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TECH | IMAGINATIONS –

INTRODUCTION

CHRISTIAN SCHULZ AND JENS SCHRÖTER

Concepts of the imaginary have received increasing attention in cultural theory and the social sciences for some time now. This can be observed in social theory and political philosophy (Anderson 1983, Taylor 2004), science and technology studies (STS) (Jasanoff and Kim 2009; Jasanoff 2015), postcolonial studies (Hartman 2006; 2019¹), and most recently anthropology (Rohrer and Thompson 2023). An increasing preoccupation with the imaginary has also been noticeable in recent years in communication and media studies (Katzenbach and Mager 2021; Kluitenberg 2006; Litt 2012; Litt and Hargittai 2016; Natale and Balbi 2014).

What is striking about this new preoccupation with the imaginary is that the concept of “techno-imagination” (Flusser 2011), coined by Vilém Flusser in the early 1990s, is omitted nearly without exception (only Ernst and Schröter refer to Flusser; see Ernst and Schröter 2021, 50). This is particularly astonishing in the case of analyses of the imaginary within media studies. On the one hand, Flusser is a central, albeit contentious figure in the context of the founding discourses on media studies as an institutional discipline. On the other hand, there is a long history of engagement with the imaginary within media studies, drawing in particular on psychoanalysis and the work of Jacques Lacan, which had a major influence on Friedrich Kittler’s *Discourse Networks* and can thus be described as “basic knowledge in media studies” (Koch et al. 2017, 112).

The reasons for the lack of attention in recent studies may well lie in the technological determinism that is often attributed to Flusser. In a sense this determinism is present in the concept of “techno-imagination” and also has parallels to the work of Kittler.² Nevertheless, it is probably the psychoanalytical baggage still attached to the term within media studies that makes concepts such as Jasanoff and Kim’s “sociotechnical imaginaries” (Jasanoff and Kim 2009; Jasanoff 2015) appear more attractive.

In any case, this is no reason to hastily shelve the concept of “techno-imagination.” Instead we should consider the specific analytical advantages of such techno-imaginings that can be conceptually grasped. Indeed, the concept of the imaginary allows us to address both the societal and individual levels, which means that the

1 Here, the imaginary functions as a method to fill archival gaps that exist as a result of colonial power relations.

2 The rather marginal role of the medium of photography in media studies certainly plays a role too, as Flusser developed his ideas within the framework of his reflections on a philosophy of photography.

concept actually addresses both the macro and micro perspectives. Both perspectives are also discussed in this volume of *Navigationen*.

THE TECHNO-IMAGINARY BETWEEN MICRO AND MACRO PERSPECTIVES

The question currently arising is how the societal and the individual level can be linked in a theoretically meaningful way without neglecting normative aspects (as it appears for instance in the individualizing of subjects into “responsible persons”). Sites where this question has emerged include the discussions around generative AI, which entered everyday life in 2022 with applications such as ChatGPT or DALL-E, and also techno-solutionist proposals for solving the climate crisis, which are often heard from techno-libertarian circles and are frequently coupled to narratives of individualization.

In the course of these popular discourses there are serious debates about whether, for example, these AI technologies might be able to make visible a collective unconscious of the whole of humanity (Ahuja 2022; Schröter 2023). Here, interestingly enough, a parallel emerges to discourses within the digital humanities, where the micro/macro problem appears to be only one of scale. Such an assumption is based on inherent Western-centric premises – after all, these AIs are predominantly trained with data representing stereotypes from the Western hemisphere of the Internet. This example nevertheless illustrates the previous lack of or rather need for theoretical conceptualizations of the imaginary, which would make it possible to critically describe such technological developments, that are too often also presented as technological solutionism (Morozov 2013).

Even the sociotechnical imaginaries explore the tension between large-scale (future) conceptions of society and “imaginings as social practice,” which can already be found to some extent in Flusser³ (see also Guldin 2007, 67). At the same time, however, this treats the imaginary as a scalable object, as does actor-network theory (ANT), to which Jasanoff explicitly refers (Jasanoff 2015, 21-28). However, this theoretical narrowing, which may well make sense for certain purposes of analysis, also pushes the subject level into the background, along with the normative aspects that are always inscribed in technologies. For this reason, it is in some ways

3 Flusser distinguishes between pre-technical images and technical images, whereby the archetype of the latter is photography, which is why he also assigns it an indexical character. For him, “techno-imagination” is the ability of the recipient to “decipher” technical images and “bring their hidden and masked ‘intentions’” to light. But in another text (“A new Imagination”) Flusser goes one step further: here he speaks of photographic images (i.e. technical images) as “factual information” and contrasts these images with computer-generated images, which he calls “calculations.” While the photographic images symbolize an old imagination, in which the subject abstracts itself from its environment, the computer-generated images represent a new imagination, a “field of possibility.” In a sense, these images take the opposite path from abstraction to the subject (Flusser 2002). This shows that Flusser explicitly thinks in terms of the different levels of the imaginary, although he conceives them media-specifically and does not grasp them as a structure-agency problem.

