

# EASST *Review*

European Association for the Study of Science and Technology



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# EDITORIAL

# INVENTION IS NOT INTERVENTION

Ignacio Farías

In the last two issues, we had the first installment of our new section ‘STS Live’ dedicated to discussing the notion of alternative facts. We would like to thank the amazing group of colleagues that were willing to contribute to this conversation! The ‘STS Live’ section is not a fixed, but a recurring feature of the Review – we plan to curate at least one ‘STS Live’ conversation per year. The aim is to practice response-ability, to open up dialogical spaces where we can collectively reflect and respond to pressing matters of concern. We haven’t decided yet which issue to invite colleagues to address in 2018, so your ideas are extremely welcome (you can always reach us at: [review@easst.net](mailto:review@easst.net))

STS’ capacity to respond to current political developments in ways that are attuned to those who are also challenging the ‘reasonable politics’ of our ‘guardians’, as Isabelle Stengers calls them, is an old concern in our field. Notably, the last years have seen an interesting development towards more ‘inventive’ engagements in science and technology often based on collaborations with activists, artists and designers and aimed at prototyping alternative infrastructural arrangements and aesthetic articulations of techno-scientific worlds. Think of the success of the Making and Doing events at 4S conferences ([http://www.4sonline.org/meeting/sts\\_making\\_and\\_doing](http://www.4sonline.org/meeting/sts_making_and_doing)) or the renaming of Goldsmith’s CSISP into CISP: Center for Invention and Social Process (<https://www.gold.ac.uk/cisp/overview/>). There are indeed dozens, if not hundreds of examples. But looking back a bit, I think it is fair to say that Bruno Latour’s exhibitions at ZKM have made a major contribution to open up STS towards such inventive engagements.

Here I would like to report on my attending to Bruno Latour’s lecture-performance *Inside* (<https://vimeo.com/237215710/48cd03ffcd>) and reflect on the challenges of STS inventions. *Inside*, staged by the French scenographer Frédérique Aït-Touati, with whom the Latours wrote the radio play *Kosmokolos* (<http://www.bruno-latour.fr/sites/default/files/downloads/KOSMOK-JULIE-ROSE-GB.pdf>), was presented last September in the context of the Festival *Der Maulwurf macht weiter. Tiere / Politik / Performance* [The mole keeps on going. Animals / Politics / Performance] at the beautiful theatre HAU, a true temple for experimentation in the contemporary performing arts in Berlin. My first surprise happened upon arrival to the theatre: I met only one STS colleague in the audience. The place was not packed with STS friends and colleagues, as I somehow imagined when heading to HAU, but with a mixed audience, whose exact provenience I cannot quite tell (although see below).

The second positive surprise was to see what Latour is up to these days. Long done with the writing of a non-modern Constitution and the staging of Gaia, Latour is now experimenting with the visual representation of a new cosmology. How to literally redraw the cosmos? Which alternative visual imaginaries are necessary to remap and represent our entanglements within and beyond the ‘critical zone’, which broadly equates to the ‘biosphere’? Latour’s project reminds me of the kind of intervention Alexander von Humboldt did with his drawings of the Chimborazo volcano and how these drawings were crucial for advancing his reinvention of nature and the cosmos. Indeed, Latour’s *Inside* lecture-performance achieved something that has been so difficult to achieve in the various ZKM exhibitions: engaging in the production of aesthetic forms that cannot be reduced to an illustration of theoretical propositions and that actually challenge the audience to come up with a different language.

Or so I thought... until the lecture was over and the Q&A began (not included in the video). It was a short, but catastrophic Q&A marked by three interventions.

The first one was a confession of not having understood much and a request to explain what is a vortex – the key topological figure that Latour used to articulate this new cosmo-graphy. The second was a long rant about the lack of effort by “professors” to relate the broad public, by making interventions one could not just politically, but even discursively relate to, in the sense of understanding what it is actually being said. The third one was a rant about not allowing the previous person to continue her rant, for after she was given a response someone else took the microphone to ask something different – a meta-rant moment that led the chair to call it a night and invite everyone to continue the discussion over some drinks at the bar of the theatre.

The more general question, of course, is what are we aiming at when embracing invention as a mode of STS scholarship. Oftentimes STS’ inventive engagements are celebrated as a form of political intervention in public controversies and current affairs. But the difference cannot be overstated. When composing songs, writing poems, programming bots, designing board games, writing play scripts, curating exhibitions or drawing ethnographic comics, STS scholars do certainly address non-academic audiences. But to think that such inventive engagements can only be a means to articulating matters of public concern, to make things public, would involve underestimating both, the capacities of publics to engage with standardized forms of knowledge and, most problematically, the role of inventive engagements as a research method.

Indeed, the most interesting statement during the Q&A was none of the above. Asked about what kind of political intervention he expects these visual experiments to have in current climate policy, Latour, demonstrating his difficulties understanding the question, said something like: ‘What? This? No. I don’t expect it to have any impact whatsoever’. If we consider this statement problematic, the question is then whose problem that is, for equating invention with intervention seems dismissive of how different these research methods are (cf. Zuiderent-Jerak 2016).



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STS MULTIPLE

# ENGAGED SCIENCE, TECHNOLOGY AND POLICY STUDIES – THE TWENTE APPROACH

Stefan Kuhlmann, Kornelia Konrad, Lissa Roberts



Fig. 1: University of Twente, Netherlands.

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1 Farias I (2017) O EASST Review lovers, where art thou? On STS as extitution. EASST Review: Volume 36(2) July 2017.

2 For a short history of the "Boerderij" see [http://www.utoday.nl/news/51771/bruggenbouwer\\_tussen\\_maatschappij\\_en\\_technologie](http://www.utoday.nl/news/51771/bruggenbouwer_tussen_maatschappij_en_technologie)

**ENGAGED STS, INNOVATION STUDIES AND POLICY ANALYSIS BUILD ON A RICH TRADITION AT THE UNIVERSITY OF TWENTE. WE GIVE A SHORT ACCOUNT OF THE LEGACY, CURRENT INTERDISCIPLINARY WORK AND FUTURE ORIENTATION OF THE DEPARTMENT STEPS. OUR DEPARTMENT COVERS THE WHOLE SPECTRUM OF THE 'LIFE TRAJECTORY' OF TECHNOSCIENTIFIC DEVELOPMENTS, RANGING FROM HISTORICAL TO FORESIGHT AND POLICY STUDIES: "NAVIGATING TECHNOSCIENCES AND INNOVATION IN SOCIETY".**

3 E.g. Callon M, Rip A and Law, J (eds). (1986) Mapping the dynamics of science and technology. *Sociology of science in the real world*. Springer.

4 Rip A and Van der Meulen BJ (1996) The post-modern research system. *Science and public policy*, 23(6): 343-352.

5 Schot J and Rip A (1997) The past and future of constructive technology assessment. *Technological forecasting and social change*, 54(2-3): 251-268.  
Collingridge D (1982) The social control of technology.

6 Rip A and Kemp R (1998) Technological change. In: Rayner S. and Malone L (eds) *Human Choice and Climate Change*, Vol. 2, Resources and Technology, Washington DC: Battelle Press: 327-399.

## SHORT ACCOUNT OF A SEMINAL LEGACY

Science, Technology and Innovation (STI) generate sites for articulation, contestation, navigation, negotiation, and change in modern (and other) societies. STS aims to understand and *conceptualize* the material, social, intellectual, political and moral dynamics of STI in society. Some STS groups also get involved in the active *shaping* of technology and innovation. Our department of Science, Technology, and Policy Studies (STePS) at the University of Twente (UT), the Netherlands, ventures to combine theory, critical analysis *and* active intervention in real-world spaces for articulation and negotiation. While contributing to the institutionalization of STS, STePS (and its predecessors) has also ventured to 'extitutionalize', focusing on "opening up provisory spaces for establishing new connections."<sup>1</sup>

This ambition builds on a tradition rooted in the young, technically oriented UT (est. 1962). In 1975 a 'Centre for Studies of Science, Technology and Society'<sup>2</sup> was formed, focusing on issues of technology in society (such as nuclear energy), increasingly also analyzing and engaging in actual development processes of technologies (e.g. health technology and renewable energy technology). When Arie Rip assumed the chair 'Philosophy of Science and Technology' in 1986 he linked efforts at UT with other Dutch and international sites of early STS.<sup>3</sup> Soon he, together with a growing group of ambitious young scholars in Twente, developed seminal concepts for a constructivist, intervention-oriented understanding of STI in society, such as 'post-modern research systems' (with B. van der Meulen)<sup>4</sup>, modes of 'Constructive Technology Assessment' as a response to the "Collingridge Dilemma" (with J. Schot),<sup>5</sup> and the roles of 'socio-technological regimes' and options for 'transition management' (with J. Schot, R. Kemp, F. Geels).<sup>6</sup>

In 1995, Rip's chair was complemented by a chair in 'Science and Technology Studies, with a focus on gender and technology'. Chair holder Nelly Oudshoorn made seminal contributions to the STS community's understanding of the co-construction of technologies and users, particularly in relation to medical technologies and information and communication technologies, based on thorough ethnographic research.<sup>7</sup> During the same period historians of science and technology also joined the group; Lissa Roberts, whose work traces the historical evolution and transgressions of the boundaries between 'science', 'technology', and 'society', was made chair for 'Long-term Development of Science and Technology' in 2009.<sup>8</sup> In 2005 the current department STePS was established, now including a chair 'Knowledge and Public Policy', held by Robert Hoppe, exploring the governance of problems and the role of scientific expertise in policy-making.<sup>9</sup> Upon Rip's retirement in 2006, Stefan Kuhlmann joined the group and soon became head of department. With his background in political science and the governance of technology and innovation, Kuhlmann places emphasis on the study of and intervention in the politics and policies of technology and innovation in society.<sup>10</sup> During the last ten years STePS has focused its work on "*Navigating Technosciences and Innovation in Society*."

