



# **Knowledge and Innovation Covenant**

## **Funding instruments & impact strategy**



# Programme of today

- Introduction Knowledge and Innovation Covenant (KIC) – Rolf Bossert
- Introduction knowledge utilisation towards societal impact – Roald Vandepoel
- *Break*
- KIC funding instruments – Maarten de Zwart and Marcus van Leeuwen
- Developing a strategy towards societal impact – Roald Vandepoel
- *Lunch*



# Knowledge and Innovation Covenant 2020 - 2023

Rolf Bossert



# Overview of NWO funding opportunities

Open Competition	Open Competition in NWO-domains Science, Applied and Engineering Sciences, Social Sciences and Humanities, and at ZonMw; Zwaartekracht
Talent Programme	Rubicon, Talent Scheme (Veni, Vidi, Vici), Spinoza & Stevin
Knowledge and Innovation Covenant (KIC)	Four main lines: MISSION, DEMAND, STRATEGY and PRACTICE
Dutch National Research Agenda (NWA)	Research along routes by Consortia (ORC); Thematic Calls; Idea Generator
Research infrastructure	Investment Grant NWO-Large National Roadmap Large-scale Research Infrastructure





# Knowledge- and Innovation Covenant

The agreement between many partners (e.g. NWO, topsectors, EZK,...) on how they will invest in the mission-driven topsector- and innovation policy



# Knowledge- and Innovation Covenant

## Two transitions

1. Topsectors agendas → mission agendas
2. Many different programmes → 4 main lines

## NWO contribution is aimed at

- groundbreaking scientific research with societal impact
- commitment of private partners; collaboration in knowledge chain
- focus and mass; thematic choices



# Knowledge and Innovation Agendas (KIA's)

From nine topsectors to six mission-driven agendas

- Energy transition and Sustainability (Energietransitie en Duurzaamheid)
- Health and Care (Gezondheid en Zorg)
- Agriculture, Water, Food (Landbouw, Water en Voedsel)
- Security (Veiligheid)
- Key Technologies (Sleuteltechnologieën)
- Public earning capacity (Maatschappelijk verdienvermogen)

NWO contributes to these agendas with four funding instruments

[Agenda's: www.topsectoren.nl/innovatie](http://www.topsectoren.nl/innovatie)



# NWO funding instruments / main lines



## MISSION (55 M€)

Mission-driven, thematic calls  
(6-12 per year)



## STRATEGY (30 M€)

Large, long-term, strategic programmes  
(1-2 per year)



## DEMAND (15 M€)

Public-private partnerships  
(~ 6 per year)



## PRACTICE (18 M€)

Practice-driven research  
Innovation networks, regional- and SME  
collaborations, and Human Capital  
(various instruments at Taskforce of Applied  
Research SIA)



# NWO approach to impact

Roald Vandepoel



# Research for impact

- Quality of research strengthens societal relevance
- But: societal relevance (often) does not come automatically
- Rather: societal relevance of research can be envisioned, prepared, made more likely, shaped, planned
- Addressing societal challenges requires multi-, inter- and transdisciplinary research
- Other types of knowledge than scholarly knowledge are also valuable
- All partners should be engaged in interaction and learning
- They co-create new knowledge in productive interactions



# NWO definition knowledge utilisation

The utilisation of knowledge  
through productive interactions  
with targeted stakeholders  
to create societal - including economic - value



# NWO vision on knowledge utilisation

**Together** with researchers and other stakeholders,  
NWO is committed to ensuring that  
knowledge utilisation **contributes to societal impact**  
by putting it on the agenda, being inspiring and facilitating,  
in ways that **proportionally match** all types of research