also significant that the concept almost always only addresses *either* large-scale conceptions of the future, often in the form of science fiction narratives, *or* micro-perspectival explorations of social practices, in which the imaginary plays the central role in constituting the heterogeneous ensemble. In our opinion, however, the techno-imaginary is the level that is not only able to address the close interweaving of (digital) media and imaginations, as a basic premise of media theory, but much more fundamentally conceives of techno-imaginings as a constitutive element of society and sociality itself, following Castoriadis (1997). Thus, the techno-imaginary is not simply thought of as scaling between micro and macro levels, like Jasanoff and Kim's sociotechnical imaginary. Castoriadis's influential theory, which precedes Anderson (1983) and Taylor (2004), as well as Jasanoff and Kim (2009, 2015), and has significantly influenced these theorists, makes it possible to think of the techno-imaginary as a hinge between micro and macro levels. This then allows us to adequately address the different levels (micro/macro) – including subjects and related normativities – in parallel and simultaneously. It is the figure of the instituted-instituting imaginary that makes this possible.

According to Castoriadis, institutions exist only in the symbolic, and they provide a certain form of stabilization, which is why sociality can emerge from them in the first place. At the same time, however, this symbolic itself is subject to constant change. Therefore, in addition to the concept of "institution," Castoriadis also introduces the concept of the "instituting." This refers to the "perpetuation of otherness" (Castoriadis 1997, 369) in the (radical) imaginary⁴ and describes the moments in which the instituting society breaks into the instituted and creates itself as another (instituted) society.

In relation to the technological, the techno-imaginary in such a perspective functions as a stabilizer for higher levels (macro perspective), be it as a driver of future technology via fictional discourses, such as those in science fiction (Ernst and Schröter 2021), or as an infrastructure-stabilizing component, as in social media platforms (Schulz 2023a, Schulz 2023b). At the same time, however, the level of (everyday) practices is also addressed by the always processual, or, as Castoriadis would put it, "instituting" moment. However, these are not narrowly conceived, as in the sociotechnical imaginaries, which usually favor micro-perspectival descriptions.⁵ Rather, they are always conceived in the context of already stabilized (or, to use Castoriadis's term, "instituted," i.e. historically inscribed) normativities in

4 The radical imaginary takes a central place in Castoriadis's theory, and is described as a "productive" and "creative" starting point, "manifested indissolubly in both historical doing and in the constitution, before any explicit rationality, of a universe of significations" (Castoriadis, 1997, 146). For Castoriadis, the "radical" thing about the imaginary is that it precedes the symbolic and is therefore fundamentally indeterminate. This means that it seems "radically" open and stands for permanent change.

5 Significantly, this is also the case in recent approaches from algorithm and data studies, where we can read of "algorithmic imaginaries" (Bucher 2017), "data imaginaries" (Beer 2019), or even "platform imaginaries" (van Es/Poell 2020), but the focus is primarily on the user perspective and the technical side is largely excluded.

technologies. A techno-imaginary conceived in this way thus makes it possible, in principle, to address both levels in parallel, without having to scale between them or commit oneself to one of the two levels, micro or macro, for the analyses. However, these remarks on such a techno-imaginary must necessarily remain cursory at this point and require more detailed theoretical elaboration, especially with regard to the way Castoriadis's theory relates to more recent process-ontological currents within "new materialism," such as Karen Barad's agential realism (Barad 2007). Nonetheless, this demonstrates the theoretical potential of the term coined by Flusser and, moreover, marks the central axis on which the contributions in this issue are positioned.

ABOUT THE CONTRIBUTIONS

The contributions are divided into two sections. First, there are five papers that examine the "techno-imaginary" more broadly from theoretical, historical and practice-theoretical perspectives. Second, there are three papers and two dialogues that deal with "futures of the Internet" and thus focus narrowly on the "techno-imaginary" in relation to the Web. The papers from this section have their origins in a workshop at CAIS in Bochum in early 2022, organized by Jens Schröter.

SECTION I: TECHNO-IMAGINATIONS

The first article, by **Christoph Ernst**, takes up Flusser's notion of "techno-imagination" directly and addresses the relationship between imagination and media. Starting from the "schema" concept, which is identified as a connecting element between classical theories of imagination and media theory, and drawing on the theories of Kant, Peirce, and Castoriadis, the paper argues for a contemporary theory of "media imagination." This is an important step toward a media theory of imagination that is not confined to micro or macro perspectives, but rather takes an intermediate stance.

This is exactly where the second contribution, by **Martin Doll**, picks up, albeit from a different perspective. Jasanoff and Kim's concept of "sociotechnical imaginaries" – with a micro-perspectival orientation – serves here as a starting point for a methodological exploration of "memory cultures" following Aleida Assmann and Astrid Erll. Doll is thus able to show that a media archaeology of the imaginary conceptualized in this way is always tied to political implications, which he refers to as "specters of past political futures" in reference to Derrida.

