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The Enduring Quest for the Future and Its Consequences for Scientific Inquiry

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Abstract

This paper analyses the social quest for the future and the function of its associated futurizing practices. Specifically, it discusses the role of the social sciences and the humanities for understanding these practices under conditions of intense precarity and uncertainty. This is weighed against the need to secure the future as an existential good along with associated political and economic attempts to colonize the future as a means and resource of further securing positions that are often already unhelpfully entrenched. In light of the complex interplay between these factors, this paper ultimately aims to conceptualize a role for the social sciences and the humanities as advocates for a more inclusive, open-ended form of futurizing. It is the argument of this paper that such a conceptualisation would allow for the maximum number of actors, make visible the diversity of futures and protect the essential status of the future as a place of unbounded potential and scope as well as its unavailability.

Contents

The future is now an existential concern. Not only do scientists ask what the future will bring in terms of climate, demographic, or economic upheaval and turmoil but there is growing public concern about whether there will be a future at all. Doom and gloom scenarios forecast collapse as a result of decadent lifestyles and concerns have shifted from wondering what the future will look like to wondering if there will be a future at all. The future is not only an existential concern, but also an existential good. The threat to the future yields measures to secure the future as a livable sphere. Leading figures of social movements and paradigmatic scientific movements (I do not use the word "school" here on purpose) enunciate their convictions in the name of the future. They seem to be determined with a clear sense of purpose and with few doubts about the "right" course of action. Its proponents can even appear as saviours, acting in the conviction that either technology, or renunciation of plastics, reduction of fossil fuels or a wholesale change in mobility and diet patterns will enable them and their followers to secure the future. At times, however, this clear sense of drive and purpose limits the scope for alternative thoughts and actions – "Here I am. I can do no other!".

Figure 1: Dystopian futurizing in social movements: How dare you! … You say that you love your children. And yet you are stealing their future in front of their very eyes… Unite behind the scientists. Greta Thunberg (wikipedia)

However, for the great majority, purpose and the "right" course of action remains unclear, if the pressures and immediacies of every-day life even allow them to spend any time thinking about the future of civilization at all. Instead of clear purpose and convictions their world is full of uncertainties, paradoxes and doubts: Should I stop flying if flying only accounts for a small part of overall emissions? Should I tell my children to stop eating meat? Should I stop consuming plastic even if it is recyclable? This list can sometimes seem endless. And, as an individual, does it even make sense to change my own lifestyle if big business, industry and politics continue on their way? And why should I adopt a more frugal lifestyle if everyone else around me continues to drive their SUVs and to go on foreign cruises? In such a vertiginous milieu uncertainty proliferates and concerns centre not so much on the question of what the future will be like but whether any such personal sacrifices can secure a livable future at all. Which action will be appropriate and effective to save the future as existential good? Most people are therefore lost in an ever billowing cloud of

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contradictory claims, proofs and interpretations of data and advice. The answer to the question of what is "right" and what is "wrong" consequently falls from view with the unfortunate effect of delaying immediate and effective action. Seemingly, because here expectations surpass capabilities.

Fact-based decisions are difficult to reach in the face of future uncertainties. Science cannot eradicate but tends to produce greater levels of uncertainty. However, scientific uncertainty does not prevent attempts at predicting, controlling or designing the future according to specific agendas (longevity, health, justice, liberation, comfort). Nor does it keep science from reflecting on aspirations, convictions and values whereby the future is transformed into an existential good. Contributing to safeguarding the future is a moral obligation for science and responding to society's need for guidance is a matter of decency beyond rationalist truth (or false) statements. In these circumstances, what are the options for science to deal with this growing quest and this desire for the future as an existential good?

Figure 2: Futurizing in public space – Future as promissory sphere (AH)

In this paper, I will explore this challenge in greater detail with a special focus on the options for social science and humanities in dealing with practices of futurizing. This paper addresses the role of social sciences and humanities in this field, putting in the center the question that already had troubled R.S. Lynd (1939) in "Knowledge for what?" Through this lens, I will discuss both the formation of the future as a fiercely contested sphere in late modern times and the conceptual positioning and methodology of a social science and humanities centered approach in these discourses. This paper therefore attempts to initiate a discussion on the following statements:

- *Our task is not to foretell the future, or to cure the modernist desire for a future, but to understand why it exists, and what it tells us about our present conditions.*

- *We should not solely attempt to regulate futurizing, be it in a positive sense by making it more participatory or in a negative sense by supporting single fundamental(ist) western values, but we have to understand the forms, modi and functions of visions as regulative ideas and to map the diversity of visions.*

- *We have to be reflexive about the impact of this knowledge production and the role we would like to play in the struggle for the future. This includes taking responsibility for the impact our research actions likely will have in closing down or opening up discourses and, consequently, in facilitating futurizing for a maximum number of social actors, allowing for utopian thinking, as well as – and this is probably the highest mission – to protect the unavailability of the future against any attempts to colonize it.*

1 Introduction

Narratives and discourses on the future abound in modern societies. This phenomenon has been described and analysed by a number of scholars (among many others in the German academic context Nassehi 2008; Beckert 2016 and 2018; Hölscher 2016), who point out that expectations regarding the future are not only constructed in the present but also constitute a system of meaning in framing the present by narrowing down options and structuring expectations, allowing for decision making under conditions of uncertainty and multi-optionality. These expectations manifest themselves in various modes, such as narratives, stories, fiction, scenarios and visions, but also as ensembles of values, practices, symbols, emotions and resulting institutions, as imaginaries of socio-technical futures or sociotechnical imaginaries. (Jasanoff/Kim 2009 and 2015). Grunwald (2012) has pointed out the seemingly inextricable relationship between technology and society where technology serves as a medium for social change (see also Hubig 2013) and the phenomenon that the future is imagined as socio-technical future, if not primarily as a technological future. Different visions of technological solutions to major societal problems may result in a plurality of "tech-fix" tunnel visions as they compete with alternative visions of the future that sometimes radically reject advancements in technological infrastructure.

Future imaginaries and their resulting discourses and debates can appear as a societal response to urgent challenges, such as climate change, financial crises, demographic change, inequality, pandemics or other threats requiring meaningful action under conditions of uncertainty. Increased orientation towards the future and the demands for long-term thinking can be understood as strategies for balancing a present that is perceived as uncertain, volatile, at times miserable, and for preparing for a future that, from the present point of view, is also understood to be insecure, complex and vulnerable, if not completely at risk. This desire for a better future is manifest not only in various attempts to prevent a dystopian future but also in proactive strategies to construct visions for eutopian futures.

Positive and negative visions of the future coexist with the former attempting to create a brighter future, or at least preventing disaster and the latter anticipating demise, or even possible extinction. (Hölscher 2016, 322) Finally, understanding the current, or future, problems of degradation as a function of current luxury, elicits particular solutions (e.g. innovations like geoengineering, human enhancement, democratized open fabrication, or political measure, like complete shut-down of public and corporate activities in times of pandemic disease) as the best ways of preventing dystopias or for realizing utopias. Future visions and their corresponding innovations set present standards for a desired future and measure the gap between an unsatisfactory present and a much longed-for, better and brighter future.

