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Ministerie van Economische Zaken
en Klimaat

Innovation missions in the Netherlands and the link to Europe

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Jan 2022



Innovation is key

- Research, innovation and entrepreneurship are key
- Dutch public and private investment in R&D a modest 2.2 % GDP
- R&D system with many actors
- Focus on private-public partnerships in top sectors: the *polder model*
- In 2019 we shifted to innovation missions

Energy transition
& sustainability



Agriculture, water
& food



Health and
care



Security



- In 2022, our new government focusses on three transitions:
 - climate and energy
 - digital and key technologies
 - circular economy

Nederland in 2300 zonder 'Plan B'

Miljoenen Nederlanders, Belgen, Fransen
en Duitsers zullen het hogerop moeten
zoeken als de zeespiegel extreem stijgt.
Hoe ziet Nederland er dan uit?

Frédéric Maye

•15 meter

Klein gebied, maar geschat
bij 1 miljoen Nederlanders,
schakelt een klein deel
van de kust af, wat de kust
vervalt aan de zee. Het gebied
wordt in 2050 mogelijk
gevolgd en wordt mogelijk
gevolgd (zandwinning) en
het gebied van de kust.
'Plan A' is een gebied van 2300
meer te meer en mogelijk
zandwinning. Maar met
meer kleine kleine
regenen en zijn op de lange
termijn in Nederland is
'Plan A' lang te verlaten.

Mega-suppleties 'Plan A'

De een jaarlijkse zandwinning van 6 cm
en twee mega-suppleties per jaar nodig
om de kust te beschermen, en dat gaat staan
beneden de hele kust om de 30 km
hoger zandwinning te suppletieren.

Zoutindringing

De zandoplossing om de kust te
beschermen is al het vochtwater dat zout-
indringing eruit de kust en de lage
gebieden (er daarin de vochtwater-
winning staat).

Meegroeten

Meegroeten met natuurlijke begroeiing
groeien sneller met dan andere, door
dat ze beschermend worden tegen erosie door
dofheid. Maar ook deze gebieden zullen
uitwendig van groen vallen aan de zee.

(zandwinning) (zand)

• 15 meter

LAND (hoogte 100 cm)

Landwinning

Open zee

Zandwinningsputten

Als het 37e eeuwse kustland er is
en de zandwinning is 10 km, het
andere dan voor nieuwe kustwinning
zand te zien erin.

Amsterdam

Düsseldorf

Brussels

<https://fd.nl/krant/2020/11/21>



Dutch knowledge and innovation missions: examples

- Zero-emission mobility of people and goods by 2050
- A sustainable balance between ecological capacity and water management vs. renewable energy, food, fishing and other economic activities (by 2030 for marine waters and by 2050 for rivers, lakes and estuaries)
- By 2040, all Dutch citizens will live at least five years longer in good health
- Health care: in 2030, 50% delivered at home instead of in an institution
- Reduction of the use of raw and auxiliary materials in agriculture and horticulture by 2030 (circular agriculture). By 2050, the agricultural and nature system will be net carbon-neutral



Aligning agendas to realise the missions

- 30 stakeholders sign up to the knowledge and innovation agendas: covenant KIC 2020-2023
 - € 3 billion p.a. public funders (NWO, TNO, unis, ministries, etc)
 - € 2 billion private companies and charity funds
- They cooperate to achieve the missions
- More than R&D. Regulation, price-setting, citizen behaviour etc



Innoveren met een missie

Integrale kennis- en innovatieagenda voor klimaat en energie



ACTIAGENDA TOPSECTOR LOGISTIEK
2020-2023





Regieoverleg, okt 2019



Top sectors and key technologies support the missions

Four building blocks:

1. Provide the framework: top sectors, key technologies, missions
2. Bring actors together
3. Align their knowledge and innovation agendas towards the missions
4. Cooperate to realise the missions and create economic value

Societal mission: the energizer



Topsector: the driver

Key technology: the enabler

“It is among the most ambitious mission-oriented strategic frameworks as it aims to systematically structure the interactions between two main axes of collective action: economic sectors and societal missions”
(OECD on the Dutch innovation policy).