Linking governance studies, innovation studies and STS, the STePS group covers quite a broad scope of conceptual perspectives and empirical fields. Our research and teaching are strongly interlinked with other disciplines, particularly with technological domains at the UT (nanotechnology, ICT, health technology). While our critical, constructivist and interventionist approach is welcomed by many partners, it can also produce tension. Mostly, though, such tension has fostered mutual learning and enhanced creativity.

STePS' approach has also led to strong involvement in major international collaborative research projects, often funded by the EU; projects that are not per se STS oriented, but where we aim to introduce STS perspectives and insights into 'mainstream' research. The same can be said about our considerable engagement with public policymakers in STI, on national, European and international levels: senior STePS scholars have been playing influential roles in setting new policy agendas.

Consequently, the interdisciplinary mission and engagement of STePS, its study of the dynamics and governance of STI, have been praised by international evaluation panels (2009; 2015) as excellent, highly relevant and internationally leading.

7 Oudshoorn N (2003) *The male pill: A biography of a technology in the making*. Duke University Press; Hyysalo S, Jensen TE and Oudshoorn N (eds) (2016) *The New Production of Users: Changing Innovation Collectives and Involvement Strategies* (Vol. 42). Routledge.

8 Roberts LL, Schaffer S and Dear P (2007) *The Mindful Hand. Inquiry and Invention from the Late Renaissance to Early Industrialisation*. History of Science and Scholarship in the Netherlands (9).

9 Hoppe R (2011) *The governance of problems: Puzzling, powering and participation*. Policy Press.

10 E.g. Smits RE, Kuhlmann S and Shapira P (eds) (2010) *The theory and practice of innovation policy*. Edward Elgar Publishing; Kuhlmann S and Ordóñez-Matamoros G (eds) (2017) *Research Handbook on Innovation Governance for Emerging Economies: Towards Better Models*. Edward Elgar Publishing.

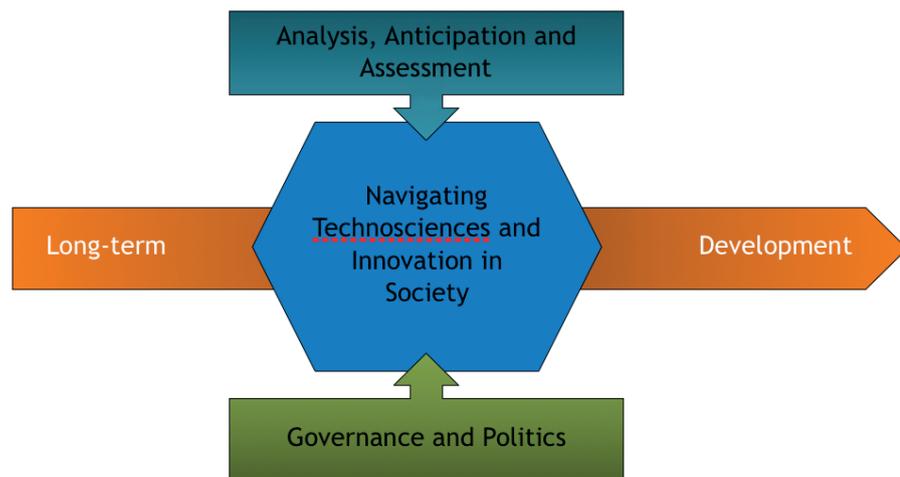
Fig. 2: STePS meeting October 2017  
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### CURRENT FOCUS

We take the emergence (past and future) and politics of science, technologies, and innovations in globally diverse societies as our vantage point for research and teaching. Consequently, STePS acts as a cross-disciplinary go-between of social sciences, humanities and techno-sciences. Research and related education link analytical and normative perspectives, and consider innovations in governance alongside technological innovations. Currently STePS is active in *three inter-linked research areas* (see graph). They are concerned with a better understanding of STI *vis-à-vis* societal challenges, related change, and the (potential) contribution of 'non-traditional' actors such as Civil Society Organisations and 'users'. And they explore modes of experimentation and learning, informed by theory-driven empirical research, with the help of a broad spectrum of qualitative (e.g. ethnographic) and quantitative methodologies. Below we briefly introduce the areas and illustrate them with examples of recent and current work.

Fig. 3: STePS' research focus and main themes.



#### ***Navigating Technosciences in Society: Analysis, Anticipation and Assessment***

We are particularly interested in processes at the meso level, such as technological fields, sectoral dynamics, and innovation journeys. We combine analysis of ongoing dynamics and the ways in which socio-technical futures are imagined and acted upon, with approaches as Constructive Technology Assessment (CTA) that turn these insights into starting points for scenario-building and engagement with stakeholders.<sup>11</sup> Key contributors in this research area are Kornelia Konrad, Stefan Kuhlmann, Klaasjan Visscher, Katrin Hahn, Verena Schulze Greiving, Ellen van Oost.

- A recent set of projects has been conducted as part of the Dutch nanotechnology research programme "NanoNextNL" (2006-2016). We investigated visions and requirements around the use of sensor technologies in the food and water sector, with a focus on how collective processes at sector level contributed to 'demand articulation' – rather than addressing mainly the dynamics in user communities, or user-producer interactions more common in STS research so far. We used these insights to develop scenarios and discuss and assess future perspectives with suppliers, users and regulators. A similar approach was taken for nano-based technologies in lighting. In a further project, we tailored and used our approach of CTA in a way that it becomes applicable at the level – and under the constraints – of technical research projects, which we consider an important prerequisite towards 'mainstreaming' of broader social considerations in technical research - as one form of responsible research and innovation. A third project investigated how diverse anticipatory practices played out in the governance and the impressive rise of technoscientific fields as graphene and 3D printing. (Main contributors are K. Konrad, V. Schulze Greiving, C. Alviaj Palavicino, B. Walhout, S. Kuhlmann, H. te Kulve)

<sup>11</sup> See Konrad et al, Constructive Technology Assessment – STS for and with Technology Actors, this issue of EASST Review.

- “Industrial Innovation in Transition (IIT)” (2015-2017) was the subject of a major EU H2020 project. With four international partners we studied the practices and processes of how companies innovate and anticipate their future environment by making use of and strategically shaping extended innovation ecosystems. The study builds on a dataset of qualitative interviews of almost 700 high-level managers of European companies, and considers in how far the rationales of common innovation policy instruments correspond to the actual innovation practices currently used in the companies. (K. Konrad, K. Hahn, K. Visscher, S. Kuhlmann)
- The NWO funded project “Community Innovation for Sustainable Energy: Aligning Social and Technical Innovation” (2016-2019) studies how new local oriented energy innovations like smart microgrids and local energy storage can empower local energy communities and strengthen their transformative capacity towards a sustainable and resilient energy production and use. We aim to gain insight into how techno-moral issues like privacy, inclusion, autonomy, and ownership of energy are co-shaped in these dynamics. (E. van Oost, B. Koirala)

### **Governance and Politics of STIS**

Science, technology and innovation are both key resources and causes for concern in society, the economy and public policy. Research on the politics and governance of knowledge and innovation analyzes transformation processes of research and innovation systems, the various modes of governance and policy making in this transformation and the processes by which expert knowledge contributes to policymaking and innovation. Beyond academic analysis we are also involved in the design and implementation of governance and policy initiatives in national, European and international arenas. Key contributors in this research area are Stefan Kuhlmann, Annalisa Pelizza, Peter Stegmaier, Gonzalo Ordonez-Matamoros.



Fig. 4: Stefan Kuhlmann and colleagues

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- “Res-AGorA. Responsible Research and Innovation in a Distributed Anticipatory Governance Frame”, a EU-funded project with eight European partners (2013-16), took the fluid and contested nature of ‘responsible’ research and innovation as a starting point. Res-AGorA developed a framework to guide the process of governing towards higher levels of responsibility in research and innovation (“[Responsibility Navigator](#)”), where the normative content is negotiated by the actors themselves as part of a continuous process of reflexive, anticipatory and responsive adaptation of research and innovation to changing societal challenges. (S. Kuhlmann, B. Walhout, G. Ordonez)
- “Governance of Discontinuation of Sociotechnical Systems ([DiscGo](#))” (2012-2017). This project funded by Netherlands Organization for Scientific Research (NWO) with four international partners aims at a better understanding of the governance of the abandonment of socio-technical systems: What does discontinuation mean as a problem of action for policy-makers? (P. Stegmaier, S. Kuhlmann)

12 See Pelizza A, Processing Citizenship. Digital registration of migrants as co-production of individuals and Europe, this issue of *EASST Review*.

