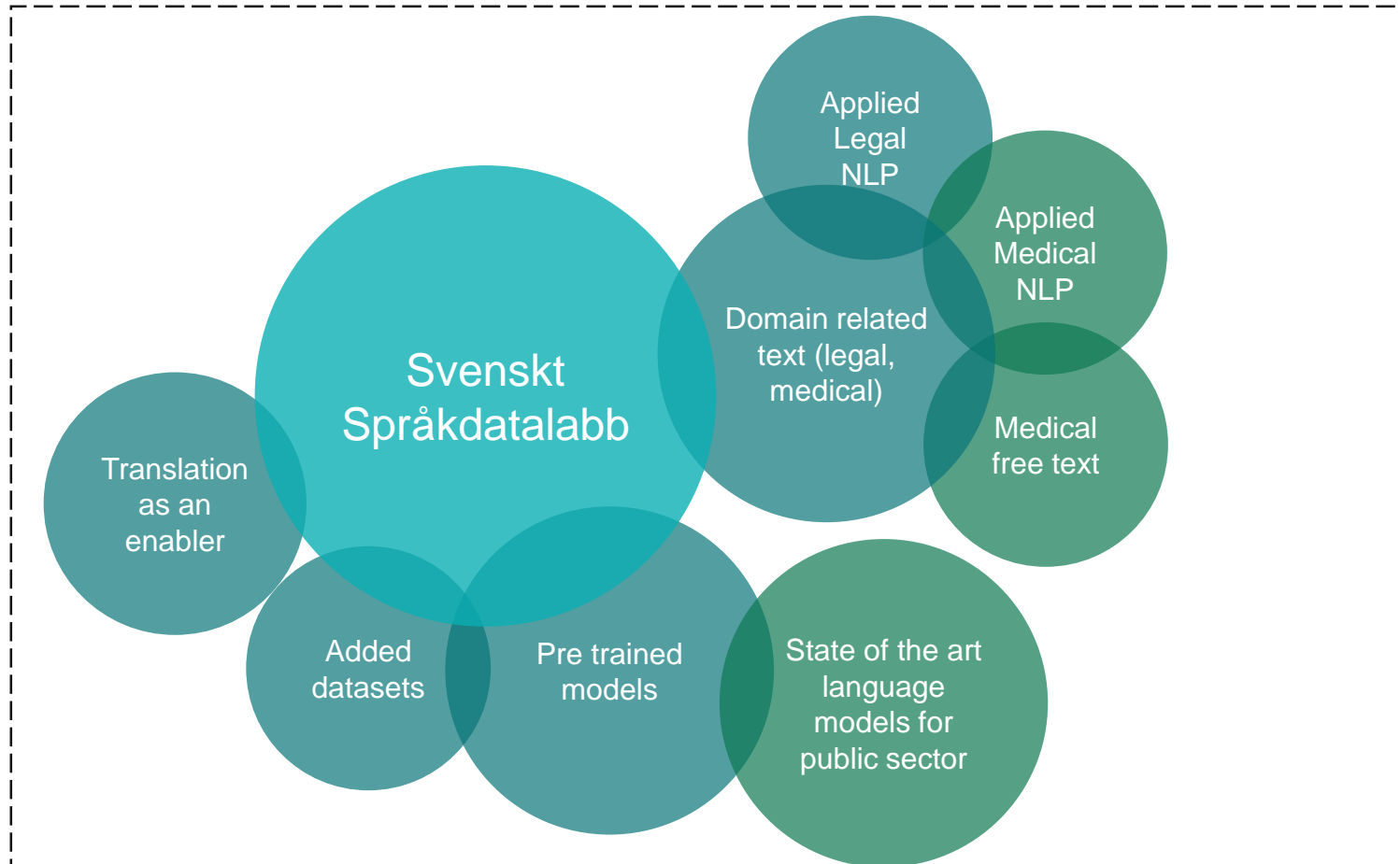
Swedish Language Data Lab

- 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

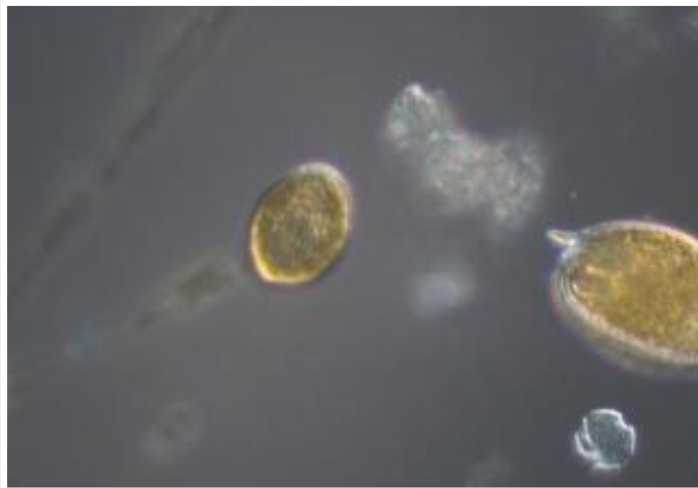