Missions, EU and NL

EU	NL
Cancer	Health and care, various missions
Adaptation to climate change	Energy transition and sustainability, various missions, e.g. Circular Economy in 2050 Agriculture, water, food: NL in 2050 is climate resilient and water robust
Restore our ocean and waters	Agriculture, water, food: balancing ecology/economy in water
100 Climate-neutral and smart cities	Energy transition and sustainability: CO2-free built environment; emission-free mobility in 2050
A soil deal for Europe	Agriculture, water, food: less raw materials in agri and horti culture in 2030; climate neutral in 2050



Our first experiences with the NL missions



Good news:

- The partners cooperate more chain-wide towards missions
- Innovation ecosystems connect across traditional sectors
- Single projects start coming together in a portfolio
- Private and public-private investors join in



Concerns and ways forward:

- Bottlenecks: take the whole system into view, consider social aspects (do citizens support the innovation?)
- Deepen the cooperation between the partners
- Widen the scope: involve new partners
- Streamline the governance ('coordination fatigue')
- Monitoring: link the results of projects to the overall mission (causality)



Some first results of our approach

- Health: an electronic skin patch
- A super-battery spin-off company SALD
- Agenda for the fossil-free electrochemical conversion and a green industry
- Sustainable farming: share agri food data to optimise and trace the food chain, reduce fertilizer, link insurance and banking



SALD



Elektrochemische
Conversie & Materialen

Naar een CO₂-neutrale energievoorziening in 2050

- Findable
- Accessible
- Interoperable
- Reusable



How best to link NL and EU missions?

Linkages:

1. Strategy: working on missions nationally and at the EU level, to deliver more impact
2. Content: focus the EU on what it is best at
3. Organisation: national policy makers link both levels: EU & national
4. Modalities: streamlining financing conditions?



Content: focus the EU on what it is best at

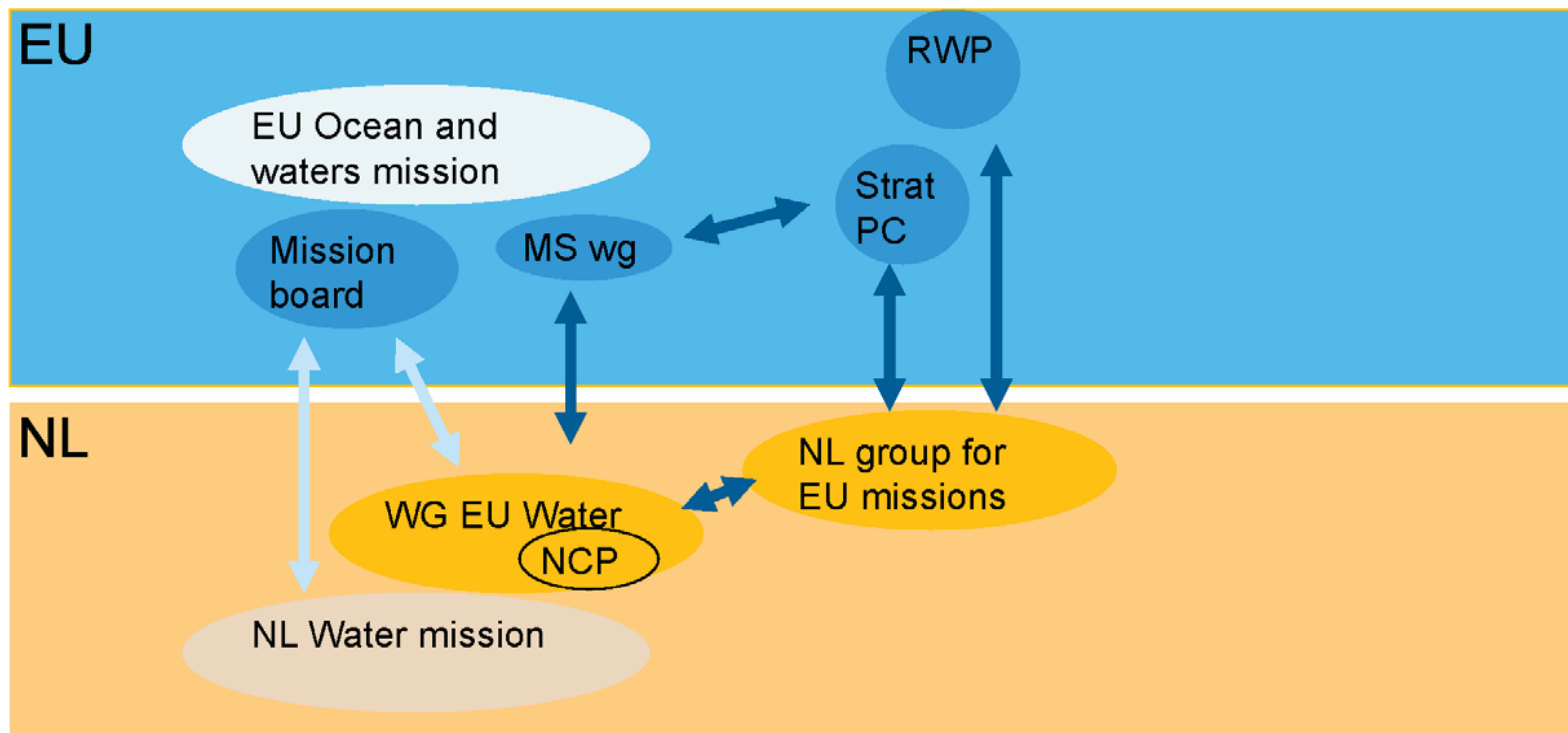
The EU has to be selective: subsidiarity, budget around € 100 million per mission per year