In his paper, **Felix Hüttemann** problematizes implicit techno-imaginaries of current theories from the fields of software and algorithm studies. Using Benjamin Bratton's notion of the nomos of the cloud, the concepts of teleoplexy and cyberpositivity of the Cybernetic Culture Research Unit (CCRU), and Luciana Parisi's investigations into algorithmic architecture as examples, he exposes the decisionist foundations as well as the apocalyptic presuppositions that are often inscribed in

these approaches. Using the concept of techno-imaginaries, he thus helps to theorize the approaches that are currently popular in the field of software and algorithm studies.

In their contribution, **Agnieszka Jelewska** and **Michał Krawczak** use the concept of techno-imagination to address the interdependencies between nuclear and media infrastructure. Their starting point is the destruction of Ukrainian nuclear infrastructure by the Russian army since 2022, which has (among other things) led to a situation of constant danger at the Zaporizhzhia nuclear power plant. Jelewska and Krawczak show how media are used to generate visions of the future that are intended to neutralize critical discourses. They argue that one of the most important cultural effects of the intertwining of the nuclear industry and media narratives is the use of civilian energy infrastructure as a weapon. This also marks a new topological figure of time, in which present time is eclipsed in favor of past and future narratives.

In the last paper of the first section, **Christian Schulz** focuses on mental models in the field of explainable AI (XAI) research. Starting from two central texts in the history of mental models, by Kenneth Craik and Donald Norman, Schulz argues for a reconceptualization of such models, which are frequently referenced in computer science and human-computer interaction. He proposes a co-constructive approach, in which developers and everyday users are on an equal footing. He uses the concept of “algorithmic imaginaries,” a variant of the techno-imaginary which foregrounds everyday users and their imaginations from a micro perspective.

SECTION II: FUTURES OF THE INTERNET

Jens Schröter opens the second section with his contribution. Starting with an episode from the early history of the Internet, the story of Licklider’s “intergalactic network” and his famous paper based on it, co-authored with Robert Taylor, Schröter reconstructs which sociotechnical imaginations existed at the (D)ARPA Information Processing Institute. His paper shows how, since the beginnings of the Internet, new technological developments have always been interwoven with sociotechnical imaginaries.

In their “meandering conversation” on the future of the Internet, **Özgün Eylül İşcen** and **Shintaro Miyazaki** talk about their project Counter-N and address web-based publishing, exchange, and alternative modes of computing. The conversation reveals the significance of a spatially and temporally expansive approach for grasping the future trajectory of networked society both in its totality and in its frictions.

Cornelia Bogen examines China’s national digital policy and approach to its cyber sovereignty in a longer essay. The “splinternet” created by this policy, i.e., the national shielding of the Internet, shifts the burden of social governance from state authorities to other actors, thus introducing free-market principles and at the same time incorporating socialist values into Internet regulation. None of these measures, however, has helped to cultivate a technological consciousness that can

withstand the pressures of technological modernization and global military and economic competition. Bogen highlights how China is currently attempting to reform the Internet and considers how Internet governance is being instrumentalized by technological and ideological competition with the United States.

In a follow-up to an earlier conversation on “the ends of the Internet,” also published in *Navigationen* (Heidersberger and van Treeck 2021), **Benjamin Heidersberger** and **Jan Claas van Treeck** directly follow Bogen’s contribution and critically examine the historical and ideological development of the Internet. In their discussion, they foreground three geopolitical spheres of influence that shape the Internet today: the United States, Europe, and China. Central to their discussion is the concept of “territorialization” and “anti-territorialization.” Anticipating a contested future, Heidersberger and van Treeck assume that there will be a metaphorical arms race between control and resistance in the digital sphere.

In the last paper of the section, **Galit Wellner** starts with Nozick’s thought experiment of the experience machine and examines how the negative stance towards such a machine has changed so that virtual reality (VR) technologies and the recently announced metaverse are considered as positive developments of the Internet. Three genealogical steps are identified: postmodernism through Baudrillard’s notion of simulacra; posthumanism as defined by Hayles and her observations about the shift from the presence/absence dichotomy to a pattern/noise dialectic; and Ihde’s postphenomenology, including later theoretical developments that assign intentionality to technologies, especially augmented reality (AR) and artificial intelligence (AI). Wellner suggests that the metaverse cannot be classified as VR or AR but instead can be framed as “reverse AR” in which real people meet in an imagined space.

EXTRA

In the supplement to this issue, **Hernán Borisonik** explores how the boundaries between art and design are increasingly blurred in the digital age. He shows how the materiality of art is changing, and how artists are increasingly involved in tasks of self-design in the service of potential buyers, patrons, and subsidiaries, and ultimately even engage in unpaid work on social media platforms. The paper contends that the exploitation of cognitive labor is linked to large-scale manipulation by the few actors who succeed in setting agendas and suggesting behaviors. Finally, Borisonik proposes the idea that there is a touch of utility in all artistic expression, reconciling the idea of art with utility.

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