Emerging Technologies & Societal Transformations Conference, 25 September 2024
University of Twente, The Gallery

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	Florian Helfrich: Energy infrastructures reconfigured: Exchange, Energy, Data - Societal transformation processes of local networks of actors towards novel renewable energy	**Nicole Huijts**: The human dimensions of the privacy and security risks of smart home technology
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15:30	Break	
15:45	**Panel Session on researcher-society relations,** organized by Anne Dijkstra, F. Schuberth, R. Zurita Milla	
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16:45	**Drinks**	

Emerging Technologies & Societal Transformation Conference, 25. September 2024
Book of Abstracts

Emerging technologies and global relationships

Monika Kuffer, Bedru Tareke, Claudio Persello, Raian V. Maretto, Jon Wang, Angela Abascal, Ruth Leska: User and data-centric Artificial Intelligence (AI) - Working with big data techniques

The rapid urbanization in many regions worldwide results in the proliferation of spatial inequalities, most visible in the form of slums or informal settlements. In two related research projects (IDEAtlas & IDEAMAPS, ESA and B&M Gates-funded), we address the pressing need for accurate information by investigating User and Data-centric Artificial Intelligence (AI)-based methods for mapping urban areas with deprived living conditions (building on the conceptual framework of the Domains of Deprivation). We are collaborating with international organizations (e.g., UN-Habitat) to provide policy-relevant information for the Sustainable Development Goals (SDG) Indicators, particularly Goal 11. This work is done in collaboration with local communities in the Global South and several (inter)national stakeholders. We co-designed AI strategies based on free or low-cost Earth Observation (EO) and geospatial data to map deprived urban areas in a first sample of eight cities across the globe, with plans to upscale to a larger sample. The AI methods design, data collection, and validation strategies follow an iterative and agile process consisting of progressive refinement stages necessary to collect reliable labelled data and take user requirements into their centre. For this purpose, we developed a web-based user portal. Our findings indicate that the combination of Sentinel-2 and morphometric features yields the most accurate results. Project websites: https://ideatlas.eu/ and https://www.ideamapsnetwork.org/

Kristy Claassen: **AI Values and gender in Sub-Saharan Africa**

As Artificial Intelligence (AI) systems become more deeply entrenched in sub-Saharan Africa, so do the disproportionate risks that AI technologies hold for women in the region. Weak regulatory frameworks mean that African communities are vulnerable to exploitation by transnational companies, not only in terms of hard impacts like labour exploitation but also in terms of soft impacts such as determining what data represents them, which values should be deemed central, and their inclusion to the global AI discourse. To address these forms of (hermeneutic and testimonial) epistemic injustice, I will illustrate how the current AI ethics debate fails to address the complexities of the disruptive impacts of AI in the region. I suggest AI Value Mapping as way to decenter typically Western terminology and approaches that have become dominant in the AI ethics discourse. Finally, I draw upon Afro-feminist perspectives to suggest paths toward a more inclusive AI ethics.

Luca Possati: Geopolitical and ethical dimensions of quantum technology development: challenges and opportunities

"The sustainable development of quantum technologies stands as a pivotal frontier in global political competition. This paper explores the geopolitical dynamics shaping these rivalries, particularly between the US and China, and underscores the crucial interaction between political ambitions and scientific advancements in the realm of quantum technologies. These technologies hold the promise of significant disruption and immense potential. Our analysis focuses on the socio-ethical implications of the international quantum race, emphasizing the risks of exacerbating global inequalities and impacting international stability. By investigating the convergence of geopolitical strategies, national narratives, and ethical considerations, the study offers a comprehensive overview of the challenges and opportunities presented by the pursuit of quantum technology. The paper highlights the necessity for collaborative frameworks and sustainable practices to ensure that the development of quantum technologies positively contributes to the global technological and ethical landscape.