But the variety of possible socio-technical innovations we are facing is increasingly challenging the limits of our social decision-making capacity. Addressing anticipated challenges in a democratic and consensual process seems impossible in the face of a multitude of possible solution paths. This languor is not caused solely by the diversity of available options, but by perceiving this diversity as an unstructured mass from which it is our responsibility to distill the "right" method. Simmel (1911) has described this as the tragedy of the individual being overwhelmed by the results of its

own creativity and production, the objective material culture surpassing our subjective capacities to meaningfully cope with the informational deluge. Today, the desires for identifying a "right" method, or a "right" answer seem to reflect dated approaches of the knowledge economy in which expertise and knowledge were the accepted bases for choosing the best possible of all solutions. However, expert knowledge in late modern societies does not provide solutions, only options and advice. A value-centered approach is often presented as a solution to escape this unclear condition and to regain control over the equilibrium of subjective and objective culture. In a context of increased technological opportunities to respond to societal challenges, men (some women too) and institutions shift the focus from the question *What are we able to do?* to the question *What do we want to do?*, establishing a creative, normative and moral reference not only to the present but to the future. And men and institutions are left with the question *How do we achieve what we want to do?* And here is where the trouble starts because there can be agreement on the aims, but not on the ways to achieve them.

The present thus turns into a battlefield where competing visions of moralized future worlds collide. Imaginaries of better futures occupy the present through struggles over defining paradigmatic knowledge, valid discourses, normative policies and best practices. Setting the pathways into the future early on and creating path dependencies is gaining increasing relevance for anyone whose agenda is formulated in terms of the future. Speaking about the future and winning argumentative advantage in debates about valid visions of probable and plausible futures becomes a performative and potentially decisive act in this struggle. You name it, you gain it. Scientific analyses and communications about possible and probable futures thus not only remain in the observational, evaluative, and descriptive mode, but also shape future discourses, set topics, define frameworks for alternative knowledge and practices, develop guiding ideas, and define the limits of what can be said and what is desirable. Vision spin-doctors may be interested in closing dominant discourses and cementing their validity while other actors seek to destroy traditional discourses, to open up discourses and to push alternative knowledge for alternative futures. But controversies themselves, influenced by the diversity of actors involved and the topics at stake, contain a transformative potential. In this respect, debates about socio-technical futures and practices of futurizing are a capacity to stabilize promising pathways and positions, the ability to envision is an asset (Birch 2017), the mastery of narratives and semantic control can be conceptualized as resources and the possession of visionary resources reflects temporal capital (following Bourdieu).

It is my argument here that the struggle for the future gains a distinctively new urgency in late modern times. It is no longer a struggle for legitimate imaginaries of different possible futures but instead a struggle for nothing less than the idea of the future itself. The future seen at existential threat is what galvanizes societies. It is no longer a question of "which future", but of "a future" for generations to come. This is the fully-fledged existential concern that drives present debates about climate change and pandemics. Seeing the future as an existential threat and valuing the future as an existential good yields several epistemological and practical challenges for present-day action, among them the questions of how to deal with uncertainty, with latency, with multi-optionality and how to enable setting suitable values for a future that cannot be envisioned because it may not be there (for me/my family/my community/my people), how to enable decision-making and how to make choices in the face of increasing risk and how to secure survival not only for my family/organisation/people but for humankind itself.

In this paper, I would like to contribute to this discussion an analysis of three aspects that I consider crucial for acquiring a deeper understanding of the social construction of the future. I will discuss the politics of the future as a consequence of futurizing in late modern times. I will try to expose the consequences of this shift to a proactive design of the future that may consequently limit the wide array of possible and plausible futures and does not properly address the need to secure the future as an existential good. And I will conclude with an outlook for the role of critical social sciences and humanities in the politics of the future.

Firstly, I will discuss how concepts of time and practices of engaging with the future have changed at the level of everyday life and how the future has become a sphere of worry and concern, but also of hope, creating a desire for a (good) future and the need to secure the future as an existential good. Secondly, I will analyse how the future as a space of possibilities is colonized, appropriated and politicized and turned into a discursive resource in late modern societies, where actors struggle over a major share of this resource, turning the present into a battle field of various future interests that has the deleterious effect of foreclosing alternatives. This is the politics of future. Thirdly, I will address the challenge for the humanities and social sciences: How can we scientists deal with the desire for the future, as well as the demand to govern developments into preferred futures and its effects? And how do we handle the demand for securing the future as an existential good?

2 The Quest for the Future and Societal Challenges

2.1 The Future as a Matter of rising Concern in late modern Times

The future has become a pressing concern both in public debates and in political programs as well as in the areas of corporate mission statements and discourses. The social quest for knowledge in the emerging, the near and the far future seems to be constantly rising, growing alongside a rising awareness of the uncertainties accompanying technological and social change. The future has therefore become institutionalized in academic, industrial and entrepreneurial environments. Titles for conferences and sessions are filled with this language of the future while it also abounds in the nominations of professorial chairs, or in the names of newly founded institutes, journals, societies, study programs, research projects, exhibitions, museums, or art projects.

One might ask if this increasing focus on temporality in the sense of a desire for the future is, in fact, anything new. After all, time and temporality are themes that have been discussed since the twentieth century, if not long before (Heidegger 1927; McTaggart 1908; Zimmerli/Sandbothe 2007). In addition to futurology (Flechtheim 1971) and future research in the German-speaking world (Steinmüller et al. 2000; more recent Popp 2008, 2012, 2016; Rust 2008; for an historical overview Hölscher 2016; Demandt 2015), there have been a multitude of multidisciplinary approaches that have dealt with the topic philosophically (Rescher 1998; Gransche 2015), in terms of anticipation (Grunwald 2012), historically (Radkau 2017; Kosellek 1979; Seefried 2015; Hölscher 2016; Demandt 2015; Geels 2000; Goodman 2008), anthropologically (McCray 2013; Gell 1992; Zerubavel 2000), sociologically (Nowotny 1992 and 1994; Adam 1990 and 1998; Sorokin/Merton 1937; Brown et al. 2000; Nassehi 2008; Beckert 2016; Mische 2009 and 2014) and from the point of view of science and technology (Dürr/Kreibich 2004; and ultimately visionary Kaku 2011; Kurzweil 1999).

In late modernity, historical notions of the future and temporality as a coherent evolutionary consequence of the present (Hölscher 1999 and 2016), have been replaced by a form of presentism in which the future has been collapsed into the present through normatively directed modes of occupation. The future thus emerges as a plural of possible futures and time as possible temporalities. (Rödl 2005 and 2012) This perspective on the future as a terrain of diversity can serve to criticize the exclusivity claims of certain time regimes and their future imaginaries. But it is the argument of this paper that with the shift in perspective from a *plurality* of possible futures to an impossible *single* future (wherein the future is imperilled as an existential threat) the critique of modern time regimes may not be wholly sufficient. Facing the impossibility of the future itself may empower alternative time regimes that tell different stories as a means of securing the future as an existential good, but a more coherent approach would be to protect the future's status as an unknowable, as something not yet realised, and unmask futurizing activities as epistemologically critical, though socially necessary activities in the light of the intrinsic quality of uncertainty that is embedded in the very idea of futurity.

However, this does not answer the question of why the future as a space of anxiety or hope, of impossibility or possibility, has gained such traction in recent debates. The desire for the future as an existential good expresses the yearning for a temporal continuum that seems more fragile than ever before. Returning to classical modernism, the supramodern approach to contingency no longer emphasizes fragility and ambivalence of modern life experience, but rather attempts to design it proactively. In this paper, I will call these attempts to relate to the future in order to secure

it as an existential good "futurizing". Emancipatory futurizing is then grounded in the creative act of self-directed appropriation of the world and, in a temporal sense, in writing one's own histories, presents and also futures. The temporal aspects of individual and group identities, like the search for roots and shared histories, also impact on prospective outlooks. If I am in control of the story of my past and present, I have the power to fend for the future that I desire for myself. Of course, this practice of futurizing is all the more attractive to emancipatory movements as it allows them to unmask the manipulation and control of other competing powerful future imaginaries. On the other hand, it also alludes to the power of using futurizing as a resource and the growing need to find new strategies to position oneself in space-time-settings, apart from the "no future" attitude, in order to proactively secure a livable future as a foundation for succeeding generations.

