

WTMC SERIES

ON TEACHING & LEARNING STS

Emerging Innovations as Systems

Fall Workshop

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WTMC

*Netherlands Graduate Research School
of Science, Technology and Modern Culture*

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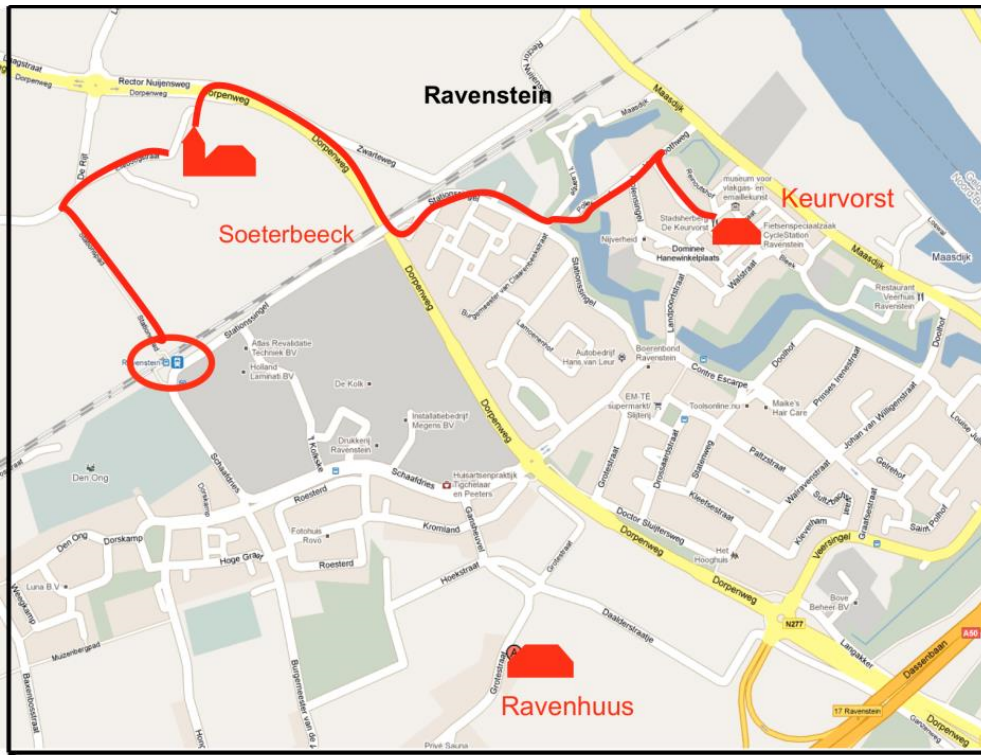
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Maps



Thank you, Google maps

Directions

Address

Studiecentrum Soeterbeeck / Study and Conference Centre Soeterbeeck

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By train

Take the local train ('stoptrein' or 'sprinter', NOT the 'Intercity' or fast train) from Nijmegen or 's-Hertogenbosch to Ravenstein. They leave every half hour. This takes 15 or 20 minutes, respectively. At the railway station in Ravenstein take the exit at the back of the station, and follow the small footpath ('Stationspad'); at the end of the path turn right and enter the Soeterbeeck premises through the entrance gate. This is a 10-minute walk. Dutch railway schedules can be found at www.ns.nl

By road

Motorway A50, from Arnhem to 's-Hertogenbosch: take exit Ravenstein (nr.17); at the roundabout turn left, next roundabout straight on, next roundabout turn left (De Rijt), and again left after 100 m (Elleboogstraat), enter the Soeterbeeck premises through the entrance gate.

Motorway A50, from 's-Hertogenbosch to Arnhem: take exit Ravenstein (nr.17); at T-junction, turn left, and again left at the traffic lights; first roundabout straight on, and again straight at second roundabout; next roundabout turn left at the crossing (De Rijt), and again left after 100 m (Elleboogstraat); enter the Soeterbeeck premises through the entrance gate.

Practical notes

To do before the Workshop

Allow about two weeks for preparation of this workshop. The compulsory literature consists of roughly 250 pages. At 8 pages per hour, this takes about 32 hours. We expect you to spend about 78 more hours to prepare the exercises, and read part of the recommended literature as you wish. This amounts to 40 hours in all, which is the standard amount of preparation time for a workshop. In preparation, proceed as follows:

- Read the detailed programme and pay special attention to the activities so that you know in advance what you need to prepare and think about.
- Read all literature before you arrive. There is no time to read during the workshop. Make notes about what you don't understand, questions you would like to ask, things you want to discuss.
- Check the programme to see if you are a discussant for one of the PhD presentations. Look at the sections "PhD presentation guidelines" and "Feedback on presentations", which contains guidelines for presenters, discussants and all others!

What to bring with you

- Your material for this workshop.
- Debit card or credit card. In the evenings, after the formal programme, there are informal drinks, which you have to pay on Friday upon check out. This also goes in case you desire to have more than one drink during dinner. Cash is not accepted.
- **Earplugs:** we reside in an old convent, so corridors and doors may be noisy at night.
- Running addicts: bring your **running gear**.
- To get moving during breaks: bring footballs, badminton gear, Frisbees etc. Soeterbeeck provides a ping-pong-table, bats & balls, and (usually) some bicycles.
- Check the weather forecast and if needed, bring **rainproof clothes & footwear**.