Road Map



Project

OCEAN DATA FACTORY

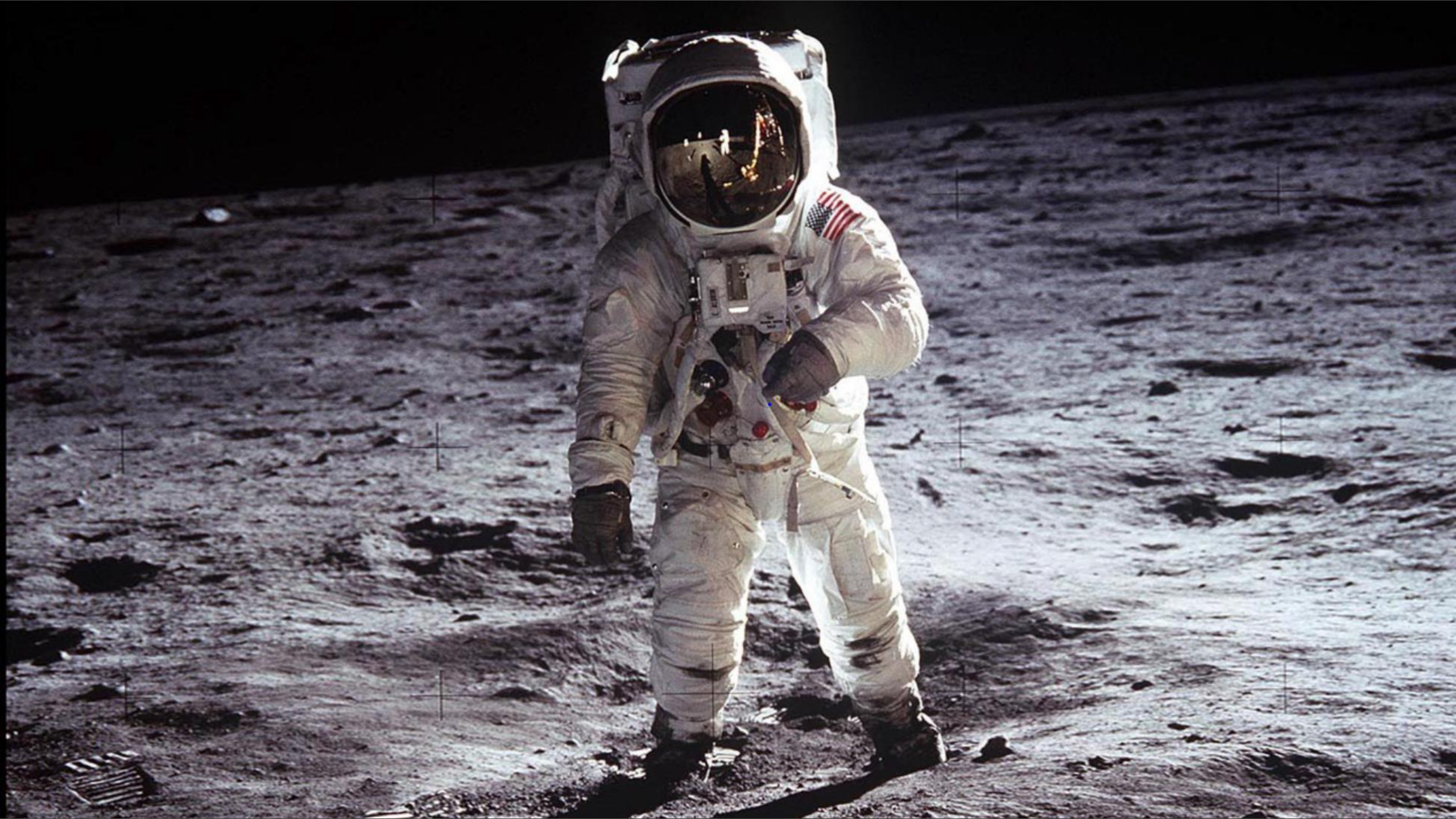
*”make Sweden a global enabler for
sustainability and innovation in the digital blue economy”*