The EU could focus on . .

- making national activities and projects transparent and easier to link up, through platforms, national hubs, data-sharing, learning from the best (e.g. on citizen engagement)
- lining up projects in portfolios to increase impact
- innovating not just parts but the whole system (energy, food, health etc)
- involving EU-wide programmes and regulation to stimulate innovation (green taxonomy, Fit For 55, Beating Cancer . .)
- support for improving national pre-conditions for innovation (ERA)



Organisation: enable two-way communication





Financing conditions: no need for harmonisation

Rules of the game differ:

- Horizon Europe pillar II for missions: grants for cooperative projects, based on calls and standard rules for participation
- In the NL, many organisations support the missions, each one in its own way (modalities, rules, conditions). Some alignment would make life easier for researchers and innovators
- Aligning various national grant rules with Horizon Europe would be difficult. Legal regimes differ. EU state aid rules do not apply for Horizon Europe. No priority



To conclude

1. EU and national missions can very well complement each other
2. The EU level is best at linking up national efforts
3. National mission-makers have to be involved in the EU governance. They help to steer the EU missions and can adapt their national activities if needed. A two-way flow of information is key
4. Harmonization of conditions and rules has no priority



Spare slides in case needed



EU missions

1. Adaptation to Climate Change:
 - support at least 150 European regions and communities to become climate resilient by 2030
2. Cancer:
 - improving the lives of more than 3 million people by 2030 through prevention, cure and for those affected by cancer including their families, to live longer and better
3. Restore our Ocean and Waters by 2030
4. 100 Climate-Neutral and Smart Cities by 2030
5. A Soil Deal for Europe:
 - 100 living labs and lighthouses to lead the transition towards healthy soils by 2030



Top sectors: public-private cooperation

(ICT is a cross-cutting top sector)



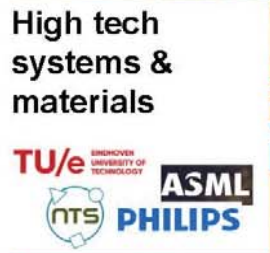
Agri & Food



Chemistry



Creative industry



High tech systems & materials



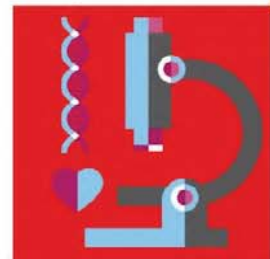
TOP SECTOR
HIGH TECH
SYSTEMEN EN
MATERIELEN



Water



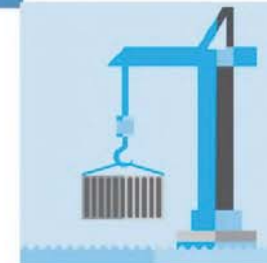
Energy



Life Sciences & Health



Horticulture



Logistics





Example: KIA Sustainable mobility, zero-emission vehicles

Tabel 3.9.1. Deelprogramma's en fasering Innovatietraject. De meest urgente kennis- en innovatieopgaven voor de komende vijf jaar in de verschillende fases van een innovatieproces om de missies van Klimaatakkoord te realiseren.