Attendance and cancellation

- *The workshop is residential:* you are expected to check in at Soeterbeeck on Wednesday morning and check out on Friday afternoon. On most days, the programme continues into the evening.
- In order to receive credit for attending the workshop, *you are required to be present throughout the entire event*. Only calamities are taken as liable to depart from this rule. If this creates problems, then please contact the coordinators beforehand and as soon as possible.
- If, for any reason, you are unable to attend the workshop, please let Elize Schiweck (e.schiweck@utwente.nl) know **as soon as you can**. We may be able to offer your place to someone on the waiting list if we know soon enough. If notice of cancellation is received more than 10 days prior to the start of the workshop, you will receive a refund for all of the fees, minus €100 to cover the costs of administration and course materials. In the case of cancellations received less than 10 days before the start of the workshop, fees and any other costs that have been incurred by WTMC will not be refunded.

Programme

Wednesday: Innovations as Systems		
10.00 – 11.00	1.1	Coffee & Introductions
11.00 – 12.30	1.2	Cyrus Mody, <i>Cell, Brain, Home, World: Systems Thinking and Future Living</i>
12.30 – 14.00		Lunch and settling in
14.00 – 15.30	1.3	Koen Frenken, <i>Reflections on Innovation Policy</i>
15.30 – 16.00		Break
16.00 – 17.30	1.4	Core reading: <i>Mastering the dynamics of innovation</i>
17.30 – 18.30		Dinner
18.30 – 20.00	1.5	PhD Presentations (1)
Thursday: Innovation Studies – Insights into a Field		
9.00-9.15		What kept you awake?
9.15-10.45	2.1	Ellen Moors, <i>Institutionalisation of Market Formation in Health Transitions</i>
10.45-11.15		Break
11.15-13.00	2.2	Stefan Kuhlmann, <i>Responsibility and Innovation – Towards Transformative Meta-Governance</i>
13.00-14.00		Lunch
14.00-15.30	2.3	PhD Presentations (2)
15.30-16.00		Break
16.00-17.30	2.4	Kornelia Konrad, <i>Socio-Technical Futures: a Core Element in the Governance of Innovation</i>
17.30-19:00		Dinner
19.00-20.00	2.5	Exercise: Reflecting on your PhD Trajectory by visualising it (1)
Friday: On the Ground: Transforming Innovation Systems		
9.00-9.15		What kept you awake?
9.15-10.15	3.1	Exercise: Reflecting on your PhD Trajectory by visualising it (2)
10.15-10.30		Break
10.30-13.00	3.2	Poster presentations
13.00-14:00		Lunch
14.00-15.30	3.3	Gonzalo Ordóñez-Matamoros, <i>The Challenge of Implementing Transformative Innovation Policies in Latin America</i>
15.30 –16.00	3.4	Farewells & group photo

Introduction to the Workshop

Welcome to the Workshop. Together with our guest speakers, we will explore the topic: *Emerging Innovations as Systems*. The exploration starts here, well before you arrive at our beautiful convent Soeterbeeck. This reader, together with some texts that you will have to collect yourself, provides the luggage for your journey. Travel well prepared!

It is advisable that you first carefully study the whole programme, before embarking on the actual reading. This should help you get a sense of the themes and how they connect, and how specific texts fit in those themes. The compulsory reading material amounts to (the equivalent of) roughly 250 pages, which at 8 pages per hour would take you about 31 hours to study. This time, we will have a more creative exercise, where we will create visualisations of our trajectories. Please give this some thought and bring materials to help you visualise (paper and other materials for collage, cut outs, etc) And finally, we will have a number of participant presentations. Do check whether you are scheduled as a discussant for one of them.

For each of you, the ideas and concepts discussed during the workshop will have different kinds of relevance. This depends on your research topic and method, the phase you are currently in, and your personal interest. The workshop is not a “one size fits nobody” event, and getting the most out of it does require some work. Make sure that you have in mind what you would like to learn (come prepared for the Introductions session), and how that can be achieved. In general, it is good practice to prepare one or more written questions about the reading material for each session. This helps focus your attention during lectures, and it ensures that you have something to contribute to the discussion, especially if you are not that eager by nature to join discussions. Of course, going with the flow and welcoming things the way they happen to come to you, is also an important mode of learning.

So here we go.

On Wednesday, the lectures are meant to introduce us to the workshop’s topic from two perspectives: one more historical, and one more contemporary.

On Thursday, we deepen our discussion by zooming on recent developments in the field.

On Friday, we shift our geographical focus from the Global North to the Global South and discuss in particular what is at stake when innovations policies are implemented in society.

We hope you will enjoy preparing for this workshop and look forward to meeting you (again) in a few weeks!

Anne Beaulieu and Andreas Weber

Detailed overview

Wednesday: Innovations as Systems

1.1. Coffee & Introductions

Next to enjoying a cup of coffee or tea, we'll start with a round of introductions. Please come prepared to share one concrete element or way in which this on-site workshop will add to your PhD project.