# NWO definition societal impact

Cultural, economic, industrial, ecological or social changes

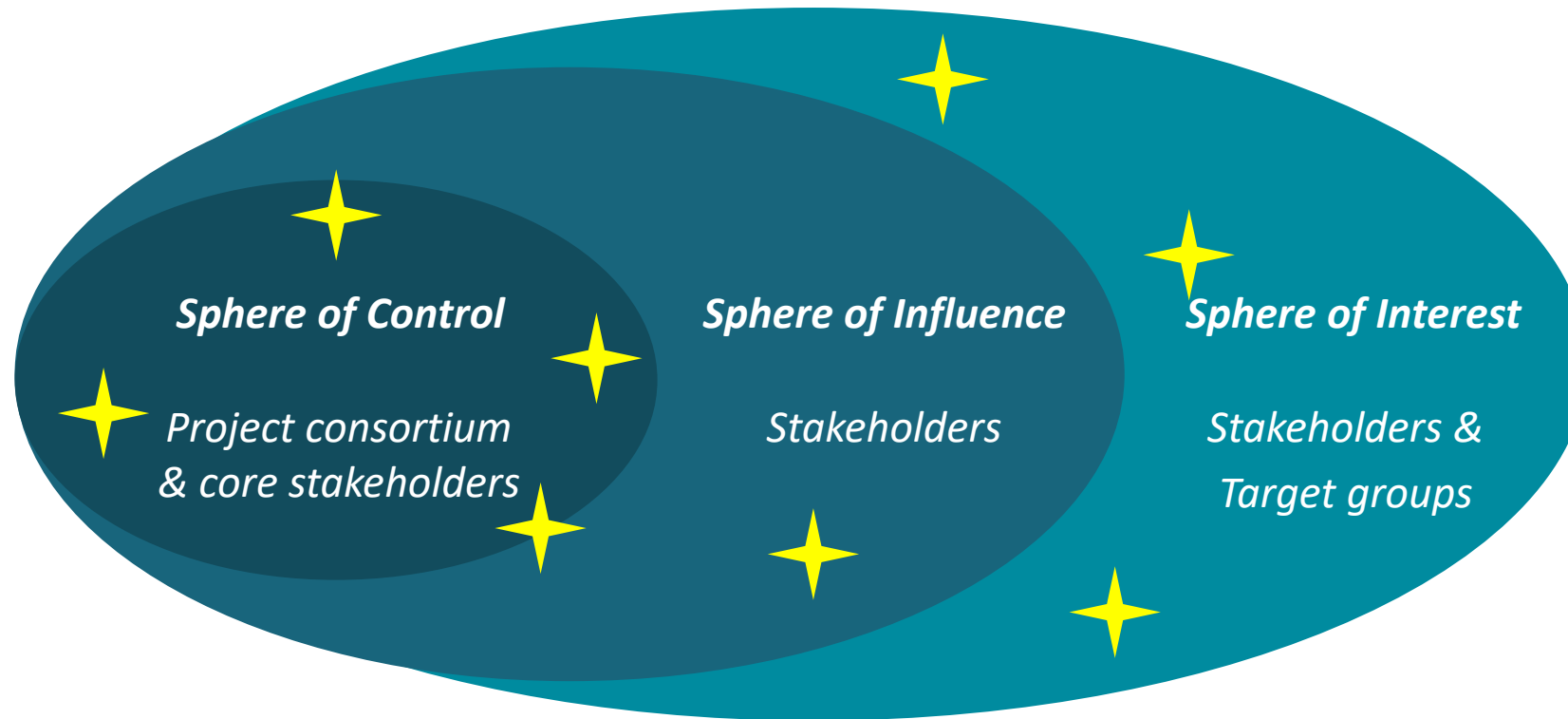
that are entirely or in part the consequence

of knowledge and expertise generated by research





# Aiming for impact via output and outcomes



**Output**

Knowledge  
co-creation / sharing



**Outcome**

Knowledge  
sharing / utilisation



**Impact**

Generating  
impact



# A long, **iterative** pathway from knowledge to societal impact

## Output

Direct and immediate **insights** obtained by a research project or programme



*Insight: congenital differences between groups of people (biological races) do not exist*

→ **control**

## Outcome

Changes in behaviour, relationships, actions and activities of stakeholders



*The Unesco 1950 – race declaration*

→ **influence**

## Impact

Cultural, economic, industrial, ecological or social changes



*More equal chances*

→ **interest**

# Example | Organ perfusion

## Output

Direct and immediate **insights** obtained by a research project or programme



*'Requirements' for an organ perfusion device are defined*

→ control

## Outcome

Changes in behaviour, relationships, actions and activities of stakeholders



*A manufacturer places an organ perfusion device on the market*

→ influence

## Impact

changes that are entirely or partly the consequence of knowledge and expertise generated by research