Kornelia Konrad: Hydrogen visions and projects between past, present and future

The hydrogen hype is in full swing, as visible in policy strategies and diplomacy, support programmes, projects being planned and built, media and academic debate, company strategies and investments. Hydrogen visions in Global North countries like the Netherlands or Germany currently focus on decarbonizing otherwise hard to abate industries, such as steel or chemicals. These visions often include large scale globalized green hydrogen production and transportation systems connecting industries in Global North countries with production sites in Global South countries with promising profiles of renewable resources like wind and solar. These visions differ from those that fuelled former hydrogen hypes, suggesting some caution in how confident we should be about current visions and priorities. In my talk, I will take concrete visions and projects of hydrogen projects in the Global South as a lens to study and discuss how these projects are taking shape and how they are debated in the different countries involved, drawing on media and document analysis. These

visions and projects can be considered as socio-technical futures in the making – reflecting their status of discursive visions, expectations and imaginaries, and at the same time materializing in the form of agreements, roadmaps, contracts, studies, financial arrangements and grants, land assigned, technologies being built, infrastructures planned etc. While a lot of the discussion around green hydrogen in Global North countries relates to more or less shiny visions and high-level ambitions on mitigating CO2 emissions, debated largely in research, policy and industry circles, controversies around concrete local projects in a country as Namibia revolve around distribution of benefits and financial risks, governance and transparency, fair use of resources, environmental impacts or the relation between serving local needs or export. Further points addressed will be the variety in visions and projects, the openings and closures that are likely to be created for future energy systems and how old and new colonialism is discussed in both Global North and South countries.

Re-imagining social, technical and nature relationships

Anneke Sools, Julia Hermann, Corelia Baibarac Duignan: A narrative and art-based approach for the anticipatory imagination of moral issues related to nature-technology relationships

In this presentation, we will reflect on an experimental session that we are currently preparing for the Anticipation Conference in Lancaster taking place in September, prior to the ET&ST Theme Conference. In that experimental session, we invite participants to explore a narrative anticipatory approach that draws on arts and design-based methods to embody moral issues that may arise through the interplay between human, nature, and technology. The objective of the practice is to stimulate anticipatory moral imagination, understood as the capacity to understand and frame moral issues, and to creatively imagine possibilities for action in response to (everyday) emerging and future moral dilemmas. Moral imagination is distinct from moral deliberation in that it emphasizes the capacity to dramatically rehearse, in the imagination, morally challenging situations and actions that have not yet occurred. It thereby foregrounds the need to experience future situations in an embodied, experiential way. Moreover, anticipatory moral imagination relates to research on future frictions, by creating a safe space for exploring concrete situations in which value conflicts may emerge. It allows participants to identify and interpret which values are or could be at stake, using frictions as a means for creativity and imagination. In our presentation at the Theme Conference, we will share our experiences with this experimental session and reflect on the potentials and limitations of the approach."

Lenn Gorissen, Kornelia Konrad, Esther Turnhout: Harvesting Visions: Unveiling Socio-Technical-Ecological Imaginaries in Sensor Development for Sustainable Farming

A key point of tension in the discourse on sustainable farming is the expected role of technology. Concepts like precision agriculture and smart farming are promoted as solutions to industrial agriculture's problems. However, critics argue these concepts often protect agro-business interests and overlook socio-economic, cultural, and ecological aspects. Alternative approaches, such as agroecology and regenerative farming, emphasize reorienting values and fundamentally reshaping farming practices. This research, part of the Synergia programme, aims to bridge the gap between ecology-based and technology-based approaches to sustainable farming futures. It specifically investigates the role of sensors in these alternative systems, assessing the visions and underlying imaginaries of key actors involved in sensor development, including developers, farmers, agricultural scientists, and NGOs. Recognising that in the domain of agriculture, visions extend beyond the technical and social (re)ordering of the world to encompass the spatiality and materiality of the environment in which farmers grow food, I propose a triangular space of socio-technical-ecological imaginaries. By making these visible, the study seeks to negotiate conflicting objectives and understand the potential and limitations of sensors in ecology-based farming. Data collection involved qualitative interviews with key stakeholders, which were audiotaped, transcribed, and coded for analysis."

Michael Nagenborg, Sage Cammers-Goodwin, Nolen Gertz, Ciano Aydin: Can Techno-moral Scenarios Bring Moral Clarity to the Cycle of Enabling Technologies?

