SURF

Responsible Tech

On Public Values and Emerging Technologies

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Content

1 Introduction

The ongoing digital transformation in education offers many advantages and at the same time, digitalisation puts critical public values under pressure. Increasingly, the Dutch education sector is debating this impact of digital technologies on education. Prompted by a 2019 call to action[1] from all public university rectors, which raised concerns about large tech corporations' influence on education and the need to protect public values, like fairness, privacy, inclusivity, and equality. They see an increasing dependence on providers such as Canvas, Blackboard, Microsoft, and Google which has started to encroach on their institutional position and responsibilities. This started a national conversation on public values in education. The worry here is that growing dependence leads to a reduction of educational autonomy for institutions and an increase of financial burdens through vendor lock-ins.[2] Protection of these public values and the sector independence requires joint action.

Increasingly we see new and emerging technologies impacting research and education. How do we develop, deploy, and use new technologies according to those public values? These kinds of questions can be seen as forms of ethics of technology, digital ethics, or responsible tech. In the past smartboard and beamers replaced blackboards, which lead to new ways of teaching. Smartphones are embedded in every part of life. And the Internet of Things slowly infiltrates our public spaces. Technologies shape our experiences, ideas, and our work. How can research and education institutions deal with and make use of new technologies in a way that aligns with their public values? In what way can we make sure new technologies work for the betterment of education and research and its users?

Concerns like these require recognizing the need for bringing new elements into the discussion around public values, infrastructure, and our institutions. It has become apparent to consider what it means to use, design, and prepare for new technologies responsibly. This technology-centred view on public values we call *responsible tech*, as a way to align the ethical deliberations around emerging technologies with the existing challenges described in discussions about public values and ethics in the Dutch educational sector.[3] As such responsible tech can be about the design, development, and use of the technology in itself, and the people who are impacted by it. We aim to facilitate dialogue and questioning of what is desirable for the future of education and research and where we want to go as a collective.

This discussion paper is written for those within our member institutions working on the opportunities that new technologies might bring for research and education. We describe the current discourse around public values and how new technologies such as AI and XR already impact research and education practices. Following, this discussion paper is a development of our thoughts on how to develop and use emerging technologies in the research and education

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[1] "Digitalisering bedreigt onze universiteit. Het is tijd om een grens te trekken," de Volkskrant, December 22, 2019, https://www.volkskrant.nl/columns-opinie/digitalisering-bedreigt-onze-universiteit-het-is-tijd-om-een-grens-te-trekken~bff87dc9/.

[2] Public values taskforce. (2021). *Advisory report on public values in education* [Advisory report]. Universiteiten van Nederland. https://www.universiteitenvannederland.nl/files/documenten/Advisory report on public values in education_EN_vnov22.pdf.

[3] Kennisnet. (2020). Weighing Values: an ethical perspective on digitalisation in education. https://www.kennisnet.nl/app/uploads/kennisnet/onderwijsvernieuwing/documenten/Kennisnet-Waardenwegen-ENG.pdf; Van Dijck, J., Poell, T., & De Waal, M. (2016). *De platformsamenleving: Strijd om publieke waarden in een online wereld.*; Kennisnet & SURF. (2021). Value Compass for digital transformation of education. https://www.surf.nl/files/2022-01/surf-value-compass-english.pdf.

sector both ethically and responsibly. Describing the importance of a practice-oriented approach towards ethics and responsibility. The paper concludes on key recommendations aimed at encouraging responsible tech practices in educational and research institutions. It is important that as we push the boundaries of what is technologically possible, we do so in a way that is ethical, respectful, and beneficial way for all involved while guided by a strong commitment to public values. This means involving different points of view, being open about what we're doing, and learning from each other to do better. This document outlines a variety of recommendations to help your institution make thoughtful and responsible tech decisions. Let's work together to make sure technology serves us all well.