1.2. Cyrus Mody, *Cell, Brain, Home, World: Systems Thinking and Future Living*

The middle of the 20th century saw the emergence of several new, interrelated fields - cybernetics, systems engineering, information theory - and their rapid overflow across more established disciplines from biology to economics to electrical engineering to literature. These sciences of the "information age" were, from the start, organized around and by elite transnational and interdisciplinary networks through which cybernetic thinking diffused rapidly across the globe. In this lecture, I examine how cybernetics' proponents attached it to various leading-edge technologies: the computers, nuclear power, space capsules, recombinant DNA, etc. I argue that cybernetic governance of the present was often achieved through gestures to technologies of the future, to which the cybernetic elite could claim they had special access.

Readings:

- Kevin T. Baker, "Model Metropolis," *Logic*, issue 6 (2019), <https://logicmag.io/play/model-metropolis/>.
- Elke Seefried, "Globalized Science: The 1970s Futures Field," *Centaurus*, volume 59, issue 1-2 (2017): 40-57.
- Benjamin Peters, "Normalizing Soviet Cybernetics," *Information & Culture*, volume 47, issue 2 (2012): 145-175.

1.3. Koen Frenken, *Reflections on Innovation Policy*

Innovation policy is heavily influenced by academic thinking on science, technology and innovation. This session shortly discusses the three main types for innovation policy following the 'failures' framework by Weber and Rohracher (2012). They distinguish between market failures policies rooted in neoclassical economics, structural system failures policies rooted in evolutionary economics, and transformational system failures rooted in sustainability transitions research (see also the powerpoint). Most recently, multiple countries - as well as the European Union - embraced mission-oriented innovation policy as advocated by Mazzucato among others. This policy is often framed as 'transformational', aiming at bold public investments in science and technology needed to address the grand societal challenges of our time, including climate change, biodiversity loss and ageing. However, its main feature being 'directionality' provided by the challenge at hand, mission-oriented innovation policy in principle leaves open whether science and technology should be stimulated or not. I would like to invite students to discuss mission-oriented innovation policy both conceptually and historically. To this end, I suggest the reading of the paper by Wanzenböck et al. (2020) on types of mission-oriented innovation policy and the paper by Frenken et al. (2021) on the history of innovation policy in The Netherlands.

Readings:

- Frenken, Koen, Hekkert, Marko, Janssen, Matthijs (2021) Government with a mission, mimeo, Utrecht University (7 pages).
- Wanzenböck, Iris, Wesseling, Joeri H., Frenken, Koen, Hekkert, Marko P. Weber, K. Matthias (2020). A framework for mission-oriented innovation policy: Alternative pathways through the problem–solution space, *Science and Public Policy*, 47, 474–489 (16 pages).
- Weber, K. Matthias., Rohracher, Harald (2012) Legitimizing Research, Technology and Innovation Policies for Transformative Change: Combining Insights from Innovation Systems and Multi-Level Perspective in a Comprehensive ‘Failures’ Framework, *Research Policy*, 41: 1037–47 (11 pages).
- Powerpoint (attached)

1.4. Core reading

James M. Utterback, *Mastering the Dynamics of Innovation* (Boston/Mass. 1996), intro and chapter I.

We will discuss Utterback in groups of 4 and in a plenary setting. Make notes of any questions you want to raise and of relations you see between this text and the issues raised in the other readings and in the lectures. We encourage you enormously to start discussing and questioning these texts in advance of the workshop with your group, through email or otherwise. Email addresses of all participants can be found on one of the final pages of this programme.

The group composition will be as follows:

Group 1	Group 2	Group 3	Group 4	Group 5
Sabrina	Annemarie	Florian	Sarah Rose	Aamina
Carla	Natascha	Tessa	Lotje	Ivan
Dirk	Jing	Yingying	Mike	Jelena
Lea B.	Lea L.	Nienke	Selen	

1.5 PhD Presentations

1. Selen Eren. Discussant: Annemarie Horn
2. Sarah Rose Bieszczad. Discussant: Lotje Siffels
3. Carla Greubel. Discussant: Jing Wang

Important: See the guidelines for presentations at the end of this reader.

Thursday: Innovation Studies as Academic Field

2.1. Ellen Moors, *Institutionalisation of market formation in health transitions*

Transition studies have recently started to focus on unpacking market formation in technological innovation systems. The aim of the talk is to give more insights in the institutionalization process of market formation over time in the health sector. I will apply it to both national and global health transition examples.

Readings:

- Freek de Haan, Ellen H.M. Moors, Arjen M. Dondorp, Wouter P.C. Boon (2021), Survey: Market Formation in a Global Health Transition. *Environmental Innovation and Societal Transitions*. <https://doi.org/10.1016/j.eist.2021.05.003>
- Ellen H.M. Moors, Piret Kukk Fischer, Wouter P.C. Boon, Frank Schellen, Simona O. Negro (2018). Institutionalisation of market: the case of personalised cancer medicine in the Netherlands. *Technological Forecasting & Social Change*, 128: 133-143. <https://doi.org/10.1016/j.techfore.2017.11.011>

2.2 Stefan Kuhlmann, *Responsibility and Innovation – Towards Transformative Meta-Governance*

The lecture will develop a meta-governance framework facilitating transformative policy-making, with a particular focus on the meso-level of responsible research and innovation systems (RIS). In our concept “governance” includes all related actors, their resources, interests and power, fora for debate and arenas for negotiation between actors, rules of the game, and policy instruments applied helping to achieve legitimate agreements (Kuhlmann 2001). “Meta-governance” is about “organising the conditions of governance” (Jessop 2002, 242), including the debates about “responsibility” in research and innovation (Randles et al. 2016; Kuhlmann et al. 2015; Lindner et al. 2016; Rip 2017). “Responsibility” has always been subject to changing value choices (Arnaldi & Gorgoni 2017).