2.2 Thinking Ahead as Modern Practice

Futurizing and thinking ahead have evolved into a powerful cognitive tool in modern societies. It is now taken for granted that forecasting and planning ahead is a genuine anthropological phenomenon that is of immense practical importance to humankind. As Rescher (1998) put it "Human beings obviously have a vast stake in the future – so much that the option of abstaining from predictive ventures simply does not exists for us, seeing that prediction is our only cognitive pathway into the future." (Rescher 1998, 1) Even scholars who work out a theory of prediction and the principles of predictive action, assume that "envisioning the future is a necessity for us." (Rescher 1998, 3)

But, by looking further back into history, Kosellek (1979) has shown that new concepts of time and history emerged in the enlightenment. "Hinter allem, was bisher angeführt wurde: hinter der Singularisierung der Geschichte, hinter ihrer Verzeitlichung, hinter ihrer unentrinnbaren Übermacht und hinter ihrer Produzierbarkeit kündigte sich ein Erfahrungswandel an, der unsere Neuzeit durch herrscht. Die Historie verlor darüber ihren Zweck, unmittelbar auf das Leben einzuwirken…Nicht mehr aus der Vergangenheit, nur aus der selbst zu schaffenden Zukunft läßt sich Rat erhoffen." (Kosellek 1979, 62) History was conceptualized as open-ended, as a matter to come to terms with in order to give way for a new future: "Weil sich die Zukunft der modernen Geschichte ins Unbekannte öffnet, wird sie planbar, – und muss sie geplant werden. Und mit jedem neuen Plan wird eine neue Unerfahrbarkeit eingeführt." (Kosellek 1979, 61; Because the future of modern history opens up into the unknown, it can be planned – and must be planned. And with every new plan, a new inexperience is introduced.) In his work, Kosellek (1979) pointed out that with the experience of the present as specific modern time (*Neuzeit*), the challenges to conceptualize the future increased. Equally, Blumenberg (1966) argued that modernity creates a different concept of time (1966, Die Legitimität der Neuzeit). Hölscher (1999 and 2016), meanwhile, has described the transformation of the concept of the future over the centuries arguing that the human ability to imagine the future is not a general anthropological condition but a specific historical form of thinking. (Hölscher 2016; Assmann 2013)

One sociological approach to futurizing practices addresses the constitution of future imaginaries. Jasanoff/Kim (sociotechnical imaginaries 2009, 2013, 2015) and Taylor (2004) define imaginaries as common understandings that make possible common practices within a shared sense of legitimacy. Marcus (1995) has offered a compelling definition: "The imaginary fills in a cognitive gap and

tension that the widespread perceived inadequacy of working practices and concepts create within many institutions and professions today." (Marcus 1995, 4) Imaginaries thus appear when available language and concepts fail to represent the experiences of the present, "constantly trying to understand the present by borrowing from a cautiously imagined emergent future, filled with volatility, and uncertainty, but in which faith in practices of technoscience become even more complexly and interestingly constructed in new locations of doing science." (Marcus 1995, 4) Grunwald (2012) has also stressed the importance of "technology futures" in terms of societal change and innovation processes (Hausstein/Grunwald 2015). He suggested that subjecting the contemporary debates and discourses on possible futures to a hermeneutic analysis may provide insight into imaginations of the future on the specific cultural, economic and social contexts in which new developments should become innovations and on occurring processes of communicative and discursive production of futures. (Grunwald 2012, 84)

Here, the focus is primarily on the scientific construction of social futures as well as the construction of futures in industry, business, finance, politics and how it materializes (as imaginary, vision, expectation, guiding idea): For example, in the studies on the impact of innovation processes in the sociology of expectations (Borup et al. 2006; Konrad 2004) or research on guiding ideas (Dierkes et al. 1992), the power of narrative and fictional expectations (Beckert 2016), the shaping effects of visions on network formation, in the sense of the formation and stabilization of actor networks according to Actor-Network Theory (Selin 2006), the research on Promise-Requirement Cycle (Van Lente 1993) and above all the investigations on sociotechnical imaginaries (Jasanoff/Kim 2009).

But, as laid out above, there are other (un)imaginaries of the future that address concerns about the impossibility of the future, which attempt not to struggle over socio-technical approaches to eradicate uncertainty but to find ways of dealing with the existential threat to the future and to secure the future as a livable sphere. These doom-laden visions of collapse are by and large phenomena that need to be addressed differently than a conventional focus on prospective thinking tends to allow. It may be a task for social scientists to open up the perspective for the increasingly wider array of futurizing activities not only in the scientific and corporate world, but also in everyday life and to understand its function for our personal lives. Below, I will argue that the proliferation of futurizing encompasses legitimate practices as well as secret and hidden, largely latent practices of futurizing as a means to eradicate uncertainty and to enable decision making and choice as well as to grant purpose. These futurizing activities aim to shift the future from the realm of the impossible back into the sphere of possibilities.

2.3 Valid and Not so Valid Practices of Futurizing

There is a different, hidden practice of futurizing that remains something of a black box, filled with emotions of anxiety, fear, anger, resentment, exuberant hope and optimism. Science rarely speaks about this form of futurizing, or, if it does so, tends to disqualify it pejoratively as "esoteric" – consulting astrologers, fortune-tellers or life-coaches, reading tarot cards, viewing science fiction as technoscience, reading self-help bestseller books on positive thinking, to visualize and to trigger the laws of attraction, to develop an attitude of acceptance and emptiness of feelings toward the past, present and especially the future, mindfulness and self-love in order to achieve a happy, healthier now and future. Ultimately, the goal of these practices is to bridge the gap between an unsatisfying

here-and-now, and the glorious where-you-want-to-be-in-one-or-ten-years and to design a personal future where individual potentials are fulfilled. Gurus, coaches, bestseller authors and self-announced keynote speakers attract large audiences by lumping together a little bit of quantum physics and neuroscience in order to sell a mindset that promises control over individual personal futures. However, often, control turns out to be a mere illusion and what these tools and technologies provide is to become clearer of positions and options by deepening the ability to "read" into past and present constellations, assess their possible effects and to become clear of latent wishes, expectations and beliefs.

Figure 3: Secret practices of futurizing (AH)

Science is and always has been a social endeavour and it has been pointed out that the "free floating scientist" and the purely rational disinterestedness of science are not much more than a myth (Knorr-Cetina 1981 and 1999). Emotions do inevitably play a role in organizing research and collecting, interpreting data and assessing risks (Roeser 2006 and 2010; Pickersgill 2012). The unconscious drives decision-making (Ariely 2008; Custers/Aarts 2010 among many others). Investigating these emotional and latent aspects of future expectations have only recently received attention in the course of some of the conceptual turns in the last two decades or so. It is understandable why people involved in the sciences and with loyalties to a scientific community are rather suspicious of openly predicting the future as from a strictly scientific viewpoint claims that are concerned with prophesying the future are by their nature unfalsifiable. Still, behind such overtly rational scientific agendas linger latent presuppositions, expectations, convictions that do sometimes reveal imaginaries that concern themselves with predictions of things yet to come. However, these underpinnings and unquestioned understandings are largely unconscious or taken-for-granted. Still, they shape practices and provide legitimacy for action. Futurizing in sciences and economy and mundane futurizing activities are interconnected but they are researched differently and their level of legitimacy are often far apart. Valid (scientific predictive thinking) and not so valid (esoteric mind-hacking) futurizing practices can appear both in sciences, the corporate world and the lifeworld. It is the task of social sciences to drag into the light latent and irrational (though powerful) practices of futurizing and to understand their social function.