2　Public values as drivers for good innovation

To help navigate the ongoing digital transformation in education, Kennisnet and SURF developed the Value Compass—a framework for addressing public values in education, aimed at promoting a discussion beyond functionalities and costs to shared ambitions for digital education's future. This compass provides a common language for dialogue about the digital transformation. Placing autonomy, justice, and humanity central as values for a public perspective on the digital transformation of education.
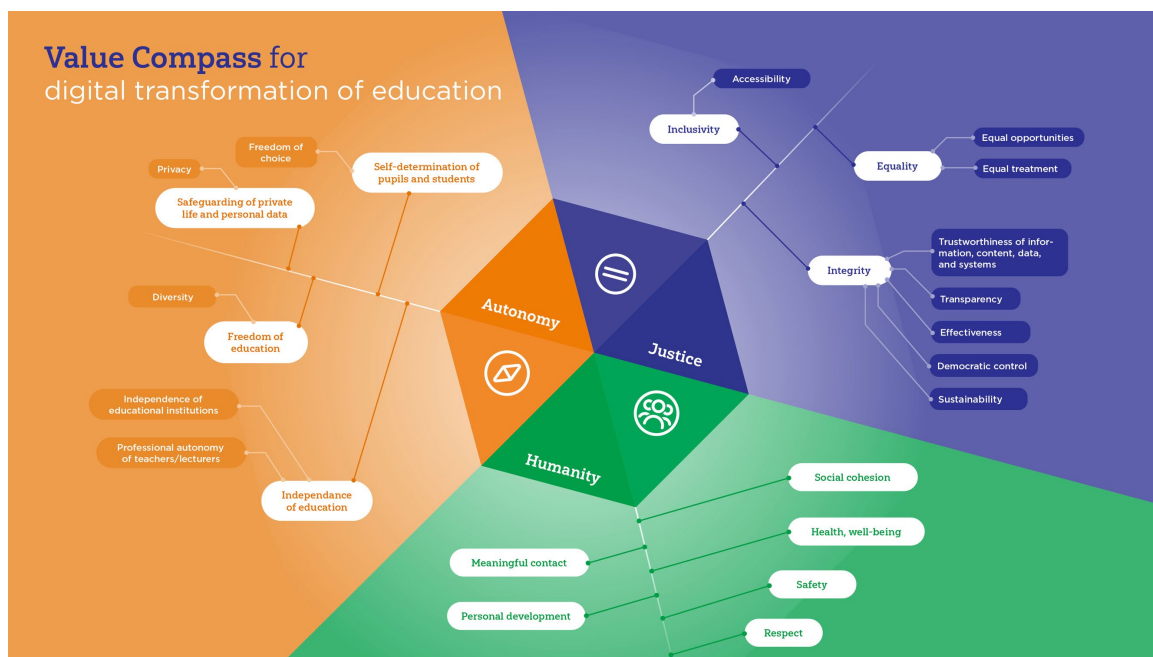
Public values offered as an overarching value system creates an important foundation for discussing how we can structure the digital transformation in a way that safeguards the sectors public values and enables the necessary sovereignty to act upon those. And this discussion is already happening, as can be seen from the Universities of the Netherlands' (UNL) reports on public values and academic sovereignty and national public values driven pilots with Mastodon and Nextcloud. Being able to formulate additional values next to those of operational costs and benefits creates the room for discussion about the manner in which we want the digital transformation of research and education to take place. Seen in this light, public values is not about limiting ourselves, but about being able to articulate our ambitions.

Now, with the rise of new technologies further challenging research and education institutions; additional public values concerns come up. These emerging technologies, such as AI and XR, are increasingly shaping our daily (and future) interactions and relations to our work and living environment and should not be seen as neutral tools to achieve human goals.[4] New technologies reshape existing educational and research practices and give form to new ones.

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[4] Shannon Vallor, ed., *The Oxford Handbook of Philosophy of Technology* (New York, NY: Oxford University Press, 2022).

