# Imaginaries and visions of futures

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# What are people's visions for the future when it comes to digital transformation and sustainability?

*Josephine B. Schmitt and Samuel T. Simon*

**Abstract:** Research exploring the intersection of digital transformation and sustainability reveals a growing recognition of the need to integrate digital technologies with environmental and social goals. However, it is essential to involve people, specifically their perspectives and experiences, in creating a shared vision of a future that fosters acceptance of decisions and inspires innovation. With this in mind, we pose the question: *What are people's visions of the future when it comes to digital transformation and sustainability?* To answer this question, we asked individuals to draw their visions for the future regarding the relationship between digital transformation and sustainability - for better or for worse. In this process, we built on various strands of research, such as those on mental models and imaginaries, and combined them with strategic foresight approaches. In addition to utopias and dystopias, the drawings conveyed concrete visions of how a sustainable and digitised life can succeed or fail. In doing so, these images invite reflection on the importance of integrating ethical considerations into the development and deployment of digital technologies.

**Keywords:** future foresight, digital transformation, sustainability, qualitative research, drawings

## *1. Introduction*

Extreme heat, rain, flooding – the importance of sustainability in mitigating man-made climate change is clear. Simultaneously, everyday life is characterised by the universal use of digital applications. With every movie streamed, every smartwatch used, every file stored in Dropbox and the like, CO2 emissions increase (Statista, 2023). The tense relationship between



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the digital transformation of everyday life and its environmental impact emphasises the need to combine digital transformation and sustainability.[1]

Research exploring this intersection reveals a growing recognition of the need to integrate digital technologies with environmental and social goals. Studies such as those by Feroz et al. (2021), Robertsone and Lapina (2023), and Katsamakas (2022) highlight the importance of aligning digital transformation efforts with sustainability objectives to ensure economic growth, environmental stewardship, and social inclusivity, urging further research to deepen our understanding and guide actionable strategies for a sustainable digital future.

However, we must consider people, namely their unique perspectives and experiences, in these efforts; a future built on a shared vision encourages acceptance of decisions and allows for innovation. As such, we ask: *What are people's visions for the future when it comes to digital transformation and sustainability?* Studying people's visions of a future that merges digital transformation with sustainability is pivotal for several interconnected reasons. It shapes the trajectory of technological innovation towards environmentally conscious solutions, ensuring that advancements in digital technologies align with principles of sustainable development (Mulder, 2007). Research findings inform policy-making, guiding regulations that support sustainable practices and encourage the responsible use of technology (Cash et al., 2003). Understanding society's expectations for a digitally sustainable future influences consumer behaviour and drives demand for technologically advanced and environmentally friendly goods (Han, 2021; Yahya et al., 2016).

However, there is a dearth of research on such visions. Aiming to answer the question raised above, we invited people to physically draw their visions of the future of digital transformation and sustainability. With this approach, we are building on different schools of research, such as mental models (Rickheit & Sichelschmidt, 1999) and imaginaries (Taylor, 2003), and combining them with strategic foresight approaches (Cuhls, 2003). These approaches offer valuable insight into how individuals and societies conceptualise potential futures, providing a foundation for strategic planning and decision-making.

1 We define sustainability as the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs. In this article we refer to environmental sustainability, which involves managing natural resources to prevent their depletion and degradation and to ensure the long-term health of the Earth's ecosystems (Brown et al., 1987).



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## 2. Researching the digital future

### a) Perceptions of the interrelatedness of digital transformation and sustainability

While there are myriad studies exploring perceptions of digital transformation and media change (e.g., P. Müller, 2016) and attitudes towards climate science communication (e.g., Sarathchandra & Haltinner, 2020) and climate change risk perception (e.g., Hoffmann et al., 2022), there is a lack of studies focusing on **future visions** of the **interrelationship** between digital transformation and sustainability. Previous research tends to focus on the organisational, technological, and policy aspects exploring the broader implications and strategies of integrating technologies with sustainability goals (e.g., Mondejar et al., 2021; Seele & Lock, 2017).

A systematic literature review by Gomez-Trujillo and Gonzalo-Perez (2021) provides a foundation for understanding the impact of digital transformation on sustainable development for companies and societies. The research indicates that businesses should enhance their digital capabilities and balance their economic, environmental, and social impacts to thrive in the digital era. The work of Feroz et al. (2021), contrarily, identifies disruptions caused by digital transformation on environmental sustainability. The authors present a framework outlining disruptions in four key areas: pollution control, waste management, sustainable production, and urban sustainability. However, both studies call for further research in this area, emphasising the importance of integrating sustainability and digital transformation.