- “Processing Citizenship: Digital Registration of Migrants as Co-production of Citizens, Territory and Europe”. How does migration enact Europe? Intensifying migration waves are changing not only EU policies, but also the way knowledge about individuals, institutions and space is created. This is the point of departure of an ERC Starting Grant five-year project (2017-2022) involving a team composed of sociologists, ethnographers, software developers and policy analysts. <sup>12</sup> (A. Pelizza, S. Scheel, A. Bacchi, C. Andreoli and others)
- Several PhD projects are investigating “Politics and Governance of STI in Emerging Economies”, currently focusing on Colombia. The emerging ‘post-colonial’ perspective will enrich STIS both on the Global South and North. (G. Ordonez, S. Kuhlmann)

### **Long-term Development of STIS**

This research theme has two interactive aims. Stretching out from past to future, the first aim is to trace out the long term development of STIS in ways that reveal both the specific peculiarities and broader patterns that inform its dynamic character over time. As such the intention is not simply to provide background and context for contemporary and future-oriented research carried out within the department and the study of STIS more generally. It seeks to demonstrate that the phenomena and processes we study and which are subject to policy consideration, can only be properly appreciated and governed when their combined temporal and spatial character are understood. The second aim is to understand the very categories we use to organize our research - science, technology, governance, innovation, (o)economy and so forth - as historical phenomena whose definitions and implications have changed (and will continue to change) over time and across space. Key contributors in this research area are Lissa Roberts, Fokko Jan Dijksterhuis, Adri Albert de la Bruheze, Andreas Weber.

- “Technologies in Use: Infrastructures, Maintenance and Labor from Early Industrialization to Tomorrow” is a two year (2017-2019) international research network co-funded by the Netherlands Organization for Scientific Research (NWO) and a number of international partners. It is directed toward producing a narrative that explains the dynamic relationship between technology and societies around the world since the late eighteenth century, based on the understanding that innovation actually constitutes only one aspect of that relationship. (L. Roberts, A. Albert de la Bruheze)
- “The Cultural Politics of Sustainable Urban Mobility, 1890-Present” (2015-2018) is an international research network co-funded by NWO and a number of international partners. By drawing on cases of long term development, it seeks to contribute to current debates regarding how urban mobility can transition into a sustainable system. An important outcome is the much acclaimed co-edited volume *Cycling Cities: The European Experience - Hundred Years of Policy and Practice* (2016). (A. Albert de la Bruheze)



Fig. 5: Lissa Roberts and colleagues  
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Fig. 6: STePS group.

©A. Weber collage based on image Rijksmuseum Amsterdam

- “Making Sense of Illustrated Handwritten Archives” (2016-2019), is a Digital Humanities project co-funded by NWO and Brill Publishers. In partnership with internationally leading specialists in AI and cognitive engineering it has two aims. Concretely, it involves developing an advanced and user-friendly online service for searching digitized illustrated handwritten collections. Simultaneously it examines the potential of such collaborations to increase both our research capabilities and understanding of the interface between artificial intelligence, processes of interpretive cognition and preservation of heritage. (L. Roberts, A. Weber)



Fig. 7: Campus life, University of Twente.

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## TEACHING

STePS (and precursors since the 1970s) has the mission to teach the dynamics, governance and options for shaping science, technology and innovation in society on an interdisciplinary basis, particularly for the UT technical faculties. In the ‘Twente Model’ for undergraduate education students are trained as researchers and designers, with an eye for the societal embedding and implications of their work. STePS is a key contributor to this ‘reflection education’. We are also strongly involved in UT’s University College [ATLAS](#), an honours programme for talented students, bringing technology and society together. We further offer the course ‘Governance and Ethics of Technology’ at UT’s international ‘CuriousU’ summer school.

In graduate education STePS and the Philosophy Department jointly offer a two-year international Master’s programme ‘Philosophy of Science and Technology (PSTS)’, meant for anyone who is interested to develop an interdisciplinary understanding of and become involved in guiding the role of technology in broader social contexts. The PSTS programme is designed for students with technical, philosophical and social science backgrounds. Further graduate education is offered for the Master programmes Nanotechnology, Chemical Engineering, Industrial Design, Public Administration, and Business Administration.

As part of the Twente Graduate School, STePS runs the programme '[Governance of Knowledge and Innovation](#)' for Master and PhD students. Also, STePS is a key contributor to an (emerging) 'Global PhD Platform', an effort for attracting and supervising PhD students from the Global South.

As of 2018, the UT and STePS will host and lead the Dutch national PhD school 'Wetenschap, Technologie en moderne Cultuur, [WTMC](#)', internationally much acclaimed as a role model. STePS scholars and their predecessors have always played active roles in WTMC, a collective effort based in the Netherlands to study the development of science, technology and modern culture from an interdisciplinary perspective. In 2016 WTMC received the 4S Infrastructure Award and in 2017 an international evaluation panel rated WTMC "one of the few most influential graduate schools in the world within the field of science, technology and innovation studies (STIS)."

#### INTERNATIONAL COLLABORATION

STePS scholars are highly engaged in the international communities of STIS, through numerous collaborative research projects, multiple publication efforts, and active contribution to academic and professional associations, among them the "European Association for the Study of Science and Technology (EASST)", the "Society for Social Studies of Science (4S)", the "European Forum for Studies of Policies for Research and Innovation" ([Eu-SPRI Forum](#)), the "Society for the Studies of New and Emerging Technologies ([S.NET](#))".

The international standing and appreciation of STePS scholars is emphasized by their leading roles in important academic journals such as »[Research Policy](#)«, (Editor S. Kuhlmann), »[Tecnoscienza](#)« (Editorial Board A. Pelizza) or »[History of Science](#)« (Editor-in-Chief L. Roberts).

Fig. 8: Some STePS colleagues.

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## OUTLOOK

As claimed at the start of this short account of STePS' pedigree and current work, the Twente Approach aims to combine engaged STIS and Governance Studies and intervention in the development of technology and innovation in society.

We anticipate that this critical and interventionist mission in the future will become even more important and appreciated in a university of technology as the UT. In the Netherlands, in Europe and beyond we see a growing number of academic sites engaging in social challenge and needs-driven experimentation, co-design and co-development of technology and innovation in society. At the same time, in public policy arenas there is increasing demand for transformative policy and governance concepts.<sup>13</sup>

Conceptually, we envisage a further integration of concepts and lenses from STS, innovation studies, governance, and long-term perspectives, in order to sharpen our understanding of technology from research and innovation to its integration into societal practices and structures, its governance and governance effects. A phenomenon like digitalization can hardly be grasped, other than by considering its actual manifestation in practice, from industry to e-health, and from the politics of code to policies.

We expect the Twente-borne CTA-approach<sup>14</sup> to be further enlarged in scope – e.g. geographically or from technical to service innovations, requiring at the same time a need for further situating and tailoring of our methods to different conditions.

Most importantly, such future interventions will have to draw on capacities for a long-term analysis of socio-technical configurations, both from a historical perspective and with advanced foresight methodologies and procedures.

Not least, this analytical-interventionist work will be developed with a global perspective, acknowledging the mutual interdependencies of former “first” and other worlds, reflected especially in emerging global socio-technical infrastructures.<sup>15</sup>

*Stefan Kuhlmann is full professor of Science, Technology and Society at the University of Twente and chairing the Department [Science, Technology, and Policy Studies \(STePS\)](#). Earlier he held leading positions at Fraunhofer Institute for Systems and Innovation Research ISI, Germany, and was Professor of Innovation Policy Analysis at University of Utrecht. He 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.*

13 Kuhlmann S and Rip A (2017) Next Generation Innovation Policy and Grand Challenges. Science and Public Policy (paper accepted for publication).

