JERRI Ethics DRAFT goals

Authors: xxx

1. JERRI and integrity/ethics

The JERRI project (www.jerri-project.eu; a H2020 Coordination and Support Action) aims to support TNO in its ambitions for Responsible Research and Innovation (RRI) (and, similarly, Fraunhofer in its ambitions). One of the key dimensions of RRI is Integrity (https://ec.europa.eu/programmes/horizon2020/node/767).

2. Long term perspective

Ethics is institutionalized within TNO via an Integrity Platform (https://city.tno.nl/sv/sv58645/), an Integrity Commission, an Integrity Officer, confidential counsellors, a Code of Conduct, specific policies (for example on auxiliary activities and whistleblowing) and Actions plans for Integrity.

The JERRI project has helped in making an appealing perspective for the longer term (5 to 10 years) in consultation with external stakeholders. To be filled after talks to Rathenau and other external stakeholders.

3. The next couple of years and JERRI

The goals formulated in this proposal have a direct link to the Action plan Integrity 2017.

Figure 1: Mapping of the goals on the Integrity Action plan 2017

The JERRI project is helping to *strengthen* existing initiatives at TNO and see them in the perspective of a more further away future of the organisation.

Below are three (draft) goals that JERRI can help to achieve, and associated activities. Please note that these goals are associated to ambitions of the Integrity Commission—more specifically: they are intended to strengthen three topics (shown above) that have proven to be difficult to realize before/without JERRI. With the support of JERRI (in terms of expertise, time and effort), however, it would be better feasible to realize these (sometimes longstanding) goals. The goals below were articulated in a workshop on 18 April

2017, prepared and facilitated by Reijer Gaasterland (lead for Ethics the JERRI project for TNO) and Marc Steen (JERRI project team member). Participants in this workshop were: XXX Afterwards XXX spoke in a different meeting with XXX about the JERRI Draft goals. Next steps (May-June 2017) include consultation with external stakeholders, e.g., with Rathenau, and LOWI/KNAW.

The goals and activities (below) target different groups in TNO (scientists, business development, project management, LD, trainees). This will help to realize the overall goal for TNO to become an organization in which ethics/integrity is more integrated and part of 'business as usual', and where there are more processes, structures, and culture 'in place' to handle ethically in asystematical and careful way79 (= institutionalization).

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1. Improve Ethical Awareness and Moral Capabilities: Game/training, for LD and trainees

Goal: To enhance ethical awareness and moral capabilities within TNO, esp. of people in leadership roles, and to improve quality of these processes. We propose to target the 1st, 2nd and 3rd echelon (Top-250, Leadership Development) (as top-down) and the group of (20+) trainees ('fresh') (bottom-up). This approach of combining top-down and bottom-up is likely to spread and have positive impact within TNO, so that ethical awareness and moral capabilities become part of 'business as usual' ('institutionalization')

Sponsors: LD manager (XXX) and Trainees manager (XXX)

Activities:

- Develop Ethics game = fill the 'Burgemeesters' game with relevant cases:
  - *Approx. 6 cases/dilemmas (3-4 cases on Ethics, 1-2 cases on Societal Engagement; Open Science?; Diversity?)*
  - *Approx. 7 perspectives (5 visible per dilemma: RvB; Corporate Communications; PL; RM; Customer/EZ/Defence; Integrity Officer; co-worker)*
  - *Approx. 8 virtues: Integrity; Independence; Professional conduct; Common good/Responsibility (for society); Service/Results (for client); Honesty/Quality (for science); Justice; Prudence; Courage*
- Present the game in a regular LD meeting, and then offer ~20 sessions, with ~12 participants each
- Offer the game as part of the regular Trainee meetings, e.g., ~2 sessions with ~12 participants each

SMART: All Top-250 (LD) and all trainees (20+) participated in this Game/training, and evaluated its usefulness with a 4 (or more) on a 5-point scale

Planning: Develop in 2017Q3-2017Q4; Training in 2018Q1 (trainees), 2018Q2-Q4 (LD); Report in 2019Q1

Budget: Develop/test game 20k + Give training (p.m.; budget from LD and trainees) + Report 5k = 25k (excl. hours of participating LD and trainees; these will be covered by their budgets)

- Needed: Participation of trainees (in early 2018) and of Top-250 (LD) (later in 2018)
  The development of the game/training be done by the JERRI project team
- Results: Insights that people can apply immediately in their work/projects
- = Extra effort "powered by JERRI" (normally, we would be 'too busy' to do this)

This goal is referred to in the JERRI Project Description of Work (p. 6): … In addition, ethical dilemmas are regularly posted and discussed on TNO's intranet, to trigger dialogues on ways to handle these. In 2014, the Integrity Officer launched a pilot project to help raise employees' moral competences, by discussing ethical issues related to the focus areas Defence, Safety and Security. TNO realises that still much needs to be done and has ambitions to further improve the ethical sensitivities and capabilities of its employees, especially for those in management roles.