The HOLDEN project aims to utilize dense wireless networks to enable smart environments via radio wave vision. This radio wave vision will enable other technological developments, thus making it an "enabling technology." One aim of the project is to analyse feedback from radio frequency waves (such as routers) to produce images of people and objects in closed rooms. This project would not have been possible or imaginable without prior enabling technologies such as Wi-Fi and computing and stands to impact how future technologies are shaped. Since the technology is in an early stage of development, clear use cases have yet to be developed, and opportunities to expose stakeholders to the technology are limited. Therefore, we use techno-moral scenarios to provide a substantive base for discussion with future users. In our presentation, we will discuss one such scenario and reflect on the challenges of approbating enabling technologies.

Udipta Boro, Fran Meissner, Karin Pfeffer: From Urban Surveillance to Urban Care: Care-full Justice in the Age of AI

Artificial Intelligence (AI) automates many aspects of urban video surveillance systems. Surveillance technologies often carry the notion of the caring watcher "who not only watches but also 'looks out for'" the public (Andrejevic et al., 2021: 569). However, AI-fueled surveillance systems may also automate biases and imbalanced power dynamics in society. At this crosspoint, "can surveillance technologies be tuned to the key of care" (Bauman & Lyon, 2013: 84)? This paper responds to this question by exploring how we can (if at all) reimagine automated video surveillance systems in cities as infrastructure for urban care. We do so by identifying the current development trends of AI-powered urban surveillance systems from the literature. We focus on the barriers inherent in current AI to being caring. Afterward, we explore the possibilities of challenging these barriers from a care-full justice lens (Williams, 2017). Care-full justice brings together the ideals of social justice and ethics of care within the same frame, enabling us to "rethink what cities can be" and how they can foster a collective responsibility in a more-than-human world (Williams, 2017: 821). This paper, thus, finally concludes with reflections on what it takes to reinvent infrastructure by reimagining AI. We link our conclusions with Protective Optimization Technologies (Kulynych et al., 2020), which opens the way for further discussions around AI's harms and political implications on populations and their environments. This way, we contribute to the debates around responsible digital transformation of society.

Digitalization and Climate

Andreas Weber: Weather in the Past': Using AI and Citizen Science to Study Dutch Marine Shiplogs (1815-1960)

Dutch navy logbooks are an untouched and extensive source for historical climate research. These are available from 1813 to about 1960 and are kept in the National Archives. This extensive archive covers about 400 meters and houses millions of valuable weather observations, measurements and other observations collected during travels around the world. Right now, the Dutch navy ship logs and the valuable weather data they entail are inaccessible to researcher and a wider public. None of the archive has been digitized. Moreover, there is no digital infrastructure available for citizens and researchers to use, study and enrich this valuable resource. In this talk, I sketch and explain how consortium of researchers from the Huygens Institute (KNAW), the University of Twente, the Royal Meteorological Institute (KNMI) and the National Archives in the Hague work together to make such historical climate data accessible for scientific research with the help of 'citizen scientists' and AI-driven handwriting recognition solutions.

César Casiano Flores, Letizia Chiappini, Gül Özerol, Kris Lulofs: Developing an assessment framework to evaluate digital innovations for climate change adaptation

Governmental authorities in the European North Sea region need to accelerate climate change adaptation. Such an acceleration requires choosing and implementing adaptation measures that are suitable to address the urgency of adaptation. However, involving target groups and dealing with complex data for timely and just adaptation decisions has proven challenging. While digital solutions have merely facilitated calculations and supported visualisations that address the aforementioned challenges, their successful implementation requires a proper understanding and trust between the digital sector, governmental authorities, and targeted stakeholders. The University of Twente is the WP1 leader of Digital Solutions for Climate Adaptation (DISCO) project which intends to enable cities and regions to identify their challenges in raising innovation while enhancing digital skills amongst stakeholders oriented to climate adaptation. By proposing an assessment framework which offers potential solutions to this complex issue, DISCO partners aim to develop and implement supportive digital tools that can be used by authorities to increase the degree of innovation at a societal level. The framework is composed of seven steps: 1) inventory of digital solutions for climate adaptation and their maturity status for application; 2) development of an assessment that considers identification of needs, challenges and expectations of the North Sea region authorities; 3) application of the assessment with authorities; 4) involvement of stakeholders to identify their needs and expectations regarding digitalisation and climate change adaptation; 5) matching digital solutions with the authorities involved and developing innovative strategies; 6) identifying lessons learned and learning opportunities; and 7) an external validation of the framework with experts.