Concerns about the divergence of science into esoteric realms and the marginalization of certain scientific arguments in public discourse are nothing new. Kaiser and Mc Cray et al. (2016) have discerned similar phenomena in the 1970s where new ways of engaging with technology and new practices of doing science emerged in the context of American counterculture, which turned away from conventional Big Science and adhered to promises and insights from quantum mechanics, chaos theory, cybernetics, turning scientific practice into "groovy science". (Kaiser/McCray 2016) Experimentation drifted to small scale "appropriate technology", the use of methods was eclectic and guru figures, mysticism, spirituality and indigenous knowledge as well as shamanism

was interwoven with scientific practice in quantum mechanics, chaos theory and cybernetics, with the risk of being labelled irrational and unscientific: "These new alchemists, communal midwives, acid-spooked scientists, stoned tinkerers, and many of the other straight-up hippies and freaks who sought to invent and master new forms of technology and challenge existing scientific understandings are the characters in a history we are only just starting to understand." (Farber and Bailey in Kaiser/McCray 2016, 392) Many parallels can be found in current scientific endeavors that are deemed groovy, challenging the boundaries of legitimate scientific and technological innovation and questioning the range of normal imaginaries just as in the seventies when "they sought to make science and technology a human scaled, hands-on enterprise that touched, if not the soul – then a secular impulse that reached for the sublime possibilities of both transcendence and connection." (Farber and Bailey in Kaiser/McCray 2016, 393) Today, storytelling workshops on science fiction are valid tools in industry that are used to free up the minds of busy engineers lacking the guts, the time and the spirit to radically alter imaginative thinking. In science, engaging with different communities and incorporating lay knowledge (participatory science, public science) is becoming an accepted though controlled form of breaking out of constrictive disciplinary thinking or "thinking outside the box". What McCray described in the sixties and seventies is therefore present in various phenomena today: "Many participants pursued some version of groovy science as a kind of secularized, quasi-spiritual quest. The search for 'authenticity', 'self-actualization', and sustainable self-sufficiency drove experiments in everything from psychology to environmental management to medical care. (…) Many people sought to reconcile science, technology, and hipness, melding a certain form of hip consumerism with enthusiasm for science." (McCray 2016, 4f) These are imaginaries in the making. Imagining and designing alternative futures are at the very heart of such endeavours.

Besides science, the biggest contributor in the production of future imaginaries is the corporate world. The symbolic value of products creates interpretation communities in cultures of circulation (Lee/LiPuma 2014) in which the future is a great accelerator of today's circulation cultures in a global economy (Beck et al., 41). When investors consider markets as risky and insecure, they inevitably strive to implement certain investment strategies to reduce risk and uncertainty (Lee, LiPuma 2002 and 2014). The lack of coordination between these two principles (risk and uncertainty) leads to the paradoxical situation of not reducing risk but increasing and producing new risks. In his recent book "Imagined Futures", Beckert (2016) has pointed out that the implementation of two institutional mechanisms – competition (as the increased focus on future opportunities) and credit (as enabling the capacity to use future capital in the present) – has enforced future orientation and the rise of fictional expectations in modern capitalist systems. These expectations have brought about narratives as a decisive tool in handling uncertainty and risk for political and economic agenda setting as well as decision-making. According to Beckert, such narratives are used to persuade actors to subscribe to certain agendas and to create legitimacy, what he calls "promissory legitimacy" (Beckert 2019). Creating the future, before it materializes (or creating the future in the now so that it materializes according to our aims) is becoming a symptomatic approach of actors in modern societies that are characterized by acceleration, increasing epistemic uncertainty, and densification of innovation dynamics based on the fundamental(ist) values of growth, efficiency and progress.

2.4 Uncertainty as a Driver for Futurizing

In modern times, risk and uncertainty are the main causes as well as the drivers of predictive thinking. Becoming aware of risks generates the desire to control or even avoid these risks in order to "shape the future to meet our needs and achieve our ends". (Rescher 1998, 232) The desire to control the present as a means of avoiding future risk and uncertainty is therefore an important factor in forward thinking. Rescher defines control as "the capacity to intervene in the course of events so as to be able both to make something happen and to preclude it from happening, this result being produced in a way that is not only foreseen but intended or planned. Control thus calls for the possibility of causal participation (intervention) in the course of events (to make something happen or preclude it) with a power that can be exercised positively (to make happen) and negatively (to preclude from happening). Control is a matter of potential, of capability or capacity" (Rescher, 235). But futurizing does not produce certainty or reduce risk. On the contrary, Rescher concludes that the power to shape the course of events is small owing to a lack of information about causality which has the effect of causing greater levels of uncertainty. As Rescher puts it, "our impotence regarding the future is simply a bitter pill that we have to swallow". (Rescher 1998, 231)

Consequently, it is not only risk (and associated feelings of impotence), insufficient knowledge (lack of information) and the resulting uncertainty that futurizing tries to compensate. It is also a strategy to cope with incompetence, manage impotence and to regain power and control over the course of events in order to head back into the realm of possible futures. Strategies to cope with this impotence are inquiring into possibilities, buying insurance, hedging our bets and planning for all manner of contingencies. Activities of this kind cherish the illusion that control can be regained and uncertainty diminished. Thus, a proliferation of futurizing has a compensatory function and may indicate a discomfort with routine and tradition, a lack of orientation, insecurity in decision-making and choice as well as a lack of control over a future that is suspected to be threatening and threatened. Futurizing is therefore not the language of hope. It is a rationalized language of fear that allows us to hold up our collective heads and persevere in the face of imminent environmental and ecological collapse.

To give an historical example, I will refer to what McCray (2013) has said of the late sixties and seventies where it was the experience of limits and constraints, as well as anxieties that propelled visionary thinking: "But in the late 1960s, many Americans had started to loudly and sometimes violently question technology's ability to resolve society's problems. Fears of environmental catastrophe and nuclear war coupled with anxieties about resource depletion and overpopulation had strained their optimism to the breaking point." (McCray 2013, 5) Strategies to deal with this were to predict and to manage the future, using "techniques originally developed for Cold War military planning that made their way to the corporate world. The growing availability of computers and a belief that complex economic and social situations could be modeled aided their acceptance". (McCray 2013, 15)

This thinking was also reflected in the March 1972 publication, Limits to Growth, by the Club of Rome, with their conclusion about the inevitable collapse of earth systems and societies. Limits were understood not only as restrictions and constraints but as challenges to take and to explore realizing visions of space colonisation through developing prototypes and simulations as well as

developing communities and networks as new frontiers promised opportunities to transcend the physical limits of human beings. Later, this thinking was taken up by the transhumanist movement and their conviction that they could transcend our biological limitations. Here, "visioneering means developing a broad and comprehensive vision for how the future might be radically changed by technology, doing research and engineering to advance this vision, and promoting one's ideas to the public and policy makers in the hopes of generating attention and perhaps even realization." (McCray 2013, 13; also Nik Brown et al. 2000; Marita Sturken et al. 2004) Today, with computational tools in the center, "technologies are ultimately tools we use to consciously construct our future rather than simply accepting fate. Visions of the technological future have helped catalyze action and innovation. The choice between the future we want and the one we ultimately make is ours". (McCray 2013, 276)

In the light of the compensatory functions of futurizing (reducing risk and uncertainty, managing incompetence and impotence) and the low probabilities of achieving eradication of doubt and finality of choice, the hyper-determinacy of radical social movements is not so much directed at a certain future, but at the present and proves the failure of current lifestyles to secure a livable future. It is the indeterminacy of the future in combination with its increasing impossibility that makes it so hard to envision alternatives and that directs a determined will for change at the present but without alternatives of other possible worlds. Therefore, the repeated call for bringing the impossibility of the future back into the realm of the possible by inventing positive future imaginaries of alternative worlds is so hard to accomplish. Individual or collective attempts to relate to the future are far less successful than established corporate or political positions, as the latter attempt to prolong their status and power. Organisational futurizing is therefore more likely to be effective in decision making and exercising choice as corporate organisations invent themselves more and more paternalistically as institutional frames of orientation (in terms of habits, lifestyle, values) and provide purpose and reason for the individual otherwise lost in the thicket of commercialized lifestyle choices.

