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

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

Sphere of Control
- Project consortium & core stakeholders

Sphere of Influence
- Stakeholders

Sphere of Interest
- Stakeholders & Target groups

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**

*Inspired by Angela Saini ‘Superior: The Return of Race Science’*
Example | Organ perfusion

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

Changes in behaviour, relationships, actions and activities of stakeholders

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

---

‘Requirements’ for an organ perfusion device are defined

A manufacturer places an organ perfusion device on the market

More people with an improved quality of life

→ control

→ influence

→ interest
Three impact approaches

- **Approach**
  - Characteristics: research
  - Strategy: Focuses on scientific impact, not necessarily societal issues

- **Impact Outlook**
  - Approach aimed at facilitating (unforeseen) opportunities for societal impact after granting
  - Assessment criterion: combined scientific and/or societal impact

- **Impact Plan**
  - Research that aims to contribute to addressing societal issues
  - Integrated strategy on productive interactions, Theory of Change and Impact Pathway, as well as concrete steps to develop these
  - Clustering if possible: an integrated strategy on call, programme or mission level

- **Impact Focus**
  - Research aimed at utilising already generated knowledge and insights
  - Focussed and concrete steps towards utilisation of knowledge
  - Scientific impact is not part of the development
Examples (!) of funding instruments per approach

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

- **VENI VIDI VICI**: Funding instruments for individual researchers.
- **OC Domains**: Science and Social Sciences & Humanities.
- **Proof-of-Concept (tba)**: Proof-of-concept funding for new ideas.
- **ORC Dep. call**: Open Research Call Departmental call.
- **NWO Large**: Large scale research grants.
- **Industrial doctorates Partnership Take-off**: Various funding for doctorates and partnerships.
Break
KIC instruments
Maarten de Zwart & Marcus van Leeuwen
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)
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)

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

Geothermal energy
Residual heat from industry and wastewater treatment

Research: acceptance of new heating technologies

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

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

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

<table>
<thead>
<tr>
<th>Agenda</th>
<th>MISSION</th>
<th>DEMAND</th>
<th>STRATEGY</th>
<th>PRACTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy transition and Sustainability</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Health and Care</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture, Water, Food</td>
<td>11</td>
<td>15</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Security</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key Technologies</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Public earning capacity</td>
<td>5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>55</strong></td>
<td><strong>15</strong></td>
<td><strong>30</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

* 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)

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### Four main lines for mission-driven innovation

