

BOOK OF ABSTRACTS

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Smart Technologies and Socio-Cultural Meaning-Making

A. Akbari, Authoritarian Smart City

What happens when the utopian futuristic visions of data-driven citizen-centred smart cities are combined with the prospect of seamless smart control? Current literature oscillates between authoritarian practices in (semi-) democracies and dystopian surveillance societies. Transcending this binary, my research offers a critical perspective on how the local-global interlinkages shape sociotechnical imaginaries and how heterogeneous actors affect vision and policy at a local level. I use global pathways of influence and multiple streams framework to expand smart city theory and methodology through two instrumental case studies of NEOM, the first AI-based cognitive city in Saudi Arabia and Shenzhen, China's Silicon Valley.

M. Behrensen, Transphobia, Moral Panics, and Russia's Information Warfare

The focus of my talk is the ongoing reactionary backlash against trans liberation and trans rights across Europe and North America. I analyze this development as a specific form of information warfare. My analysis consists of three central points: First, the current campaigns against trans people are engineered moral panics. As such, they stand in direct historical and political continuity to similar campaigns against "gender ideology", the "gay agenda", and feminism. This continuity fosters alliances between seemingly disparate political groups: fundamentalist religious communities, nationalists, and so-called 'radical' or 'gender-critical' feminists. The historical roots of these alliances were established well before their current focus on trans issues. Second, these alliances are effective at engineering moral panics, because they use the concept of 'nature' in order to suggest an undisputable facticity while bridging ideological differences between proponents. A supposedly 'natural' gender binary, often in conjunction with assumptions about a 'natural' telos of human sexuality, serves to ridicule and demonize the political struggles of trans people and other queer minorities. Third, this mobilization aims not only at the dehumanization of trans people, but at social polarization and political destabilization. Political campaigns against trans rights (and other queer rights) invent powerful 'lobbies' or 'ideologies' as their antagonists; and their proponents position themselves as the voices of 'common sense' and 'values'. Russia is not the only political actor utilizing this form of anti-trans mobilization; but in Russia's case, it is fully integrated in its foreign policy and military strategy. Russian leaders leverage nationalist sentiment and the international connections of the Russian Orthodox Church to unify and amplify transphobic voices. The aim is to destabilize liberal democracies in Europe over their commitment to legal protections for trans persons and other queer minorities.

A. Dijkstra & A. de Jong, Artificial Intelligence in the News. Challenges in Media Ecosystems in Southern European Countries

A better understanding of the science-media relationship may contribute to tackling a general crisis of trust and increase accountability of the media ecosystem which has undergone major changes. Barriers between traditional producers and users of information – such as citizens – are nowadays lower. And, recently developed generative language models such as ChatGPT further increase risks of polarization and disinformation. The precise effects of these developments vary per country and depend also on politics and media culture (Schäfer and Painter, 2020). The media perspective in the science-media relationship in Southern European countries was analysed. A media analysis explored the quality of science journalism in news articles about Artificial Intelligence (AI), while interviews shed light on the quality of (science) journalism in practice regarding reporting about AI. Perspectives from Italy, Portugal, Spain and Belgium were collected and compared. Four conclusions can be drawn. First, the analysis of the news media output shows that the four countries differ in type of media landscape and produce different quantities of news about AI and research. Generally speaking, however, the reporting adhered to the same quality criteria such as rigour, sources of information, accessibility and relevance. The topic of AI and research received continuous attention. Second, insights in journalists' views showed that participants from all countries have concerns about the state of science journalism and the lack of funding for science journalism. Third, both employed journalists as well as freelancers put efforts in ensuring quality of their output via editorial oversight or reflections and discussions at conferences and memberships of associations. However, quality criteria are often embedded in their reporting in an implicit way and not all are always applied,

mainly due to time constraints. Finally, the impact of AI and generative language models as ChatGPT on the field of science journalism is still in its infancy. Tools for tasks as translating and transcribing already benefit the profession, while positive impacts on accessibility, engagement and impact were expected. In contrast, AI tools might make it harder to adhere to principles of rigour, integrity and sources of information in science journalism. Increasing adoption of AI tools could also further decrease funding and weaken the position of science journalism. Recommendations are to further research the topic of AI and generative language models in relation to the field of science journalism, in particular in understudied areas.