*More people with an improved quality of life*

→ interest

# Three impact approaches

Approach	Impact Outlook	Impact Plan	Impact Focus
Characteristics research	Research that always focusses on scientific impact, but not necessarily on a societal issue	Research that aims to contribute to addressing societal issues	Research aimed at utilising already generated knowledge and insights
Strategy	<p>Approach aimed at facilitating (unforeseen) opportunities for societal impact after granting</p> <p><i>Assessment criterium: combined scientific and/or societal impact</i></p>	<p>Integrated strategy on productive interactions, Theory of Change and Impact Pathway, as well as concrete steps to develop these</p> <p><i>Clustering if possible: an integrated strategy on call, programme or mission level</i></p>	<p>Focussed and concrete steps towards utilisation of knowledge</p> <p><i>Scientific impact is not part of the development</i></p>

# Examples (!) of funding instruments per approach

	Talent	Open Competition	KIC	NWA	Infra-structure	Others
Impact Outlook	VENI VIDI VICI	OC Domains Science and Social Sciences & Humanities			NWO Large	
Impact Plan		OTP Domain Applied and Engineering Sciences		ORC Dep. call		<i>Industrial doctorates Partnership</i>
Impact Focus		Perspectief  Proof-of- Concept (tba)				<i>Take-off</i>



# Break



# KIC instruments

Maarten de Zwart & Marcus van Leeuwen



# NWO funding instruments / main lines



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(6-12 per year)



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## PRACTICE (18 M€)

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(various instruments at Taskforce of Applied  
Research SIA)

# Main Line 1: MISSION

Mission-driven thematic calls on specific topics from the KIAs

- Project size 750 k€ - 4 M€ (5-15 M€ per call)
- Co-funding on project level (10% - 30% cash/in kind)
- Yearly 1-2 calls per agenda (6-12 in total)
- Sharp thematic choices based on the agendas
- Researchers initiate project proposals and involve private parties
- Aimed at [interdisciplinary collaboration](#) (alfa-beta-gamma)





# Case: Energy transition and sustainability

## New sustainable heating technologies for built environment (homes, offices)

Geothermal energy



Residual heat from industry and wastewater treatment

Public and semi-public authorities: **invest in these new heating systems?**



### Consortium

a.o. TU Delft, RUG, Vattenfal,  
Waternet, Eneco, Alliander,  
Provincie Zuid-Holland,  
Warmtestad, gemeente Utrecht

## Research: acceptance of new heating technologies

Which factors  
influence the  
acceptance?



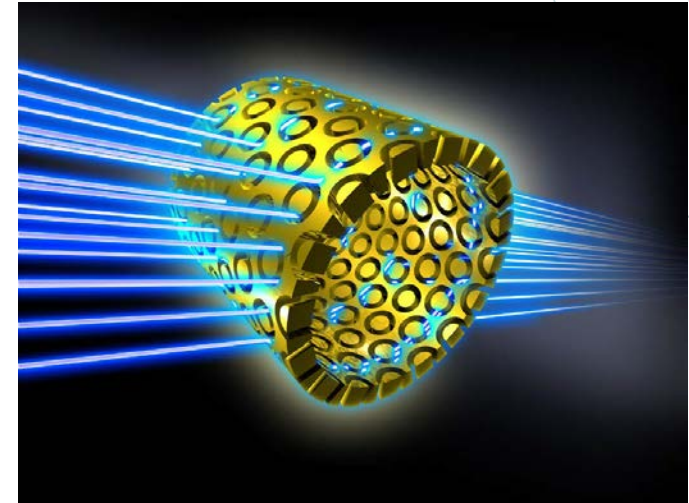
Increased public support by designing  
more equitable heating systems?  
(technical, socio-ethical and  
institutional)

Disciplines: engineering systems, physics, philosophy/ethics, geography



# Case: Materials NL

- 3-topsector collaboration: HTSM, Chemistry and Energy
- 2 KIC-periods (16/17 & 18-19)
- 2 Calls for Proposals – 20 research projects
  - Mat4sus
  - Challenges call
- Mission-line: large consortia are possible
  - Example: Consortium [Soft Advanced Materials](#)
  - Consortium of seven knowledge institutes + four companies
  - 13 sub-projects



# Main Line 2: DEMAND

## Partnerships

- 3-10 M€ per Partnership
- Private co-funding (50% in cash) on partnership level; OR
- Public co-funding (50% in cash) + co-funding on project level (30% cash/in kind)
- Choice of theme(s) together with co-funders (within agendas)
- 'Counter' function by NWO
- Call process (with optional sandpit)
- Counter function of NWO: a more participative role to advise, connect, initiate, find other partners, exchange ideas, consulting, et cetera