14 See Konrad et al, this EASST Review.

15 See e.g. Pelizza, this EASST Review.



*Kornelia Konrad is Assistant Professor of Anticipation and Assessment of Emerging Technologies at the University of Twente. She received a master's degree in sociology, physics and mathematics at the University of Freiburg i.Br. (1997) and her PhD at the Technical University of Darmstadt (2002), where she participated in the Graduate School “Technology and Society”. Before joining the UT she was a researcher at Eawag, a Swiss federal research institute of the ETH domain in Zurich. In her work she studies and aims at enriching the role of anticipation and assessment in socio-technical innovation.*



*Lissa Roberts is professor of Long-term Development of Science and Technology at the University of Twente. She received her PhD in European cultural and intellectual history at U.C.L.A. (dissertation “From Natural Theology to Naturalism: Diderot and the Perception of Rappports”). She has held positions at a number of universities in both the United States (including UCLA, University of California at Irvine, Washington University and San Diego State University) and the Netherlands. She now heads the STePS's research area on ‘long term development of science and technology’.*



# CONSTRUCTIVE TECHNOLOGY ASSESSMENT – STS FOR AND WITH TECHNOLOGY ACTORS

Kornelia Konrad, Arie Rip, Verena Schulze Greiving

**CONSTRUCTIVE TECHNOLOGY ASSESSMENT (CTA) HAS EMERGED AT THE STEPS DEPARTMENT AS ONE OF THE EARLY APPROACHES AIMED AT AN ENGAGED FORM OF STS, WHICH IN ITS CONCRETE FORMS AND SITES HAS EVOLVED OVER TIME AND CONTINUES TO DO SO. WE EXPLAIN KEY CHARACTERISTICS OF THE APPROACH, REPORT ON RECENT PROJECTS AND DISCUSS CURRENT STEPS TO MOVE CTA FROM THE FIELD LEVEL TO THE WORK FLOOR OF RESEARCHERS AND TECHNOLOGY ACTORS.**

Over the years, STS has more and more moved from a predominant analytical gaze to engaging with the very fields and processes it is concerned with. At the University of Twente, STePS researchers have early on embarked on this road, with a key strand having evolved under the heading of Constructive Technology Assessment (CTA). While the core ideas were developed 30 years ago (Schot and Rip, 1997; Rip et al., 1995; Rip et al., 1987), the practical approaches and specific aims have clearly developed over time and – we expect – will continue to do so in the future. In what follows, we want to briefly explain the key characteristics of the approach, report on some recent projects and discuss our current attempts to move CTA from the field level to the work floor of researchers and technology actors, and close with an outlook on further directions for developing the approach.

## CORE CHARACTERISTICS AND SOCIO-TECHNICAL SCENARIOS

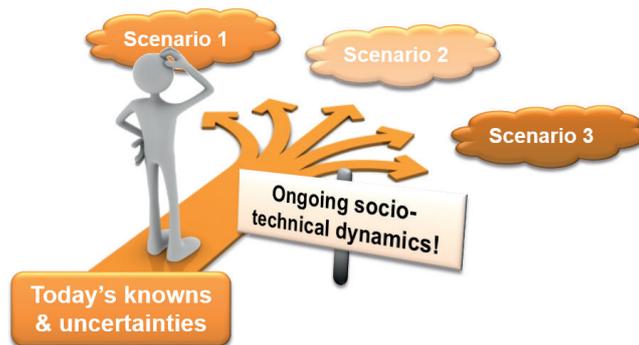
Constructive Technology Assessment emerged on the one hand from a concern to turn insights from STS actionable in the development of technologies. On the other hand, it builds on the field of technology assessment - as the term indicates – and aims to mobilize insights on co-evolutionary dynamics of science, technology and society for anticipating and assessing technologies, rather than being predominantly concerned with assessing societal impacts of a quasi-given technology. In addition, it shifts the focus from policy advice to (soft) intervention in the ongoing construction and societal embedding of technologies (see Rip and Robinson, 2013 for an analytical overview). Thus, CTA approaches involve stakeholders and typically include a step of analysis of ongoing processes and dynamics in a specific technology field, which draw on varying conceptual perspectives from science, technology and often also innovation studies. There have been extensive studies of social experiments with electric cars in the 1990s (Hoogma, 2000), some limited studies of micro-optics, and concerted work on nanotechnology (Rip and van Lente, 2013). Which conceptual lenses are used and which (scope of) processes are considered – innovation dynamics, use practices, governance interventions, developments within a field or its context, whether a whole technology field is addressed or a specific artefact - differs from project to project. This analytical step is often also an important base for studying the socio-technical dynamics in their own right.

Forms of intervention can differ, and here is not the space to expand on the full breadth. One form which has proven both doable and appreciated in various cases, includes the development of socio-technical scenarios as an input to stakeholder workshops. These scenarios typically start with the analysis of current and recent developments and then expand into the future, exploring different directions how the observed dynamics may further unfold, but also, how strategic and

governance actions may play out and interrelate, or how different actor groups may react -as a means to stimulate reflexive consideration of broader developments and their interrelations than actors in the field would consider in their day-to-day concerns (Parandian and Rip, 2013; Rip and Te Kulve, 2008). In the CTA workshops we then aim to convene stakeholders from different backgrounds, who often enough turn out not to be familiar with many of the perspectives and considerations of other parties (so the workshops are occasions to let them probe each other's worlds), and discussion is geared towards issues at stake and dilemmas that emerged from the preceding analysis.

By way of example, a project on nanotechnology-based sensor technologies in food and water explored directions for application and user requirements, but also the past and possible future processes which led and may lead to the emergence and further specification of user needs. It clearly turned out that user needs were not 'given', but rather that 'demand articulation' was an ongoing process, depending not only on dynamics on the use side, but rather on processes across the sector (Te Kulve and Konrad, 2017b; Te Kulve and Konrad, 2017a). More specifically, a stronger early-stage involvement of regulators was identified as a possible way forward.

This study approached the subject at the cross-section of a technology field with sectoral dynamics, and resided largely in the world of businesses. Other CTA studies were more concerned with the different perceptions and assessments of roles and responsibilities of different stakeholders and in particular patients of new medical devices that in different shades provide opportunities and requirements for patients for increased self-management. These examples also focused in more detail on (the design of) specific products, rather than a whole field (Maathuis, 2014; Krabbenborg, 2013).



### MAINSTREAMING CTA TO THE WORK FLOOR

The CTA approach in the forms described so far, poses quite some requirements, in terms of research time, STS expertise, workshop preparations, and engagement of participants. Accordingly, many of the projects have been part of PhD or postdoc projects. In the context of recent ambitions to broaden and enhance the consideration of the societal role of science and technology as a regular element of research and innovation processes, largely emerging related to initiatives under the heading of Responsible Research and Innovation (RRI), a new challenge arises.

The general rationale of CTA strongly resonates with the ambition of RRI (Fisher and Rip, 2013). However, for integrating CTA elements across a wide range of research and innovation projects and in a way that it closely involves the technical researchers themselves creates new and challenging frame conditions. This has been exactly the situation we faced in the Dutch nanotechnology research programme NanoNextNL where the ambition has been, clearly stated by the chairman of the programme, to have all researchers involved consider the societal impact of their research themselves (Walhout and Konrad, 2015; Volkskrant, 2011). While the mentioned CTA project for sensor technologies was part of the NanoNextNL programme, the same approach could not be applied to all (hundreds of) projects in the programme. As a way forward, the team of researchers in NanoNextNL

<sup>1</sup> <http://www.cta-toolbox.nl/>

who were conducting risk analysis and technology assessment projects set up a course targeted at the PhD students in the programme, which aimed at making the researchers aware of relevant potential risks, societal and ethical implications and prerequisites of their work. Ideally, PhD students were then supposed to dedicate a part, e.g. a chapter, of their thesis to further addressing the identified topics an early attempt to do so is (den Boer et al., 2009). Making in particular the latter happen and providing for the necessary supervision, was surely a challenge, as this had not been provided for in the original set-up of the programme and not all main supervisors were supportive of this type of activities; hence, in practice it wasn't followed as widely as indicated by the initial ambition. Still, several of the PhD students did so, conducting for instance CTA-inspired workshops, in which they explored with different types of actors potential applications of their research work and the prerequisites and implications thereof (Schulze Greiving et al., 2016). One of them decided to follow this route further, and embarked on a postdoc project in the STePS department. The main aim of this project was to further develop a 'CTA toolbox' that builds on analysis and methods derived from STS and innovation studies, but presents and tailors these in a format which is easier accessible, understandable and doable for technical researchers (Schulze Greiving and Konrad, 2017).<sup>1</sup> In the meantime we have applied these 'tools' in diverse contexts, from bachelor students to senior researchers exploring future research directions.

This move towards a 'mainstreaming' of CTA-type activities to the work floor of researchers is much in line with the overarching CTA rationale, but does not come without tensions, as supposedly all of the many colleagues involved in similar endeavors will know all too well. On the one hand, we have recently seen quite some openings for these activities; the activities in NanoNextNL were one

Courtesy of Gijs van Ouwkerk



of them, another is the recent educational policy of the University of Twente to include a substantial element of 'reflective education' throughout all the (largely technical) bachelor programmes. Similar approaches in different shades have been adopted by other technical universities, and the number of research and innovation projects which require a broadening up is expected to increase. At the same time, this development is also contested, particularly at the work- and lab-floor, and does not always go along easily with a number of the practical and disciplinary structures of technical researchers. Thus, tailoring our approaches to the real-world constrains what these openings can do in practice, and requires a constant balancing and experimenting to what extent and in which ways we can and want to adjust concepts and methods to achieve the goal of soft intervention for broadening technology development in a meaningful way.