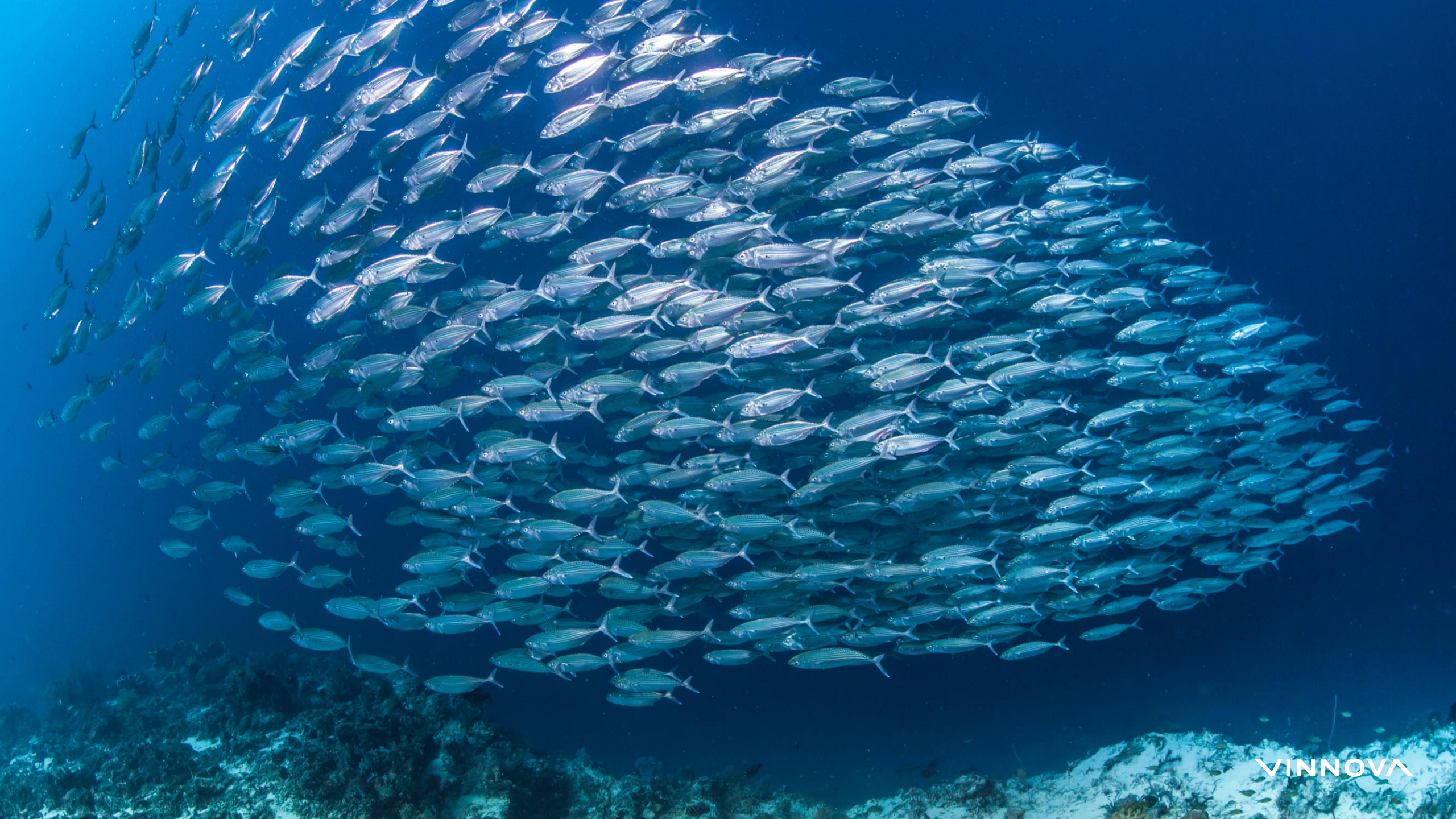


2019

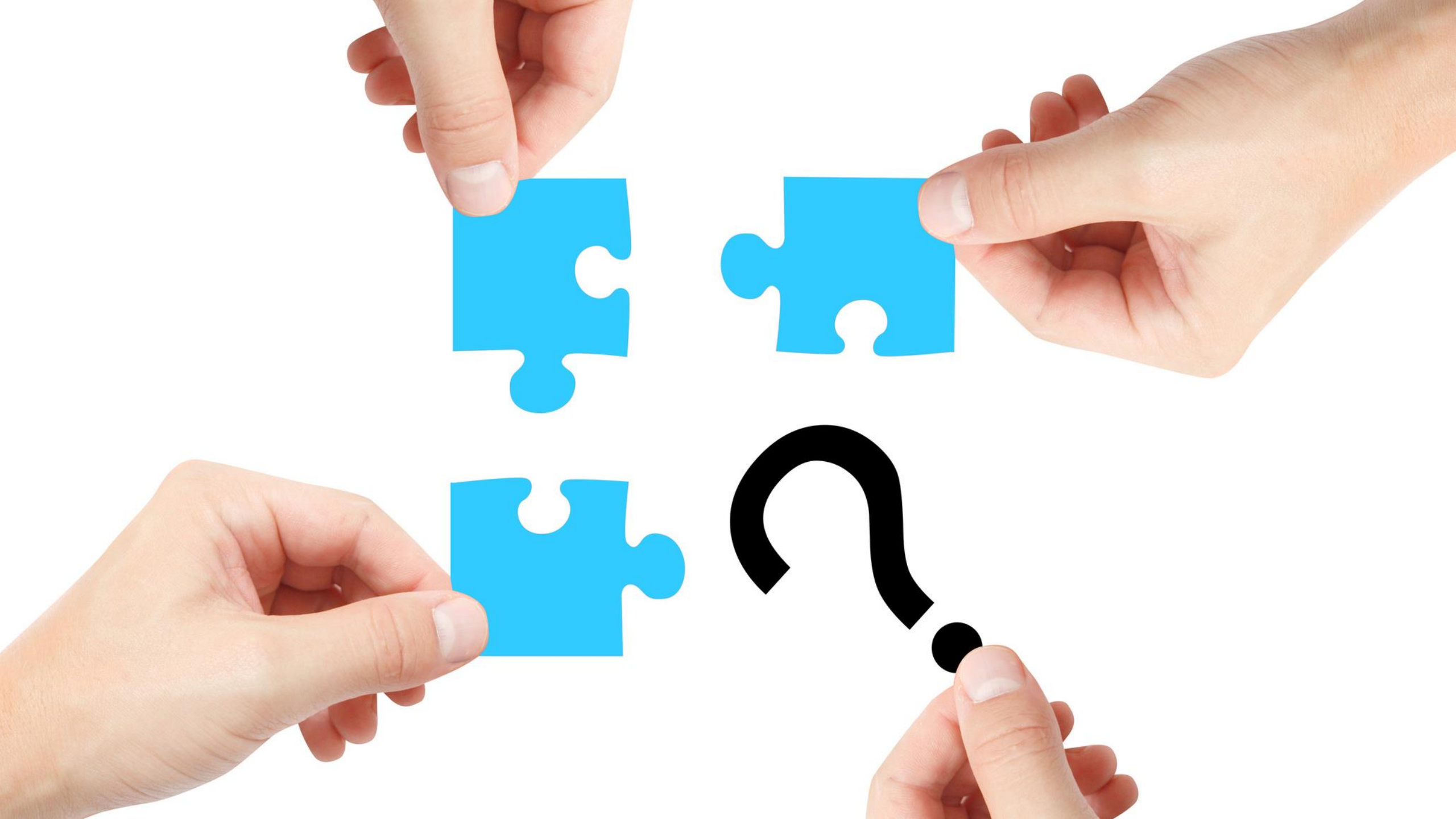
- A Sustainable Use Case
 - Focus on 2 Invasive Species
 - Use Open Data (physical, biological, shipping)
 - AI to Help Preventing Spread
- Getting Settled
 - Establishing Work Flows
- Hackathon
 - Open Sea Lab (Belgium; EMODnet)
 - 'Sillgrisslor' (Göteborg; AI Innovation of Sweden)

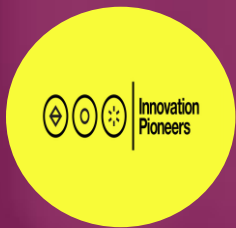
In sum





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TANK MEETING NR. 48 - 4/12

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

AI for
good

Annie Lindmark Joakim Skog

Open Innovation
Vinnova



Open Innovation

A circular image showing a city skyline with various skyscrapers and buildings under a cloudy sky.