3   AI and XR: shaping education and research

In the following section we review how AI and XR technologies impact research and education by challenging existing practices. This will showcase the need to discuss how to responsibly develop, deploy, and use these technologies. We need to understand what is necessary to engage with new technologies in a way that both considers public values and moves innovations responsibly forward.

3.1   Artificial Intelligence

Artificial intelligence (AI) has taken off recently, most notably generative AI systems such as ChatGPT based foundation models. These systems show AI's potential as a general-purpose technology. The Dutch Scientific Council (WRR) calls AI a systems technology, comparing it to the likes of electricity and the combustion engine, impacting society on a systematic level.[5] And we can already see the impact on our research and education practices with the AI challenging authorship, truth, and equality.

For a few years now we have been able to see how machine learning is changing existing research practices, replacing traditional statistics or numerical analysis for deep learning and neural networks.[6] The possibilities of AI have also been enabling new research practices, where in humanities neural networks are used to analyse complete library collections or translate 5.000-year-old tablets in an obscure language.[7] It enables research tasks that would be impossible for researchers without the assistance of AI. However, AI use in research also raises important questions. Such as, in what way we can ensure the scientific method and its underlying epistemologies.[8] Moreover, how do we best organise the scientific discourse, since generative AI has forced journals to reconsider what they deem acceptable in use of technologies in scientific writing. Resulting in discussion around various new writing policies for journals differing between prohibitions, whether or not to allow including AI systems as co-author, or demanding declarations of use in the acknowledgements.[9]

Similarly in education, AI systems are already impacting the classroom, institution, and broader society.[10] Several Dutch education institutions are using automated feedback tools[11] and automated scoring systems[12]. And in general, the interest in AI in education is growing, as we

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[5] Sheikh, H., Prins, C., & Schrijvers, E. (2023). Mission AI - The New System Technology. Springer International Publishing. https://doi.org/10.1007/978-3-031-21448-6

[6] Van Leeuwen, et al. (2020) Deep-learning enhancement of large scale numerical simulations, March 2020, SURF https://www.surf.nl/en/whitepaper-deep-learning-enhancement-of-large-scale-numerical-simulations

[7] See 'GPUs for research', SURF, video https://www.youtube.com/watch?v=YG4bIe33MBs and 'New AI translates 5,000-year-old cuneiform tablets instantly, Bigthink, https://bigthink.com/the-future/ai-translates-cuneiform/

[8] 'The epistemology of machine learning in science a panel at SURF Research Day 2023' https://communities.surf.nl/artificial-intelligence/artikel/the-epistemology-of-machine-learning-in-science-a-panel-at-surf

[9] Perkins, M., & Roe, J. (2023). *Academic publisher guidelines on AI usage: A ChatGPT supported thematic analysis* (12:1398). F1000Research. https://doi.org/10.12688/f1000research.142411.1

[10] SURF. (2022). *Promises of AI in Education*. (Authors: Walker, J., Baten, D.) https://doi.org/10.5281/ZENODO.6874315

[11] Erasmus University Rotterdam has co-developed an automated feedback application with FeedbackFruits. See: https://www.eur.nl/en/news/artificial-intelligence-tool-eur-rotterdam-university-applied-sciences-wins-education-oscar

[12] Perusall used by the University of Groningen calculates automatic scores for annotations based on machine learning algorithms. See: https://edusupport.rug.nl/1988690107

can see with community organisation such as SURF's Special Interest Group AI in Education, the now yearly organised month of AI in Education, and a pilot hub within the national Npuls program. The recent launch of OpenAI's ChatGPT has shown AI does not only impact education through specific AI-enabled applications, but also as a disruptive general-purpose technology which changes the way in which certain tasks can be completed. With it comes the fear of students using generative AI to do their homework and a revival of the dream of personalised teaching assistants.[13][14]

The impact of AI in and for education is broadly recognised, with the European Commission having developed specific guidelines for the ethical use of AI in education[15] and having categorised certain applications of AI in education as high-risk in the forthcoming AI act regulation. We can already see examples of those risks, for example, students that are falsely accused of fraud[16] or allegations of systematic discrimination by online proctoring solutions.[17]

New AI systems challenges our existing research and education practices and makes us question what kind of work we find valuable. Just like with AI technologies, the impact of XR on research and education practices should be better understood.