Research using media coverage to explore the future scenarios of climate change offers a glimpse into the public's evolving views on environmental issues (Guenther et al., 2022; Guenther et al. 2023). Guenther et al. (2022) analysed all issues of four international news magazines ranging from the 1980s to 2019 which referenced climate change on the cover. They observed a transition from visions of apocalyptic climate futures to more varied and empowering reporting. The authors identified three multimodal frames: In the early stages, **global doom** narratives, illustrated by alarming, apocalyptic terms, and images, and **local tragedies**, pictures referring to the impact of climate change in certain regions, were prevalent. In recent years, a shift occurred towards a narrative placing a stronger emphasis on **sustainable futures**. Likewise, Guenther et al. (2023) discerned four narrative frameworks in their analysis of news texts from Germany, the USA, India, and



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South Africa: solutions to climatic and social consequences, distant threats to humanity, economic opportunities, and distant threats to ecosystems. These frameworks outline various visions of climate futures, exhibiting minimal differences between countries in the Global North and Global South.

Transitioning from the exploration of future scenarios related to digital transformation and climate change, we encounter a critical gap in the literature regarding focused examinations of peoples' future visions of the relationship between digital transformation and environmental sustainability. We aim to fill this gap using a creative approach: letting people draw their visions. This gap further brings us to the pivotal role of foresight methods in understanding how individuals and societies envision the future.

### b) Approaches to understanding future visions

Asking people about their perspectives on the future is a key component of strategic foresight, enabling organisations to navigate uncertainty and develop future-oriented strategies. To study the future, researchers and strategists employ a multifaceted set of methods, blending qualitative and quantitative techniques. These include scenario planning, which creates narratives of possible futures (Ratcliffe, 2002), the Delphi Method, leveraging expert consensus (Flostrand et al., 2020), trend analysis for forecasting based on current data (Birpınar et al., 2023), and horizon scanning to identify emerging trends and challenges (Cuhls, 2020).

Considering approaches such as imaginaries and mental models is crucially important as such methods meaningfully explore collective and individual visions of the future. Mental models are simplified ideas or concepts of individuals used to understand complex reality (Rickheit & Sichelschmidt, 1999). The models are based on experiences and assumptions influencing how people interpret situations and interact with the world (Jones et al., 2011). When mental models are shared within a group, commitment and performance are strengthened (Müller & Antoni, 2022). Socially shared visions are also referred to as imaginaries (Taylor, 2003). Imaginaries reflect and influence cultural, political, and economic values, guiding collective decision-making and behaviours. As dynamic frameworks, imaginaries evolve with societal changes, playing a critical role in social cohesion, innovation, and change (Dobbernack, 2010). While mental models are usually associated with individual cognitive understandings,



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imaginaries often focus on collective visions and societal constructs. The collective focus makes imaginaries particularly useful for understanding how broader cultural, social, and technological changes are envisioned and pursued. In this paper, we take particular interest in peoples' imaginaries of sociotechnical systems. According to Jasanoff (2015) sociotechnical imaginaries can be defined as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (p. 6).

Our research intends to fill the existing gap by offering nuanced insights into the public's vision for a future where digital transformation relates to sustainable development, guiding inclusive and effective policies and practices.

## *3. Method*

### a) Procedure and sample

During a music festival in the summer of 2023, as part of the cultural support program, we asked people to illustrate their response to the following question: *What might a future look like that combines digital transformation and sustainability?* The study was organised as an open workshop, with the authors serving as facilitators. The workshop took place over three days during the festival from 2 p.m. to 5 p.m. It was located on the route to the main stage, and participants were free to join and leave at any time; there was no fixed schedule for participation. Festival attendees and performing artists were invited to participate either individually or in small groups as they passed by. They were informed about the project's objectives and data processing procedures, and their verbal consent was obtained before participation. Each participant was provided with a blank A3 sheet of paper that featured a questionnaire on the back and various drawing materials, such as ballpoint pens, watercolours, and glitter pens. While participants drew, the researchers maintained a respectful distance but remained nearby to answer any questions.

Studies that explore foresight as a dynamic method of planning and creating desirable futures highlight the distinct advantage of visual methods in articulating and sharing visions of the future (Cuhls, 2003). Through drawing, participants can externalise their mental models, uncovering com-



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mon themes and unique perspectives regarding how digital advances and sustainability efforts may or may not converge. Drawing further encourages participants to understand and negotiate their images of the future. In this way, visual and emotional levels of meaning become visible and analysable (Freeman & Mathison, 2009). Through the lens of drawings, scientists can capture the rich tapestry of human thought and emotion that shapes collective visions of the future.

As recommended (Kearney & Hyle, 2004; Mitchell et al., 2011), participants were asked to describe their drawing to express what it is supposed to convey. This sets a context for the interpretation of each image. In total, 109 people between the ages of 6 and 42 ($M$=28.94, $SD$=5.27) participated in the study; 58 people identified as female, 42 as male, and 6 as non-binary. In total, 109 pictures built the basis for data analysis.