Why is this perspective relevant? The contexts and conditions for RIS are changing, placing more, new and multiple kinds of pressures, demands and requirements on science, technology and innovation (STI). These demands can be understood as increased legitimacy pressures on STI actors and RIS (e.g. Schot & Steinmueller 2016). Since about 15 years STI policies have become geared towards addressing objectives reaching beyond an immediate economic focus on growth and competitiveness (Lindner et al. 2016). This "normative turn" is expressed in the strategic reorientation of national and supranational STI policies to address the “Grand Societal Challenges” such as health, demographic change, wellbeing and sustainability (Foray et al. 2012; Kallerud et al. 2013; Kuhlmann & Rip 2014). Well-known examples for this ongoing paradigm shift are the European Union's Europe 2020 strategy, the US Strategy for American Innovation or Germany's Hightech Strategy. This is complemented and propelled forward by the recent discourse on “responsibility” in research and innovation (e.g. von Schomberg 2013; Stilgoe et al. 2013).

Against this background the lecture will address the following questions:

- What is needed to establish, ensure or regain legitimacy for STI policy? Can legitimacy be constructed pro-actively (c.f. Suchman 1995)? How and towards which ends do RIS and their meta-governance have to be transformed to achieve this?
- Which meta-governance frame (at the meso-level) can help to address the transformations called for, and eventually contribute to establishing legitimacy of STI?

The lecture does not intend to deliver a “grand concept” to transform RIS, covering all levels and systems dimensions. Rather, the focus is on transformation of organisations and institutions at the *meso-level* (such as funding organisations; ministries; boards of universities and of companies; civil society organisations). This level is often forgotten, as analysis and prescription either target “the system”, policy or individuals, and if they target the meso-level, it is often very specifically tailored towards a certain category. However, our premise is that while there is a variety of different organisations in RIS, there are core structures and processes influencing responsiveness to external demands across all of them that need to be understood and addressed. Successful changes at the meso-level have a potential to contribute, in a legitimate way, to system-wide transformations.

Readings:

- Michiel van Oudheusden (2014), Where are the politics in responsible innovation? European governance, technology assessments, and beyond. *Journal of Responsible Innovation*, 1(1): 67–86, <http://dx.doi.org/10.1080/23299460.2014.882097>
- Lindner, R., Kuhlmann, S., Walhout, B. (2016), Developing an Orientating Framework for Strategic Reflection: The Res-AGorA Responsibility Navigator. *Technikfolgenabschätzung – Theorie und Praxis (TATuP)*, 25(2), 66-71, http://www.tatup-journal.de/downloads/2016/tatup162_liua16a.pdf
- Stilgoe, J., R. Owen, and P. Macnaghten (2013), Developing a Framework for Responsible Innovation, *Research Policy* 42 (9): 1568–1580. <http://dx.doi.org/10.1016/j.respol.2013.05.008>

2.3 PhD Presentations

1. Florian Helfrich. Discussant: Sabrina Huizenga
2. Mike Grijseels. Discussant: Aamina Teladia
3. Lea Lösch. Discussant: Natascha van Bommel

Important: See the guidelines for presentations at the end of this reader.

2.4. Kornelia Konrad, Socio-Technical Futures – a Core Element in the Governance of Innovation

Socio-technical futures, be it in the form of widely debated technological promises, deeply rooted socio-technical imaginaries, or carefully crafted scenarios, have been acknowledged as essential elements in the governance of innovation, contributing to the mobilization, coordination and guidance of innovation actors, the unfolding sense-making of new and emerging technologies and as dedicated ‘tools’ to intervene in research and innovation and its governance (Borup et al. 2006; Konrad et al. 2017). In my talk I want to reflect on how innovation systems, as well as meso level phenomena more generally, and socio-technical futures influence each other. For this, I will address a number of angles how system perspectives have informed the study of socio-technical futures in innovation and its governance.

Firstly, collective expectations can contribute in multiple ways to the formation of innovation systems (Konrad et al. 2012; Alkemade & Suurs 2012) and emerging technology fields (van Lente & Rip 1998, van Merkerk & Robinson 2006). Secondly, I argue that anticipatory practices are an integral part of the governance of emerging technologies and trace how such practices evolve together with the governance patterns in the emerging graphene field (Konrad & Alvial Palavicino 2017). Thirdly, systems thinking in the form of regimes and multi-level dynamics raises further the question whether

there may be fundamentally different ways how socio-technical futures and, in particular, technological promises feature in modes of innovation and influence innovation policy (Joly 2010; Budde & Konrad 2019; Robinson et al. 2021). While I see some limitations in thinking predominantly in distinct regimes, I want to suggest that a meso-level practice-based perspective may actually be particularly interesting for ambitions to not only study socio-technical futures, but also to intervene in or modulate common promissory 'routines' and dynamics.