2. Ethics in Society: A 'Societal and Ethical Issues' tool/checklist, for business development and project management

TNO wants to improve its ability to assess ethical and societal issues in our research and innovation projects (both intended and unintended impact; and issues before, during and after the project), as an integral part of business development and project management ('business as usual').

Goal: To have a simple tool, e.g., a checklist, to help TNO, esp. business developers, quotation and project managers of 'sensitive projects' (projects that entail societal or ethical issues), to take into account diverse ethical or societal issues in the various phases of a project: selecting opportunities; scoping a project; writing a quotation; managing the project; and communicating about the project's impact in society (people, planet, profit) with stakeholders. The tool will also help to manage risks and reputation.

Please note that we are *not* aiming for administrative burden, *not* for overly complex tools. Instead we are looking for a simple tool, that helps to identify issues, to assess pros and cons, to make informed choices, to be able to be held accountable, and to communicate transparently about these choices.

Sponsors: XXX, two Themes (business development), e.g., Industry (for anti-corruption) and Energy (for societal impact) and Projectleidersgilde.

Activities:

- Develop the tool, pragmatically re-using parts of, e.g., Checklist complexity project, Customer Acceptance Policy, the Societal Impact Assessment Tool (by TNO trainees in 2014), results of the SATORI project (http://satoriproject.eu/media/Philip-Brey_EIA.pdf)
- Apply this tool in 4 practical cases (2 in Industry; 2 in Energy), and evaluate the usage of this tool

SMART: 100 business developers (of a total of 130 business developers; via 'Selling Innovation, SAMEN' meeting) plus 50 (senior) project managers (of a total of 200 project managers, via Projecleidersgilde meetings, with ~300 invitations) have heard about this tool and received basic instructions for using it

SMART: The tool was applied in 4 projects, and the business developers and project managers involved evaluated its usefulness with a 4 (or more) on a 5-point scale

Planning: Develop in 2017Q3-4; Apply in 2018Q1-2; Report in 2018Q3

Budget: Develop/test tool 8k + Apply/evaluate tool 8k + Report 4k = 20k

- Needed: Some effort from business development and project management for 4 actual projects
  The tool development and analysis will be done by the JERRI project team
- Results: More clarity on Societal and Ethical Issues for these 4 projects
- = Extra effort, "powered by JERRI" (we've made some efforts, but not very successful)

This goal is mentioned in the JERRI Project Description of Work (p. 5): … A next step would be the development and application of tools to evaluate projects' impact on people, planet and profit. TNO made a first step by developing a tool that facilitates discussions with project leader on the potential impact of their projects on sustainability; the tool visualizes various positive and negative values that are created for various stakeholders (based on the concept of "Shared Value"). This approach was piloted in 20 research and innovation projects.

Please note that this goal can be combined with one of the goals in Societal Engagement: "Societal Impact' Tool for Project Management (project level, for society)".

3. Scientific Integrity: Develop e-learning module, for scientists

Goal: To improve awareness of the new, national Scientific Code (http://www.vsnu.nl/files/documenten/Domeinen/Onderzoek/Code_wetenschapsbeoefening_2004_(2014).pdf; ==expected in mid 2018==) within TNO, esp. principal scientists (and also communicate senior scientists).