3.2 eXtended Reality

eXtended Reality technologies (or XR) which show users immersive, virtual experiences continue to innovate and impact the digitalisation of education.[18] Increasingly XR technologies are being investigated and used in the public and educational domain.[19]

New XR hardware and the development of applications are gradually becoming more accessible in both price and performance, leading to an increase in interest and adoption. In their new report, the Rathenau Institute urgently underscores the mounting concerns surrounding the expansion and potential mainstream embrace of immersive technologies.[20] Alarmingly, when these advancements converge with businesses' extensive collection of physical and behavioural data, it poses serious threats to public values such as privacy, self-determination, democracy, and security. They argue that while immersive technologies haven't yet reached widespread adoption, policymakers, and politicians have an opportunity now to steer development and integration in a thoughtful manner. In education and research these technologies continue to actively reshape the dynamics between learners and educators, but also test our understanding

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[13] How AI Could Save (Not Destroy) Education | Sal Khan | TED https://www.youtube.com/watch?v=hJP5GqnTrNo

[14] Note that, the dream of using machines to teach is not new, already in the 1920s scientists such as BF Skinner proposed the possibility of using machines to teach students. See Audrey Watters, Teaching Machines

[15] European Commission, Directorate-General for Education, Youth, Sport and Culture, (2022). *Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators*, Publications Office of the European Union. https://data.europa.eu/doi/10.2766/153756

[16] 'It is too easy to falsely accuse a student of using AI', Daniel Sokol, July 10th, 2023, Times Higher Education https://archive.li/8VgKG

[17] The Netherlands Institute for Human Rights was handling a case in which a student accused her educational institution of discrimination by proctoring software. The board ruled that in this specific case discrimination was not proven but did emphasize the institution has a duty of care to verify that the software it uses is non-discriminatory. https://www.mensenrechten.nl/actueel/nieuws/2023/10/17/student-niet-gediscrimineerd-door-tentamensoftware-proctorio-maar-vu-had-de-klacht-zorgvuldiger-moeten-behandelen

[18] See more at: SURF, "XR in het onderwijs," 2023, https://www.surf.nl/xr-in-het-onderwijs.

[19] Kennisnet, "Immersive technologie," *Kennisnet* (blog), September 29, 2020, https://www.kennisnet.nl/uitleg/immersive-technologie/.

[20] Rathenau Instituut (2023). Immersieve technologieën. Den Haag. Auteurs: Ex, L., W. Nieuwenhuizen, B. Hijstek, S. Roolvink en M. van Huijstee https://www.rathenau.nl/nl/digitalisering/immersieve-technologieen

of public values. Identifying and addressing these new shifts urgently demands open dialogue and deep reflection within our institutions as well.

XR tools, while offering unique opportunities for immersive learning and explorative research, influence behaviour and actions in ways we are only beginning to understand. As we can see in two case examples diving into the use of XR technologies within research and education.[21] Both VR-powered labs environments for onboarding and VR powered presentation training impact learner experience and research possibilities. These applications shape and influence learner feelings of preparedness, confidence in working or speaking, and display new possibilities in VR training for the future. They also bring with them questions such as what is needed to maintain such technologies, what infrastructure there will be in the future for such devices, and how to educate students with headsets over their eyes.

Public values allowed for new questions to be raised regarding these case examples. These questions come from a more social side of XR technologies. In turn, new and critical conversation topics that require language introduced by public values and may be acted upon by responsible technologies. This gives room for asking what kind of virtual experiences we want to create or use in the classroom or laboratory of the future.