Readings

- Konrad, K. and C. Alvial Palavicino (2017). Evolving Patterns of Governance of, and by, Expectations: The Graphene Hype Wave. Embedding New Technologies into Society: A Regulatory, Ethical & Societal Perspective. D. Bowman, E. Stokes and A. Rip. Singapore, Pan Stanford: 187-218.
- Konrad, K., J. Markard, A. Ruef and B. Truffer (2012). "Strategic responses to fuel cell hype and disappointment." Technological Forecasting and Social Change 79(6): 1084-1098.

Other relevant references

- Alkemade, F. and R. A. A. Suurs (2012). "Patterns of expectations for emerging sustainable technologies." Technological Forecasting and Social Change 79(3): 448-456.
- Borup, M., N. Brown, K. Konrad and H. Van Lente (2006). "The Sociology of Expectations in Science and Technology." Technology Analysis and Strategic Management 18: 285-298.
- Budde, B. and K. Konrad (2019). "Tentative governing of fuel cell innovation in a dynamic network of expectations." Research Policy 48: 1098-1112.
- Joly, P.-B. (2010). On the economics of techno-scientific promises. Débordements: Mélanges offerts à Michel Callon. M. Akrich, Y. Barthe, F. Muniesa and P. Mustar. Paris, Presses des Mines.
- Konrad, K., H. Van Lente, C. Groves and C. Selin (2017). Performing and Governing the Future in Science and Technology. The Handbook of Science and Technology Studies, 4th edition. C. A. Miller, U. Felt, R. Fouché and L. Smith-Doerr. Cambridge, MIT Press: 465-493.
- Robinson, D., M. Audétat, P.-B. Joly and H. Van Lente (2021, in press). "Enemies of the future? Questioning the regimes of promising in emerging science and technology." Science and Public Policy.
- van Lente, H. and A. Rip (1998). "The Rise of Membrane Technology: From Rhetorics to Social Reality." Social Studies of Science 28(2): 221-254.
- van Merkerk, R. O. and D. K. R. Robinson (2006). "Characterising the emergence of a technological field: expectations, agendas and networks in Lab on a chip technologies." Technology Analysis & Strategic Management 18(3/4).

2.5 Exercise Reflecting on your PhD Trajectory by visualising it (1)

PhD trajectories are long and challenging endeavours. To reflect upon the trajectory and to learn from others who they have dealt with unexpected challenges and opportunities, we would like you create a visualization of your PhD trajectory, starting from the beginning and up until the day of your defense. What counts as the beginning is one of the first elements you can reflect on!

The exercise is to render in visual form the process, with its milestones and uncertainties, linear and less linear moments and so on. For PhDs who are at the beginning of their trajectory this means that their visualizations will probably focus more on how they envision their PhD project will possibly develop. This of course also includes reflections on which unexpected twists and turns you think will emerge along the way. For PhDs who are more advanced, this exercise will probably entail a visualization of how your PhD project has developed up to now, and how you imagine the trajectory until it is finished. Don't forget to include both challenges and opportunities that have shaped the trajectory until now.

Concretely, in this first session you will draw/paint/collage your PhD trajectory on a large sheet of paper. We will provide you with the sheets of paper. Please bring materials with you to support your visualisation (pictures you have printed out, cut outs from magazines, etc). We will make an exhibit of these visualisations in the adjacent room at Soeterbeek.

Friday: On the ground

3.1 Exercise Reflecting on your PhD Trajectory by visualising it (2)

From the creations of last evening, we have created an exhibition in the room adjacent to our meeting room. Besides admiring all the creativity that emerged from session 1, the second session will be the occasion to reflect on what are individual differences and what are structural issues in doing a PhD. Some guiding questions to be discussed in small groups are

- What is it like to see all these visualisations?
- What does this collection reveal?
- Are there clusters of similar trajectories?
- Which theme emerge?
- And connecting to the theme of the workshop: if your PhDs are innovations, which kinds of systems seem to produce them?

A text highlighting the diversity of journeys leading to a PhD can be found here and might make for interesting optional reading:

- Germain, Olivier, Pei Yi Wang, Julie Delisle, Kamila Moulai, Clarence Bluntz, Ea Høg Utoft, Sara Dahlman, et al. 2020. 'Living the PhD Journey...' *M@n@gement* Vol. 23 (1): 102–41. DOI : 10.3917/mana.231.0102.

3.2 Poster presentations

Participants who are working on the topic of the workshop are invited to bring a poster for this session. We will hold the session in small groups, to enhance opportunities for discussion.

3.3. The challenge of implementing Transformative Innovation Policies in Latin America. The case of the STI Social Appropriation Policy in Colombia

Innovation policies imply a political dimension which is often overlooked among mainstream innovation policy scholars, who tend to focus on the good aspects of innovation whatsoever. Transformative innovation policy literature, which mostly focuses on social inclusion and climate change adaptation at particular socio-technical systems, is not an exception, as its also inspired by wishful thinking ignoring important political dimensions typically involved. In such a context, four barriers explaining resistance to change, as adapted from Pierson (2000), are analyzed including a) dominant policy paradigms, b) institutional density, c) conservative collective action and d) power struggle. To do so, the case of a so-called TIP implemented in Colombia (=SASTI Policy) is examined

to illustrate how such barriers have blocked its progress for political reasons, and how, despite such fierce opposition, institutional entrepreneurs still have managed to keep it ‘alive’ using political tactics. Hence, tactics implemented by institutional entrepreneurs for assuring ‘policy survival’ include a) discursive framing, b) allies finding, c) networking, and d) appealing to self-reinforcing mechanisms. The aim of this discussion is to shade some light on this for a better understanding of the political dimensions innovation policies imply, which tend to be overlooked in mainstream innovation literature.