Sponsor: XXX

Activities:

- Develop a compact e-learning module (e.g., 2-3 clips of 2-3 minutes, with 2-3 quiz questions) to explain this new Scientific Code (with support from TPI?)
- Offer this e-learning module to principal (and senior) scientists

SMART: 20 principal scientists (of a total of 27) plus 40 senior scientists (of a total of 400 senior scientists) participated in the e-learning module, and evaluated its usefulness with a 4 (or more) on a 5-point scale

Planning: Develop in 2017Q3; Learning in 2017Q4 and 2018Q1 (first, as 'low-hanging fruit');

Budget: Develop e-learning 8k + Communication (and evaluation) 2k = 10k (excl. hours spent on learning)

- Needed: Participation of principal (and senior) scientists in the e-learning course
  The e-learning module will be developed in the JERRI project budget
- Results: Knowledge on the new standard for scientific integrity
- = Extra effort, "powered by JERRI" (this needs to be done; risk of forgetting to do this)

Below is a DRAFT planning of the activities for these three goals:

	2017Q3	2017Q4	2018Q1	2018Q2	2018Q3	2018Q4	2019Q1	2019Q2
Improve ethical awareness and moral capabilities: game/training	develop	develop and test	train (trainees)	train (LD)	train (LD)	train (LD)	report	
Society and ethics: tool/checklist	develop	develop and test	apply	apply	report			
Scientific Integrity: e-learning/training	develop	e-learning	e-learning					

Notes:

Please note that:

1. we plan to organize the monitoring and evaluation of the effects of these activities within TNO in a separate task—not only for Ethics/Integrity, but also of the other dimensions of RRI. We are exploring the possibility that HIS (project partner in JERRI) can play a role in this monitoring and evaluation.
2. we can distinguish between three alternative and supplementary conceptualizations of ethics/integrity:

- For us, ethics/integrity primarily refers to an ambition to become better in the *process of deliberation and decision making* (Van de Poel & Royakkers, 2011), esp. enhancing ethical awareness and moral capabilities within TNO—apart from any implicit or explicit norms. This refers to Goal 1.
- A second conceptualization of ethics is the support of deliberation and decision making via tools, e.g., checklists for specific target groups and purposes, e.g., for business developers, to select which projects to do (and which not) (Goal 2), or for scientists, to have practical guidelines for publishing (Goal 3).
- A third conceptualization of ethics is related to organizing and managing projects, to giving positive momentum to a project's ambitions to realize positive impact, e.g., a tool or checklist that helps project managers to keep the project 'on track' towards creating positive impact in society (Goal 2).

3. the activities for Ethics can be combined with other RRI-dimensions, e.g., the game (Improve Moral Capabilities) can be combined with Societal Engagement (and Open Science and Diversity), and the Society and ethics tool/checklist can be combined with Societal Engagement.

PROCESS DURING THE WORKSHOP

› We started with a short excercise to get to know each other and to connect (this worked very well; it created a very positive athmosphere for the entire workshop): standing in a circle, giving one another a short shoulder massage

› We presented our 2x2 framework, to establish a shared understanding. During the workshop, we used it to draw attention to all 4 'squares'

› We then inventorized current Societal Engagement activities; in line with Appreciative Inquiry; to appreciate current practices and to build on these

› Then we did a brainstorm for the question 'What would you wish for TNO to develop or improve in Societal Engagement'?', with first a brain-write

› Then a short discussion and clustering. Then divided into 4 groups of 2 people, to elaborate 4 of these ideas, and present them to each other.

	For society To align the results of research and innovation to the values and needs in society	With society To involve relevant societal actors in the process of research and innovation
Strategy level, e.g., agenda-setting	Strategy level For society e.g., consult key customers in agenda-setting and making of strategic plans	Strategy level With society e.g., involve NGOs, civic organization or 'citizen initiatives' in agenda-setting
Project level, operational	Project level For society e.g., assess the project's impact on society and balance interests	Project level With society e.g., involve prospective users in research, development and evaluation

EXAMPLES OF CURRENT SOCIETAL ENGAGEMENT PRACTICES

IDEAS FOR DEVELOPING / IMPROVING SOCIETAL ENGAGEMENT

DRAFT GOALS (DETAILS ON NEXT SLIDES)

Goal 1: Develop 'First step to Thought Leadership' (strategy level, for society) (20k)

Goal 2: Organize 'Stakeholder Dialogues' (strategy level, with society) (20k)

Goal 3: A tool for 'Societal Impact Assessment' (project level, for society) (20k)

Goal 4: Share 'Best Practices' in 'User Involvement' (project level, with society) (8k)