2.5 Organisational Futurizing in Times of Increasing Uncertainty

Growing uncertainty and risk as well as the threat to personal and collective autonomy and the capacity for controlling the pathways ahead are the reason for an accelerated urge to control, plan ahead, manage, hedge and insure, as well as envision and daydream. But, born of incompetence and impotence, these practices of futurizing, as means and competences, are necessarily compensatory. Based on common understandings of the future (in terms of progress or decline – future as determined, or as an imaginary realm of potentialities to be efficiently used or passed – future as open) they enable decision making in the context of perceived chaos and an overwhelming plurality of options. In organisations, where efficient decision making based on priorities and a clear sense of drive and purpose is crucial for success, the application of these strategies is vital for survival. Luhmann (2011) has described the organisational background of future orientation as a search for reasons that enable an organisation to take decisions, not only in the present but also in the future and to build up a structure that synchronises past and future. Reasons given for certain actions are based on perceptions of perplexity but allow to structure decision-making and to synchronise past and future; they are "in Zukunft ausgelagerte Verlegenheiten, die es erlauben Entscheidungsketten anzuhängen und darauf, auch wenn die Entscheidungen längst vergangen sind, wieder und wieder

Bezug zu nehmen. Sie sind strukturgebende Momente des Systemgedächtnisses, das es ermöglicht, Vergangenheit und Zukunft jeweils gegenwärtig zu synchronisieren." (Luhmann 2011, 165)

In order to analyse future imaginaries it is, therefore, important to understand the underlying principles, values, and emotions that structure decision making and to analyse their respective practices of framing and rationalization. It also allows for understanding strategies to gain trust, such as communicating prudence and convincing regarding organisational values. Forward guided decision making is characterized by a concept of the past as irreversible but at the same time not determining the future. Decisions substitute this lack of determination and attempt to determine an otherwise open future. According to Luhmann, decisions in organisations reverse the relationship between past as terminated and future as open: "Die Vergangenheit bleibt irreversible bestimmt und die Zukunft unbestimmt, aber die Entscheidung postuliert, dass sie durch die Vergangenheit nicht festgelegt ist und deshalb die Zukunft festlegen muss." (Luhmann 2011, 166) In terms of dealing with the past, organisations are required to tread a fine line between breaking away from history in order to enable change and maintaining historical continuity and to secure a sense of identity and purpose. Future-oriented decision-making, based on purpose that links past and future, plays a major role to fulfil this function. In terms of dealing with the future this means restricting the options relevant to decision making by defining purposes, aims or objectives as well as anticipating various risks and hazards. Liberating oneself from historical determination while prioritizing purpose and assessing risks is what Luhmann refers to when he writes "In die Vergangenheit muss also Zukunft, in die Zukunft Vergangenheit eingeführt werden." (Luhmann 2011, 166) Luhmann points out that risk awareness in the first place enables decision making, but that the down tuning of risk awareness is necessary in order to enable agency. (Luhmann 2011, 170)

Digitized environments increase the need for the future imaginaries even more because, whereas social systems use schemes from memory to deal with new situations, programming requires *ex ante* speculations about the future: "Psychische und soziale Systeme können dagegen rein aus dem Gedächtnis heraus lernen, indem sie Schemata abziehen und diese mit neuen Situationen konfrontieren. Sie können, anders gesagt, die Zukunft auf sich beruhen lassen. Sie arbeiten mit einer schematisierten Vergangenheit, während der Computer eine schematisierte Zukunft benötigt." (Luhmann 2011, 169) Nevertheless, while decision making may absorb uncertainty it also produces uncertainty in the form of new options and possibilities. "Somit erzeugt eine Entscheidung, indem sie das Resultat ihrer Vergangenheit als Alternative fixiert, eine unsichere Zukunft. Sie erzeugt, indem sie eine Mehrheit von Möglichkeiten als gleichzeitig gegeben präsentiert, Nichtwissen in der Frage, wie es weitergehen wird." (Luhmann 2011, 167) Finally, Luhmann concludes that more information does not provide more certainty about the future ("die Zukunft besser in Griff bekommen"), but more certainty about choices.

It is the aim of this paper to direct attention from the certainty about and control of the future (and adequate strategies to manage uncertainty and govern decision making) to a focus on certainty about choices and their underlying principles and patterns, the unconscious imaginaries and hidden agendas, latent desires and fuzzy aims. It is the certainty about choices that is missing in current societal dilemmas on how to secure a livable future. There may well be enough information on available options and possibilities, but if there are choices being made they are stuck in conventional routines (that may well lead into collapse) and do not match the aims to which they aspire. It is

the incompetence to disrupt the perpetuation of pathways that is puzzling. Futurizing attempts to compensate this indeterminacy of choice and paralysis in decision making – but in a world of competing visions and imaginaries the dilemma of choice is never fully resolved. It is this challenge of bridging the gap between imaginaries and organisational, lifestyle choices that pose the challenge of today's transitions into a livable future.

This is where social science and especially the humanities can provide a major contribution to decision-making processes. Even though extended reflexivity may delay fast decision making, it will moralize agency, insert prudence and provide focus and purpose as well as clarity about choices in the long run. Philosophical analysis provides insight into the structure of reasoning and encourages logic in argumentation. Historical analyses tell us about the past schemes of expectation and patterns of decision-making processes that constitute what is considered normal and feasible. Cultural analyses help us understand every-day practices of decision making directed at the future. And social analysis situates decision making in the broader perspective of social systems and societal structures.

2.6 Knowing and Breaking Routines – Futurizing as Reaching the Next Level or Perpetuating the Status quo?

Innovation needs reflexivity. Activities that are directed at emerging socio-technical constellations are characterized by a high level of ambiguity in the present and high expectations but also accompanied by uncertainties over possible impacts in the future. The focus on the future is pertinent here, but it is also equally calls for assessments of the past. A new and disruptive innovation is never so new and disruptive as to avoid being embedded in present social order, not so unheard of that it escapes any means of categorization. As Alfred Nordmann (2014) points out, an anticipation of a world that is entirely different from ours is difficult if not impossible because our knowledge and judgments are informed by our experience. Hence, if something emerging (body, politics, technology) is already there and perceived as new, our anticipation of its future impact most likely relates to our experiences and knowledge as it meets our established expectations of difference, modernity and change. The humanities can help us understand this structure of expectations and reasoning of innovation processes.
Futurizing may direct forward thinking along new pathways as was proposed by Meadows (Limits to Growth) already in 1972. In the 30 year up-date of the "Limits to Growth", its authors explain: "Visioning means imagining, at first generally and then with increasing specificity, what you really want… not what someone has taught you to want, and not what you have learned to be willing to settle for." They propose: "Vision, when widely shared and firmly kept in sight, does bring into being new systems". (Meadows et al. 2004, 272)