Le Anh Long, Dasom Lee (KAIST); Sikke Jansma (UT): Data donation: Using the gift relationship framework to address privacy and environmental issues of energy consumption data collection

Data, particularly consumption data, is an essential and often overlooked aspect of energy transitions. Fine-grained data on the diverse sources of energy in the energy mix, how it is distributed, and patterns of use by individuals and households help smoothen the transition to renewable energy. However, obtaining, utilizing, and storing energy data generates concerns about privacy and climate change. We propose that both the need for high quality data and concerns related to privacy and environmental sustainability can be addressed by rethinking and re-designing how data is produced. More specifically, we argue that the concept of data donation and the idea of gift relationship can be fruitfully exploited to revolutionize how we

view and relate to energy data. We specify how gift relationships established through data donation address core challenges related to privacy (i.e., it enables individuals to understand the inherent value of data and empowers them to demand transparency and accountability) and emissions (i.e., it makes higher quality data available, reducing the likelihood that surplus data will be stored). Furthermore, the gift relationship lowers the likelihood of abuse by emphasizing an ethics of care, responsibility, and respect for individuals and their data. We highlight challenges that may arise, cautioning about potential abuses while also suggesting feasible ways to address these pitfalls. This perspective aims to stimulate research and debates not only on energy data, but also on how we reap benefits from it and mitigate social and environmental harms.

Adhitya Bhawiyuga, Serkan Girgin, Raul-Zurita Milla, Rolf de By: Sustainable Practices in Cloud-Based Big Data Processing: A Case Study in Remote Sensing

The exponential growth in data volume and variety poses significant challenges in processing, storing, and managing large-scale datasets. Remote sensing, with its diverse and complex datasets, exemplifies these challenges in big data processing. Cloud computing offers a solution by providing a scalable and dynamic resource allocation environment. A typical cloud-based big data platform includes infrastructure orchestration, distributed processing frameworks, data access mechanisms, and user interfaces. However, this benefit comes with concerns about energy consumption and carbon footprints. This presentation, as part of ongoing doctoral research, delve into the proposed methods and tools to optimize energy consumption in cloud-based big data processing, using remote sensing as a case study. The discussion covers three main topics. First, the energy-aware benchmarking framework includes applications, data, and monitoring toolkits to collect and analyze energy metrics, performance, resource utilization of a processing cluster. This helps identify areas for energy efficiency improvements. Second, optimizing infrastructure orchestration involves strategies like automatic cluster scaling, container consolidation, and prioritizing workloads for energy efficiency. These strategies aim to reduce energy consumption without compromising performance and can be applied across various applications without changing the existing codebase. Third, a multi-objective task scheduling strategy is proposed to minimize energy consumption while maintaining acceptable execution times. The research outputs include software components designed to be integrated into widely used remote sensing platforms. Additionally, workshops and mini-symposia will disseminate the findings. These strategies aim to promote sustainable practices in cloud-based big data applications.

Governing and anticipating the energy transition

Linde Franken, Michel Bourban: Planetary justice and energy (transition) justice: synergies, tensions and blind spots in the literature

Humanity's efforts to combat climate change have given rise to emerging technologies, as well as emerging concepts to describe the relationships with these technologies and with the natural environment. An example of the latter is the emerging framework of planetary justice, which was proposed in the context of the planetary boundary framework as a way of integrating three dimensions of justice – intragenerational justice, intergenerational justice, and interspecies justice (the '3I approach'). Based on a conceptual review of planetary justice literature and a review of reviews of energy justice literature, this paper discusses how the emerging framework of planetary justice can contribute to the more established field of energy justice in the context of the energy transition. The paper identifies strengths, weaknesses and biases of energy justice scholarship and explores synergies and tensions between energy justice and planetary justice in terms of conceptual and methodological approaches. In particular, the paper investigates how and to what extent the triumvirate approach to energy justice – incorporating recognitional, procedural and distributive justice – and the '3I approach' to planetary justice can be integrated. The paper addresses two knowledge gaps. First, it contributes to building a more robust normative foundation of planetary justice, which is currently lacking in the literature. Second, by linking planetary justice with energy justice, the paper investigates gender justice perspectives in the context of energy transition technologies, which currently represents a blind spot in the planetary justice framework.