### b) Analysis strategy

The analysis was carried out inductively, adapting the framework proposed by Freeman and Mathison (2009). First, we employed a *thematic analysis* to identify recurring themes, symbols, and motifs (Braun & Clarke, 2006). Thematic analysis involves coding and categorising the visual content into broader themes related to digital transformation and sustainability. We included the participants' descriptions of the pictures. In a constant comparative approach, we further determined the extent to which the drawings display common themes and cross-references. Drawings were clustered according to their themes. A cross-reference between clusters was considered to exist if similar motifs were taken up in different clusters or if motifs could be assigned to different themes. Second, we focused on image creation, conducting a *visual analysis* – following Rose (2001) – of the graphic elements of the drawings, looking for patterns that indicate common concerns, hopes, and expectations among participants. Third, another iteration of interpretation based on drawing characteristics and themes was conducted, exploring underlying patterns beyond superficial observations to better understand the connection between digital transformation and sustainability.

Six drawings were removed from the analysis as they did not relate to the task. In adherence to recommendations by Elo et al. (2014), one researcher was responsible for analysis and the other carefully followed up on the categorisation process. Divergent opinions were continuously discussed.



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*4. Results*

The drawings range from abstract illustrations to figurative representations and mind maps. As themes, six bigger clusters (big dark blue) with subclusters (light blue) and five smaller clusters (small dark blue) emerge. Figure 1 below illustrates an overview.

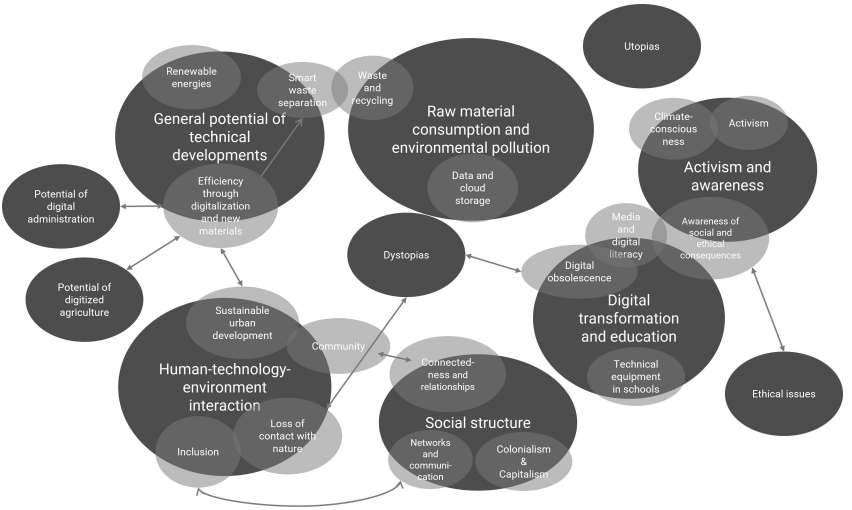


*Figure 1: Thematic clusters and their cross-cuttings*

Arrows and overlaps in the circles symbolise proximity and relationships between topics. Below, we take a closer look at the subclusters and illustrate the findings with selected images.

a) Characterisation of thematic clusters

Many participants address the *general potential of technical developments* for the future. They illustrate considerations of linking digital devices and the power of nature as an energy supplier: a car is powered by a bicycle (Figure 2) or a computer's plug ends in a socket in a flowerpot (Figure 3). Other images contain ideas on how to promote sustainable behaviour through digitalisation. Many images are highly schematic – some include excessive text –illustrating the complexity of different developmental steps and their impact (e.g., Figure 2).



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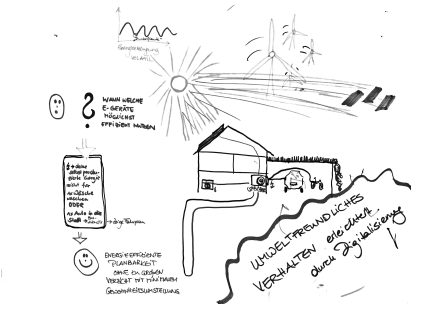