It is the aspiration of visioning as futurizing practice to break free from the chains of history and dependency (as discussed with Luhmann above). However, as laid out, every forward guiding activity rests on assumptions and preconceptions that are relevant and valid today. This means also that any scenarios, predictions, forecasts, visions that are turned into reflexive practices are attempts to seek release from the determinacy of history so that they can tell us more about the past and the present then about the future. Visions of socio-technical futures are entangled in diverse temporal orders of the present. The extrapolation of a society from its present and past experiences to the future

operates in various modes, such as expectation (eutopia), exploration and experimentation (heterotopia), hope and desire (utopia), as well as fear (dystopia). If expectations are a causal link between experience and anticipated consequences under certain assumptions, then we are dealing with a multitude of parameters that produce the most diverse constellations. Ideas of the future are liminal phenomena somewhere between fiction and reality, they are neither pure inventions nor historical realities, as Hölscher has described (2016). Ideas about the future also have an impact even if they are not realized in reality. This is what Hölscher has described as the mental condition that creates realities as possible future events (2016, referring to the term 'event' as used by Bertrand Jouvenel "futuribles").

If ideas of the future are charged with a shared meaning, then these ideas that materialize as visions, models, prototypes and scenarios, have an effect: they guide action and provide orientation for actors in the innovation and transformation process (Grunwald 2012; Lösch et al. 2016). They are regulative ideas of the world we live in and the world that we will be living in in the future. Futures, their narration and communication, play a crucial role in decision-making processes in the present and are generated, distributed, and instrumentalized by specific actors who influence innovation and transformation processes. Future projections influence markets, decisions, networks and the allocation of investments and anticipatory legal regulations. Of course, some futures are more effective and powerful than others (without this being explained by a higher "rationality" of futures) and have a stronger power of orientation than others.

But as said above, futurizing as a compensatory practice does not reduce uncertainty in the long run. It produces uncertainty and confusion and is necessarily directed at a sphere, the future, that is characterized by not knowing. Risk Assessment and Scenario Analyses are faced with the problem of appropriately tackling complex constellations of possible and plausible futures, with the challenge of dealing with an area where we lack knowledge and with high probability of encountering reasoning fallacies. (Betz 2016) Therefore, it is difficult to get an empirical understanding of the future if we focus on it as phenomenon of some degree of certainty. The space of the future is too vague. However, although uncertainty is the defining feature of the future it does not follow that it is not a matter of concern. Quite the contrary.

Because, in a thoroughly positive sense, when turned upside down, it is also possible to conceive of the future as uniquely open and diverse. It is the place of utopia, the place where it is possible to dream of a different life and the place of change and alterity. Visions and future imaginaries as products of imagining a different world – as utopia, not scenarios of the possible and plausible – could liberate the present and trigger change and transformation in otherwise gridlocked rationalities. In a world where futurizing abounds, the degree of uncertainty as well as the chances for transformation increase.

Besides visioning, there are certain tools to deal with uncertainty (Rescher 1998), such as planning ahead, prospecting, insuring, hedging and simulating. As pointed out above, the value of these tools does not exist in their capacity to eradicate uncertainty, but to cope with incompetence, impotence and undecidedness and to enable decision making. Scenario planning in particular is a tool that should enable better decision making by organizing information and charting possible developmental paths of varying probabilities. (Ogilvy 2002) "We try to help them think ahead and do what's right. (…) we now have reason to know better than to go down paths that lead to disaster.

Unlike other animals, we humans can not only imagine better futures, but we have memories of bitter pasts that we can pass on to our children. We have histories inscribed in more than human memory. We have libraries. We have computers. We have databases. We have analytic tools that allow us to take what we have learned and turn it in to the task of improving the future." (Ogilvy, 2)

Scenarios are not a scientific method in a conventional sense, but they are nevertheless tools that can be used to enhance creativity and moderate discussions, improve developmental capacities and thus fulfill a didactic function in strategic planning processes. (Popp 2012, 11) Scenarios do not generate new forms of knowledge but are tools and procedure for strategic knowledge management (Popp, 11) insofar as they enable informed decision making by strategically using a larger amount of information, structuring it and visualizing it. (Steinmüller in Popp 2012) Visions or fictions of a desired future can facilitate change processes that are based on experiences of unhappiness and thereby create a desire for change. Scenarios provide more than just insight into probabilities or possibilities, but they incentivize the quest for options and pathway into preparatory and formative action.

If scenario planning challenges old assumptions on which decisions are based, then vision assessment challenges the set of assumption on which desired futures and their paradigmatic framing are based, on the question what makes a better future and the ways to achieve it. What are the foundations of paradigmatic shifts? What are we demystifying? And what are the new myths that we construct?

2.7 Politicizing Futures in Times of Indecision and Confusion

Assessments and scenarios of new and emerging socio-technical constellations do not only refer to already existing technologies. Because they address the emergence of something new as well as possible and probable future impacts, there are also latent and manifest socio-technical visions. They contain value statements, express hopes, fears and desires as well as needs. They respond to societal imperatives that arise from crises and turbulences as they try to fix problems and meet the challenges. They relate to a past represented in collective memories and the politics of diverse interest groups in the present. Those assessments and scenarios constitute, govern and change the social settings and allow for the emergence of new constellations. They also open pathways and close down alternatives. Thus, they also have real effects on the material world and guide decision-making. Visions of socio-technical futures are therefore associated with politics – namely, the politics of the future.

As the Vision Assessment Project at ITAS/KIT has established, forward guiding practices are socio-epistemic practices that produce visions and visionary practices. (Grin/Grunwald 2000; Grunwald 2004; Lösch et al. 2016). Vision Assessment examines the functions of futures, the conditions for an increasing grip on the future and its effects on social processes. Fundamental to Vision Assessment is the specification of the future as a current discourse that structures actions based on expectations. Vision Assessment therefore does not ask about the feasibility or desirability of ideas about the future, but examines the actions that are triggered by those visions, the actor-specific production of meaning, knowledge and networks and the effects of these socio-epistemic practices. Different practical functions can be distinguished, which are crucial for understanding the effects of visions as socio-epistemic practices. Visions produce interfaces between the present and the future,

they act as a communicative medium, they initiate and coordinate actions, and they establish normative behaviours. (see Lösch 2014; Lösch/Schneider 2016)

As discussed above, perceptions of uncertainty caused by an unforeseeable future, elicit compensatory practices of reducing uncertainty, such as planning ahead, forecasting, scenario planning, insuring and visioning. Paradoxically, practices of reducing uncertainty cannot eradicate uncertainty. They can even increase uncertainty when several actors compete around convincing common understandings about the future, attempt to govern the respective practices and fight for their own share of legitimacy. A plurality of imaginaries and visions of the future increase the number of choices and options exponentially. Futurizing in complex constellations has the effect of increasing the level of indecision and confusion in late modern societies. Calls to "unite behind the scientists" assume that science speaks with one voice and may downsize the bewildering number of choices and options. But as science does not speak with one voice, decision making in the present that is directed at managing the future, cannot rely on premises like correct information, knowledge, or a principle of a single truth. Proponents of possible futures face the dilemma of contradictory tendencies of either closing down and of opening up the realm of alternatives. This poses the question of what ought to be the guiding principle in any effort to constrain options that might enable more effective decision making. On this point Rescher (1998) has highlighted the importance of prudence in futurizing activities: "We can certainly manage our affairs prudently so as to render the future somewhat less precarious. But life in this world being what it is, our effectiveness in this direction is bound to be modest." (Rescher, 238) Prudence in managing uncertainty and risk is therefore a matter of responsible action, because it enables thoughtful choice, decision and action and therefore maintains the status of an autonomous agent in a system, even though complete control (effective management) is unattainable.