A. Puzio, Humans, Robots, and Animals: Anthropology of Technology and Non-Human Entities

The various socially and ontologically disruptive technologies raise the question of the human being: What is the human being? How is the human being (still) different from technology? Anthropology of technology is dedicated to the question of the human being in the context of new technologies. It examines which understandings of the human being are transported in technology and how the human understanding changes in the context of new technologies. In the face of humanoid, ever-improving robots, we ask ourselves what constitutes the human being. The human world is full of non-human entities and humans are in close relationships with, for example, animals and robots. It becomes clear that what it means to be human can only ever be thought of in relation to the multitude of non-human entities around us.

Imagining and Enacting Alternative Futures

S. McGreevy, C. Baibarac-Duignan, D. Lenzi & A. Poole, Re-Imagining Technology and Innovation in Postgrowth Rurban Futures

Accelerating transitions towards sustainable, post-fossil fuel futures is no longer an option but an imperative. Significant reductions in material and energy use to reach the 1.5 degree climate goals will require different economic logics that run counter to the drive for more “green” growth. Technological innovation is central in policy debates about how to achieve sustainability transitions and pressing climate targets. However, neither mainstream considerations of green technology nor present understandings of technological innovation look sufficient to the challenge- mainstream green technology ignores embedded material and energy footprints, while innovation is motivated by profit-seeking and the growth of capital. To achieve such futures, we need radical transformations in how our economies work, in how we organize our systems of provisioning and lifestyles spatially, and ultimately, in our core societal values (for example, responsibility, care, reciprocity, and stewardship) and how we imagine and reproduce our everyday lives. Accompanying this shift means alternative technologies to support these new societies and a different way of technological innovation. While present in the open-source technology culture, for instance through ‘tinkering’ as a form of knowledge co-production, as well as in movements combining bioregionalism and retrofitting, these alternatives remain a relatively uncharted territory in the context of mainstream discourses on technology for sustainability transitions. Taking a speculative approach, inspired by experiential design and everyday futures practices, we will explore alternative technologies and modes of technological innovation through the use of case studies and argue for how they might help us re-imagine technology in postgrowth futures. We will reflect on how technologies in postgrowth futures might help us reconnect the ‘rural’ and the ‘urban’ in our imagination and practice, allowing us to reinhabit bioregions, and fostering relational, ‘rurban’, relational values across networks of human and more-than-human actors.

B. Kump, G. Delmestri, L. Moschera, M. Castriotta & R. Ortlieb, Enacting Utopias: Embracing Bodily, Material, and Discursive Frictions in the “Sailing EGOS” Experiment

Tackling major crises like the climate emergency, inequality, and geopolitical tensions demands envisioning alternative and desirable future scenarios. These “real utopias” can act as guiding frames for collective action, influencing decision-making and behavior. To bring these utopias to life, they must be actively enacted. However, little is known about the specific practices involved in shaping the future. This paper adopts an auto-ethnographic approach, analyzing experiences from the ‘Sailing EGOS’ initiative, where a group of academics attempted to travel to a scientific conference on an Italian island by sailboat instead of conventional means. The initiative aimed to be a sustainability experiment, with participants adhering to principles like sustainable food consumption and transportation. This experiment aimed to test a “real utopia”, a different way of conference travel, challenging established norms and institutions. We extensively documented the initiative’s development, the correspondence sent to potential participants outlining the “utopian” idea, the 3-day sailboat trip to the conference with 10 participants and a skipper, and the 6-day return trip with 5 participants and the skipper.

Detailed qualitative reflection surveys were collected from all 10 participants before and after the journey. Through inductive qualitative analysis of the reflections, surveys, photos, and videos, the study reveals that enacting utopias involves constant negotiation between the "ideal" vision and the realities faced during the journey. This negotiation requires improvisation as well as dealing with frictions in bodily (e.g., seasickness), material (e.g., sailing against wind), and discursive (e.g., value conflicts) dimensions.