*Figure 2: Digital transformation fostering environmentally friendly behaviour*

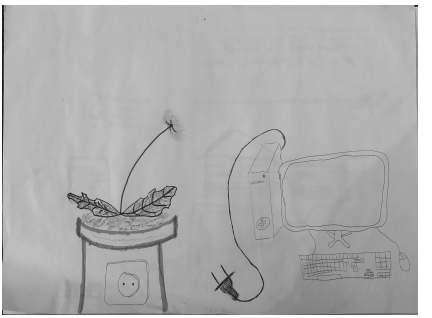

*Figure 3: Renewable energies*

This cluster connects to the topic of *waste and recycling,* a subcluster of the *raw material consumption and environmental pollution* cluster. We find images addressing waste generated by digitalisation (e.g., electrical waste), highlighting an often-overlooked consequence of increased reliance on digital devices. Furthermore, the images show a future in which digital technology, especially AI (Artificial Intelligence), makes waste separation and recycling more efficient and supports people's everyday lives (Figure 4, Figure 5). This aligns with current research and initiatives focusing on smart waste management systems, where AI and machine learning are applied to optimise recycling processes, reduce landfill waste, and support circular economy models (Fraunhofer IML, 2022). The visual simplicity of these images, through schematic representations and the occasional use of mind maps,[2] suggests a clarity of purpose and a straightforward approach to addressing complex issues. The restrained use of colour focuses the viewer's attention on key elements, underscoring the potential of digital innovation to contribute significantly to environmental sustainability.

2 Particularly, the mind map (Figure 5) also connects to the clusters *digital transformation and education* and *general potential of technical developments.*



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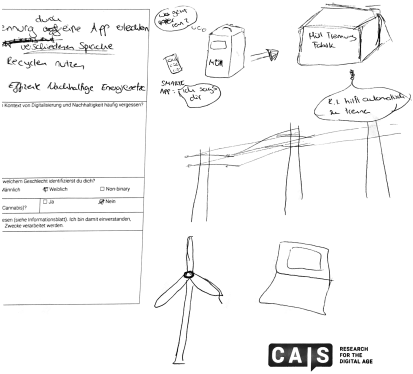


*Figure 4: Waste separation*

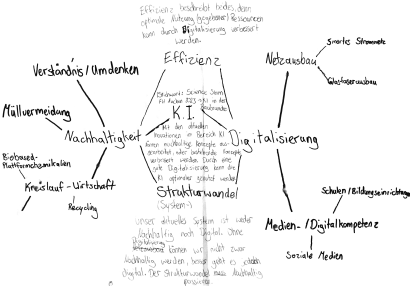


*Figure 5: Mind map*

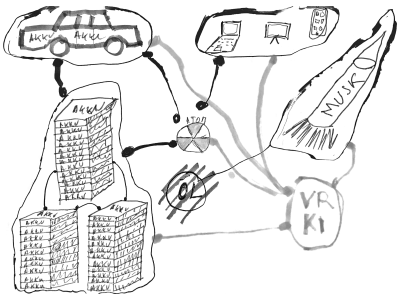


*Figure 6: Server farms*

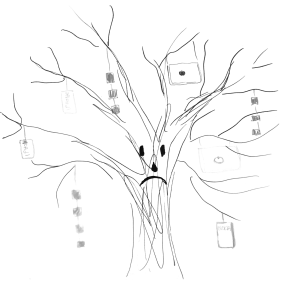

*Figure 7: Sad tree*

The cluster of *raw materials consumption and environmental pollution* contains another subcluster mainly consisting of images dealing with negative environmental consequences of server farms, data storage facilities, and excessive consumption of raw materials (e.g., Figure 6). The use of large storage units, laptops and smartphones in simple blue and grey tones suggests a cold, mechanised world dominated by technology, underscoring the pervasiveness of digital devices in modern life. A picture featuring a tree without leaves (Figure 7), bearing a sad face and burdened by the weight of hanging technical devices, serves as a powerful metaphor for environmental degradation caused by unchecked technological expansion. It reflects growing concerns about e-waste, the carbon footprint of digital



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technologies, and the loss of natural habitats due to mining the resources needed for electronic devices.

Three images can be assigned to the following topic: the *potential of digital administration*. The dominant colour in the images is the blue of a ballpoint pen. These images collectively capture the essence of digital administration's promise: eliminating unnecessary bureaucracy and modernising administrative functions. They resonate with current discussions on digital government initiatives aimed at enhancing public service delivery, increasing transparency and promoting sustainability through reduced paper use.

Images in the *potential of digitised agriculture* cluster reflect the transformative potential of digitised agriculture, illustrating how digital technologies may enhance agricultural efficiency and sustainability. They speak to the growing interest in smart irrigation systems to optimise water use, ensuring that crops receive the correct amount of water at the right time (Obaideen et al., 2022). In one image, a flower grows from a laptop with code on the screen representing the fusion of technology and nature, where digital advancements support agricultural growth (Figure 8). Another shows a field with a utility vehicle using AI to detect weeds and combat pests simultaneously (Figure 9). This reflects the ongoing discussions about precision agriculture, drones, and AI as means to achieve sustainable farming by reducing chemicals and improving crop yield (e.g., TUM Venture Labs, 2022).