	2017Q3	2017Q4	2018Q1	2018Q2	2018Q3	2018Q4	2019Q1	2019Q2
Commnication for Thought Leadership			**Topic 1**		**Topic 2**			
Organize ('unusual') Stakeholder Dialogues	**Theme 1**		**Theme 2**					
Societal Impact Tool for Project Mngt		**Develop tool**	**3 projects**		**3 projects**			
Share Best Practices in User Involvment	**Inside TNO**	**Outside TNO**						

GOAL: 'FIRST STEP TO THOUGHT LEADERSHIP'

Goal: TNO wants to be a '**thought leader**': have dialogues with stakeholders, and 'give back' knowledge in the form of an **independent** position statement and a clear **vision and direction** (agenda-setting), based on facts, joining the jigshaw pieces, focus on societal impact (in addition to technology and business). Combine with communication about **projects** in those areas (before, during and after projects).

Sponsors: XXXX(), and two themes (Industry/Networked Information for 'responsible data innovation', and <Other topic, e.g., in Safety>

Actions:

- Select two 'sensitive' topics to be a 'thought leader': Responsible Data Innovation and <Other topic>
- Develop and present, discuss white papers, 'argumentenkaart' (pros and cons), and other innovative forms, to show nuances, dilemmas, unknowns, scenarios (e.g., infographic, interactive simulation, etc.)
- In collaboration with 'Society Impact Assessment' tool (= other goal)

Planning: Responsible Data Innovation 2018Q1-2; <Other topic> 2018Q3-4

Budget: 20k; excl. activities of Themes and Corporate Communication

(= based on the ideas of Suzanne/Silja and of Richard/Marc)

Strategy level For society	

GOAL: 'STAKEHOLDER DIALOGUES'

TNO currently has dialogues with stakeholders, e.g., in the Strategy Advisory Councils (SAR).

Goal: TNO wants to have **additional** 'Stakeholder Dialogues' with other, non-usual stakeholders (other than industry governement, and academia), e.g., with NGOs, and civic organizations. E.g., in the form of Round Tables for journalists. Maybe combine with 'Open House' (more for general public).

This will help TNO to develop and improve its vision, and to legitimize its Thought Leadership (other goal)

Sponsors: XXXX(?), <Theme 1> and <Theme 2>

Actions:

- Learn from the practices in Theme Urbanisation (where they have, e.g., two NGOs in the SAR)
- **Identify 2 Themes** for which TNO would like to have (innovative) Stakeholder Dialogues with 'less-usual suspects', e.g., Energy and Health (which have obvious societal impact)
- Develop an approach/method, and organize dialogues with these stakeholders

Planning: <Theme 1, Energy> 2017Q3-4; <Theme 2, Health) 2017Q1-2

Budget: 20k (4k develop approach + 2 x 8k organize 2 dialogues)

(based on the ideas of Lucinda/Suzanne O.)

	Strategy level With society
	4-5-2017

GOAL: 'SOCIETAL IMPACT ASSESSMENT'

Goal: TNO wants to have a tool to for 'Societal Impact Assessment': primarily on the level of a project or a programme. Focus on the impact on **people** (users, society) and **planet** (environment), and **value** (client). Include 2nd and 3rd order effects. Focus on making a tool that will create a dialogue between (at first) internal stakeholders in stead of checking boxes. The tool will be used in different stages: 1) to articulate the project's intended impact (before); 2) to steer the project; and 3) to assess its actual impact (afterwards).

Sponsors: XXXX (?), and two Themes that want to be first users of this tool.

Actions:

- **Select 6 projects** (3 projects; 2 themes) that will be first users of this tool (and help to develop)
- **Develop tool and apply in 6 projects** (different stages: articulate aims; steer project; assess impact).
- Do this in close collaboration with the 'Thought leadership' (= other goal)

Planning: 3 projects in <Theme 1> 2018Q1-2; 3 projects <Theme 2> 2018Q3-4.

Budget: 20k (4k develop tool + 6 x 2k apply tool + 4k evaluate/improve tool)

(= based on the ideas of Lotte/Esther and Lucinda/Suzanne O.)

Project level For society	4-5-2017

GOAL: SHARE 'BEST PRACTICES' IN 'USER INVOLVEMENT'

TNO does 'user involvement' in projects (e.g., participatory design, pressure cooker). However, this is not widely known to others.

Goal: To share examples of 'best practices' of 'user involvement' in projects: both **within TNO**, so that others TNO employees can likewise apply 'user involvement'; and **outside TNO**, so that our stakeholders (and the general public) can learn about TNO's 'user involvement' practices. This can help to improve TNO's reputation of 'being able to help societey forward, solve societal issues' ('outside the ivory tower')

Sponsors: xxxx (?), Projectleidersgilde (?)