S. Urueña, Anticipation and Modal Power: Challenges for Decentralizing Futures Circulations

Science and Technology Studies (STS) and Futures Studies (FS) have made significant contributions to (i) illuminating various ways in which future mobilisations constitute, shape and colonise our realities, and (ii) proposing interventive practices and strategies aimed at decolonising these futures (Konrad et al., 2016; Lösch et al., 2019). Studies have focused on illuminating how promises (e.g. van Lente & Rip, 1998), expectations (e.g. Alvial-Palavicino & Konrad, 2019), visions (e.g. Schneider & Lösch, 2019), imaginaries (e.g. Jasanoff, 2020) and metaphors (e.g. Inayatullah et al., 2016) anticipatorily perform co-production arrangements in our socio-technical realities. Similarly, various scholars in STS/FS, guided by their respective normative visions, have developed and/or applied futuring and foresight methodologies that aim to challenge or disrupt the closures produced by de facto anticipatory practices (e.g., Inayatullah, 1998; Schneider et al., 2021; Selin, 2011; Withycombe Keeler et al., 2019). This presentation will address the dialectics between the descriptive and interventive facets of STS/FS by locating both the futures under analysis and those mobilised through interventions within a socio-material landscape that is pregnant with and constituted by 'modal power' dynamics. This framing serves to highlight the multiple challenges faced by interventive practices that seek to engage, contest or decentre the reifying power of business-as-usual futures. By critically examining the modal power dynamics at play, we can better understand STS/FS entanglements with(in) the politics of anticipation.

N. Jacobs, J. Hermann & L. Frank, Farewell to Mothers? Artificial Wombs and the Future of Human Reproduction

What if full-ectogestation – the embryonic and fetal development of a mammal entirely outside of a maternal body – were to become a reality? If it were possible to make use of IVF and subsequently place the human embryo into a technological device in which it would stay for the entire gestation process? While the prototypes of ectogestative devices that are currently developed in places such as the Netherlands, the United States, Australia and Japan are only intended for use in neonatal intensive care (as a replacement of current incubators), philosophers, designers, and artists are imagining future scenarios in which full-ectogestation has become a reality. Albeit speculative, such scenarios can help us to better understand what might be at stake in the development of ectogestative technology, and what is desirable/undesirable. In this paper, we explore how full-ectogestation might affect our understanding of what it means to be a mother, father, or parent. We look at traditional understandings of motherhood and mothering and develop a technomoral scenario (Boenink, Swierstra & Stermerding 2010) in which those understandings have been disrupted. With the development of reproductive technologies, the concept of mother can be analysed as having at least three different dimensions: genetic, gestational, and social mother (see Ber 2000). The possibility of full ectogestation would disrupt the second dimension in particular: the gestational mother (see Jacobs 2023). If the whole gestation process could occur in an ectogestative device, no maternal womb would be necessary anymore. There could then be children who had only genetic and social mothers but no gestational mothers. We use the technomoral scenario to stimulate the readers' imagination and to demonstrate how socially and conceptually disruptive full-ectogestation might be, possibly even making the concept "mother" obsolete.

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Organisations and Work in a Digital World

S. Janssen, Robots in Organizations: Embracing Complexity for Responsible Implementation

The adoption of robotics is positioned to revolutionize work, promising increased productivity and handling dull, dangerous, and dehumanizing tasks. Current research on robots in organizations predominantly views them as

mechanisms leading to linear, unambiguous, and stable outcomes. This pragmatic and functional perspective typically examines the technical and social aspects required for implementation and acceptance, as well as an assessment of post-implementation improvements. Yet, this limited approach hinders our understanding of the broader consequences of robot implementation on individuals, work dynamics, and society. To truly comprehend the impact of using robots in organizations, we must recognize that their performance reconstitutes mechanisms and effects in their sociotechnical context. A holistic investigation embracing complexities, uncertainties, and paradoxes, across time and space, becomes imperative. Reflecting on preliminary scoping review results, this talk advocates for such an approach and outlines four focus areas for future research: (1) ideology – uncovering implicit assumptions and ideologies of robot developers and their consequences for work and organizations; (2) power – analyzing decision-makers' interests, goals, and perspectives in robot implementation; (3) practices – understanding the situated use of robots in social practices; (4) equity – providing insight into macro social trends related to robot use, including associated inequalities and reskilling and upskilling behaviors. Addressing these themes aims to foster collaboration and innovative research synthesizing insights from various disciplines. Ultimately, the goal is to inform responsible robot implementation practices in organizations, considering their impact on individuals and society at large.