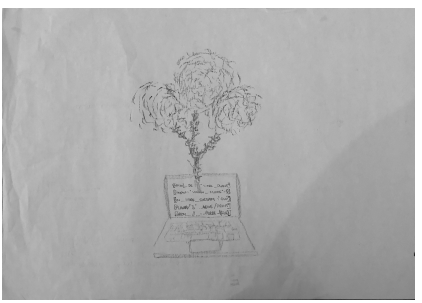

*Figure 8: Flower growing*

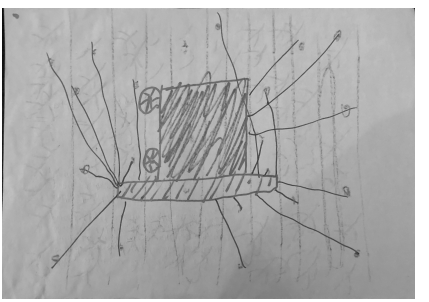

*Figure 9: AI in agriculture*



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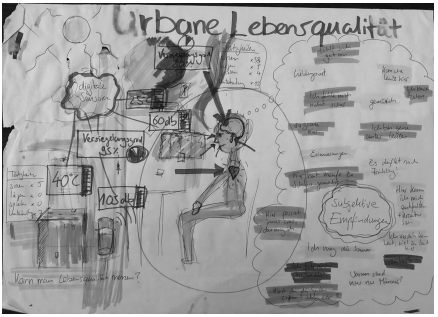


*Figure 10: Quality of urban life*

We can further connect the subcluster of *increased efficiency* to the subcluster of *sustainable urban development*. The presence of urban scenes intertwined with natural elements (e.g., trees, fruits) visually advocates for a future where digitalisation supports rather than detracts from ecological diversity and sustainability. The images in this subcluster do not require a great deal of text. Only one image (Figure 10) stands out in terms of combining visuals and text. Specifically, it places a person at the centre with different sensors measuring subjective sensations and quality of life (Figure 10). The complexity of the image underscores the multifaceted nature of sustainable urban development, emphasising the need for approaches balancing technological integration with personal and environmental prosperity.

This subcluster belongs to the larger theme of *human-technology-environment interaction* and includes the subcluster of *community*. Scenes depict houses closely entwined with plants. The descriptions of the pictures emphasise a desire for reorientating towards communal action in the future. The subcluster of *inclusion* represents a similar aspect, focusing on technological development that explicitly considers individuals' needs and breaks down barriers. Visually, the images convey these themes by featuring people connected by lines (Figure 12). Technological development is symbolised by laptops, smartphones or by the at sign (@) (Figure 11). Moreover, the authors included descriptive text on the picture to support their visions. Connecting these elements to current discourses reveals a growing desire and need for digital environments to be equitable, accessible, and empowering for all members of society.



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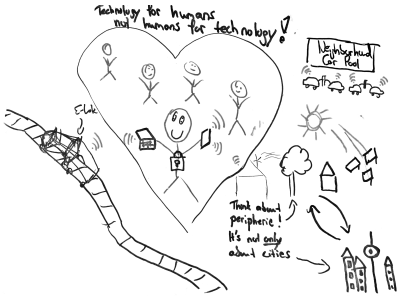


Figure 11: Humane technology


Figure 12: Everything is connected

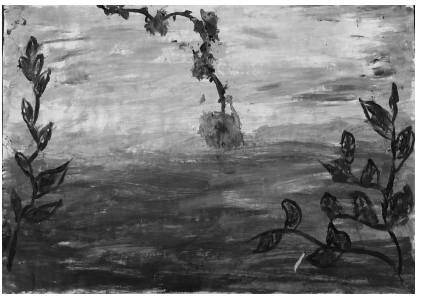

Figure 13: A world without digitalisation

However, many participants also foresee a *loss of contact with nature* and draw visions of a world *turning away from digitalisation* (e.g., Figure 13). The visual narratives, ranging from human-like figures actively rejecting digital devices to symbolic representations of disconnection underscore a yearning for an existence less digitally dominated. Such visions engage with philosophical and psychological debates about human fulfilment, the quality of social relationships, and mental health in an age where digital distractions are omnipresent (Nguyen et al., 2022). They further suggest a collective contemplation about what is lost in the race for technological advancement and, in addition, reimagine what constitutes a meaningful life. This subcluster is closely linked with dystopian perspectives.

One large cluster is titled *social structure*. Various subclusters belong to it. One of these is labelled *networking and communication* and includes three distinct images. Each of these images aims to illustrate the idea of increasingly using communication and information networks inspired by nature (e.g., mushrooms) as a model for digital communication and information processing, emphasising the importance of networked initiatives.