XR technologies not only actively shape the experiences of learners, researchers, and instructors but also prompt new considerations for future development. It's essential to recognize the current and even approaching impact of XR on the public values we cherish. Embracing responsible tech is crucial here, pushing us to consider how these technologies can be created in harmony with our public values.

3.3 Emergent Possibilities

Technology is always changing, so responsible tech is about more than just AI and virtual experiences. There are new frontiers on the way, like quantum technologies, the expansion of the Internet of Things, and even computers interfacing with the human brain. These seemingly separate developments can all become part of the future of research and education.

When looking at emerging technologies, we need to keep exploring and broadening our understanding of what it means to develop and use those technologies responsibly.

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[21] See these cases and more at https://www.surf.nl/xr

4 Responsible innovation with emerging technologies

Placing public values central in technological development and adoption, demands responsibility from all those involved in decision and adoption processes. There are no turnkey solutions, we all need to actively engage with the realisation that choices matter. This is not new. Existing movements such as computer ethics, data ethics, value-sensitive design, responsible research, and innovation (RRI), and ELSA (ethical, legal, and social aspects research) have been part of European discourse for a while.[22] The Netherlands has been a frontrunner in this domain with a large group of organisations engaging with questions around the impact of technology.[23] But, it remains important to look at this discourse from a sector perspective.

4.1 Ethics and ways of working

It is not self-explanatory to go from business as usual to a public values and ethics based way of working. Existing procedures and processes might not be supporting value driven activities and existing strategies, and performance indicators might provide the wrong incentives. As Kennisnet points out in their report 'Weighing Values', there are several ways of structuring technologies and their use in education from the perspective of an educational institution. One can make decisions about using or not using technologies, be involved in development processes, making choices about the way to apply new technologies based on defined requirements, and one can engage in the larger societal discussions about the impact of technology.[24] The starting point is to realise the impact of technology on our research and education practices. This allows us to take the role that technology has seriously and to take the responsibility that comes with this realisation.

The guidance ethics approach tells us that, the fact that technology is intertwined with our practices implies a role of ethics as normative guidance of technology's role in society.[25] To do this it is important to recognise technologies in their context of application, in our case research and education, and to focus on the small continues steps in which technology development and use can be improved.

4.2 Seeing responsibility as a practice

Ethics is a process, not a destination; where ethics provides tools for the moral evaluation of behaviours, institutions, and social structures and for dealing with choices among and conflicts between values.[26] Depending on our roles and work practices, responsibility can take different forms, however, ethical reflection and deliberation is paramount. What shouldn't be ignored is the importance of trying.

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[22] Van Veenstra, A. F., van Zoonen, E. A., & Helberger, N. (2021). ELSA labs for human centric innovation in AI., NLAIC. https://nlaic.com/wp-content/uploads/2022/02/ELSA-Labs-for-Human-Centric-Innovation-in-AI.pdf;

[23] Learn more at: Waag Society, https://waag.org/nl/publicaties; Rathenau Institute, https://www.rathenau.nl/en/digitalisation; 4TU Centre for Ethics and Technology, https://ethicsandtechnology.eu/;

[24] Kennisnet. (2020). Weighing Values: an ethical perspective on digitalisation in education. Kennisnet https://www.kennisnet.nl/app/uploads/kennisnet/onderwijsvernieuwing/documenten/Kennisnet-Waardenwegen-ENG.pdf

[25] Verbeek, P. P., & Tijink, D. (2020). Guidance ethics approach: An ethical dialogue about technology with perspective on actions. https://begeleidingsethiek.nl/wp-content/uploads/2021/05/Guidance-ethics-approach-gecomprimeerd.pdf

[26] National Academies of Sciences, Engineering, and Medicine. (2022). *Fostering Responsible Computing Research: Foundations and Practices* (p. 26507). National Academies Press. https://doi.org/10.17226/26507

The pursuit of better, more responsible technologies is an essential endeavour in the ever-evolving educational and research landscapes. By embracing this challenge, we can shape technological advancements that align with our collective interests for all. One way to look at this is understanding *responsibility as a practice*. Here, responsibility as a practice refers to the idea that responsibility is not just a theoretical concept, but a practical skill that needs to be developed and exercised. This means engaging in ongoing reflections, working to create collective accountability and commitment to practical assessments or desired practices.