Reference:

- Ordonez-Matamoros, G., J. P. Centeno, E. Andrade-Sastoque and P. Mario (2021, in press). Transformative Innovation Policy in emerging economies: what does it entail? In: *Governance of Science, Technology and Innovation: an overview of Latin American research*. Eds. G. Ordonez, J. Garcia, I. Bortagaray, L. Orozco and J. Sierra,. Palgrave Macmillan.

3.4. Farewell & group photo

Lecturers

Cyrus Mody is chair in the history of science, technology, and innovation at Maastricht University. He is the author of three MIT Press monographs, including the forthcoming *The Squares: US Physical and Engineering Scientists in the Long 1970s* (2022), on the history of academic entrepreneurship, industrial R&D, and post-1970 changes in the research system. His current research, in collaboration with other members of the NWO Vici "Managing Scarcity" project, examines the oil industry and alternative energy during the resource scarcity debate of the 1970s.

Koen Frenken is Full Professor in Innovation Studies at the Copernicus Institute of Sustainable Development, Utrecht University, from 2014 onwards. He currently chairs the section of Innovation Studies at the Copernicus Institute, and is a program team member of Utrecht University's strategic theme 'Institutions for Open Societies'. Before 2014, Koen held positions in Economics of Innovation at Eindhoven University of Technology (2009-2013) and in Economic Geography at Utrecht University (2001-2009). He served as a committee member at the Social and Economic Council of the Netherlands (SER) on the topics of robotisation and of platform work. Koen also collaborated with the Rathenau Institute on the topic of sharing economy (2017) and with Netherlands Bureau for Spatial Planning on the topic of the European Research Area (2007). His theoretical interests include evolutionary economics, institutional sociology and complexity theory. He works on sustainability transitions, economic geography, platform economy and innovation policy. In 2001, he received a joint PhD from the University of Grenoble (applied economics) and the University of Amsterdam (social sciences).

Kornelia Konrad is Associate Professor of Anticipation and Assessment of Emerging Technologies. One of her core research interests is the role of anticipation in innovation, reaching from an analytical interest in the role of expectations and socio-technical futures in research, innovation and its governance, to intervention approaches, such as foresight and socio-technical scenarios. The latter are a typical element of Constructive Technology Assessment, an approach that combines socio-technical analysis, stakeholder involvement and the use of socio-technical scenarios, as a means to feed knowledge on the socio-technical context and stakeholder assessments into the development and societal embedding of innovations. Further fields of research are socio-technical change, socio-technical transitions, innovation ecosystems, and the role of use and users in innovation. Furthermore, she has developed tools for facilitating responsible research and innovation (RRI) in technology research and development and studied conditions for RRI in different modes of innovation. Kornelia received a M.A. degree in sociology, physics and mathematics from the University of Freiburg i.Br., and her PhD from the University of Darmstadt. <https://people.utwente.nl/k.e.konrad>

Stefan Kuhlmann is full professor of **Science, Technology and Society (STS)** at the University of Twente (UT) at the Department Technology, Policy, Society (TPS) and the section Science, Technology, and Policy Studies (STaPS). He is also Academic Director of WTMC, the Dutch Graduate Research School Science, Technology, and Modern Culture. Stefan works on research and technological innovation as social and political processes, focusing on governance and politics, and he publishes widely in the field of research and innovation policy studies. Stefan was an editor of *Research Policy* (Elsevier) 2005-2020. He is an associate editor of the *Int. J. of Foresight and Innovation Policy* (IJFIP) and is on the boards of *Science and Public Policy*, of *Asian Research Policy*, of the journal *Evaluation*, of *European Journal of Futures Research*, of *Zeitschrift für Evaluation* and of *Forschung*.

Ellen Moors is Professor of Innovation and Sustainability at Utrecht University. Her research focuses on the dynamics and governance of socio-technological innovations, using innovation systems, institutional entrepreneurship and user-innovation theories. She studies how successful innovations increasingly ask for legitimation, institutionalization and co-creation with users. She has published on the dynamics of socio-technical innovations, user-producer interactions, innovation-regulation issues, and responsible research and innovation in the fields of health, ageing, life sciences, food and

community-supported agriculture. She is also member of the Dutch Advisory Board for Science, Technology and Innovation, advising and signaling recent socio-technical developments to Dutch government and parliament.

Gonzalo Ordóñez-Matamoros is Professor of Policy Analysis and Design Methods, and of Knowledge and Innovation Management and Governance at the Faculty of Finance, Government and International Relations of the Universidad Externado de Colombia in Bogotá, where he is Director of the Research and Special Projects Centre (CIPE) at the same university. He is also co-director of the International UT and Chinese Courses on Research Evaluation of the Science, Technology, and Policy Studies (STePS) group of the Technology, Policy, Society (TPS) Department. He holds a PhD in Public Policy from the Georgia Institute of Technology and the Georgia State University (USA), an Ms in International Economic Law from the Université de Nanterre-Paris X (France), an Ms in International Economics and Economic Development from the Université Paris I-Panthéon-Sorbonne (France). He was (i.a.) Executive Director of the Colombian Observatory of Science and Technology and consultant to the Inter-American Development Bank, the World Bank and the European Commission. He is the President of the Red de Gobernanza y Gestión del Conocimiento, la Ciencia, la Tecnología y la Innovación (Red GCTI), and has conducted research, ex-post evaluation and foresight studies of knowledge, science, technology and innovation policies and programmes focusing on emerging economies in the Global South.