Efi Nakopoulou & Kornelia Konrad: Designing and Governing Emerging Solar Technologies towards Responsible Energy Futures

Being part of an NWO-funded interdisciplinary project (DIRECT) with UT colleagues of the TNW faculty, our research focuses on the responsible design and governance of emerging technologies and more specifically of a supplementary technology for solar photovoltaics (PV). This emerging technology (based on luminescent solar concentrators) is envisioned to enhance the ongoing (renewable) energy transition, especially in the Netherlands and other Northern/Western European climates. While generally considered a necessary element of more sustainable energy systems, the large-scale expansion of solar technologies raises sustainability issues as well, just as the envisaged new DIRECT technology. We are actively exploring potential future pathways in which this technology can be embedded in society, focusing on different applications

(e.g. agrivoltaics and building-integrated PV) based on different system configurations. Towards this end, issues of anticipation, responsibility (research and innovation), and justice play a central role when addressing the potential of this emerging technology while the decisions of its design are still in the making.

Thomas Hoppe, Nthabi Mohlakoana, Michiel Fremouw (TU Delft), Barry Ness, Sara Brogaard, and Magdalena Wiedermann (Lund University): Exploring theoretical frameworks to analyze governance and innovation of emerging aquathermal energy (AE) systems – the WaterWarmth project

Within the wider set of renewable energy technologies Aquathermal Energy (AE) is a long-standing, yet under-utilized, emerging niche. Despite having ample theoretical potential to contribute to transformative change towards sustainability in heating and cooling systems, AE has not lived up to expectations. Nonetheless, recently AE is receiving attention increasing attention by policy makers. AE systems refer to the extraction, storage and distribution of thermal energy from drinking, surface or waste water to cool and heat homes and other buildings. The aim of this research is to present several relevant theoretical frameworks available to analyse governance and innovation of current heating systems and future energy system innovation, with a focus on AE systems. Relevant theoretical frameworks include: the Multi-Level Perspective, Strategic Niche Management, Contextual Interaction Theory, the Governance of Change, and Community Energy Systems. A reflective-empirical case study research design was adopted to gain understanding into renewable energy transition processes, and more specifically, pathways for how AE systems can play a more significant role in a renewable energy system transition. Data collection involved text documents, expert interviews and a stakeholder workshop. To demonstrate the proposed frameworks, we exemplify two case studies: AE system development at the household level in Sweden, and AE transitions in the Fryslân region, in the Netherlands. Each case provides a unique structuring, both enablers and hindrances, of the institutional and governance dynamics for AE system innovations in their respective countries. In addition, the study shows the added value of using multiple, complementary theoretical perspectives. This presentation/paper is part of the Interreg North Sea WaterWarmth project, co-funded by the European Union.

Florian Helfrich: Energy infrastructures reconfigured: Exchange, Energy, Data - Societal transformation processes of local networks of actors towards novel renewable energy infrastructures and decentralised markets

The energy sector is in a state of transformation towards more decentralised, renewable and digitalised energy infrastructures and -markets. New potential forms of community organisation emerge, through which the ways energy is produced and shared among citizens within communities become mediated. However, the promised potential for sustainability and decentralisation with multidirectional relationships between stakeholders must be critically assessed. Additionally, the term community proves to be ambiguous and often a priori normatively connotated, thus increased reflection upon the types of neighbourhoods and networks of actors understood by the term (energy) community is needed. Based on a set of empirical cases of local energy communities (Netherlands, Spain, Australia), this paper provides a theoretical approach for understanding societal transformation processes through a tetrad of foci of relations. Four central foci of relations within societal transformations emerge and become dominant throughout the network of actors: Material relations; Promising relations; Powering relations; Datafying relations. The term Material relations describes forms of interaction between actors and physical infrastructures, namely technological artefacts, buildings, objects present in their daily practices and environment. Promising relations, refers to forms of anticipation, such as hype-building and expectations voiced by individual or groups of actors. The term Powering relations, encompasses forms of power, uphold, represented or e+G17xerted upon others by actors. Datafying relations refer to how networks of actors become digitally mediated and more data-driven, platform-based energy management systems. These clusters are multifaceted, constantly mutually co-constituting, and central for transformative potential, and the advancement of transformative processes within local networks of actors.