## OUTLOOK

The situations and forms described are not meant to offer a comprehensive overview of the different conditions CTA may need to be again and again tailored to. Further challenges to situate the approach of CTA arise when CTA is to be conducted productively in different global settings, taking due account of local political and discursive cultures, and possibly different sociotechnical dynamics, an issue which becomes more and more salient also for us as STePS researchers, as we are increasingly working in globally dispersed and connected projects.

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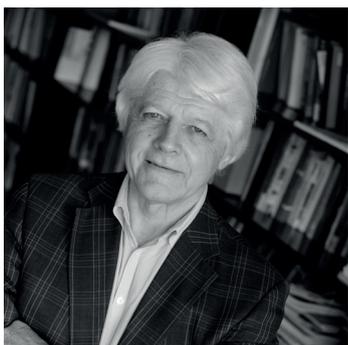
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*Arie Rip, educated as a chemist and philosopher at the University of Leiden, set up a program of teaching and research in Chemistry and Society in that University in the 1970s. He was Guest Professor of Science Dynamics at the University of Amsterdam (1984-1987) and Professor of Philosophy of Science and Technology at the University of Twente (1987-2006) where he continues after his retirement. He has held a Visiting Professorship at the University of Stellenbosch, South Africa. He has led a research program on Technology Assessment of Nanotechnology (in the Dutch R&D Consortium NanoNed), and is now involved in the European Commission's push for Responsible Research and Innovation. Other main research interests include the future of science institutions.*



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# PROCESSING CITIZENSHIP. DIGITAL REGISTRATION OF MIGRANTS AS CO-PRODUCTION OF INDIVIDUALS AND EUROPE

Annalisa Pelizza

## PROCESSING CITIZENSHIP

**THIS ARTICLE PRESENTS THE NEW “PROCESSING CITIZENSHIP” ERC PROJECT HOSTED BY THE STEPS DEPARTMENT, UNIVERSITY OF TWENTE. PROCESSING CITIZENSHIP ASKS HOW MIGRATION ENACTS EUROPE. NOT A NEW QUESTION IN ITSELF, IT IS USUALLY LEGALLY AND POLITICALLY ANSWERED. DIFFERENTLY, “PROCESSING CITIZENSHIP” ADDRESSES IT TECHNICALLY, BY ASKING HOW DATA INFRASTRUCTURES FOR ALTERITY PROCESSING CO-PRODUCE INDIVIDUALS AND EUROPE. THE PROJECT IS CARRIED ON BY A TEAM OF SIX RESEARCHERS WITH BACKGROUNDS IN ANTHROPOLOGY, COMPUTER SCIENCE AND SOCIOLOGY.**

The “Processing Citizenship” project was funded in late 2016 as a Starting Grant by the European Research Council (ERC). Launched in March 2017, it is interested in how migration enacts Europe. As the project’s homepage goes (<http://processingcitizenship.eu>), this question can be legally and politically answered, as most policy-makers, sociologists and journalists do, or technically. How do data infrastructures for processing migrants and refugees co-produce individuals and Europe?

The project aims to extend to non-European citizens the study of how the digital circulation of data assets about populations and territory is re-enacting European governance along new boundaries (Pelizza, 2016). Historically, data infrastructures on populations and territories have contributed to the formation of the most powerful techno-social assemblage for knowledge handling – the nation-state (Agar, 2003; Foucault, 2007; Mitchell, 1991; Mukerji, 2011). The project asks how contemporary data infrastructures for processing migrants and refugees at the border, as well as inside Europe, shape the European order. As such, the project aspires to contribute to technology studies on the infrastructural construction of Europe (Misa and Schot, 2005).

“Processing Citizenship” is hosted by the Science, Technology and Policy Studies department (STePS), Faculty of Behavioural, Management and Social Science at the University of Twente. As such, it is deeply embedded in the STS core tradition of the department, while it addresses a new research field in governance by technologies under a mid-term transnational perspective.

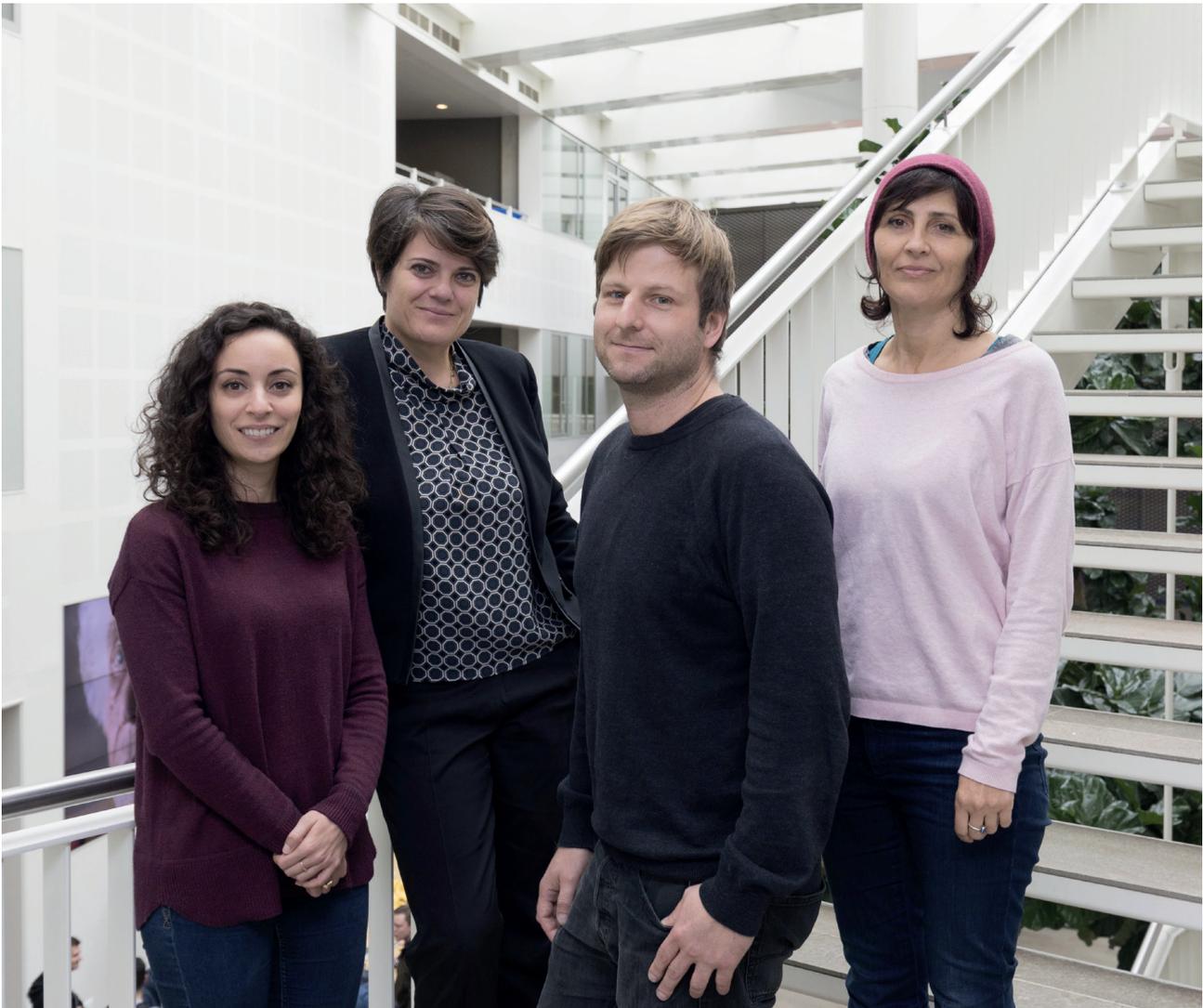


Fig. 1: Early members of the Processing Citizenship team. From left to right: Chiara Andreoli, Annalisa Pelizza, Stephan Scheel, Annalisa Bacchi

Between summer and fall 2017, the Principal Investigator, Annalisa Pelizza, will be joined by an interdisciplinary team of five, including anthropologists, computer scientists and sociologists. Despite (or, more likely, thanks to!) the differences in background, the common goal has become to re-articulate the two main approaches to migration studies – i.e., ethnographic interest in migrants' own experience and political science's focus on policy challenges – by stressing how technological artefacts and infrastructures for “processing alterity” mediate the co-production of migrants and polities (Pelizza, Under review). Indeed, with “processing” we refer to the set of bureaucratic procedures through which the individual Other and institutional actors (i.e., as *loci* of power, be they Member States, Europe or incipient hybrid networks of agencies at different scales) are co-produced through the mediation of data infrastructures.

Drawing upon the “Vectorial Glimpse” research framework that conceives of government digitization as an entry point to detect incipient transformations in the order of authority (Pelizza, 2016), “Processing Citizenship” looks at data infrastructures as interfaces that can reveal transformations in late modern governance. Following the STS tradition, infrastructures as interfaces are conceived of as crystallizing relational processes. Therefore, they are both methodologically and theoretically relevant. Methodologically, recognizing data infrastructures as interfaces allows conceiving of them as analytical sites in which broader, heterogeneous processes become visible. Theoretically, it introduces a performative understanding which is missing in mainstream explanations of information technologies as causes of state disassembling.