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<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Standardised mission-driven, thematic calls aimed at priorities identified in the six knowledge and innovation agendas</td>
<td>Partnerships aimed at research and innovation questions of private and public partners</td>
<td>Large, long-term, strategic collaborations</td>
<td>Practice-driven instruments aimed at strengthening applied research capacity; calls targeted to universities of applied sciences and specific attention for SMEs and regional partners.</td>
</tr>
<tr>
<td><strong>Knowledge Institution</strong></td>
<td>Initiative projects</td>
<td>Initiate projects or participate in partnership consortium</td>
<td>Participants initiate together</td>
<td>Initiative projects</td>
</tr>
<tr>
<td><strong>Partners</strong></td>
<td>Contribute to projects by participating and contributing financially</td>
<td>Initiate partnership</td>
<td>Participants initiate together</td>
<td>Partnerships and other knowledge institutions are actively invited to participate both with respect to content and financially</td>
</tr>
<tr>
<td><strong>Agendas (missions)</strong></td>
<td>Prioritise topics/missions</td>
<td>Assess fit to agenda and motivate mobilise partners</td>
<td>Assess fit to agenda and initiate together</td>
<td>Assess fit to agenda and motivate mobilise partners</td>
</tr>
<tr>
<td><strong>NWO (incl. NWO KICs councils)</strong></td>
<td>Topic selection and implementation calls</td>
<td>Implementation call (sandpit, consulting, initiating and connecting partners; assessment of viability)</td>
<td>Assessment strategic importance; consulting, initiating and connecting partners</td>
<td>Topic selection and implementation calls</td>
</tr>
<tr>
<td><strong>Co-financing</strong></td>
<td>10% (cash &amp; in-kind; private) and (or) 30% (cash &amp; in-kind; at least 50% private) of the project level</td>
<td>50% from partners (private &amp; public); at least 30% is private</td>
<td>Tailored agreement based on the nature of the collaboration. NWO contributes at most 25-33% up to 35 M€, of the total costs. Knowledge institutions contribute as well and carry, together with the other parties (07-25%) of the total budget (cash &amp; in-kind)</td>
<td>Varies per instrument: Spring: 50% LINT: 25%; KIEN (e.g., SoChem/GoC): 30%</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td>Calls on topics/missions (incl. cross-overs between agendas)</td>
<td>Counter for partnerships; selected partnerships result in a call or sandpit-like procedure</td>
<td>Counter for large, long-term, strategic collaborations; tailored, stepped assessment procedures</td>
<td>Calls on topics/missions innovation internships aimed at collaboration with SMEs also implemented in 1. MISSION and 2. DEMAND</td>
</tr>
<tr>
<td><strong>Budget</strong></td>
<td>5-10 M€ per call; 1-2 calls per agenda per year; 55 M€ per year in total</td>
<td>5-10 M€ per partnership (incl. co-financing); 10 M€ yearly budget for all agendas</td>
<td>30-100 M€ (total budget over 10 years) per collaboration; NWO budget 25 M€ for KOICD 02 (incl. current collaboration)</td>
<td>Spring: 15 M€ LINT: 3 M€ KIEN (e.g., SoChem/GoC): 3 M€ Innovation internships 2 M€</td>
</tr>
<tr>
<td><strong>Project Size</strong></td>
<td>750 H€ - 4 M€</td>
<td>750 H€ - 4 M€ with some room for tailored solutions</td>
<td>Not applicable</td>
<td>Spring: 2 M€ LINT: 200 H€ (individual grants for lecturers) KIEN (e.g., SoChem/GoC): 30 H€</td>
</tr>
</tbody>
</table>

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1. Universities, institutes, LNY/S, universities of applied sciences and where applicable TO/2.
Developing an impact strategy
Roald Vandepoel
## Three approaches for knowledge utilisation

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

Problem analysis

- Problem area to be addressed
  - Causes
    - Underlying knowledge-related causes
      - Research questions and approach & project activities

Impact Pathway

- Impact
  - (Intermediate) outcome
    - Output
      - Assumptions

- Assumptions
**Example Theory of Change | Organ perfusion**

**Problem analysis**

- **Problem area to be addressed**: Long waiting lists for organs
- **Causes**: Amount of unusable organs leads to longer waiting lists
- **Underlying knowledge-related causes**: Acceptance of organs can be improved with perfusion

**Impact Pathway**

- **Impact**: Successful organ transplantation leads to improved quality of life
- **Intermediate outcome**: With requirements, a device can be developed
- **Output**: A manufacturer markets the device

**Research questions and approach & project activities**

- More knowledge needed about 1) process of declination and 2) perfusion technology
- Unusable organs because of quality decline between removal and implantation
- More people with an improved quality of life after successful transplantation
- Larger success rate of transplantations
- 1) Insights in declination of organs and 2) ‘Requirements’ for an organ perfusion device
### Example Impact Pathway | Organ perfusion

<table>
<thead>
<tr>
<th>Research outputs</th>
<th>Research outcomes</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insights in declination of removed organs</td>
<td>1. University and investments companies invest and set up a new company to develop and commercialise perfusion system.</td>
<td>Higher success rate successful transplantations.</td>
</tr>
<tr>
<td>Increased insights in requirements organ perfusion system</td>
<td>2. The new company develops a perfusion system and brings it on the market</td>
<td>Improved quality of life for larger group after transplantation</td>
</tr>
<tr>
<td>Insights in prototype perfusion system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insights in protection of possible Intellectual property</td>
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</tbody>
</table>
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
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