# Partnership NWO – Danone Nutricia

- Partnership budget: € 2.850.000  
(50% each partner)
- Additional budget via Topsector Agri and Food:  
k€ 452
- Professional research and knowledge network  
with annual meetings to stimulate interaction  
between researchers and industry
- Positions funded
  - 6 PhDs
  - 3 Postdocs
  - 1 Other scientific staff
  - 4 Non-scientific staff



# Main Line 3: STRATEGY

## Strategic collaborations

- Make a long-term contribution to research programmes that have a lasting impact on science *and* society/industry
  - Strong financial commitment by private and public partners, including knowledge institutes
  - Strategic importance will be one of the criteria
  - Pre proposal phase will be part of the process
- 
- Counter function of NWO: a more participative role to advise, connect, initiate, find other partners, exchange ideas, consulting, et cetera
  - Examples: ARC NL, ARC CBBC, Oncode, Wetsus, Qutech



# Main Line 3: STRATEGY

- Total NWO budget 100M€
- LTP total size 30-100M€
- Co-funding required 67%-75%
- Duration 2x5 years
- Announcement of details End of March 2020
- Planned open May 2020





# Example: ARC CBBC

- 10 years; M€ 110
- 44 PhDs & Postdocs  
>> will grow to 150
- 3 hubs with dedicated facilities, tenure tracks & technicians



Functional materials & specialties



Coatings



Energy carriers

# Main line 4: PRACTICE

Research closely working together with professional practice

- Coordinated by Taskforce of Applied Research SIA;
- Instruments: KIEM, L.INT, SPRONG and Innovation Internships
- From small (20 k€, KIEM) to large (2 M€, SPRONG);
- Collaboration between research (primarily Universities of Applied Sciences) and professional practice



# PRACTICE-driven instruments

- KIEM

- Opening in Spring 2020; Budget is 8 M€ for two years
- The aim is to support and stimulate new cooperation between research and practice
- For universities and universities of applied sciences
- Specific calls for GoChem (Chemistry) and GoCI (Creative Industry)

- SPRONG

- Opening in summer 2020
- Enhances cooperation between research groups of universities of applied sciences and with regional and national partners
- Funding per application is 2 M€ for a period of eight years
- About 35 SPRONG applications will be granted the next two years

- L.INT

- Opening in March; Budget is 12 M€ for four years
- Positions for lectors/professors at institutes and universities of applied sciences



# NWO budget 2020 in M€

Agenda	MISSION	DEMAND	STRATEGY	PRACTICE
Energy transition and Sustainability	11	15	20	18
Health and Care	11			
Agriculture, Water, Food	11			
Security	6			
Key Technologies	11			
Public earning capacity	5			
<b>TOTAL</b>	<b>55</b>	<b>15</b>	<b>30*</b>	<b>18</b>

*\* NWO has obligations for running long-term programmes (LTPs) (such as ARCNL, ARC CBBC, Oncode, QuTech and Wetsus). These obligations add up to 10 M€ per year and are part of the STRATEGY instrument.*

# Stimulating participation of SMEs

- Cash or in kind?
  - No obligation for cash contribution, in kind also possible
  - Per project: 50% of co-funding should be in cash
- Participating within the funding instruments
  - DEMAND: only 25% co-funding required for consortium of SME
  - PRACTICE: especially aimed as small-scale collaboration research – SME
  - Industrial doctorates: lower co-funding for SMEs
- Further opportunities
  - Flexible entry and exit from large projects
  - Innovation internships





# For further reading...

... take a look at the leaflet or [www.nwo.nl/kic](http://www.nwo.nl/kic)