## THE MEASURE OF ALTERITY

The project is meant to throw light on how three types of identity are co-produced: migrants' identities, politics and territory. The first set of questions asks which aspects of migrants' life are measured, filled in the systems and come to constitute their digital identity when dealing with European actors.

Early evidence reveals the proliferation of databases, not only at European borders, but at any stage of alterity processing. Diverse information systems are run by diverse organizations (e.g., international organizations, national and local reception facilities, NGOs, medical organizations, European agencies), support diverse policies (e.g., contrast to trafficking, prevention of illness outbreaks, asylum), underpin diverse identity-building techniques. European Commission's databases *Eurodac* and *Dublinet*, for example, deal with asylum applications and contain asylum seekers' fingerprints. However, they record slightly different data: while Eurodac is a hit/no hit system and records only minimal data like name and fingerprint, Dublinet contains also more 'soft' data about a person's life.

Different databases enact migrants in different ways, as individuals or as populations, as members of a family or as potential workers, as vulnerable persons or as potential perpetrators. While it is only by comparing data models that such differences become relevant, our team has encountered an unexpected lack in contemporary literature on the analysis of ontologies as texts (Bowker and Star, 1999), and is thus working towards developing new analytical methods in this field.

In this first stage of investigation, we are also interested in the chain of artefacts deployed at Hotspots that translate previous identities into new European-readable ones. This line of investigation is key in light of recent developments in the European migration landscape. The goal of the so called "Hotspot approach", introduced in 2015, is to operationally support frontline Member States (i.e., Greece and Italy) in "swiftly identify[ing], register[ing] and fingerprint[ing] incoming migrants" (Commission, 2015a: 1). Hotspots are thus the first step in the procedure of sorting migrants into three alternative paths: "relocation" or "resettlement" to another Member State (for those identified as in clear need of international protection), or "return" to the country of legal residence (for those who are not deemed in need of protection). They can be conceived as "routers" that create "early entrenchments" (Star and Lampland, 2009) in sorting individuals, liminal situations in which past identities are assessed and translated into proto-decisions.

It is evident that routers do not work in a vacuum. Which material devices "speak for" the previous identity of the individual, and which database categorizations are decisive to be granted a future European identity are crucial questions that recall the material nature of such decisions. While EU policy documents mention specific criteria for relocation, resettlement and return, they might be partially "lost in translation" when it comes to embed policy into the different materiality of digital information systems, or vice-versa that new technical rigidities be introduced. For "Processing Citizenship", there is a need to keep trace of similar trans-material shifts.

A further interest concerning how migrants' identities are shaped deals with migrants' own "dis-inscriptions" (Akrich and Latour, 1992). How do migrants interact with officers and data infrastructures? This point raises a series of questions about the status of migrants. What information would migrants need in order to behave in the new context? Which possibilities are foreseen for individuals to define, protect and release their digital identities? The way identities are crafted can allow or conversely restrain migrants' potentialities to action. As Schinkel (2009) has noted, identities forced onto groups can also have empowering effects. "Processing Citizenship" thus asks which – if any – potentialities to action are enabled by the way migrants interact with their identities "inscribed" in information systems.

## NOVEL ORDERS OF GOVERNANCE

The second set of questions investigates how European politics are shaped by alterity processing. According to studies on IT-enforced borders, biometrics has

marked a shift from border management to identity processing. Nation states are said to have lost retention of control over physical borders. Access to welfare and redistribution rights has replaced territorial access, and become the bone of contention (Engbersen, 2003). As Amoore and De Goede (2008: 176) have put it, “the physical jurisdictional border seeps into data and databases.”

On the other hand, border studies have contested universalizing arguments about the disappearance of state boundaries (Paasi, 2005). By acknowledging the cultural and sociological “thickness” of boundaries, they have recognised state borders as important devices to attribute meaning to state institutions. Especially after 9/11 and the war of terror, state borders are seen as retrieving a key role in political studies.

For “Processing Citizenship”, however, the point is not so much establishing whether nation states retain more or less control over their physical borders, but to investigate which *loci* of power are constituted by bureaucratic practices of data circulation. As historians of technology have recalled, the construction of infrastructural Europe was characterized by the proliferation of new, non-governmental actors (Schot and Schipper, 2011). Which *loci* of power are emerging from practices of alterity processing? A revised version of the nation state, maybe with sub-national units been granted new powers? A more centralized configuration of Europe? Or even a novel distributed techno-social network made of public agencies and private contractors at different scales? Understanding how data about migrants and refugees are collected and circulate across European, national and local agencies is one way to answer these questions that reveals unexpected *de facto* geographies. As these latter are not easily representable on maps, Processing Citizenship plans to develop new forms of visualization of such geographies.

Current European responses to migration are indeed not only sorting migrants out, but activating multi-level institutional dynamics. On one hand, European institutions are asking for common standards, protocols and classification systems by Member States. The rationale is that if Europe wants to keep the Schengen system going, then it has to strengthen its outer borders, and data gathered at those borders should be standardized and made available Europe-wide. On the other hand, Member States might try to resist technical standardization. For example, in September 2015 the European Commission adopted 40 infringement decisions against Member States who did not register migrants at EU borders (Commission, 2015b). Here, the definition of “registration” is crucial, as at the European Commission level it usually refers to registration on European databases, but in other contexts it might also well refer to national databases, which are not always interoperable with European infrastructures. This evidence suggests that access to databases is an important aspect that defines new types of boundaries that do not necessarily coincide with existing political and administrative ones.

#### **CONCLUSION – A HISTORY OF THE PRESENT?**

All in all, by looking at itself as a new chapter in the studies on the infrastructural construction of Europe, “Processing Citizenship” eventually aims to conduct a history of the present. In order to explain this ambition, let us conclude with a quote from Foucault:

**“HISTORY IS A GIVEN WAY FOR A SOCIETY TO ACKNOWLEDGE AND PROCESS A BUNCH OF DOCUMENTS FROM WHICH IT CANNOT SEPARATE ANYMORE [...] TRADITIONALLY, HISTORY TRIED TO MEMORISE PAST MONUMENTS INTO DOCUMENTS. [...] TODAY, HISTORY IS THAT ACTIVITY THAT TRANSFORMS DOCUMENTS INTO MONUMENTS” (FOUCAULT, 1969: 15)**

We suggest that analysing alterity processing as part of Europe building is a way to keep track of how documents are transformed into monuments. While histories

of technology can methodologically rely on that form of textual reproduction of memory which is the archive, in the case of Processing Citizenship – dealing with not yet stabilized developments – the methodological function of archives is fulfilled by oral memories (collected through interviews), practices (accessed through observation), legislative and design document and data logs.

The reason to keep track of the transformation from documents into monuments is suggested by the fact that data infrastructures are mainly developed by contractors who, not being bound to public service duties, are not likely to see value added in creating archives, not even when it comes to practices of population ordering that are expected to have a say in how Europe is going to be built. In this sense, we suggest that “Processing Citizenship” and other similar projects that look not at data per se, but at the architecture for data collection, translation and circulation, are attempting to conduct “histories of the present”.

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CHERISH, NOT PERISH

## Tapuya: Latin American Science, Technology and Society – Enacting Southern Perspectives on STS

Leandro Rodriguez Medina 

Editor-in-Chief  
On Behalf of the Senior Editorial Team

In August 2017 Tapuya: Latin American Science, Technology and Society was launched. This is a peer-reviewed, open-access journal affiliated to the *Asociación Latinoamericana de Estudios Sociales de la Ciencia y la Tecnología* (ESOCITE) and the Society for the Social Studies of Science (4S), and published by Taylor & Francis. The word “tapuya” was used, on the one hand, by the Tupi in Brazil to designate people who do not speak the Tupi language as the Tupi do. On the other, some anti-colonial theorists have used the purported identity of this group as cannibals to articulate their own practice of “swallowing” northern practices and transforming them into something uniquely Latin American. By holding two differing definitions, the betrayals of translation and the productive tensions of simultaneously being part and not part of a specific community are concerns of this innovative new STS journal.

Tapuya was born more than a year earlier. In May 2016, a workshop titled “Postcolonial and Latin American STS,” organized by Tiago Ribeiro Duarte and Luis Reyes-Galindo, took place at University of Brasilia. After that, Sandra Harding and Leandro Rodriguez Medina, current Editor-in-Chief, started to think about creating a new journal, based in Latin America but with a global scope. The goal was to productively intervene in the colonial institutional structure of periphery social sciences as well as to contribute to increase the visibility of high quality Latin American scholarship in Science and Technology Studies. Rodríguez Medina and Harding spent several months interviewing editors and managing editors of other journals, securing the generous advice of a number of senior 4S and ESOCITE scholars, and making inquiries of leading English-language publishers. After positive feedback, a contract with Taylor & Francis was signed in June 2017.