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Together, these images underscore a movement towards leveraging digitalisation as a pivotal component of sustainable development. They encourage a rethinking of traditional structures through nature-inspired, collaborative solutions.

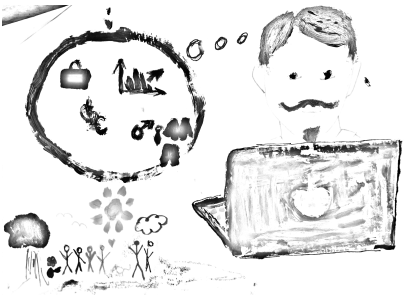

*Figure 14: "Digitisation expert digitises what he thinks is right"*


*Figure 15: "Collapse, Colonialism, Capitalism"*

*Colonialism and capitalism* form another subcluster. Images within this subcluster criticise current and future exploitation of nature and people, especially those who are marginalised due to social status, ethnic background or those suffering particularly from climate change. The images are restless. When people are depicted in these images, they are displayed in larger groups – usually as prisoners or as the exploited. The few who stand outside the groups are those possessing power and money (Figure 14, Figure 15). Power is symbolised by expensive consumer goods (e.g., Figure 14), money, and male gender. The images underscore the critique that digital transformation disproportionately benefits those with existing power and wealth, often at the expense of the marginalised and the environment. This resonates with the debate on ethical technology and responsible capitalism, calling for a re-evaluation of how digital technologies are developed and distributed (Ammanath, 2021; Financial Times, 2019).

The third subcluster, labelled *connectedness and relationships,* comprises 11 images. The images depict technical devices –usually smartphones – shaping our perception of the world and determining how we communicate and maintain relationships (e.g., Figure 16). While the image itself shows a negatively connotated approach, the explanatory texts advocate a positive perspective: harmonisation of people, nature, and technology. Two images argue in favour of keeping analogue connections with one another despite digital media. This is illustrated by direct connections between people and by abstract depiction of human-like forms and a rainbow (Figure 17),



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presumably referencing the rainbow flag as a symbol of diversity. This subcluster is closely linked to the subcluster of *community*.

Regarding existing technical, environmental, and social problems, various *dystopias* are drawn that depict unhealthy dependencies of people influenced by media platforms or digital technologies in general (e.g., Figure 18). One participant's last resort is the armed struggle against "the digitised" (Figure 19). These visualisations starkly contrast with optimistic visions of technology-enhanced futures, focusing on the potential for loss of control and freedom in highly digitised societies. The absence of nature-related colours and symbols, along with the predominance of garish or dark illustrations, further emphasises the disconnect from the natural world, suggesting a future where technology overshadows human agency and our connection to the environment.

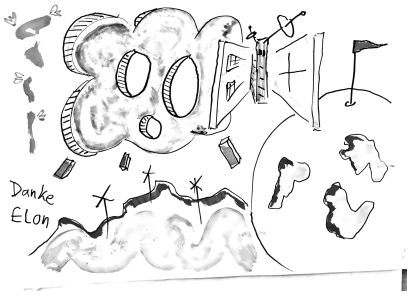


*Figure 18: A world controlled by Elon Musk's satellites*

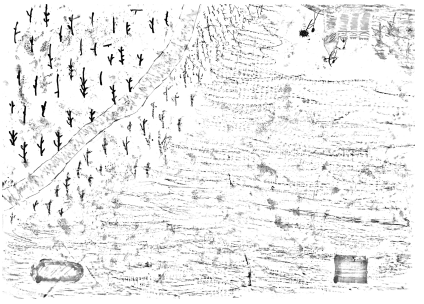

*Figure 19: Fighting "the digitised"*

The dystopias connect to the cluster of *digital transformation and education*. Here, we find topics like improving the *technical equipment of schools* (Figure 21) to facilitate knowledge acquisition and creativity, and a reference to *inclusion*. There are images bridging the gap between a childhood shaped by digital devices, a state of *digital obsolescence* and being trapped in social media filter bubbles, formulating an appeal for *media and digital literacy* to maintain contact with information about the environment (e.g., Figure 20). These themes align with current discourses on leveraging technology to democratise education, ensuring that all learners, regardless of their background, may access quality educational resources and opportunities. They underscore the importance of fostering media and digital literacy from a young age to empower individuals to critically engage with digital content, discern reliable information, maintain a healthy balance between



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digital and physical worlds, and understand how current actions impact future generations.