Actions:

- Inventorise 4 'best practices' of 'user involvement' in projects
- Communicate these within TNO, and outside TNO

Planning: Communicate within TNO in 2017Q3; outside TNO in 2017Q4

Budget: 8k

(= we agreed to add something 'with society' at the end of the workshop)

	Project level With society

NEXT STEPS

› Elaborate these goals

› Fine-tune these goals in relation to other agendas, e.g., for M&C

› Consult external stakeholders > you can play a role in this

› Internal approval (JERRI project and TNO)

Goals & activities Open Access at TNO

Date : june 7th, 2017   Author : XXXX

TNO background and starting position :

TNO has been involved in scientific research since 1930, primary for public funded application programs. The results of this work were traditionally and exclusively available to the sponsor, i.e. a Ministry, public company or problem owners in civil services.

Starting in post-war growth, TNO established many research programs for private parties, with funding schemes that can vary from full private to complex mixed fundings. Private organizations usually protect their Intellectual Propery (IP) through extensive contract conditions.

Research at TNO, like at Fraunhofer, varies strongly between such focus points like healthcare, energy, homeland security, automotive industry and nanotechnology. Each with its own public or private client base, and client- or industry specific contract clauses.

Based on these clauses, different sets of rules and procedures have been put in place. They deal with the 'openness' of the research results, or simply put : which info can be made publicly available, outside TNO, and which cannot.

Due to the great variety of sponsors, sectors, clauses and funding formulas, the rules and procedures vary wildly as well. As a consequence, policies in place are not always unambiguously or clear, and scientists can be hesitant about publishing their TNO efforts at all.

Political, managerial and societal trends :

In recent years, a growing interest in national and EU politics for Open Science, Open Access and Open Data has been noticed at TNO. This trend is based on the assumption that all scientific results from public funded research should be made available for free to the scientific community as a whole, and to the public in general. This trend has led to national initiatives of Dutch universities, the signing of the Berlin Declaration, or the Dutch WOB legislation and the Dutch Archiefwet.

In society, this WOB legislation had made it possible for citizens and journalists alike to retrieve the documents and dossiers of each and every public funded organization in the Netherlands. Like Wikileaks, this open access has led to much turmoil.

Managers, on the other hand, are still struggling to protect the IP of their companies, their research teams, and their Sponsors IP. While still going with the trend of openness, wherever possible.

JERRI initiative & Fraunhofer partnership :

The JERRI initiative is not a goal within itself for TNO. It is an opportunity for TNO to discover how others deal with the dilemma's of Open Access and Open Data, and to address the subject in the right way. Through JERRI participation, OA issues have been discussed at length between Fraunhofer and TNO experts on data distribution. Also, on-site visits have been made to the Karlsruhe, Stuttgart and München offices of Fraunhofer, to gain insight on the way Fraunhofer has handled OA issues up till now, and what their experiences are. In this process, the differences and similarities between the two organisations have become more clear than before.

Problem statement :

Commonly, the key problem in OA is presented as the choices to be made between such OA publishing solutions known as the Golden Route, or the Green Route, which represent different pricing models for negotiating the copyright/royalties for the publisher, and as a consequence the free access.

The dilemma here is mainly a financial one : If an article is to be published, the traditional business model of the publisher should be replaced by a 'free access' model. Which means that the author has to pay up front for the (estimated) royalties the publisher will lose eventually. It is either this choice, or publish in Open Access media that are of lesser status in the scientific community. At least up till now.

In Fraunhofer, all decisions of publishing are made at an operational level : i.e. by the scientists themselves. They are aware of rules and procedures on publishing, and the IP of Fraunhofer and/or its sponsors that should be protected. It should be noted that nation legislation on archiving like the archiefwet and the WOB in the Netherlands, hardly exist in Germany. As a consequence, the German setting is quite different, and gives room for more freedom of choice in archiving and publishing. Fraunhofer goals are now, a.o., targeted at a substantial shift from traditional media towards OA media.

In TNO the key problem is one step behind on our Fraunhofer collegues. It is useless to discuss Green Route or Golden Route choices as long as publishing remains a minefield of unclear rules and clauses. The scientist will ask himself whether it is wise to publish at all, with possible IP risks involved.