Organisations that practice responsibility, embed transparency in their decision making processes ensuring clarity in actions and intentions.[27] They prioritise continuous training to stay updated with the evolving ethical landscape. This proposes that institutional management and project owners facilitate connections between the technology drivers and experts in ethics and social and behavioural sciences. Integral is an organisational culture that takes responsibility as a practice, for example by involving stakeholders, ensuring the organisation remains responsive to real world impacts and concerns. Project owners practicing responsibility foster open dialogue, adaptability, and a genuine commitment to ethical considerations throughout their decisions and communication. To start experimenting with responsible tech practices and processes the next section lists a collection of recommendations.

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[27] See chapter 4 conclusions: National Academies of Sciences, Engineering, and Medicine. (2022). *Fostering Responsible Computing Research: Foundations and Practices* (p. 26507). National Academies Press. https://doi.org/10.17226/26507

5   Recommendations

To make more responsible technology in research and education a reality, we aim to help our members innovate ethically, enable them to practice reflectively, and to collaborate on shaping a responsible tech future. For this we have outlined a series of actionable recommendations for ourselves and our members. These recommendations consist of formulating ambitions, creating an environment for ethics, involving stakeholders, holding ourselves accountable, and at the end reflect and share our learnings.
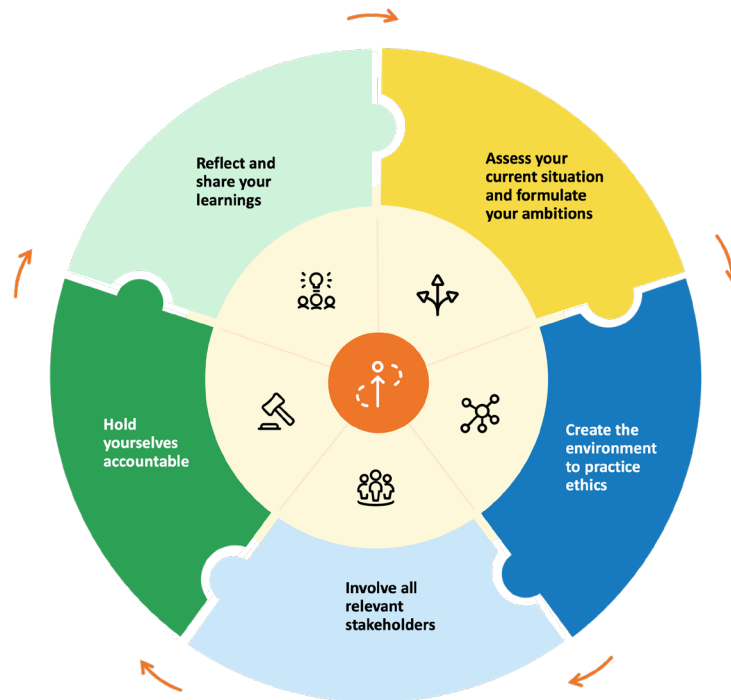
5.1   Assess your current situation and formulate your ambitions

Consistently applying responsible tech within organisations is still not common. Which makes it important to be honest about your current situation and clear in your ambitions (within your project or your broader responsibilities). This should be a guiding light for your stakeholders and a foothold for future conversations.