In order to reach the widest audience, we made two difficult decisions. First, the journal would be published in English. Without ignoring the epistemic and political effects of the lingua franca, we decided that the need to engage in productive dialogue with other communities in the global South was a significant priority. Yet we also decided to continue to reflect on the language issue in STS. Future publications and clusters in Tapuya will be devoted to this topic. Secondly, the journal would be published by a global publisher, situated in the North. We believe that synergy can be produced between Tapuya and Taylor & Francis as long as they both recognize what they can provide. T&F has a long, successful tradition of publishing top quality journals, including five hundred in the social sciences. It has the technical capacity to deal with the entire process of publishing,

from submission to marketing of articles. It also has experience in getting journals indexed in the most relevant scholarly databases, which has become a crucial, though controversial, requisite in many countries in Latin America and abroad. Tapuya, on the other hand, can provide a group of Latin American scholars committed to STS research, high quality scholarship, and a long tradition of reflection on science and technology, as our first published article makes evident (Kreimer and Vessuri 2017). Moreover, Tapuya is willing to become a node in a global network that can provide resources to begin to balance the long-unbalanced structure of the academic world. It will do so by shedding light on neglected subjects, topics and methodologies, thereby strengthening STS.

Tapuya aims to bring together Latin American and international researchers to focus on issues such as center/periphery relations, the dynamics and organization of scientific fields, connections between science, technology and social problems (e.g. poverty, social exclusion or inequality), the uses and modes of production of knowledge, including indigenous knowledge, the national, regional, and international mobility of scientists and engineers, their ideas, and normative systems, the relationships between universities, private sectors and the state (firstly theorized by Jorge Sábato in the 1960s), and the roles of STS within diverse Latin American societies. Accordingly, we expect to publish research articles, literature reviews and book reviews, as well as interviews and non-textual pieces (e.g. videos with authors' comments). For literature and book reviews, we will encourage scholars to review scholarship originally published in English, Spanish and Portuguese. If possible, reviewed pieces in other European and non-European languages will be particularly welcome. This entanglement of thematically-related works is an important way to make Tapuya the realm where provincializing STS, now reclaimed even by Northern scholars, can take place.

Thus, Tapuya has three interrelated missions. One is to engage diverse social, economic and political actors in debates around science, technology and analyze their influence in the future of Latin America. Secondly, it intends to be a gathering place to enact STS networks of scholars across the global south; it will strengthen what global northerners think of as "periphery studies". Finally, the journal intends to foster global, wide-ranging dialogues between centers and peripheries. Yet Tapuya wants to problematize to what extent these last-mentioned categories are useful in current STS thinking. It will do so by focusing on how STS strategies in the global north have effects in Latin America and the global south, and how STS strategies in the global south have effects in the global north. In these several ways Tapuya will reposition Latin America as the conventionally disallowed subject of thought about science, technology and society—not as the object of others thinking.

To achieve Tapuya's goals, we have set up two academic boards: the Editorial Board and the International Advisory Board. Half of the Editorial Board, whose members were invited in August 2017, are made up of Latin American scholars, including one official ESOCITE representative, while the other half are from outside the region. For the International Advisory Board, appointments initially went to a

small number of the many significant STS scholars, half Latin Americans and half from around the globe. Both boards will give advice to the journal and shepherd to Tapuya appropriate manuscripts, books and book reviewers.

Tapuya has received funding support from generous institutions and scholars. Donations of start-up funds for Tapuya's first five years have been provided by three University of California Los Angeles (UCLA) units, for which the journal is most grateful: the UCLA Graduate School of Education and Information Studies, the UCLA Luskin College of Public Affairs, and the UCLA Latin American Institute. Meanwhile, Universidad de las Américas Puebla (UDLAP) is contributing resources to the Editor-in-Chief and Taylor & Francis is partially funding an editorial office in Puebla, Mexico. Further donations from within the STS community have helped to support the launch of the Journal.

Three editorial principles are especially important. First, Tapuya is a rolling, open access journal that always, in every case, prioritizes the quality of submissions over authors' ability to pay the Article Publishing Charge (APC) that cover publication expenses. Authors of all accepted papers, regardless of background, will be able to request a fee-waiver, which will then be judged on its merits, with oversight from the Editor-in-Chief. Financial issues will never influence editorial decisions. Secondly, Tapuya is a peer-reviewed journal. All non-commissioned submissions will be double-blind peer reviewed. Commissioned submissions, such as book and literature reviews, will be reviewed by the journal's Editor-in-Chief, with the expectation that they will be accepted if they meet the journal's publication standards. Thus, all submissions must meet international standards for high-quality American English. Yet we want to make clear that Tapuya does expect submissions from scholars who are not native English speakers; so the journal commits to embrace this diversity within the review process. Finally, Tapuya intends to have transparent processes and prompt communication with authors. The editors intend to make each manuscript's journey through submission and review processes as quick as possible, and to keep authors informed of where their submission is in this journey.

Finally, we want to invite artists, scholars and readers to be part of Tapuya in another, but challenging, way. Every year, we want to change the two pictures that are on the cover of the journal. This year, the photo and painting were provided by Luis Reyes-Galindo, researcher at University of Campinas and one of the Associate Editors. As you can read in his introduction to the cover (<http://www.tandfonline.com/doi/full/10.1080/25729861.2017.1359424>) both images are connected to the origins of Tapuya, in Buenos Aires (2014) and Brasilia (2016). We want Tapuya's cover to show how Latin American science, technology and society can be variously depicted and can illustrate the diversity of this region.

In conclusion, we hope you will enjoy joining us in this scholarly and socio-political adventure that is Tapuya as much as we are enjoying bringing the journal to you.

Saludos/Saudações/Greetings!

# STS EVENTS

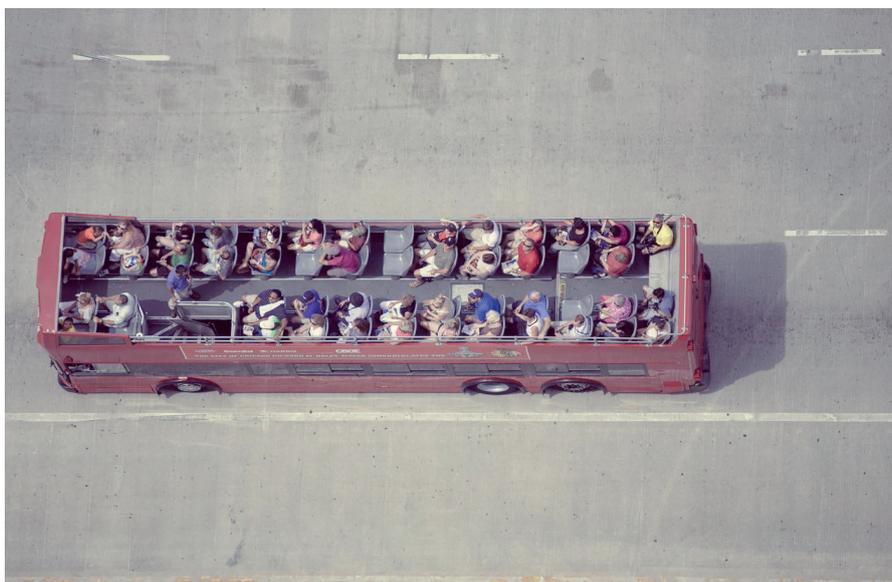
# TRANSLATIONS, TENSIONS AND INTENTIONS

Sara Bea

## REPORT FROM THE JOINT MEETING RED EsCTS AND THE PORTUGUESE STS NETWORK 'LOST IN TRANSLATION? PEOPLE, TECHNOLOGIES, PRACTICES AND CONCEPTS ACROSS BOUNDARIES'

<sup>1</sup> The conference website can be accessed here: <https://redescts.wordpress.com/2017/05/09/lisbon-programme/>

The first joint meeting of the Spanish Red esCTS and the Portuguese STS Network took place in Lisbon at the Instituto de Ciências Sociais (ICS) this past 7th to 9th of June<sup>1</sup>. It offered a privileged opportunity to think together about the theme of 'lost in translation', a gathering of disparate STS scholars with the intention to reflect on and share experiences of crossing territorial, linguistic, disciplinary, and professional boundaries. The account offered here is by no means comprehensive; it is my personal, and hence partial, take on the event. It circulates around three features that defined the encounter - translations, tensions and intentions – and that certainly resonate with the broader community of STS scholars in Europe.