About the coordinators

Anne Beaulieu is professor of Knowledge Infrastructures and director of the Data Research Centre at the University of Groningen. At Campus Fryslân, she works on creating knowledge infrastructures for sustainability and is responsible for the major Responsible Planet in the programme Global Responsibility and Leadership. She has co-edited the books *Virtual Knowledge: Experimenting in the Humanities and Social Sciences* and *Smart Grids from a Global Perspective*. She is the co-founder of the Groningen Energy Summer School for PhDs and acted as one of its scientific directors for 6 years. She is a member of the Board of Studium Generale Groningen and of the NIAS-Lorentz Advisory Board. Her book *Data and Society: A Critical Introduction* with Sabina Leonelli will appear in November 2021.

Andreas Weber is an assistant professor in the [research group of Science, Technology and Policy Studies \(STePS\)](#) at the University of Twente. Most of his research and teaching examines the relationship between **Science, Technology and Culture (=STC)** from a long-term and global perspective. Andreas has a special interest in the history of natural history and chemistry in insular Southeast Asia and Europe. This includes research into how computational technologies can be used to increase access to and learn from biodiversity heritage collections gathered in former colonial areas. His research in the digital heritage domain also allows him to reflect upon how the growing use of computational technologies impacts research in the humanities, and, more generally, our understanding of culture and technology in society. Andreas holds a MA degree (2005) and a PhD, both from Leiden University (2012). In 2015-2016, Andreas was a John C. Haas fellow of the [Science History Institute](#) in Philadelphia.

Participants

No.	First name	Surname	University/Organization	What is the topic of your research (5 lines)?
1	Olga	Temina	Maastricht University	My research focuses on practices that lead to construction of access to medicines for patients with oncological and rare diagnosis in Russia. I pay special attention to role that patient organizations play in this process and their political epistemic projects. Theoretically my research is drawing from the STS literature and informality studies.
2	Annemarie	Horn	Vrije Universiteit Amsterdam	I conduct action research into inter- and transdisciplinary collaboration and knowledge integration. We design and continuously evaluate master level courses in which students from diverse backgrounds collaborate to work on complex societal issues. I study how they develop and can be supported to develop competencies for inter- and transdisciplinarity. This includes epistemic awareness, reflectivity, and the ability to engage in dialogical communication.
3	Florian	Helfrich	University of Twente	Investigating the governance of socio-technical transformations, examining the implementation of blockchain-based platforms and infrastructures for energy markets and local communities. It will be analysed how the technical construction and implementation of such infrastructures develop with relation to interactions and social relations between energy providers, governing institutions and local communities.
4	Sarah Rose	Bieszczad	Leiden University	How institutional and policy evaluative contexts shape research on the deep sea in European national marine institutions.
5	Denise	Petzold	Maastricht University	With the help of STS and Museum Studies, I aim to understand how the heritage of classical music is made obdurate through and within different musical practices. Subsequently, I ask how this heritage can be 'opened up' in order for musical institutions to address the tension between the current drive for innovation in the classical music landscape and the conservation of its artistic heritage.
6	Carla	Greubel	Utrecht University	My research studies how people think about and (try to) do 'good ageing' in and across three contexts: (1) the EU policy discourse on ageing and innovation, (2) a large scale implementation project of smarter living environments, and (3) the everyday lives of older people. I am especially interested in understanding the interrelations between these contexts and how some ideas about good ageing come to matter more than others.

7	Tessa	Roedema	Vrije Universiteit Amsterdam	My PhD is part of the European RETHINK project. In an action-oriented research approach, we aim for a transformation of the current science communication ecosystem, towards open and reflexive dialogue about complex societal problems. We focus on the widely diverse ways in which citizens make sense of science and explore strategies towards a reflective practice for professional science communicators.
8	Lotje	Siffels	Radboud University	My PhD is part of the 'Digital Good'-project, which investigates the 'Googlization of health'. Consumer tech companies are increasingly getting involved in the health domain. This project aims to investigate the different conceptions of the common good that are at stake in these new partnerships and to provide a normative framework for these new collaborations. Through the method of pragmatic sociology, I hope to provide a map of Orders of Worth that are mobilized in this domain.
9	Ivan	Veul	Radboud University	Large technology companies, like Google, have become so influential, that the decisions they make about their technologies, have tremendous impact on Internet standards, the information we get to see and our lives more broadly. As such, they have become key political players, through their technologies; both in terms of the problems and publics that these technologies create, as well as through the problems and publics that they address. In my research, I use insights from STS and pragmatist political theory, to describe current political arrangements that feature Google, and its technologies, as a central political actor, and I raise the question whether these arrangements are sufficiently equipped to deal with the issues and publics that we see regarding mass-scale data collection, targeted advertising and AI, or whether it is time for new political arrangements.
10	Yingying	Han	Radboud University	In my research, I explore the landscape of understanding and usage of validity in neuroscience by asking questions like: What is validity in theoretical discussion and in research practice? What are the differences in the understanding and usage of validity by various actors? I aim to answer the questions by conducting case studies using interviews, observations and also some interactive methods with the neuroscience community.
11	Jing	Wang	Radboud University	My research aims to understand how the notion of research quality is framed in different countries, and in the Chinese publication system in particular. Specifically, we explore different stakeholders' knowledge about 'journal quality', how do they classify the quality of journals into