- o Recognise where you are at. For example by assessing the impact of specific technologies you are using through impact assessments such as the fundamental rights and algorithm impact assessment (FRAIA) or by assessing your organisational situation using an AI ethics maturity model or the Public Spaces Digital Powerwash.
- o To formulate your ambitions define or describe the important values you see underlying your work, the Value Compass can offer guidance here, and use those as input for a conversation about the impact of your innovations; for example through consequence scanning.
- o Those values and ambitions can then structure your decision-making. For new technologies you can decide whether to use a certain technology at all, be actively involved in the development, decide on which requirements for application you see, or how you can contribute to the larger societal discussion. For more insight into how to approach this, have a look at the Weighing Values report by Kennisnet.

5.2 Create the environment to practice ethics

As mentioned, we see ethics as a process; implying that responsibility is a practice that needs to be supported with the right environment. This requires attention to people, processes, and culture.

- o Start working with an iterative approach towards practicing responsibility. Consider the Ethics as a Participatory and Iterative Process to take decisions and reflect on the results of your decisions, and let this inform your next steps.
- o Engage with the tools provided in our appendix to better understand the landscape of responsible tech. See Appendix A.
- o Institutions should arrange and prepare their staff and students for the uncomfortable aspects of ethical deliberation, which include asking uneasy questions and tolerating tension. A culture of ethical reflection, not moral judgement. Experiment with games like Moral Design – The Game and Value Compass – The Game, which promote a culture where ethical considerations and public values are not merely compliance checkboxes but central to the institution's ethos.
- o Ensure diversity in project teams, steering groups, and advisory committees. This is crucial for improving the quality of a service and mitigate possible harms. For concrete suggestions how, look at the whitepaper Making AI Inclusive.

5.3 Involve all relevant stakeholders

Innovative technologies used in research and education impact most stakeholders within institutions. It is impossible to anticipate that impact without involving those stakeholders and including their perspectives.

- o On a project level, map your relevant stakeholders and their interests. Consider the Actor Analysis Tool from the CTA toolkit.
- o On an organisational level you can mandate the involvement of diverse stakeholders during the different phases. This can be done through (e.g.) workshops and user groups or more formally with the workers council or student representative bodies. Aim for equal opportunity for all stakeholders, including underrepresented groups.
- o Make sure that dialogues with stakeholders go beyond abstract value discussions and focus on practical human capabilities that the technology could enable or disable. Emphasize public values like equal opportunity and self-determination with tools like the Guidance Ethics Approach.

5.4 Hold yourselves accountable

Real progress in responsible tech comes with the commitment to taking responsibility for your roles. This includes creating the necessary structures to hold ourselves accountable towards stakeholders and end-users. This is still a domain of active research and experimentation, so there are no clear best practices yet. However, here we suggest some approaches to create mechanisms of accountability towards your stakeholders and end-users.

- o Establish an ethics review board or specialised committee to evaluate ethical and societal considerations in proposals for new research and education technologies.
- o Commit to transparency around technology use. Be transparent about how a system was developed or procured, the way in which the system works, and how it used within the education or research context. For example, by way of an algorithm register or transparency measures such as data and model cards.

o   Take responsibility and be accountable for the applications you use and procure as an institution. You have a duty of care towards the end-user for the systems you provide.

5.5   Reflect and share your learnings

As this the domain of public values and responsible tech is developing, we are all learning from our successes and mistakes. It is crucial to take the time to reflect on decisions and practices, taking that reflection into account in the formulation of new ambitions. Within SURF we have the ability to share those learnings together and grow together towards a more responsible future.

o   Form a close-knit learning community within your institution, where you can share your lessons learned and reflect together.

o   Publish and share your lessons learned or best practices with the outside world. Also let yourselves be inspired by the best practices from other institutions. You can also do this publicly, for example on the SURF Public Values community.

6 Next steps

We should be taking the impact of technology on education and research seriously. Our development and use of emerging technologies is not just about harnessing the power of these advancements, but equally about promoting ethical use and strengthening our position to shape research and education according to our own values. In this context ethics is not a theoretical exercise but something we all need to work on. In this paper we have aimed to develop our thoughts on the responsible tech domain and to highlight different steps forward within the research and education sector.