*Figure 20: Duality: digital tools in education*

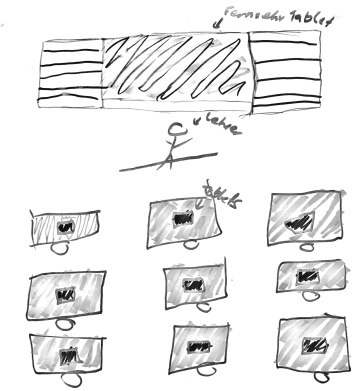

*Figure 21: Classroom with tablets*

This leads to the cluster of *Activism and awareness*. Images here address the need to recognise the *social and ethical consequences of digital transformation* and practice *climate consciousness*. Visually, images combine representations of technical devices and the earth emphasising the global importance of individual action. The juxtaposition of technical devices with images of the Earth serves as a potent reminder of the global stakes involved, suggesting that while digital transformation holds the power to connect and revolutionise, it also bears responsibility for the planet, requiring mindful stewardship from both individuals and collectives.



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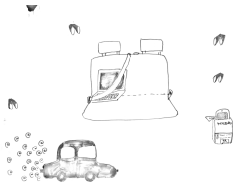

*Figure 22: Danger of surveillance*


*Figure 23: Advantages and disadvantages of digitisation*

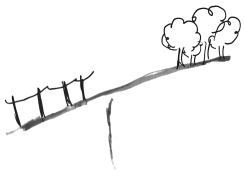

*Figure 24: Where does digital transformation stop?*

The cluster of *Ethical issues* raises overarching questions on digital transformation such as the danger of surveillance when digital devices are constant passengers (Figure 22). Another image explores tensions between the advantages and disadvantages of digital transformation (Figure 23). On the figurative "sunny side" of the aforementioned image, positive facets of digital transformation such as community (people holding hands), global networking (represented by connecting lines), and efficiency (symbolised by a clock) are depicted. The dark side of this image features symbols representing a lack of creativity and reflection and the takeover of power by artificial beings. In addition, two people separated by a lightning bolt represent isolation and conflict as consequences of a digitised world. The third picture (Figure 24) further explores this fragmentation. Through this illustration, the author asks, "How far does digital transformation go and where does it stop?" This is visually underscored by a seesaw: people's needs on one side considerably tip the scale to the environment's disadvantage. These pictures reflect the complexity of the current social discourse on digital transformation and its difficult entanglement with the environment. These images serve as a microcosm of larger ethical considerations that digital transformation engenders. They urge reflection on how to harness the benefits of digital technologies while mitigating adverse effects.



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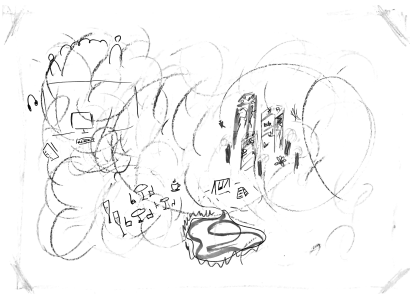

*Figure 25: Humans, technology, nature: positively interdependent*

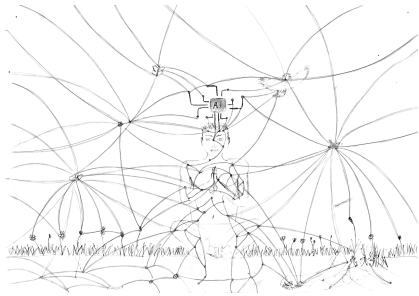


*Figure 26: AI-Buddha*

Both images belong to the cluster of *Utopias,* portraying the dynamic relationship between humans, digital progress, and nature in an abstract way. The utopian aspect of these depictions is the idea that in the future, humans, technological progress, and nature will influence each other positively with different needs resting in balance (Figure 25). For instance, consider the optimistic perspective that AI helps humans better understand themselves as part of the global fabric; this aligns with discussions in environmental science and technology ethics, where the potential of AI to drive sustainable practices and mitigate environmental issues is recognised. The depiction of a figure whose posture is reminiscent of Buddha and is captioned "AI" (Figure 26) might hint at the need for wisdom, mindfulness, and ethical considerations in our technological approaches. It reminds us that the path to sustainable futures requires – besides technological innovation – an ethically grounded understanding of our relationship with nature.

b) Visual interpretation

Several key patterns emerge from the images: Participants often use metaphors to link technology and nature. Consciously or unconsciously, this creates the impression that it is recognised as natural, that technological developments are integral in discussions on environment and nature. If so, this may be understood as an indicator that those depictions are close portrayals of the sociotechnical imagination of the study participants. Due to their narrative style, metaphors can serve as direct representations of imaginaries.

The images are characterised by clarity; each image focuses on either only one specific aspect or a low number of topics. These images collective-



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ly form a bigger picture. The balance between expressing distinct topics while embedding them in systemically rich contexts is achieved by using depictions of specific artefacts as symbolic and abstract representations of broader meaning. This is supported by the choice of colour, indicating either technology-associated aspects or nature-related tones for example.