A. Leszkiewicz, A. Abshishta, L. Alvino, J. Sese & L. Gao, Digital Service Crisis and Recovery: An Event Study of Information Security Breaches

Service firms increasingly rely on data to deliver more value to customers, which makes them vulnerable to information security risks. Any kind of information security breach can adversely affect service experienced by customers, increasing the volume of online complaints and the intensity of negative emotions. Understanding the sources of service failures, as well as the role of user- and firm-generated content in social media can be used by firms to design targeted recovery strategies to protect shareholder value. Addressing these challenges, our study introduces a classification of information security service failures by their impact on information confidentiality, integrity, and availability (CIA), and measures their differential impact on shareholder value. We also use novel text-based techniques to identify firms' responses on social media to information security breaches and extract customers' sentiments from Twitter surrounding the service failure event. This enables us to investigate the extent to which investors' reactions to information security incidents are affected by social media activity

D. Koca, A Qualitative Research on Workforce Skills Needs Towards Digitalisation in SMEs: The Case of the Netherlands

The digitalisation of businesses has been continuing rapidly in recent years. The key factor in the completion of digital transformation processes of enterprises is the labour force. Undoubtedly, the skills expected from the labour force in an enterprise that has started to use digital technologies also change over time. Otherwise, the digital transformation process in enterprises will not be fully sustainable. The Netherlands is one of the prominent countries among EU countries in terms of digitalisation level. In addition, the Netherlands ranks first among EU countries in terms of adults with basic digital skills. In this study, the impact of the use of digital technology on the labour skills needs of SMEs operating in the Netherlands is examined. In this study, qualitative research method is used. In this study, the impact of the use of digital technology on the workforce skills needs of SMEs operating in the Netherlands was examined. In this qualitative research, the views and experiences of the managers (CEOs) of 15 Small and Medium Enterprises (SMEs) operating in the Netherlands that have started to use digital technologies, the people responsible for the digital transformation of these companies, digital transformation consultants and heathunter representatives were consulted. Within the scope of the research, face-to-face interviews were conducted with 22 participants. According to the findings of the research, the level of use of digital technologies by SMEs operating in the Netherlands varies according to sectors. The most important problem they experience in this process is labour shortage. SMEs, which have significant difficulties in recruiting and retaining labour force, try to overcome the labour shortage with technology. At the same time, basic digital skills are coming to the fore in the labour force.

P. Weritz, J. Matute, I. Peña-Legazkue, N. Aramburu & M.E. Fabra Florit, Culture, Leadership, and Involvement Toward Innovative Work Behavior and Digital Benefits: A Quantitative Study

Managing digital transformation necessitates various adaptations to reap advantages from change. Considering openness within the firm, empowerment of employees, and also individual preferences might be relevant to yield positive outcomes. This paper focuses on the cultural, leadership, and individual factors that enable employees' digital readiness and their impact on work outcomes. The study uses the digital readiness framework

to examine the relationships between a culture of change, digital empowerment, digital involvement, employees' digital readiness, innovative work behavior, and digital benefits. The proposed model was tested with data from 443 employees in Spanish higher education organizations. Findings support the hypotheses, highlighting the relevance of various predictors to enable employees' digital readiness and foster work outcomes. By integrating change management theories in the context of digital transformation, the study theoretically advances the role of culture, leadership, and individual choices. The paper further provides practical implications and a research agenda for future investigations.

Governing the Transformation of (Digitalised) Infrastructures

F. Meissner, Who Should Own Digital Twins?

More and more cities are developing digital twins of their crucial public infrastructures. The data and data models needed to build digital twins are forecast to take on more and more relevance in how cities are run and developed. Many twinning projects involve multiple stakeholders in their design and take the participatory turn in urban planning seriously. However, how we should govern digital urban twins in the future demands more critical engagement. Starting from the simple question of who should own urban digital twins, this paper will explore and evaluate different options for governing urban digital twins. I will draw on initial conversations with practitioners in the field and how they envisage the future of digital twins. I will explore how practitioners contrast the added value they foresee digital urban twins will have for urban planning with how they foresee the accountability and responsibility of the many actors needed to make digital twins work for cities. The paper will draw initial conclusions about the broader ethical concerns requiring attention if cities are transformed through digital twinning.