## Four main lines for mission-driven innovation

Main line		1. MISSION	2. DEMAND	3. STRATEGY	4. PRACTICE
Description		Standardised mission-driven, thematic calls aimed at priorities identified in the six knowledge and innovation agendas	Partnerships aimed at research and innovation questions of private and public partners	Large, long-term, strategic collaborations	Practice-driven instruments aimed at strengthening applied research capacity, calls targeted to universities of applied sciences and specific attention for SMEs and regional partners.
Roles Participants	Knowledge institutions <sup>1</sup>	Initiate projects	Initiate projects or participate in partnership consortium	Participants initiate together	Initiate projects
	Partners	Contribute to projects by participating and contributing financially	Initiate partnership	Participants initiate together	Partners and other knowledge institutions are actively invited to participate; both with respect to content and financially
	Agendas (missions)	Prioritise topics/missions	Assess fit to agenda and motivate/mobilise partners	Assess fit to agenda and initiate together	Assess fit to agenda and motivate/mobilise partners
	NWO (incl. NWO KIC-council)	Topic selection and implementation calls	Implementation call/sandpit; consulting, initiating and connecting partners; assessment of viability	Assessment strategic importance; consulting, initiating and connecting partners	Topic selection and implementation calls
Co-financing		10% (cash & in-kind; private) and/or 30% (cash & in-kind; at least 50% private) at the project level	50% cash from partners (private & public); at least 30% is private	Tailored agreement based on the nature of the collaboration. NWO contributes at most 25-33%, up to 25 M€, of the total costs. Knowledge institutions contribute as well and carry, together with the other partner(s) 67-75% of the total budget (cash & in-kind)	Varies per instrument: Sprong: 50% LINT: 50% KIEM (e.g. GoChem/GoCI): 20%
Implementation		Calls on topics/missions (incl. cross-overs between agendas)	Counter for partnerships; selected partnerships result in a call or sandpit(-like) procedure	Counter for large, long-term, strategic collaborations; tailored, stepwise assessment procedures	Calls on topics/missions Innovation internships aimed at collaboration with SMEs also implemented in 1. MISSION and 2. DEMAND
Budget		5-15 M€ per call; 1-2 calls per agenda per year; 55 M€ per year in total	3-10 M€ per partnership (incl. co-financing); 15 M€ yearly budget for all agendas	30-100 M€ (total budget over 10 years) per collaboration; NWO budget 120 M€ for KIC20-23 (incl. current collaborations)	Sprong: 10 M€ LINT: 3 M€ KIEM (e.g. GoChem/GoCI): 3 M€ Innovation internships: 2 M€
Project Size		750 k€ - 4 M€	750 k€ - 4 M€ with some room for tailored solutions	Not applicable	Sprong: 2 M€ LINT: 200 k€ (individual grants for lecturers) KIEM (e.g. GoChem/GoCI): 20 k€

<sup>1</sup> Universities, institutes, UMCs, universities of applied sciences and where applicable TO2





# Developing an impact strategy

Roald Vandepoel



# Three approaches for knowledge utilisation

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# Impact Plan approach...

- ... for research that aims to contribute to addressing societal issues
- ... for all KIC instruments with a dedicated setup
- ... for multi-, inter- and transdisciplinary research cooperation

## Integrated strategy for:

- Productive Interactions
- Theory of Change and Impact Pathway

**Explaining – Facilitating – Structured – Inspiring -Transparent**

# Productive interactions...

- ... are relational factors that support (intermediate) knowledge utilisation
- ... can be steered intentionally
- ... can be direct/personal, indirect or financial

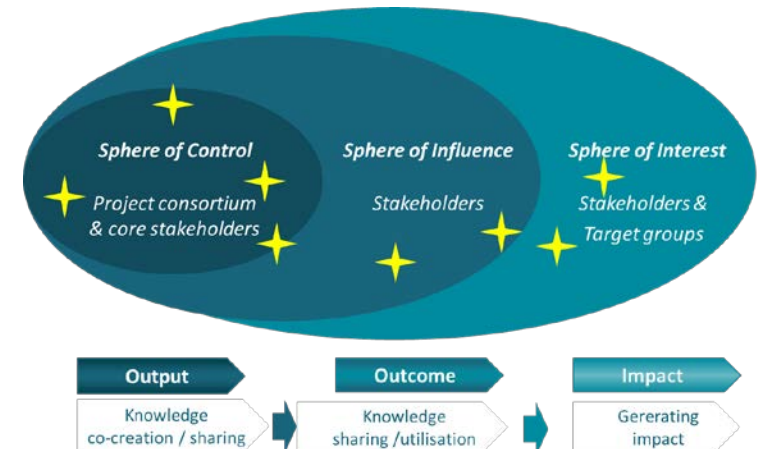
## Examples are

- formulating research questions and approaches joint with potential end-users (*co-design*)
- joint execution of research projects and interactive dialogue about research results (*co-creation*)