Data has a better idea

Data labs

A circular image of a running track with white lane markings. The numbers '1' and '2' are visible, and the text '100m SPRIN' is partially visible at the bottom.

1 2
100m SPRIN

Innovation challenges

A circular image of a woman wearing a VR headset, looking directly at the camera with a slight smile.

Makers

A circular image showing a padlock on a metal fence. In the background, there is a view of the Earth from space. The text 'HACK FOR SWEDEN' is visible on the fence.

HACK FOR
SWEDEN

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 >



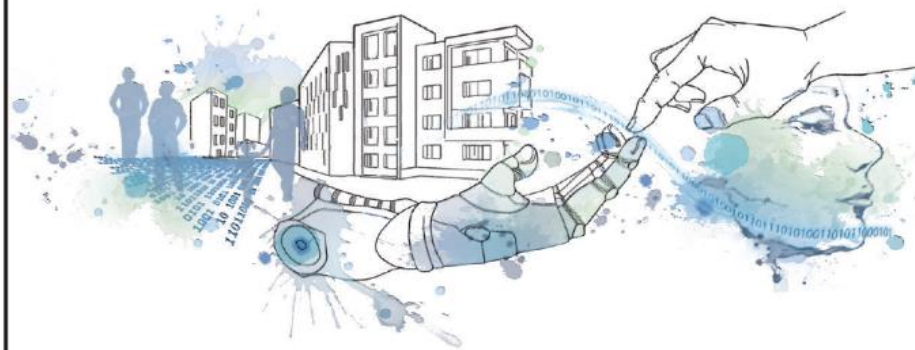
Användning av AI kan minska dödligheten i hudcancer >