C. Casiano Flores & G. Özerol, An Exploratory Identification of Digital Platforms to Promote Co-Creation on Water and Climate Adaptation Projects in The Netherlands and Belgium

Information and Communication Technologies, along with political willingness, can play an important role in water governance by influencing public participation (Mukhtarov et al., 2018) and supporting co-creation processes to engage various stakeholders (Alvarado Vazquez et al., 2023). While the Netherlands is an example of water management and climate adaptation, with a high level of policy coordination (Pahl-Wostl & Knieper, 2023), the country still faces challenges related to social participation in water and climate adaptation projects (Casiano Flores et al., 2023), negatively affecting the potential benefits of co-creation approaches. These challenges increase in contexts where policies are more hierarchical such as Belgium (Casiano Flores et al., 2021). Understanding that many countries face these challenges, the Horizon Europe GOVAQUA consortium has conducted an online search of digital platforms developed in different European countries, including England, Spain and France. We, the Dutch partners, focused on the Dutch-speaking European countries, the Netherlands and Belgium, to create an inventory of such platforms. The final aim of this exploratory search is to identify the digital platforms that are being developed and to know if they support social participation to improve water governance within a climate adaptation context. For our search, we used Google and 19 keyword combinations agreed upon by the GOVAQUA partners. Based on our search, we identified that most platforms only provide information and, in some cases, support bureaucratic processes such as the obtention of permits. Only a few are focused on social participation.

F. Helfrich, Innovation Pathways of Local Energy Communities for Novel Renewable Energy Infrastructures and -Markets

In the ongoing transformation of the energy sector towards energy infrastructures that are characterised by higher degrees of sustainability, decentralisation and citizen engagement, new technologies are imagined to enable a revolutionary re-structuring and transforming of the, traditionally centralised, ways in which energy is produced, distributed, and managed. However, this promised potential for sustainability and decentralisation with multidirectional relationships and their construction must be critically assessed. This project investigates the governance of socio-technical transformations, examining changing power relations in the context of novel local renewable energy infrastructures. It will analyse how the technical construction and implementation of such infrastructures develops with relation to the network of stakeholders in the energy sector. Based on a set of empirical cases of pilot projects and local energy communities (Netherlands, Spain, Australia), this project provides a typology of innovation pathways, analysing a range of governance arrangements and imagined futures for local energy communities. Different innovation pathways, against various (shifting) backgrounds (grassroots, business, municipal-administrative) are derived and contrasted: Municipality-Managed; Cohesive

Communities; Privatised Platforms and Entrepreneurial Exploration. Understanding local communities as sites of experimentation in which the ongoing transformation of the energy sector plays out, this project assesses forms of governance such as arrangements of power, relationships between actors, emergence of conflicts and cooperation. Critically examining the implementation of blockchain-based energy infrastructures within them and their imagined disruptive potential, hereby serves as an illustrative example towards examining these changes in power relations, forms of agency and interactions within the network of energy sector stakeholders in this context.

P. Stegmaier, Exiting from Sustainable Innovations as a Discontinuation Issue

Studies on innovation emphasise how novel socio-technical systems emerge and get implemented. Studies on discontinuation tend to look at the exit, ban, decline of old, ecologically often unsustainable socio-technical systems. However, it should not be overlooked that newer and sustainable socio-technical systems also become the target of discontinuation. The aim of this contribution is to present initial exploratory findings on the partly deliberate decline of the German solar and wind power industries. It will show both targeted political measures to weaken and push back these fields, which are also referred to as future technologies and industries, as well as favourable circumstances. This also includes the deliberate failure to take the necessary steps to expand or protect them. These two cases show structural similarities with the efforts and circumstances of destabilisation and discontinuation of fossil or other old forms of technology, but also reveal particularities, such as the rather low level of widespread public scandalisation and delegitimisation compared to the fight against the continuation of fossil energy production and power plant technology. Generally considered desirable, “cleaner” technologies are comparatively quietly disposed of or driven out of the country. It tends to be accompanied not by a ban, but by failure to support and withdrawal of supportive measures, starvation and making it difficult to get ahead. The studies are based on the evaluation of policy documents, media reports and analyses of relevant actors using qualitative research. The explorative approach aims both at reconstructing governance processes and at finding appropriate categories for descriptive explanation according to the standards of the Grounded Theory method.

Practices and Institutions of Knowledge Production

G. Dix, The Climate Technologies with which we Think (and Fail to Act)

Over the past ten years, ‘societal impact’ emerged as the political and administrative pressure to produce scientific knowledge which directly benefits society. Albeit with some contextual variation, the rise of impact is visible in science policies and institutional practices across the globe as they converged around the need to increase the contribution of research to economic competitiveness and societal challenges. Impact has now become an unavoidable, yet divisive, phenomenon in science and science policy. Some welcome the emphasis on impact as an opportunity that enables politicians to take the lead in steering researchers towards the challenges that really matter. Others, however, consider it a threat that leads to ‘impact sensationalism’ and attaches unwelcome strings – e.g. contributing to economic growth – to research efforts that leads to blind spots in the development of impactful solutions in politics, science and society. In this presentation, I will introduce a new research project that aims to theorize impact relationally; mix quantitative (scientometric) and qualitative methods; and studies the social and technological solutions that were developed over the past thirty years to address the climate crisis as the biggest and most urgent challenge humanity is facing today.