The current status is that at least six activity areas within TNO are confronted with contradictory currents. These currents are either in favor of OA, or they represent a possible barrier to OA. In practice, this had led to two camps in the organisation. You are either a (blind) believer, or you are a (worried) opponent of OA.

This is visualized in the diagram below :

Open Science issues within TNO :
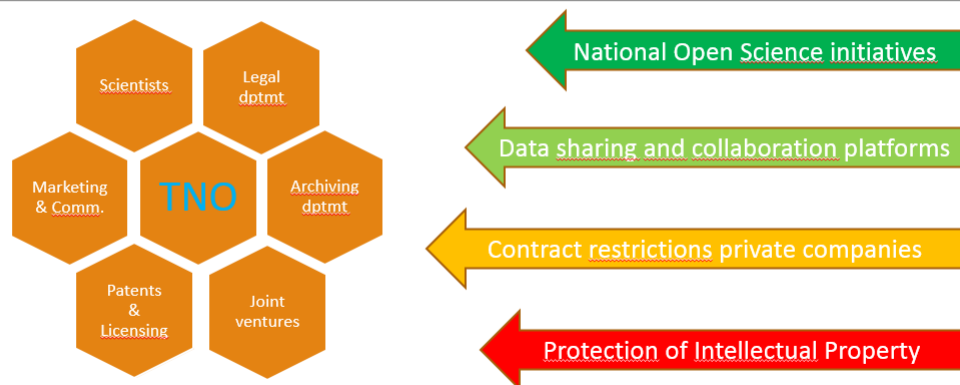
The turning point :

At first, the JERRI OA team at TNO targeted to organize workshops like the ones that Fraunhofer has set up in the goalsetting process. Inside TNO scientists were selected, to discuss with outside experts from such Dutch science institutions like KNAW or NWO. However, it quickly became clear that this might lead to an irratic result. As long as there is no clear central TNO policy on publishing, discussing ambitions on different OA targets would be a dead end street.

The turning point came after discussion of this problem among members of the TNO JERRI team. It was suggested that the first OA ambition should be to attain a focus of interest on OA at the highest decision making level. With an understanding of the importance of above mentioned trends on OA for TNO, a permanent OA platform can be put in place. Much like it has been done before in TNO with other RRI subjects, like Ethics or Gender Equality.

In order to obtain this OA platform, different stakeholders from the TNO departments that deal with publishing, IP, legislation and OA will be interviewed. The results will be presented at top management.

Goals and activities for the near future :

1. Interviews with stakeholders
2. Synthesis of a OA statement for the Board of Directors

And, hopefully :

3. Naming a business process owner
4. Institution of OA platform or- committee e.g. residing in the Science Office

That will :

5. Clarify the TNO procedures on publishing
6. And address the OA routes and ambitions for future publishing

We estimate that every phase (e.g. : 1,2) will take 6 months.

Estimated costs

The current budget estimate is p.m.

JBK

Report on Goal setting workshop on Gender equality on May 18th 2017

The goal setting workshop was an agenda item of a regular meeting of the steering committee[1] Diversity that is present at TNO. As this body is the starting point of formal decisions on policy with respect to gender this was seen as most appropriate. At the moment there is much attention for gender diversity at TNO, therefore the execution of the goal setting workshop was different from the original plan. Therefore, before describing the workshop it seems worthwhile to also describe the events preceding the workshop.

As said, at this moment there is a lot of attention for gender equality at TNO. This momentum seems to be caused by different initiatives with respect to gender equality that are all active at the same time. First of all the steering committee in combination with the Women's network have increased awareness on gender equality at different levels in the organization over the past years, creating a breeding ground for discussion on the topic. Next, HR, the steering committee and the women's network have provided proper administration of gender data over time and made them widely available. On top of this, our European project JERRI has put gender equality on the agenda at board level. And finally, the preparation of a new European proposal on Structural Change with respect to gender equality requires a structured gender equality plan. As part of the proposal preparation, TNO's current gender equality performance has been reviewed by Asdo from Italy (consortium leader). This review is available on request.

As a consequence of the attention on gender equality, this topic was also on the agenda of the highest consultative body at TNO (Bestuursraad[2]) on May 8th. In this meeting the Bestuursraad acknowledged that TNO has a serious issue with respect to gender diversity. It was agreed that current gender equality goals do not instigate the required change and more action is needed. The bestuursraad did not take any formal decisions, however their recognizing of the topic creates support for implementation of additional policy designed by the diversity steering committee.