”

**Sweden should be a
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**

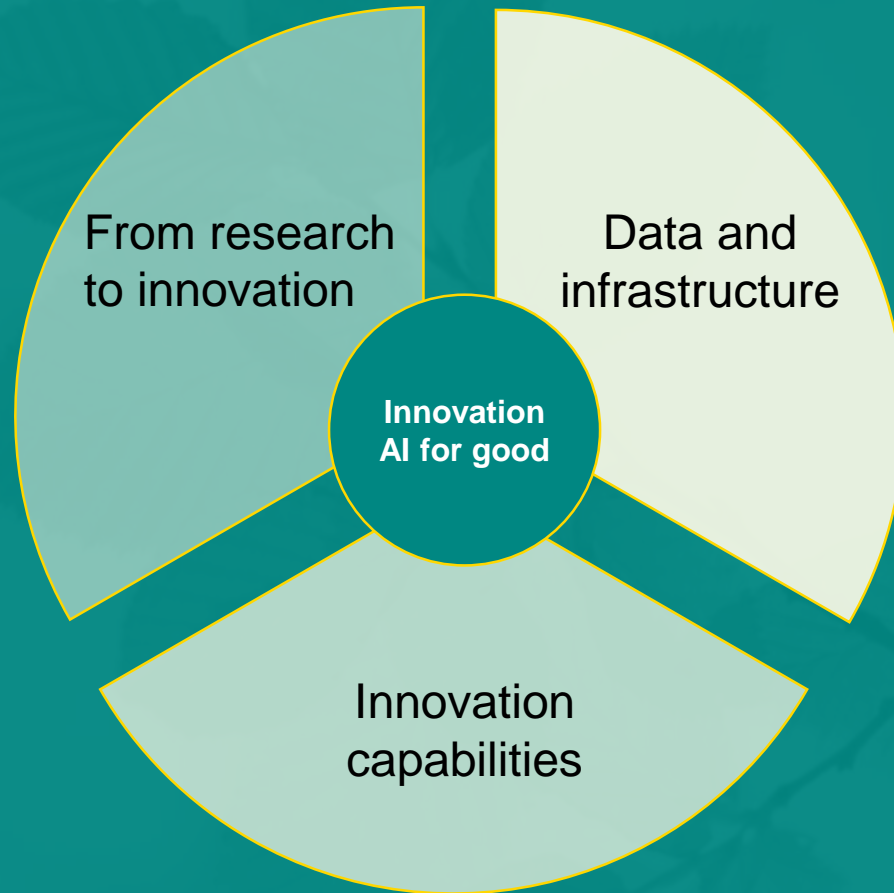
MAY 2018

Nationell inriktning
för artificiell intelligens



Regeringskansliet

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?