Peter Stegmaier: Doing electric automobility as an Element of Mundane Energy Transition

With this presentation, I would like to present a study in which I break down the view from the large system transition to everyday practices that make the mundane realization of energy transition in the household context tangible in the course of behavioral change and governmentality. Battery electric automobiles (BEAs) are subject to energy transition discourses and expressions of practicing automobility as transitioning to a less fossil mobility, electrification of a broad array of socio-technical systems, and climate change mitigation. This talk aims at investigating the everyday usage of fully electric cars as an emerging cultural phenomenon. Users/drivers redefine how they 'deal' with cars, since the new technologies built into them do only allow for some continuities, whereas other aspects (like route and distance planning, energy management, charging, selling cars and battery technology, for instance) need to be reinvented. This has a governance-in-action dimension: the entire spectrum of establishing and maintaining the social order within which car drivers act, such as how actors dealing with electric cars submit to norms and structures as well as how they themselves structure the conditions and

change norms of using electric cars. Governance is thus understood from a micro-social, interactional, and cultural point of view (governmentality of electric car use). BEAs produce a new form of automobility linked to new infrastructure (chargers, services), combined with promises of high-tech innovation in drive engine, battery, design, autopilot, and safety technology, as well as cleanness and efficiency in environmental terms. BEAs are a key to achieve substantial use of renewable energy in future energy mixes. Here energy transition and electrification become natural allies. BEAs become part of an emerging 'smart grid' infrastructure. This paper investigates the appropriation/domestication of BEAs into situated, embodied practices (driving and household). Relative energy independence can even be achieved by using a combination of BEAs, solar panels, stationary battery. This research is based on observant participation in the very practice at hand as well as the participant observation in arenas in which BEA are the focal object.

Digital Society - User Perspectives

Simone Borsci, Martin Schmettow, Maryam Amir Haeri, Stefano Federici: Modelling the people experience after the interaction with unfair Conversational Agents

AI-driven conversational systems are now used across domains for different purposes, from information retrieval to co-decision making in complex socio-technical environments. The evaluation and comparative analysis of the quality of such digital systems is becoming a key enabler of the technological shift from passive digital systems to active agents. This talk will discuss and give an overview of the work done to develop the ChatBot Usability Scale (BUS) and the recently developed benchmark of the scale to enable comparative analysis and interpretation of the scale. Furthermore, the case of evaluating user experience after interaction with unfair conversational agents will be explored based on preliminary empirical data.

Meike Belter: Virtual Reality as a Tool for Supporting Neurodiverse Learners: Insights from a Math Game Study

Neurodiverse individuals often fall through the cracks of traditional educational systems, from elementary school to higher education. They face unique challenges such as managing cognitive load, time management, arousal modulation, and maintaining attention span. Unfortunately, these neurodiversity traits are frequently unrecognized and unsupported by formal educational institutions. However, Virtual Reality (VR) technology now offers the potential to create customized learning environments that accommodate these unique needs. When combined with intra-active and gamified elements, VR can become an engaging and rewarding way of learning. This talk will explore a user study conducted at a German school, testing a math VR game designed for children. The results suggest that the VR game significantly improved focus, attention, and motivation among the participants. This presentation will discuss the study's methodology, findings, and implications for integrating VR into educational practices to better support neurodiverse learners. This study is a starting point for further research on how to improve educational experiences for those affected.

Ruud Jacobs: Parents in play for children in school: Serious gaming for language and digital proficiency of parents using primary school applications

A large part of the digital transformations facing Western societies are invisible to many of us. Still, we have come to rely on digital media for many kinds of communication. These transformations can end up excluding those of us who were already struggling with traditional communication but who could muddle through with the kind of patience and mutual understanding face-to-face communication tends to afford. One of these transformations is the convergence of all asynchronous communication between primary (and secondary) schools and parents or guardians of those schools' pupils into multi-purpose smartphone apps. While these 'school apps' offer parents a handy one-stop overview of their children's educational curriculum, progress, and upcoming events, they exclude parents who struggle with language and/or digital technologies. In a recent project with the Reading and Writing Foundation, a serious game was developed specifically to help first-generation immigrant families use school apps. The game was intended to (1) improve Dutch language proficiency and (2) increase confidence with digital applications, with the long-term goal of improving inclusivity and integration of these parents. Two studies were performed as part of this project. The first study consisted of a validation experiment including self-report indicators for self-efficacy and motivation to learn, among others. The second study was a qualitative follow-up to chart post-play experiences and changes in school app use behaviors. In this presentation I will go over the results of both studies and hope to discuss the viability of serious gaming to improve inclusion and resilience during digital transformations.