Another important development with respect to gender equality at TNO is the preparation of a proposal for the European call on structural change that TNO is preparing with other partners. This call entails the implementation of gender equality plans. Therefore TNO is required to write an elaborate gender equality plan. The writing of this plan also produced an evaluation of the current gender equality situation at TNO, that revealed some new insights about possible causes for the current gender imbalance at TNO. The proposal has to be submitted in August 2017, so plans have to be formalized in June 2017. As a result the outcome of the external review and the required decisions for the gender equality plan also ended up on the agenda of the steering committee diversity of May 18th.

In order to minimize repetition during the steering committee meeting, it was decided to merge the JERRI workshop on goal setting with the formulation of the new goals for the gender equality plan for the Structural Change project. As the structural change project is expected to start earliest half way 2018, in the workshop a distinction was made between long term goals that could be part of the Gender Equality Plan for the Structural Change proposal and short term goals or activities that could be picked up on a shorter notice within the JERRI project.

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[1] The steering committee diversity is chaired by the XXX, other members of the committee that were present during the workshop were XXX)

[2] The Bestuursraad of TNO consists of the board of TNO (4) and all TNO Directors (12).

Due to time constraints the full formulation on a gender equality plan was not realized within the workshop. A series of additional meetings have been planned with key stakeholders, in the beginning of June to finalized the long term goals. A prioritization was made between short term goals using a simple online poll after the session. The five optional additional goals that the participants could choose from are listed below. Most of these goals were already suggested during the presentation on gender equality at the Bestuursraad, some additional ones were a result of the workshop.

1. Improving awareness within the management of TNO by additional training
2. Evaluate our research agenda with respect to the gender dimension in research
3. Increasing the number of female applicants by creating a database for talented women at TNO
4. Learning why men and women leave TNO
5. Improving awareness of diversity of project leaders at TNO

The group selected goal 1 and 3 as most important to additionally address at this moment within TNO. This will be done next to the already agreed upon contribution to the female leadership program.

JERRI - Workshop report Sciences Education 1 May 2017

Programmed

13.00 - 13.10	Round of introductions
13.10 - 13.20	Introduction to the JERRI project
13.20 – 13.30	Overview of current activities (see also briefing paper)

13.30 – 15.00

Workshop session: Why, How, What – do we want to achieve with Science Education? (25 min)

Which ambitions? Which activities. Which Impact? (25 min)

Ranking the options/ Decision Time – score activities vs evaluation criteria (15 min)

Wrap up & conclusions (5 min)

Desired outcome of workshop:

- Goal setting in terms ambitions and expected impact for society;
- Plan of (desired) Activities with indication of expected impact for TNO;
- Initial idea of timing and costs.

General Comments

In general there are two goals that need to be determined in order to be able to determine the ambition that TNO has in this RRI dimension; what has a positive impact for society (and which role can TNO play) and what has a positive impact for TNO. The first can be a direct action from TNO that has a long term self-interest (promoting STEM as a topic in secondary schools, may lead eventually to more qualified engineers in 5-7 years' time, from which TNO can recruit new staff). The second can be an immediate action from TNO to promote, out of self interest specific projects or topics, with a motivate to 'demonstrate' and 'communicate'.

The RRI dimension of Science Education ties in to a societal discussion about sciences as being a trustworthy sources; The idea of 'alternative facts' as a popular method to destabilise debates based on facts towards debates about meaning is a considered an additional timely argument to promote the idea of Sciences Education; by helping society to understand science, scientific processes and methods, it could be argued that the 'license to operate' for science-based institutions such as TNO is validated and promoted.

From an ideal perspective the fact based reporting of TNO about fields of research should speak for itself. This has been a legitimate position for 85 years but is deserved only by unconditional high quality work, staff and knowledge. Therefore the integrity of the work we do, the transparency in how we do it and the quality one might expect from TNO could be made more explicit. So far it has always been considered implicit. This is considered as an actionable activity.