Figure 4: Catchphrasing Futures by companies … "Let's design the future before it is here." (AH)

However, as prudence in forward guiding practices cannot insist on working according to the principle of truth or according to the principle of a charity which maximizes trust in truth statements and the rationality of the other (Davidson 1984), it will work either according to the principle of power (maximizing the own benefit regarding positions and resources) or the principle of responsibility (maximizing the common good of a community or society). This is not the place here to refer to the vast literature on responsibility (i.e. Jonas 1979; Lévinas 1992; Heidbrink 2003) and Responsible Research and Innovation (see Von Schomberg 2011 and 2013). Nevertheless, prudence has to be linked to moral responsibility, reflecting on and explaining intentions, values and norms and to be liable for possible consequences and systemic effects of this action. Speaking practically, with every forward guiding activity under conditions of uncer-

tainty we have to reflect: What are the intentions, underlying values and norms and assessment of normalities upon which our decisions, choices and practices are based? What are the possible effects of these practices? To what do we aspire in our efforts to shape futures? And what is the contribution of our actions to save the future as an existential common good and to bring it back into the realm of the possible?

Figure 5: ... and by public institutions. „Let's go to our future" (AH)

2.8 Moralizing Futures

A politics of the future and a capacity for designing future alternatives contrasts with the presentism of a politics of inevitability that restrains potential action and alternative thinking. (cf. Snyder 2018: Road to Unfreedom) Presentism refutes alternatives and therefore denies a potential for change. From the logic of presentism, current dynamics and trends, such as technological developments in digitalization, automation, or informatization, constitute unquestionable pathways into a future without alternatives. In this ahistoric understanding of temporality the eternal continuation of the present and a politics of inevitability clearly limit the individual's choice and impact on the course of things. According to this view technology is enlightening and capitalism is without alternatives. As Snyder (2018) has pointed out, the politics of inevitability merges into a politics of eternity which entails an increasing emphasis on rejecting pluralism and ambiguity and fixed imaginations of constellations involving a binary of perpetrator and victim. Here, possible futures are impoverished. For the victim, there is no future at all and the question of virtue in politics may not be relevant. A politics of the future, on the contrary, would thrive on alternatives.

It would call for a liberation of the mind by encouraging a diversity of narratives and discourses that reflect a diverse range of wishes and aspirations. This desire for futurist action is put up against the lack of future alternatives. However, a lack of the future and a heightened desire to construct the future do not necessarily oppose each other. They are two sides of the same coin. A heightened desire to futurize according to one's own ambitions and needs easily leads to politicized claims for change that define future pathways and thereby restrain the future. This proactive mode is caught up in both the present and the past as the latter restorative mode. The similarity lies in dealing with much the same aim – even though one aims for change, the other aims for stability. For both, the aim is clearly set. It is either a maintenance of the status quo or the change towards a different possible world. The politics of different action or action as usual both therefore work with a seemingly clear horizon in sight. In such a context, futurizing is increasingly moralized.

The new guiding principle of responsibility erects a new discursive regime according to which decency in futurizing may be measured. Is it responsible to carefully reflect on possible outcomes of present action and imagination and to resist sudden changes? Or is it more responsible to take immediate action in order to break the vicious circle of harmful and repetitive action? Without going into too much detail here, it seems that the virtue of responsibility is pressing future desig-

ners to become clearer about their aims, wishes and actions and to reflect more on their possible impact. This may, however, lead to paralysis in the face of potentially harmful action. The regime of responsibility is also a regime of virtue that sets itself up against irresponsible and immoral ways of futurizing. Responsibility becomes virtuous by acknowledging history and seeing possibilities in the past as alternatives for the future. It insists on the production of factuality and affirms the human factor in futurizing. Responsibility then touches upon action as well as on framing actions through narratives and visions. Responsibility as a virtue is the binding force between visions and actions and since virtues by definition are not bound to the present but stretch into the future, designers of the future who subscribe to responsibility must think about the possible outcomes of their actions.

2.9 The Climate Crisis as a Threat to the Future and to Democracy

The climate crisis as political crisis may illustrate the perils of restrictive convictions and this tendency to close down alternatives in an effort to safeguard the future.
The scientific diagnosis of ongoing and impending climate change calls upon politics to take action for a "Great Transformation". Not tomorrow, but now, since time is running out, the climate experts say. Still, scientific statements are far from alarmist. The German Climate Consortium published a statement on June 12, 2017, declaring that anthropogenic climate change is an evidence-based fact and that a cut in emissions is necessary in order to slow down the climate change impact. (Deutsches Klimakonsortium, Stellungnahme 12.6.2017) Only recently, The "How" of political implementation has been a topic of societal debate. Schellnhuber, who is also Director of the Scientific Advisory Council on Global Change, an advisory body to the German Federal Government, provided in his laconic reaction one hint to the emerging problem we are likely going to face very soon: looking at the climate crisis and the inability of present-day politics to deal with it, reveals the ambivalence of present-day *Realpolitik* which cannot just follow principles but must negotiate various interests. However, Schellnhuber is sure that Chancellor of Germany, Angela Merkel, understood the problem: "She knows that we run the climate into the ground". (Schellnhuber 2017) This obvious inability of *Realpolitik* to solve the world's most pressing crisis at the moment is – to say the least – frustrating and it is this frustration that encourages many young people to take to the streets.

Global warming and climate change are ethical issues. (Gardiner 2011 and 2016; 2006 Collaborative Program; Buenos Aires Declaration on the Ethical Dimensions of Climate Change 2004; Roser/Seidel 2015; Gesang 2011) It is not because we require a normative way for dealing with this crisis. By observing the public discourse, it is rather because the failure to act causes deep concern. Allowing global warming to continue is considered immoral and indecent (AtKisson, earthcharter.org) and a failure to respond appropriately is deemed irresponsible. Indeed, denial may be considered a crime (Lavik 2016). It has been argued that climate change is

Figure 6: Accidentally (AH)

unjust as it jeopardizes the essential human right to (good) life, health, food and water (human rights approach to climate change, i.e. Caney 2012). Ignorance doesn't receive quite the same patience as it once did a few decades ago. The climate crisis calls us to action now.

Figure 7: Enjoy life as long as you can? (AH)

Nevertheless, there is debate to be had over the accurate interpretation of climate-change data and there is even more debate to be had on the question of effective and adequate measures that ought to be taken collectively and globally. Desperation about our inability to respond adequately to the crisis at times results in some sarcastic attitudes of free-floating intellectuals like James Lovelock, originator of the Gaia Theory, who, at 88 years, gave this valuable advice to a Guardian journalist in 2008: "Enjoy life while you can. Because if you're lucky it's going to be twenty years before it hits the fan." (Lovelock 2008, Guardian). To him, catastrophe is unstoppable and a green lifestyle is nothing other than a futile gesture. In this way, James Lovelock shows the transition that has taken place in political attitudes from hopeful activism to radical despair. The originator of the Gaia Theory in 1988 has become a sarcastic proponent of hedonism 20 years later, in 2008. Two years later, in 2010, he gave an interview in which he stated that humanity is not clever enough to handle such a complex situation as climate change and democracy is the main obstruction to a meaningful change. "Even the best democracies agree that when a major war approaches, democracy must be put on hold for the time being. I have the feeling that climate change may be an issue as severe as a war. It may be necessary to put democracy on hold for a while." (James Lovelock, Interview Guardian, 29 March 2010)