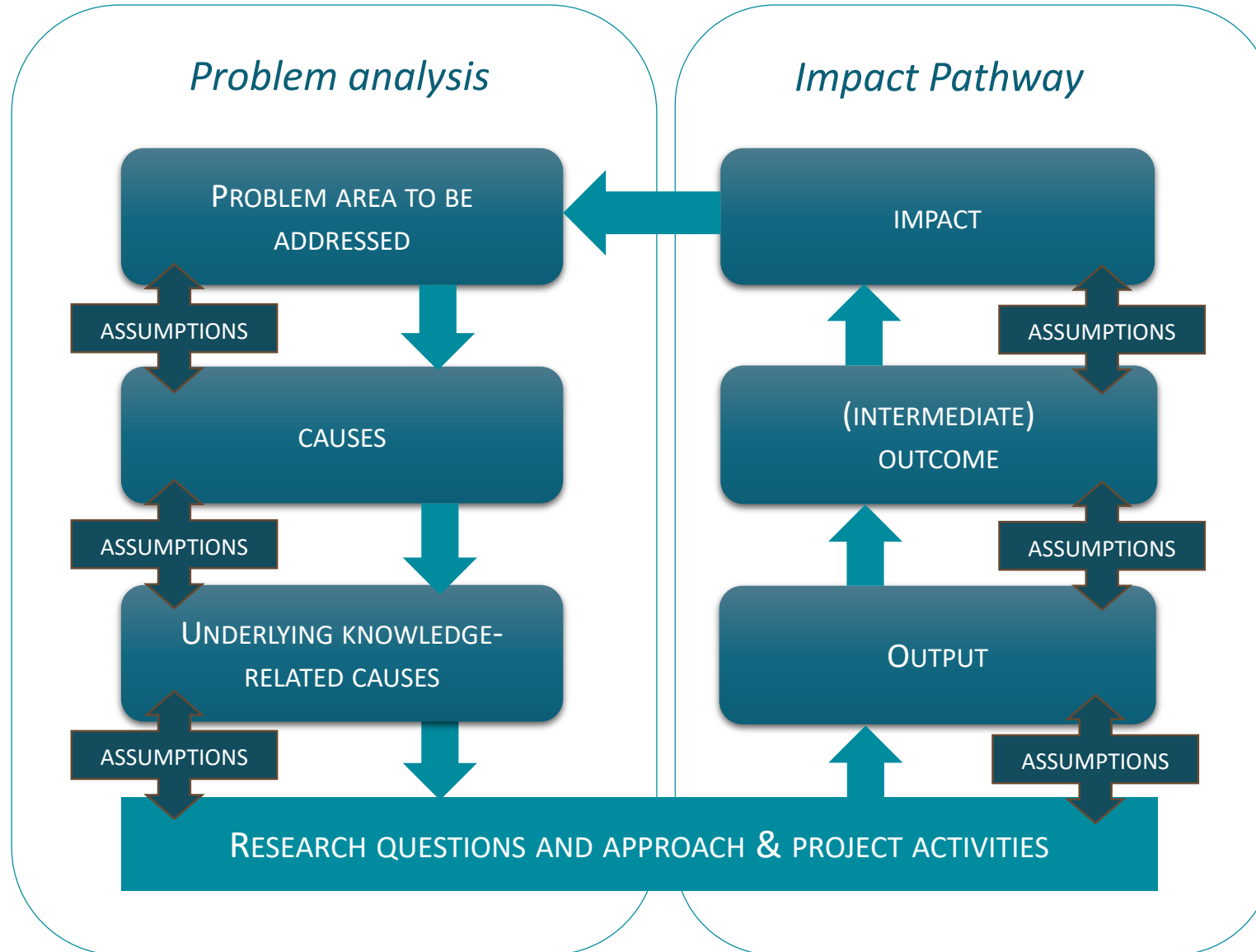


# Why a Theory of Change for research?

- Provides insight in the assumed causal logic of *Output* → *Outcome* → *Impact*
- Helps to think critically about the desired **societal change**
- Illustrates how the process of change is expected to unfold **over time**
- Explicates the **assumptions** underlying the perceived process of change
- Enables a reflective approach in **planning and steering** based on monitoring progress
- Demonstrates how a programme or project **contributes** to outcomes and impact
- Supports **learning** of and about processes of change in relation to research