Also attracting interest in science; to demonstrate the attractiveness of science, specifically applied sciences. This ss a position that TNO feels comfortable in. This initial activity is not something that

TNO has to do (no obligation), but could be seen as conditional for it's position and reputation/recognizability. In regular projects the PR-part of the project is often regarded as less important, the dissemination of results outside the circle of direct stakeholders often limited. In contract research (which is the vast majority) it could be argued that a client does not want to pay for this part of the project. Therefore knowledge dissemination is by default limited unless otherwise agreed.

Concluding we stated during the workshop that the line between science, communication and education is quite thin and links the various aspects of the work we do. We communicate first and foremost to share with society what we are working on, what we are doing and how we are doing sciences and innovation. As a secondary effect we show how interesting working for TNO is, with the aim of being an attractive employer. This latter part is reinforced by specific actions targeted at secondary education and higher education institutes for specific subgroups (Women and STEM students.

Discussion

In the discussion about the dimension of Sciences Education TNO chooses to focus on the selection made in the JERRI project:

1) attracting young people e. g. for the STEM professions
2) science communication
3) fostering "science literacy" in society / citizen empowerment
4) fostering interdisciplinary knowledge, in particular non-technical scientific knowledge among engineers

For this selection that actions itself are partly known and coincide with pre-existing initiatives. During the workshop we quickly revisited the actions that are already under execution (specifically 1 and 4). We concluded that these actions are often based on ad-hoc and not very structured activities. We consider them as being important, but have yet to find a structured way in addressing these actions beyond the enthusiasm and energy of individuals. In other words, they lack proper institutionalization.

More specific, action 1 is a spearhead from an employability point of view; we have limited activities which we can execute and agree on a limited effort to secondary education and higher education. These are in essence deliberate choices as money and time is limited.

Action 4 depicts interdisciplinarity of TNO and TNO engineers. The self assessment of TNO is that this is an activity that needs monitoring by management but is handled quite well as most project and project teams are (by nature) diverse, multidisciplinary and contain a mix of different backgrounds and skills. From the interviews held during the state-of art, we know that this is an activity that is on the attention list of managers. As TNO has no teaching obligations, we foresee that this point is less relevant and we could make only limited impact in the world outside of TNO.

Actions 2 and 3 have at this time a more communicable aspect. TNO does communicate to society at large through various online and off line channels and reaches out to many different audiences. he on line magazine TNO Time has a large audience in terms of readers (100.000+ views) and serves as a first popular introduction to a topic. A call to action, or more in depth material can be found for those who seek out more information regarding a specific topic. The way in which TNO uses various online channels is mostly 'one way communication'. During the workshop more interactive forms of communication were mentioned to foster the interaction between society and TNO.

There are natural events, such as the 85 years existence of TNO, or events that are aimed at 'getting to know TNO', that present opportunities for offline interaction with society or parts of society. During Open Days; locations could be opened up for neighbours, local councils and interested societal stakeholders and presentations and demonstrations could be given. Through participation in local alliances (such as the Joint Innovation Centres), or partnerships with other institutes the visibility and interaction of TNO about specific topics could be activated more prominently

For Citizen Empowerment; opportunities could be created to interact more thoroughly with TNO experts and these conversation could be shared. One step further: even societal researchquestions could be posed to TNO and solved, based on for instance crowdfunding.

Conclusions

The workshop ended in an assessment and ranking of various activities that were mentioned the top three activities that were deemed to be most appropriate for goal setting were:

1) "To show science"; using existing and new on- and offline channels the fun and joy of applied science. Thereby creating more impact (and a larger audience) in society for the work of TNO
2) "To enforce the value of science"; by being more open/transparent about how we do science/innovation at TNO; being clear about scientific integrity/ quality processes, repetition of research; thereby creating more trust in science
3) "To invite society"; more two-way communication leading to better interaction and understanding for science and innovation

Resulting Actions

No	Proposed Goals	Proposed Activity	Expected Impact	Estimated Costs	Promotor/Champion
1	"To show science;	a) Online; more diversity in projects b) Offline; presence & demonstrators	Larger audience, more interaction, Specific audiences (secondary /higher education)		Marketing & Communications, HR
2	"To enforce the value of science"	a) Public statement on scientific integrity b) Sensitive Dossiers sharing	Trust in fact based science, openess	5k	Public Affairs & Integrity Officer & Marketing & Communications
3	"To invite society"	a)Open Days, b) A question to TNO c) Crowdfunding Platform	Goodwill & Social License to operate increase (locally & nationaly		CSR Officer, Expertise , Marketing & Communications
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