Innovation Management Support

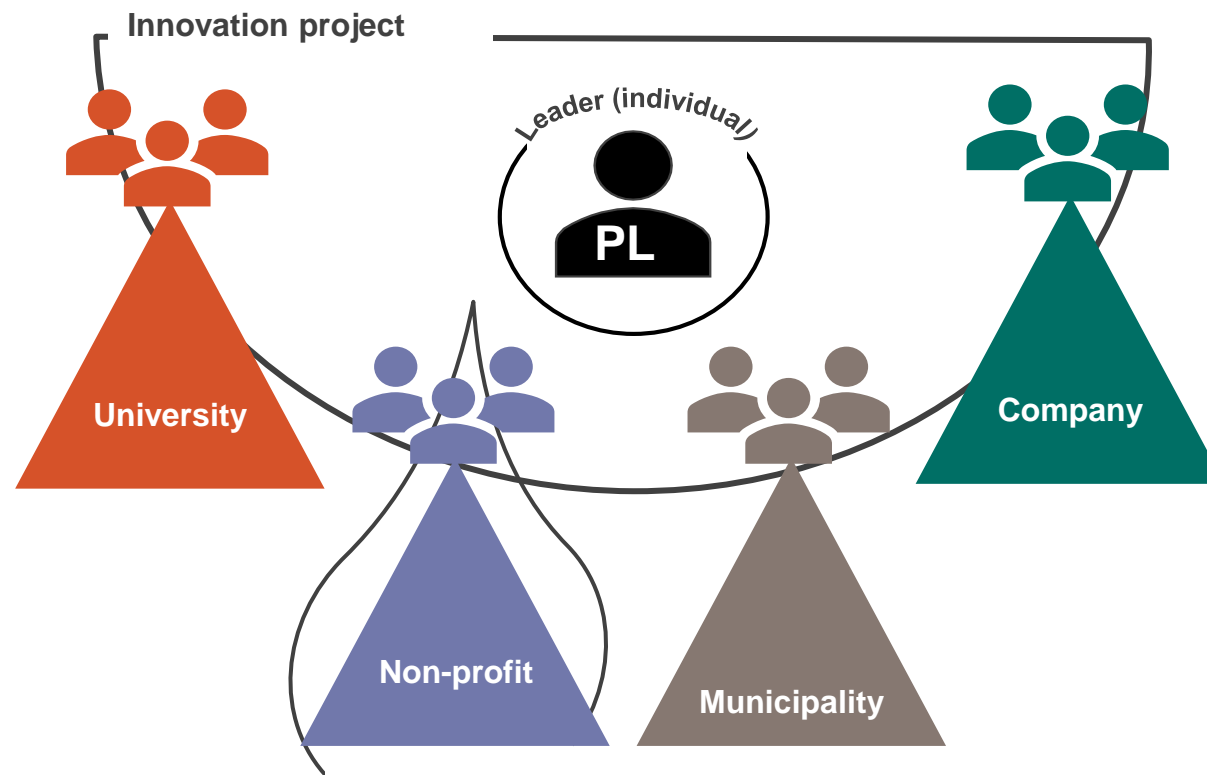


Support for increased impact during project-life-cycle

'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



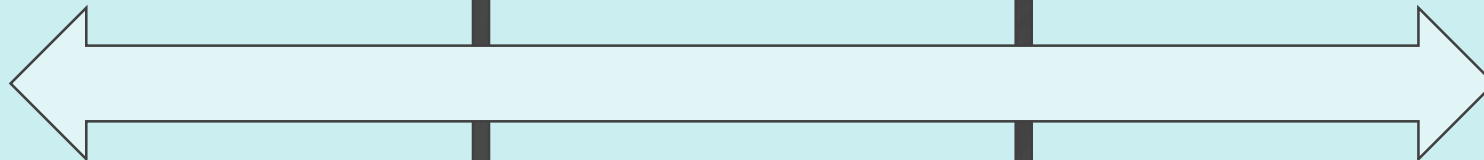
Workshop 1 –
identify needs
(½ day)



Survey
– capture needs



Workshop 2 –
verify needs
(½ day)