Our hope is that this paper can be a guiding instrument for those working on innovation within our research and education sector. For this purpose, we have also included a list of different tools and instruments that might help in our appendix. When it comes to responsible development and use of new technologies, ethics should be more than a question of compliance but be part of our everyday innovation practices.

6.1 The SURF Innovation Lab

Within the SURF Innovation Lab we focus on technological innovation for the future of research and education. The impact of emerging technologies like AI and XR on our public values is growing, leading to an increased focus within the lab on responsible tech. Learn more about our activities on responsible XR, responsible AI and public values.

7 Appendix A: Tools for Responsible Technologies

Name	Description
CTA Toolbox Project	The 'toolbox' aims at everyone who is interested in learning about socio-technical integration approaches and who wants to integrate them into their work.
Consequence Scanning	Consequence Scanning will provide you with the opportunity to focus on the positive aspects of a product and mitigate or address potential harms or disasters before they happen.
De Digitale Spoelkeuken	This method provides an organization with insight into the extent to which the software (tools) used within an organization meet the values set forth in the PublicSpaces manifesto.
Ethics as a Participatory and Iterative Process	Action without reflection is clueless. Reflection without action is useless.
Fundamental Rights and Algorithms Impact Assessment (FRAIA)	The Fundamental Rights and Algorithm Impact Assessment (FRAIA) helps to map the risks to human rights in the use of algorithms and to take measures to address these risks. FRAIA creates a dialogue between professionals who are working on the development or deployment of an algorithmic system.
Guidance ethics approach	Central to this guidance ethics is the inventory of the possible social implications of a technology, and the central values that are at stake. This is done in a deliberative process. In the guidance ethics approach, it is important to always start from concrete technologies and their specific effects and consequences.
Making AI Inclusive	For AI practitioners, AI ethics researchers, and others interested in learning more about responsible AI, this Partnership on AI (PAI) white paper provides guidance to help better understand and overcome the challenges related to engaging stakeholders in AI/ML development.
Moral Design – The Game	The Moral Design Game challenges self-reflection and teaches all players to think about how we can organize our decision-making more intelligently. In addition, the game gives an awful lot of insight into the arguments for and against and is great fun to play!

Product Impact Tool Portal	The Product Impact Tool serves to assess the impact of technical products on humans, society, and the environment. This assessment helps to engender ethical reflection on technology, or for (re)designing products for usability, acceptance, or behaviour change.
Technology impact cycle tool by Fontys	The Technology Impact Cycle Tool helps you to estimate the impact of (new) technology! For designers, problem solvers, policy makers, journalists, parents & all other people.
The AI ethics maturity model: a holistic approach to advancing ethical data science in organizations	We contend that advancing AI ethics in practice is a multi-dimensional effort, as successful operationalisation of ethics requires combined action on various dimensions. The model as presented is a preliminary result of literature analysis complemented with insights from several practical mutual learning sessions with some of the major public, private and research organizations of the Netherlands.
Values Compass – The Game	Open the conversation about public values with 'Values Compass – The Game'. The board game and its examples help to guide the conversation about digitisation, including dilemmas, values, and ethical considerations. You discuss digitisation issues from the perspective of public values in a way that's fun, practical, and accessible.
Weighing Values: An ethical perspective on digitalisation in education	With this publication, we are showing administrators, directors, ICT coordinators, and teachers in primary education, secondary education, and vocational education how ethics can help shape digitalisation based on values.
Data and Model Cards	Data cards and model cards to bring greater transparency between stakeholders and model development teams.

Even more tools can be found at https://communities.surf.nl/publieke-waarden/artikel/aan-de-slag-met-publieke-waarden-een-overzicht-van-praktische-hulpmiddelen

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