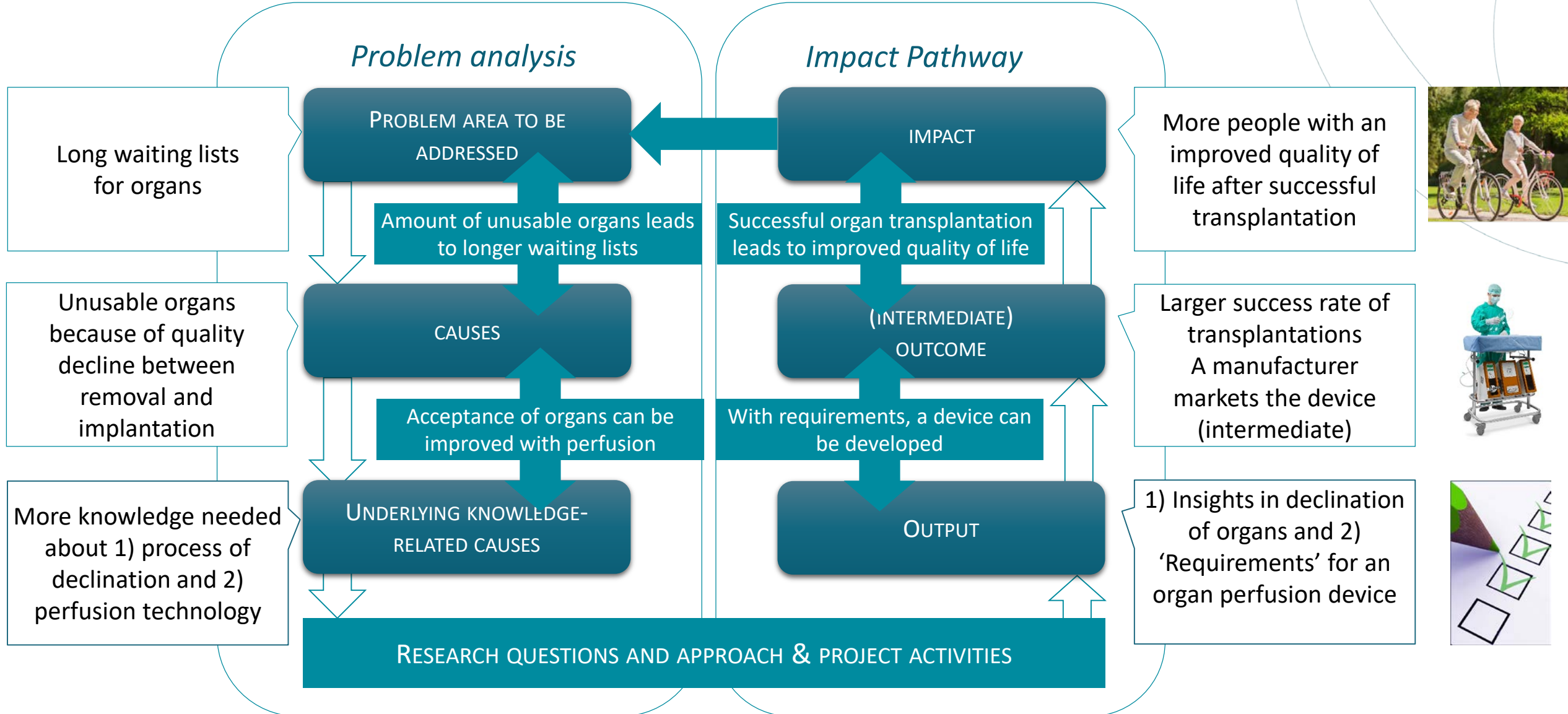


# Theory of Change: possible set-up

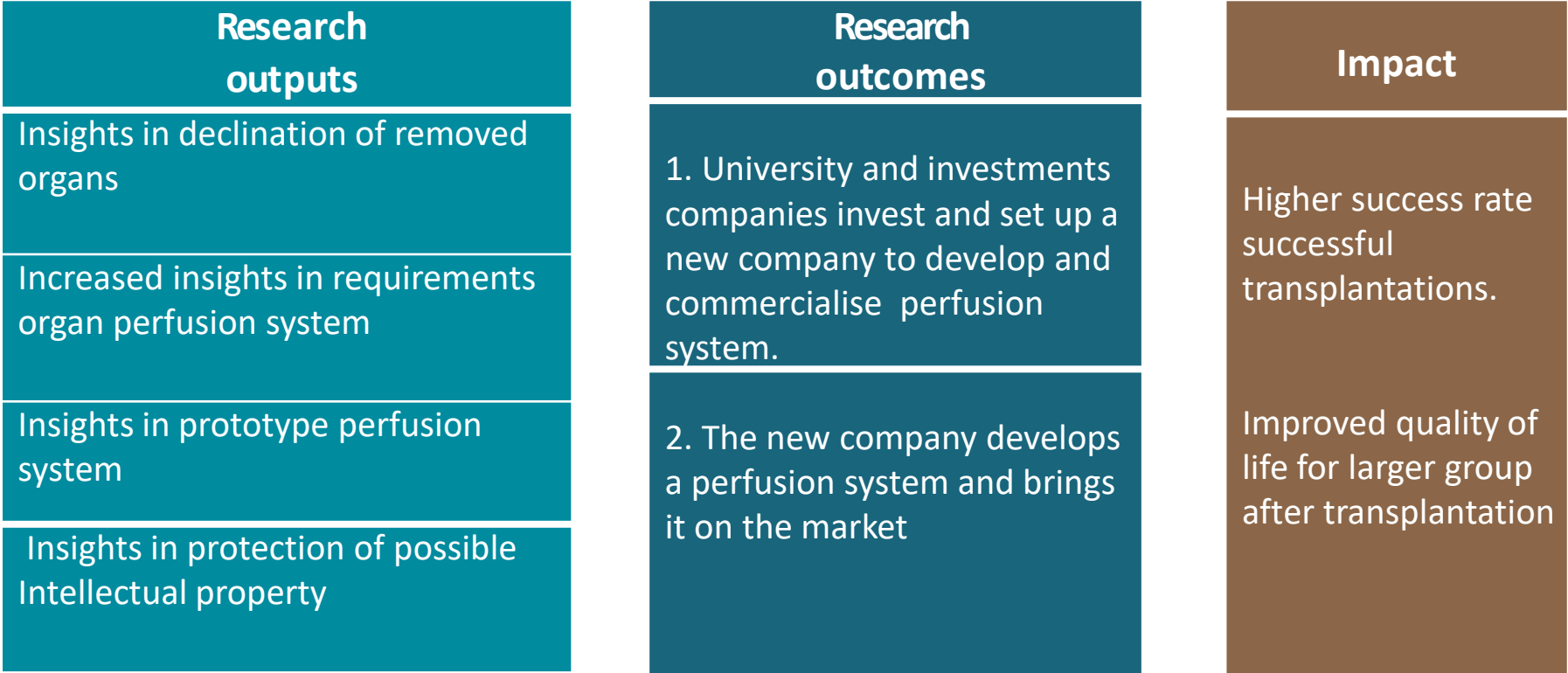




# Example Theory of Change | Organ perfusion



# Example Impact Pathway | Organ perfusion



Time →

# Implementation



# Impact Plan approach

## Aimed at

- Output – Outcome - Impact
- Stakeholder involvement
- Communication strategy
- Capability development
- coaching, monitoring & Evaluation

## Phased implementation

Getting to know the IP approach

Concrete implementation



# Getting to know the IP approach

## Getting familiar with

- Aims and ambitions
- Terminology and structure
- Problem analysis and research setup
- Structured according Impact Plan approach

## Implementation in programmes

- To stimulate co-creation and co-design with societal and consortium partners
- Support to make explicit and explain choices in research approach, stakeholder involvement and productive interactions



# Impact Plan approach elements within KIC

- Matchmaking events with (potential, interdisciplinary) researchers and stakeholders
- Implementing elements from Impact Pathway and Theory of Change:
  - Integrated in proposals (including formats)
  - Monitoring and reflection during research project
- Meetings (kick-off, mid-term and end-term)
- Budget for knowledge transfer on project level
- Evaluate and communicate outputs and outcomes





# Thank you for joining us!

👉 [www.nwo.nl/kic](http://www.nwo.nl/kic)

👉 [www.nwo.nl/en/kic](http://www.nwo.nl/en/kic)

👉 [www.regieorgaan-sia.nl/kic](http://www.regieorgaan-sia.nl/kic)

✉ [kic@nwo.nl](mailto:kic@nwo.nl)

👉 [www.nwo.nl/kennisbenutting](http://www.nwo.nl/kennisbenutting)

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