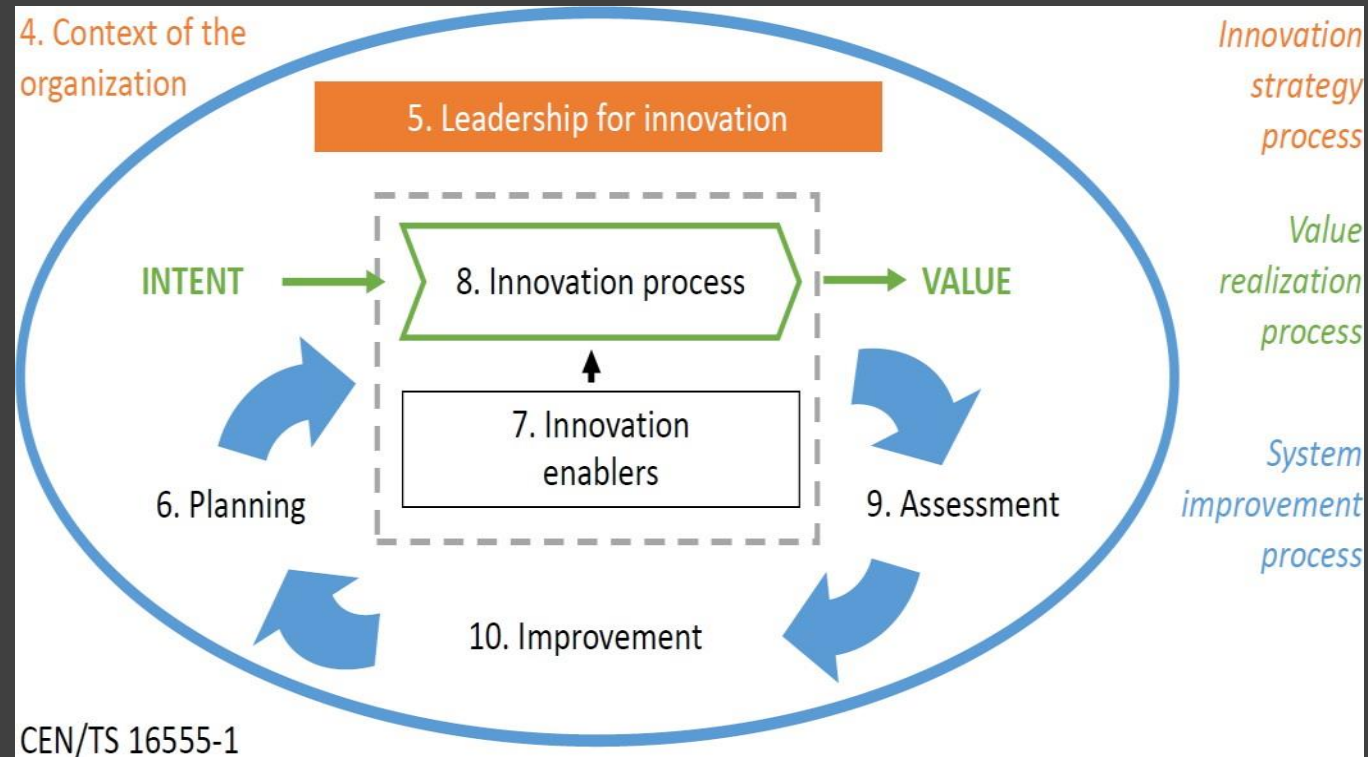
MODULE 1

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 clollaboration	Method
Meassure innovation capacity	Training+metho d
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



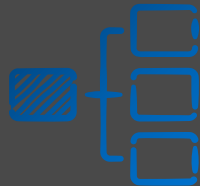
Future-focused
leaders



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

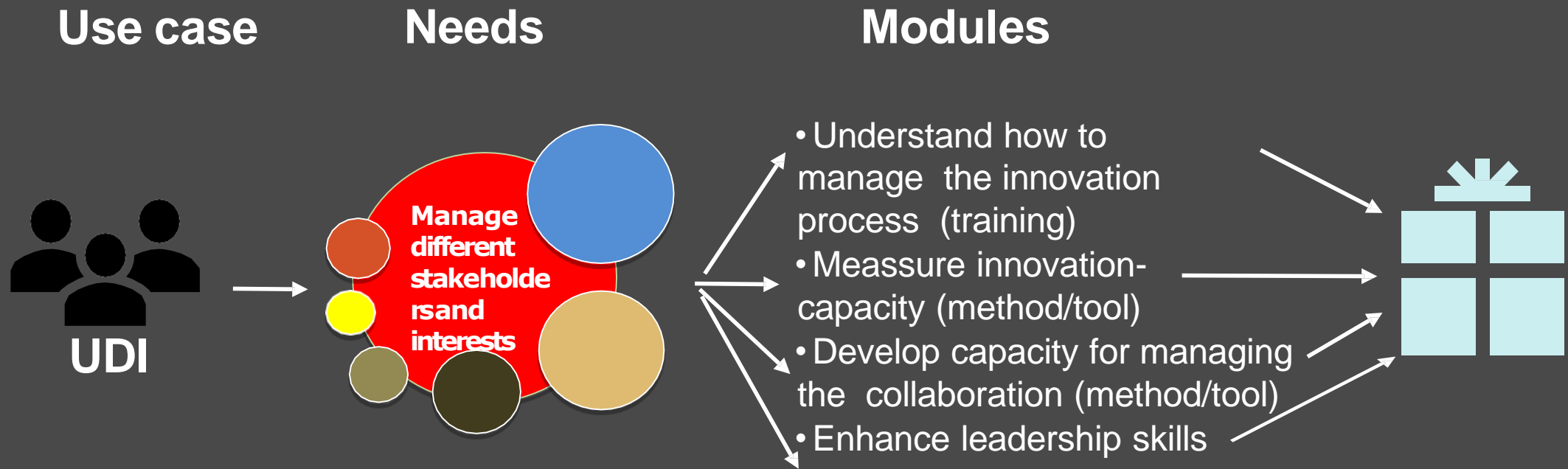
MODULE 4



Support for
innovation
managers
(individual
support)

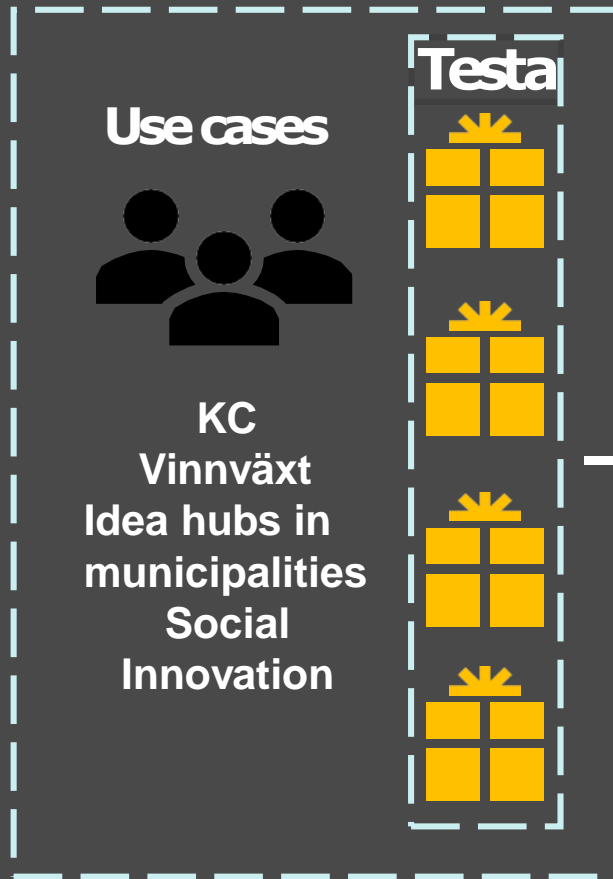
SUPPORT MECHANISM	FORMATE
Project-/process management	Training
Innovation management	Training
Innovation coaching	Coaching
Mentor network	Mentoring