Nicole Huijts: The human dimensions of the privacy and security risks of smart home technology

Smart Internet-of-Things (IoT) devices in our homes brings many new benefits, such as convenience, comfort, entertainment, energy management and home security, but also brings new risks to our privacy and security. This contribution discusses nine important questions in relation to the human dimensions of these risks. There questions need to be addressed in order to protect people against these risks and focus both on gaining insights into how to reduce the risks,

as well as on how to make people more resilient when privacy and security breaches occur. A literature review provides initial answer to some of these questions and shows that users have insufficient awareness and understanding of the privacy and security risks and take little protective action. More research is needed to develop effective interventions that promote prevention of privacy and security breaches. Additionally, there is currently too little insight on how people experience and respond to actual privacy and security breaches and on effective interventions that can limit harm from these breaches. To address these questions and to develop effective interventions, cooperation between scientific disciplines, industrial stakeholders and policy makers is needed.

Tafadzwa Karuma, Caroline Fischer, Anke Lenferink: Hybridization of street-level professionals in digitalized public service and healthcare organizations: a scoping review

Since the early 21st century, digitalization has been on the rise. Catalysed even further by the COVID-19 pandemic technological innovations have led to the transformation of many public service organizations. Among others, forecasts of healthcare organizations show a boost in the digitalization of healthcare with the emergence of telemedicine, telemonitoring, telecare, virtual care centres, medical kiosks, smart wearables, and others (Peters et al., 2021; Jalil et al., 2015). At the forefront of these organizations are professionals with the academic and practical knowledge to influence and deliver public services (Lipsky, 2010). Therefore, the implementation of emerging technologies in smart public service organizations cannot be done without professionals (Kalimiullina et al., 2020). As such, professionals must become hybridized as they must learn technological skills and be digitally competent to deliver digital services. The ability of professionals to transform positively in response to organizational change can significantly impact implemented initiatives and the uptake by the public (Araoglu & Karagoz, 2023). Against the backdrop of an increasing plethora of information on the visible and invisible organizational transformations in the era of digitalization, this scoping review study will map the transformation of professionals in digital public service and healthcare organizations. The findings of this study will add to the literature on transitioning professionalism and organizational change management. Importantly, the study implications will promote the improvement in the performance of public service agencies leading to better service delivery and more sustainable digital societies.

Researcher-Society Relations

Panel organisers and members:

Florian Schuberth, Coordinator of the Open Science Community Twente and panel moderator
Anne M. Dijkstra, Science Communication scholar leading the new Research Centre for Science Communication and Engagement
Raúl Zurita Milla, Coordinator of the Open Science Community Twente
Jeroen Jansen, Recognition and Rewards or Drs. Annemiek Baars, HR policy manager (to be confirmed)
Saskia Baas, Interim Coordinator of the Citizen Science Hub, DesignLab
Deniece Nazareth, Data steward BMS faculty

Discussion about open science: How can researchers be supported in communicating science, involving citizens, and making their findings available.

Tensions between science and society are not new, but they have recently intensified with the pandemic, the urgency of the climate change, and accelerating developments in AI. Misinformation, disinformation and fake news have become more prominent in the public domain. Social media is also contributing to these tensions. On the one hand, relationships between researchers and audiences have become easier, while on the other hand, scientific information and the researchers who communicate their findings are publicly contested. As a result, researchers with their scientific knowledge often contribute to public discussions in roles other than experts, a role they were not trained for.

As part of the OSC-NL National Open Science Week 2024, in this panel we discuss the challenges of the changing role of researchers in the public domain. Under the umbrella of Open Science, and including the developments in recognition and rewards, we will discuss what role Open Science, and especially science communication and citizen science, plays in the daily work of today's researchers. In exchange with the audience, we will identify needs and wishes regarding the support of researchers. And we will discuss what is particularly important for BMS researchers who have expertise in bridging the gap between science and society.