				different levels, and how do they use 'journal quality' as a proxy used in research assessment and rewards.
12	Dirk	van de Leemput	Maastricht University	The maintainers of older technologies in time-based media works of art.
13	Mike	Grijseels	Vrije Universiteit Amsterdam	Inclusive technologies for people with disabilities in the workplace. We study how technologies are introduced to (and used in) different workplaces and what is needed for these technologies to support inclusive employment. In exploring the potential for inclusive technology we ourselves also become part of the learning and change processes in the workplace. We take inspiration from making & doing, actor-network theory and reflexive monitoring in action
14	Lea	Beiermann	Maastricht University	Lea's PhD project investigates the history of microscopy in the mid- and late nineteenth century. It looks at how microscopists built and used infrastructure for knowledge exchange.
15	Lea	Lösch	Vrije Universiteit Amsterdam	My PhD research centres around innovating the inclusion of citizens', patient's and health professionals' values and experience-based knowledge in vaccination guidelines by using automated text analysis methods.
16	Nienke	van Pijkeren	Erasmus University Rotterdam	Healthcare in rural areas
17	Selen	Eren	University of Groningen	I am studying how bird ecologists create knowledge claims in contemporary knowledge infrastructures where the emerging and long-standing data collection and analysis techniques are used at the same time, as well as how to contribute to such knowledge infrastructures to make them more credible in a less positivist sense.
18	Nina	Schwarzbach	University of Groningen	In clinical psychological, there is a chasm between what is considered evidence in clinical trials and what is considered useful and applied in clinical practice. My project is about how the choice of methodology and specifically research statistics might contribute to this so-called scientist-practitioner gap.
19	Anneke	Boersma	Vrije Universiteit Amsterdam	I'm researching what the idea of the dietary shift comes to be in different food consumption settings in the Netherlands. I keep asking myself how meat consumption could be reduced in an inclusive and equitable way. I want to focus on health inequalities in relation to food.

PhD Presentation guidelines

For presenters

- Send the title & summary of your presentation to the discussant assigned to you at least 1 week before the workshop.
- A projector and PC are available. Copy your presentation onto the PC in advance. You may want to use your own laptop, which usually works fine, but mind that it poses an extra risk of technical issues. Also, if you have video material, make sure you have it downloaded locally. There is internet, but relying on YouTube etc. is risky.
- The duration of your presentation should be **15 minutes**. Then there is another 15 minutes for the discussant and plenary discussion. We keep time very strictly.
- Try to make a sophisticated choice on what you want to present. One typical pitfall is wanting to give an overview of your whole PhD project, which leads to an unfocused and overloaded presentation. Rather select an interesting aspect of your research and discuss it in-depth.

For discussants

- Make sure you receive the title & summary of the presentation at least 1 week before the workshop. Contact the presenter if needed.
- After the presentation: join the presenter in the front of the room
- Present your comments in **5 minutes** max.
- Mind that being a discussant is not about pointing out all the flaws in the presenter's argument, but about setting the stage for a constructive discussion. Offering critique is good, but also try to bring out what the potentials of the argument are for improvement, and to identify some questions for the speaker or the group as a whole.
- You may want to get in touch with the presenter to prepare some comments. Feedback should address the quality of the presentation itself (slides, clarity, focus) as well as its content.

All others

- Listen carefully and attentively to the presentation.
- Please fill in a **feedback form** for each presentation. They can be found at the end of the reader. They will be collected and given to the presenter. We will bring spare copies for people who don't print out the reader.
- Join the discussion after the discussant has given their feedback.
- Chances are that there is not enough time to discuss all questions from the audience. Please write them down on the feedback form. Even without discussion, your questions might be very valuable for the presenter!

Feedback on Presentations

This is to help you give feedback to your fellow participants, some of whom will be presenting their research during this event. Feedback forms will be available at Soeterbeeck. Use a separate sheet for each presentation, put your name and that of the presenter at the top of a piece of paper. That way, if something isn't clear, the presenter knows whom to ask. Write your comments during or immediately after the presentation and give them to the presenter during the next break.

Points to consider when preparing feedback (you don't need to cover everything):

- Attractiveness of title and opening
- Usefulness of summary provided in the reader
- Clarity and significance of problem definition, research questions and aims (refinement of, addition to, clarification or rejection of an existing thesis)
- Use of theory and/or historiography (concepts, interpretations, etc.)
- Embeddedness in fields relevant to WIMC
- Clarity of structure
- Presentation of the method(s) employed
- Validity and reliability of the method(s) employed
- Accessibility of the research data to the audience
- Use of (intriguing and relevant) details and examples
- Clarity of argument
- Relation to the nature and level of expertise of audience
- Use of PowerPoint and other audio-visual resources
- Contact with audience and audibility of speech
- Clarity and significance of conclusions
- Response to questions and comments
- Time management