### ACKNOWLEDGING TRANSLATIONS

The opening plenary put Tomas Sanchez Criado, Ana Viseu and Tiago Moreira in conversation. Each of them unravelled their personal trajectories, the many boundaries they crossed – be they geographical, linguistic or disciplinary – and the many translations those transitions entailed in their experiences and their work as STS scholars. Their academic migrations have taken them from Portugal and Spain to countries such as Canada, Denmark, Germany, the UK and the US. Tomas Sanchez Criado reflected on his move from Barcelona to Munich, an entry point to examine the many frictions, gratifications and im/possibilities that emerge as one attempts some audacious translations and comes to embody the “traduttore, traditore” of the Italian adage. The reflection focused on his own trials and tribulations as he attempts to translate the politics of activist design

collectives in Spain into a pedagogical programme for architects and designers in Germany. His more or less successful attempts speak volumes about the un/translatability of STS ways of doing and talking to non-STs domains. Perhaps, Tomas lucidly suggested, we could be more hopeful about the potentialities of STS as intervention, if we shifted 'from translation to re-specification'. That is, if instead of merely transposing our methods and ideas to other contexts we were to engage in "learning the local art of re-specifying and re-calibrating". To do that it is necessary to learn from the settings in which we operate and from those whom we seek to reach out. Doing so will crucially enable the opening of 'third spaces' from which we can learn from each other and relate through differences<sup>2</sup>.

Ana Viseu, being the only one that has moved from the margins to the centre and back – from Portugal to Barcelona to Canada and the US and back to Lisbon – added yet another layer to the theme of 'lost in translation', as she shared her concerns about the integration of STS, or the social sciences more generally, into contemporary EU politics of technoscience. Ana urged us to think about how such a role is defined, and hence inevitably constrained, by the bureaucratic funding systems that allocate limited financial resources. The conversation was timely and certainly vital to Spanish and Portuguese-based scholars that struggle with diminished funding schemes for the social sciences. Ana left us with some haunting questions: is the integration of the social sciences possible within the current power asymmetries that dominate such large-scale European projects? How can we offer our expertise and make a difference without becoming a 'service discipline' for policy-makers? How can we cultivate the slow craft of making theory amidst such an ethos of fast and utilisable research outcomes? These are compelling questions that ignited a widespread consideration of the politics of funding alongside its inevitable effects that re/shape the very organisation, practice and evaluation of our academic research practices.

Finally, Tiago Moreira incited us to celebrate being 'lost in translation' as this is after all STS' leitmotif. Citing Stengers, he asserted that doing STS is not about giving ready answers but instead about 'surviving in the culture of interstices'. Tiago related his transition from an STS environment to a medical school and admitted that the adaptation process had entailed playing the role of 'secret agent'. Becoming an infiltrator and 'practising the art of careful misunderstanding' have allowed fruitful collaborations amongst seemingly disparate professional approaches. Like the rest of the keynote speakers, Tiago addressed the audience in English; his passing comment ("I have lost the capacity to talk in academic Portuguese, it would just sound odd") foregrounded one of the unavoidable tensions that were present, even when absent, at the conference. For the uncomfortable question that we all faced was: as a multilingual collective of scholars can we do and talk STS in our native language/s if that language is not English?

## ACCOMMODATING TENSIONS

And the answer to the latter, as it was exemplified during the conference, is 'yes it is possible but it is never easy.' Especially given that the nationalities were truly diverse: Brazilian, Catalan, Chilean, Dutch, Italian, Norwegian, Portuguese and Spanish. Surprisingly, such national and linguistic diversity was not unanimously accommodated by a generalised use of English as *lingua franca*. Most sessions combined the use of English, Portuguese and Spanish, and contrary to what one might expect, chaos didn't ensue and communication was imperfectly accomplished. A rare achievement and one that made visible some rather unexamined linguistic normativity that populates the field of STS. It conferred a different dimension to the usual talk of centres and peripheries; a deterritorialized version that focused on linguistic centrism rather than geographical enclaves.

There were other tensions to accommodate as well, such as the wide and sometimes loosely connected variety of topics and disciplinary approaches espoused by the presenters. Even though as STS scholars we feel at ease with such multiplicity, given that most sessions had a rather small audience (5/15), it demanded from us, individually and collectively, to exercise a disposition to listen, learn and

2 For a full transcript see Sanchez Criado, Tomás (2017). Two crises in and with STS: From 'translation' to 're-specification'? Blog post: <https://tscriado.org/2017/06/23/respecification/>

communicate across differences. It might well be that our sustained efforts to accommodate such diversities further enabled a prevalent sense of reflection, a shared curiosity to take the pulse of our specific and situated enactments of STS. That was the case especially during the special sessions: *'Altered states: a cathartic-therapeutic workshop to think about the state of STS'* and *'Conversations about STS in the interstices: inhabiting and expanding disciplinary borderlands'*.

The following is an admittedly limited and personally selected sample of some of the work that was presented. I hope it offers a quick glimpse into the sheer variety spread across the sessions. The themes of public participation and the democratisation of science governance were situated in the Portuguese context and within large European technoscientific projects. The questions of 'who' gets to participate and 'how' is such participation operationalized were variously addressed. The session 'technologies across boundaries' touched upon the translations, mis-translations and local re-specifications that emerge within processes of technology appropriation, be they mobile phones used by pastoralists in Tanzania, the various enactments of Anonymous on the Internet, or the hybridisation of hacker culture in Europe.

The session *'Political economy of science'* offered insights into a European project that develops 'autonomous' robots as a way to address societal problems – a timely example from which to analyse the traction that sociotechnical imaginaries, increasingly imbued with desirable ethical futures, are gaining through re-alignments of public and private partnerships. The private-public thread was continued with the case of Spanish reproductive bioeconomy, wherein egg donation was rendered as a quasi-market, and with an elucidation of the neoliberal transformation of science within the emerging field of the digital humanities.

In *'Living matters across boundaries'* the concept of boundary object was mobilised to give an account of contemporary practices of genetic data sharing in Portugal and beyond. From clinical registers and medical biobanks to criminal databases and global platforms, the circulations and translations of genetic data were mapped. Special attention was given to the associated issues of social inequalities and tensions between data sharing and genetic privacy. Blood donation in Spain – including umbilical cord blood and bone marrow donation – was characterised as liminal technologies so as to make visible the shifting political dynamics of inclusion/exclusion alongside the various reconfigurations of the individual/collective boundary. There was also space to discuss human/animal entanglements with fascinating stories about language training in primatology, experimental settings through which 'enculturated simians' become articulated and emerge as new beings in translation. And with a gripping paper that proposed that animal slaughter for meat consumption constitutes the 'living infrastructure' that enables the emergence of Uruguay as a modern state. The co-production between animal thanatopolitics on a global scale and human biopolitics on a national scale was ingeniously explored with artwork produced by cow-inspired artists. Further intertwinements between social science and the materialities of art were also experimented with to capture 'cancer on paper'; in which drawings, photography and imagination were put to work to understand the lived and sensed experiences of breast cancer amongst Portuguese women.

The event finished up with a session that delved into *'Temporalities across boundaries'* and future-making practices. Firstly, in the area of the life sciences with synthetic biology's innovative drive and the wish to act a distant time, and secondly, on the topic of social housing in Chile, where the dignified housing ideologies of a collective movement were translated into the materialities of architectural design as a contestation to dominant housing policies that reproduce inequalities.

## ARTICULATING INTENTIONS

The conference was permeated by yet another generative tension, it concerned the tentative continuity of the Spanish Network Red esCTS<sup>3</sup>, and it demanded a collective decision on possible future arrangements with the Portuguese STS network. We explored ways to further work together and contemplated the possibility

<sup>3</sup> See previous reports on the Red esCTS here: <https://redescts.wordpress.com/archive/>

to set up a journal. For that we engaged in conversation with the editor of Italian STS journal *Tecnoscienza*, as well as editors from *Science & Technology Studies* and *Nordic Journal of Science and Technology Studies*. It became clear to us that we lacked the necessary institutional backing, in terms of funding and a dedicated team of people to meet the challenges of maintaining a journal. Nevertheless, our collective deliberation led us to accommodate the many tensions and to articulate our intentions for a shared future. The meeting in Lisbon crystallised into the decision to merge the Spanish Red esCTS and the Portuguese STS networks into one joint network, Redes CTS.

Redes CTS is now a multilingual platform, with Catalan, English, Portuguese and Spanish translations, that provides a space for the many disperse STS scholars in the Iberoamerican area to stay connected. A remarkable achievement given the inherent multiplicity of languages, disciplines and topics, yet it is precisely these differences and their demands for translations, re-specifications and shared intentions that will enable the joint network to thrive in the culture of interstices. A place of encounter that will allow us to cultivate our many attachments, to inhabit the centre, be it defined in linguistic or territorial terms, whilst reaching out and caring for localities. The balancing act of 'keeping a foot on each side', as Ana Viseu called it, will forcefully require a disruption to the Anglocentrism that so often underpins our scholarly interactions. I have no doubt that in our next meeting – to take place in Valencia and that will put STS in conversation with history of science and medicine – the question of how to re-specify ways of doing and talking STS into our native language/s will not go unanswered.



*Sara Bea recently completed her PhD in STS at the University of Edinburgh. Her ethnographic research focuses on medical practices of deceased donation in a Catalan hospital. She is interested in material semiotics, theorising the body, ethicalities in practice and inventive methods. She was a member of the organising and scientific committee for the Lisbon conference 'Lost in Translation? People, Technologies, Practices and Concepts across Boundaries'.*



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