9.1 Zero Emissie aandrijftechnologie en voertuigen			
Ontwikkelen, demonstreren en implementeren van (technologie voor) ZE voertuigen in verschillende modaliteiten.			
Onderzoek	Ontwikkeling	Demonstratie	Implementatie
- Nieuwe batterijtechnologie met zeer hoge energie-inhoud (> 350 Wh/kg) en lage prijs (< 70€/kWh); - Technologie voor kostenreductie bij brandstofcellen; - Verbeterde opslagsystemen voor elektriciteit en waterstof; - Elektrische aandrijving voor luchtvaart (het gaat hier ook om aerodynamica, materiaalgebruik, vluchtroutering en organisatie van het vliegen).	- Ondersteunende technologieën voor batterijen (o.a. batterijmonitoring en management); - Modellen voor recycling van batterijen; - Batterij-elektrische, hybride en brandstofcel-elektrische aandrijving voor zwaar transport (weg, maritiem en luchtvaart); - Energie-efficiënte elektrische auxiliaries en integratie van fotonische systemen in voertuigen.	- Batterij-elektrische, hybride en brandstofcel-elektrische aandrijving voor zwaar transport; - Optimalisatie van energiemanagering binnen voertuigen (aandrijving en auxiliaries) en m.b.t. systeeminteracties tussen voertuig, energienetwerk en verkeerssysteem; - Nieuwe voertuig-concepten (bijv. cargo light electric vehicles (LEV)).	- Kennisvragen m.b.t. uitrol van elektrische aangedreven voer- en vaartuigen; - Ontwikkeling diensten en services rond elektrisch rijden en elektrische deelauto's.

NL

HiTMaT

HITMaT Climate Health Mobility Security Sustainable
Advanced Instrumentation Aeronautics Automotive Electronics
High Tech Materials Lighting Nanotechnology Photonics
Semiconductor Equipment Smart Industry Space Systems Engineering

Hightech innovatieprojecten kiemgeld voor ontwikkeling

Winnaars 2020

De winnaars werden bekendgemaakt tijdens het online Holland High Tech Najaarsevenement (video). Klik hier voor video van HiTMaT.



- Advaaessel: Advanced materials processing and design for regenerating blood vessels
- UltrasoundNeuroTech: Ultrasonie stimulatie voor non-invasieve behandeling van hersenaandoeningen

- Data enhanced physical models to reduce material use: a game changer in materials modeling
- Innovative health monitoring for circular steel infrastructure



- How well do humans perform interacting with high tech systems?
- Grondgebonden Situational Awareness



Science reaching out to industry

Contact English ▶ Lees voor ISAAC →

Financiering vinden Onderzoeksbeleid NWO Onderzoek & resultaten Actueel Over NWO 🔍

Actueel > Nieuws > Save the date: Online matchmakingbijeenkomsten Data en Intelligence en Maritieme hightech - 15 en 29 januari 2021

Save the date: Online matchmakingbijeenkomsten Data en Intelligence en Maritieme hightech - 15 en 29 januari 2021

19 november 2020

Op 15 en 29 januari organiseert NWO online matchmakingbijeenkomsten voor de twee calls binnen de KIA Veiligheid: Data en Intelligence en Maritieme hightech. Op 15 januari zullen wetenschappers de tools krijgen om gezamenlijk hun ideeën te vormen. Op 29 januari krijgen wetenschappers de mogelijkheid om hun idee te pitchen aan bedrijven, om zo een interactie met elkaar aan te gaan.

De calls

De calls 'Data en Intelligence' en 'Maritieme hightech' zijn in november geopend en zijn onderdeel van de missiegedreven thematische programma's van het Kennis- en innovatieconvenant (KIC). De calls

Kenmerken

Onderzoeksprogramma

[Kennis- en innovatieconvenant \(KIC\)](#)

[Missiegedreven calls \(KIC 2020-2023\)](#)

Thema's

[Veiligheid](#)

[Water](#)

Type

[Bijeenkomst](#)