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?

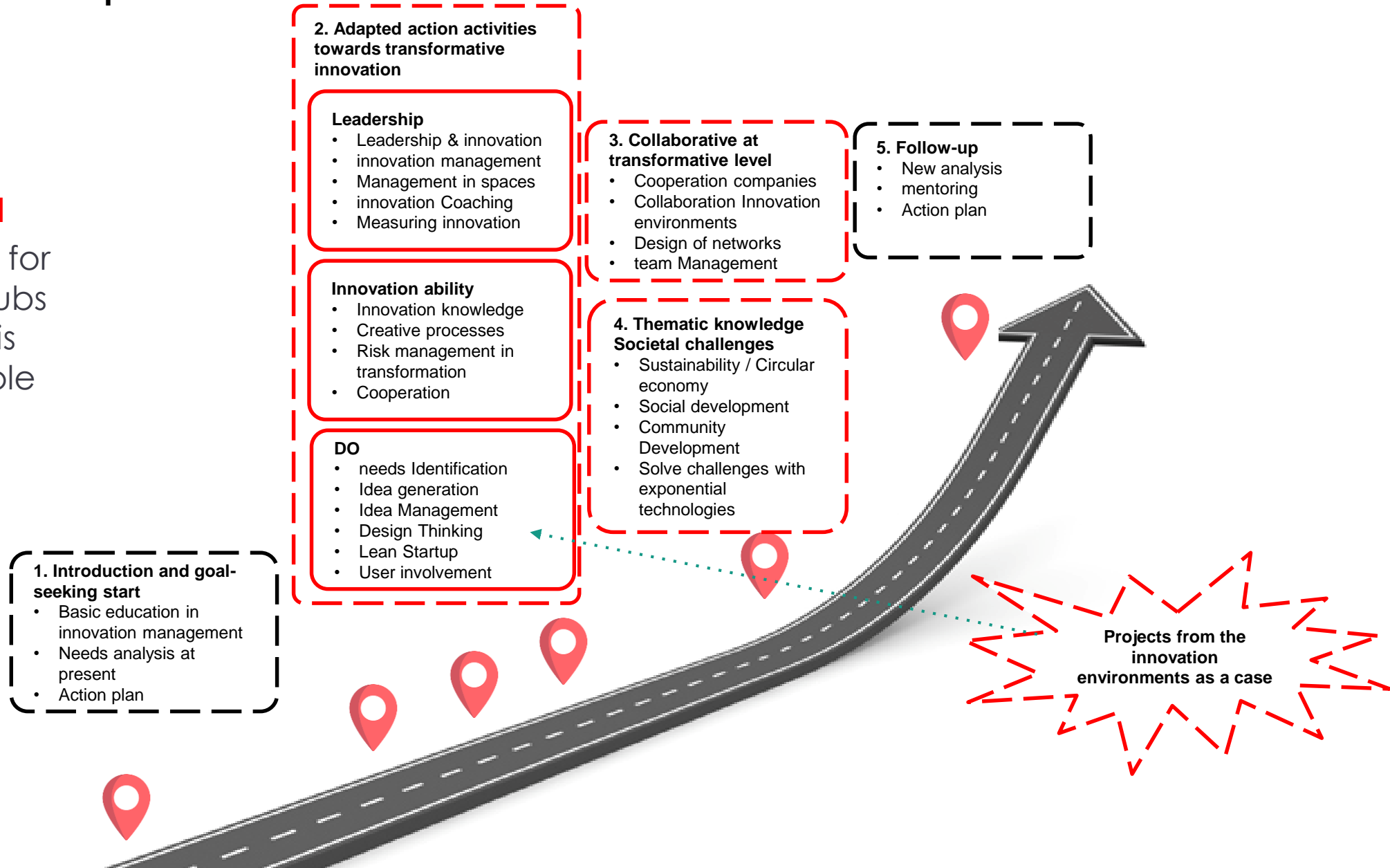


Leadership in a fast-moving world - increased ability to lead innovation and transformation processes



--- 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!



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