One notable aspect throughout the images is the contrast of depictions of individuals or single artefacts in comparison to the illustration of collectives and networks. The first is found more often in contexts of negative meanings, whereas the latter predominately are used for representing positive aspects. This begs the assumption that the sociotechnical imaginaries represented in the drawings are a counterpoise to societal narratives of fragmentation and unhealthy hyper-individualisation.

Another dominant theme is the interplay of community and connectivity. Scenes depicting houses entwined with plants – or, as another example, people connected by lines, networks, or similar connectors – suggest a desire for communal action and technological development that prioritises human needs while leveraging a balance between physical and digital connections. Essential values for realising such a vision include social cohesion, knowledge dissemination, and technological progress that is inclusive and accessible to everyone. These are crucial for navigating the digital transformation in a way that ensures positive outcomes for current and future generations.

## *5. Discussion: How do the drawings relate to peoples' imaginaries?*

The participants' sociotechnical imaginaries presented in the images are rich in their portrayal of how they envision the integration of technology with everyday life and the natural environment. They display a broad spectrum of expectations about technology's role in society, reflecting a diverse set of societal hopes, fears, and critical perspectives. The images allude to topics addressed in systematic literature analyses about the impact of digital transformation on sustainable development (Feroz et al., 2021; Gomez-Trujillo & Gonzalez-Perez, 2021). This shows that participants are acutely conscious of the connection between digital transformation and sustainability. These concrete visions demonstrate the creators' fluency in the topic of sustainability matters as well as the salience of these subjects in their everyday lives. It is important to note the festival at which this research was conducted has a very strong focus on sustainability; it can



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thus be assumed that festival visitors were highly motivated to engage with this topic.

Optimistic depictions suggest a future where technology facilitates sustainable relationships with the environment, exemplified by creative uses of renewable energy and digital advancements supporting resource efficiency. This reflects a sociotechnical imaginary that views technological progress as inherently capable of solving environmental and societal challenges. The optimistic view on the future, underscored by the strong symbolic nature of many images, aligns with the findings of Guenther et al. (2022), who observed modern media's tendency to portray future scenarios focusing on a sustainable future. The images also express concerns rooted in cautious or critical sociotechnical imaginaries. They highlight potential downsides to technology, such as environmental degradation from server farms and the perpetuation of socio-economic inequalities through digital means. These views are indicative of a growing awareness and scepticism about the unchecked expansion of digital technologies. The depiction of surveillance and privacy issues, along with dystopian visions of a world overwhelmed by digital control, visualises deep-seated fears about the loss of autonomy and privacy. These concerns are juxtaposed with images that advocate a balanced, ethical approach that harmonises human needs with environmental stewardship and technological advancement.

Given that the overarching themes which emerged from the illustrations are human-technology interactions and, more specifically, human-to-human interactions in the face of technological change, it must be emphasised that the participants expressed themselves in a way that suggests that there is untapped potential in linking the issues of digital transformation and sustainability. This does not automatically mean that this potential is not being exploited. Rather, it means that when this potential is exploited, it is invisible to those affected. Economic, scientific and political institutions must therefore work to make these efforts more visible so that they can be integrated into a widely accepted sociotechnical imaginary.

## *6. Conclusion*

The participants' imaginaries reveal a complex tapestry of expectations about the future interactions between technology, society, and the environment. They underscore the dual potential of technology to foster sustainable and equitable futures or exacerbate existing challenges and inequities,



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urging a balanced approach to digital transformation. This synthesis of visual narratives and sociotechnical imaginaries emphasises the importance of collective reflection and ethical responsibility in navigating the path toward a technologically advanced society.

The pictures illustrated by participants are individual and social products. They reflect the personal interests and perspectives of their creators. They show how people explain their social existence. They underscore the need for a balanced approach to a digital transformation that both safeguards individual freedoms and promotes a harmonious relationship with the natural environment. Engaging in this discourse, future research and policymaking should aim to navigate the fine line between leveraging digital technologies for societal benefit and preventing dystopian outcomes. Future research may also employ quantitative approaches to broaden the understanding of societal perspectives on these topics. Comparative studies across different demographics and longitudinal studies could reveal diverse viewpoints and "help[s] to identify the content and contours of sociotechnical imaginaries" (Jasanoff, 2015, p. 35), enriching discussions on imaginaries integrating digital transformation with sustainability.

Through this study, we gained a better understanding of the aspects of digital transformation that people might see as risks to a sustainable future. By considering diverse perspectives, decision-makers can better develop resilient strategies in the face of uncertainty. Exploring the intersection of digitalisation and sustainability profoundly impacts digital transformation research by guiding research agendas and influencing policy development. Insights into societal expectations around this intersection further highlight a necessity for user-centred, environmentally friendly digital solutions, fostering interdisciplinary collaboration and emphasising ethical considerations.

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