F. Boem & Y. Erden, Issues in the Production of Scientific Knowledge: A Nano Case Study

From the replication crisis to vaccine hesitancy, the scientific method is squarely in the spotlight. Traditional approaches to knowledge production and dissemination are undergoing intense scrutiny, well-established publishing methods are facing challenges including from new open-access journals, while ‘fake news’ advocates and conspiracy believers participate in popular discourse in the name of unbiased or balanced reporting. Academic publishing should be immune to these problems, at least in principle. Especially as academic publishing has come to represent the paragon of knowledge production. Yet the replication crisis is just one example that illustrates how poor and fraudulent research practices can tarnish reputations, damage trust in scientific methods and their results, and bring a scientific discipline to its knees. In this paper, we explore these issues in relation to topics such as gatekeeping and the promise and perils of self-governance and oversight. We do this by considering the case of nanobiology. The paper starts with an analysis of scientific practice and some of the problems it generates. We end the paper with some recommendations for improvement that build on existing proposals, and highlight the essential role of interdisciplinary dialogue and engagement.

Y. Erden, AI for Psychiatry: Close Encounters of the Algorithmic Kind

Psychiatry includes the assessment and diagnosis of illness and disorder within largely interpersonal communicative structures involving physicians and patients. In such contexts, AI can help to spot patterns and generate predictions, e.g. 'big data' analysis via statistical learning-based models. In these ways, AI can help to automate routine steps, improve efficiency, mitigate clinician bias, offer predictive potential, including through analysis of neuroscientific data on brain activity as it relates to cognition, emotions, behaviour etc. Yet psychiatric theories are not neutral. In addition, problematic, discredited, or retracted theories and studies can (and do) find their way into AI applications, which are thereby reified. Even where research is sound, psychiatry is more than can be automated. AI analysis of big data for predictive purposes cannot supplant phenomenological perspectives that underlie a person's actions, choices, and experiences, or bypass necessarily discursive engagement between patient and clinician. Brain data can improve explanatory models, but not at the expense of qualitative practices. Technological methods for assessment and diagnosis can be time and cost efficient, but (even imperfect) interpersonal methods are essential in medicine and care. This paper therefore proposes some core principles for the appropriate use of AI in psychiatry, including (among others): (1) to not cement simplistic classifications, exacerbate harmful biases, retain discredited theories, or rely on retracted papers; (2) to not use brain data to bypass self-reporting and interpersonal, discursive methods. Without awareness of the complexity and (necessary) imprecision of psychiatric theories that are adapted for AI, scope for harm can be extensive.

L. Gorissen, K. Konrad & E. Turnhout, Two Modes of Sensing for Sustainability: How Farmers Engage in Sensing Practices in the Transition to Ecology-Based Farming

Climate change increasingly threatens farmers and their livelihoods, underscoring the urgency of proactive adaptation strategies. The imperative to monitor farm conditions for operational efficacy and explore eco-centric crop production methods has become paramount. This study delves into the sensing practices of Dutch farmers, examining the data and information they gather for farm management and highlighting the diverse means of information acquisition — ranging from innovative sensor technologies to intuitive farmer senses and traditional agronomic wisdom. Through in-depth interviews, two distinct modes of sensing for sustainability surface, each different in their pursued knowledge. These modes, termed "sensing for oversight" and "sensing for insight," diverge in their meanings, competences, and materials, ultimately shaping disparate farming systems. "Sensing for oversight" centres on real-time monitoring, enabling swift responses to maintain operational stability. Conversely, "sensing for insight" hinges on leveraging data and information for in-depth understanding and informed decision-making, cultivating long-term sustainability and enhanced farm management. By scrutinising farmers' sensing practices and information requisites, this research helps accentuate shortcomings in current market-available sensors. It consequently spotlights novel avenues and prospects for sensor innovation, forging a pathway toward resilient agricultural practices in the face of a changing climate.