Recently, German debates over the appropriate speed of, and necessary political means for, social change have also questioned the capacity of democracy to implement a great transformation. Critics say that when time is of the essence democracy is simply too slow. They see a widening gap between scientific knowledge on climate change and appropriate political action. Consensus by majority is deemed ineffective. German sociologist H. Willke says that according to these criteria western democracy has failed. He openly advocated the "Chinese model", state-directed modern technocracy consulted by experts. (Helmut Willke 2014 and 2015) Willke analyses two main deficiencies of western democracies: their election periods are simply too short to deal with long-term issues; and their voters too uninformed. Faced with issues of great complexity, politicians will therefore always choose the most opportunistic policy. The problem with western democracies is therefore a tendency to think in the short-term cycles of a given election period and a dependence on uninformed voters that make it almost impossible to design long-term strategies and to find adequate solutions for the unique challenges of climate change. Uncertainty and dissent also threaten democratic decision-making processes as politicians act in order to retain power and obtain more votes. Therefore, according to sceptics of present democracy, specialized expert committees should be granted agency through the delegation of responsibilities from politics to such committees. Their concept of democracy is oriented toward the model of democracy as problem-solving by smart

governance, making efficiency and competency the main criteria of success, especially in times of the looming climate change crisis. (Streeck 2015, FAZ)

Meanwhile, the defenders of democracy insist on the democratic procedures of consensus making that require time to analyse complex constellations, to negotiate between as many stakeholders as possible, to increase knowledge, to change life styles and consumer behavior in the long run and to find regulations that allow for more, not less, participation. They argue that reliance on the "Chinese model" will only increase the problems of climate change. What is needed is not a top-down centralist solution nor technological or organizational fixes, but inclusive, participatory, democratic approaches. Proponents of the democracy model insist on justice and redistribution of resources and control of power. Nico Stehr, in his 2015 article in Nature, argued that democratic societies are more flexible and adaptive, and also more creative. Complex problems can never be solved by a science-based political master plan, no matter how complete the scientific analysis and how stern the political implementation because interdependency causes unforeseen shifts. Here, the crucial point is the different understanding of democracy. It is not viewed as a tool for problem solving, but as a tool for negotiating diversity. According to this concept, decision making is not a matter of facts but of values, and of finding compromise between competing values. If scientists are impatient with the inability of politicians to take appropriate action they should not therefore blame democracy itself but a lack of democracy. A profound democratic inclusion of citizens would solve problems of climate change quicker than a science-technocratic governance. Finally, imposing a master plan contradicts societal trends of citizen science and increasing participation that take into account the economic and social conditions that determine the success or failure of scientific and technological fixes and social planning/engineering. Scientific knowledge itself does not perform or convince *per se*. Scientific knowledge is in itself open for dispute and its validity a matter of social negotiation. (Stehr 2015a, FAZ, 1.12.2015) According to Stehr, there is no alternative to democratic decision-making-processes because, muddling through, flexibility and adaptability are virtues and the best methods to hand when it comes to complex problem solving.

Both ideological camps, the defenders and detractors of democracy, claim to have morality and decency on their sides. Proponents of democratic decency hold that authoritarian problem solving by "Chinese means" only increases the problems, as we do not need instant technological or organizational fixes, but a long-term and continuing practice of adaptation and social change that is radically inclusive and participatory. The latter seek to legitimize non-democratic forms of action on the principle of responsibility in times of imminent catastrophe, a threat situation in which democratic procedures may be suspended or neglected as required. This is what I would like to call the decency-dilemma of current, crisis-induced politics influenced by the exceptional circumstances of climate change as immediate concern and existential threat to the future. The dilemma can be understood not by who is most concerned by the climate crisis but by what form of political action is deemed appropriate to secure the future as an existential good. Climate change, thus understood, turns out to be a test for democracy.

Climate change challenges the foundational principles of western democracies where the individual's right to seek happiness in a land of plenty may give way to moralized and frugal patterns of consumption. Measures for climate protection may therefore potentially restrict individual liberty because democracy may have to be put on hold in order to deal with momentary threats. It

seems that the care for the future under conditions of crisis has the power to overthrow basic principles of a society and models of political decision-making. It seems that such drastic measures are necessary in order to terminate the "tyranny of the present" that democracy brings about in order to secure the future.

In this sense, the idea of the future as an existential threat legitimizes the political takeover by experts and technocrats. According to this view, clear visions must guide the transition from the present to the future in terms of setting developmental pathways that lead to the best future according to all available knowledge. Expert knowledge should be the basis on which to build such pathways, and technocrats should guarantee the immediate political implementation of scientific expertise. In order to deal with climate change, scientists and experts should be granted a political role in order not just to advise but to decide and act because democratic bottom-up approaches, allegedly, are no longer seen as workable or functional. But centralized science-based and expert-driven planning is a vision that overestimates the plausibility and probability of future scenarios. How precise is the knowledge that we currently have, how accurate are its predictions and how appropriate its projections? Should we let a doomsday vision of our future disregard the foundational principles of our society in order to install technological solutions (such as emission cuts) to a fundamentally socio-political problem? If expertocracy silences controversy over wished-for futures, the dilemma is not resolved. It is simply brought "up" a level, whereupon it is reconfigured as a dilemma for experts alone. (Nennen/Garbe 1996) It can also be questioned whether political power given to experts would necessarily allow for better and faster decisions. We can question the expertocracy model on a number of points: For almost any suggested pathway, you may be able to find the convincing scientific argumentation. Who determines which expert has legitimacy and who ultimately gets to make the important decisions?

This dilemma becomes clearer when we consider the agenda of the science-policy trend for responsible innovation in light of this argument: Who takes responsibility in what interest, and who is granted a responsible role by whom?

2.10 Social Scientists as Experts in Futurizing

As David Victor, the only political scientists involved in the IPCC working group III on mitigation and policy, pointed out in a 2015 article in Nature: "The big problem with the IPCC's output is not the widely levelled charge that is has become too policy prescriptive or is captivated by special interests. Its main affliction is pabulum – a surfeit of bland statements that have no practical value for policy." (Victor 2015) The biggest problem, according to Victor, is not only that we do not really understand debates and controversy, but that we also cannot really deal with it, that during the governmental approval process of the IPCC reports, disagreement is silenced in order to attain consensus on the most basic data. Uncertainties are glossed over, even though it is the uncertainties that cause most controversy. Social sciences "should articulate why different intellectual perspectives and contexts lead to different conclusions. Leading researchers in each area can map out disagreement points and their relevance. Climate scientists and policy-makers should talk more about how disputes are rooted in different values and assumptions … Such disputes help to explain why there are so many disagreements in climate policy, even in areas in which the facts seem clear." (Victor, Nature, 28) The social sciences are not a means for establishing consensus but explaining controversy and dis-

agreement on questions of the impact of different policies and their reassessment. The social sciences and humanities should strengthen the democratic debate precisely by introducing those aspects of the debate that are left out of models of expertocracy. They must find answers to the social and cultural dynamics that inform the transformation of lifestyles, the rise of green morals, or the establishment of global standards of decency. Social science probably could also start to ask why it is so difficult to translate knowledge into behavior and individual lifestyle and it should also dare to reflect on activism and symbolic action.

From a radical democratic position, responsibility should concern everybody. This could mean that a greater degree of inclusion and participation in decision-making processes also translates into more responsible behavior. But that all depends on whether there is a common vision of the future. And herein lies the problem. It may very well be that the inability to agree on a collective ethics and to put it into practice ends up bringing proponents to the stage who argue for more action at the individual level. (Foer 2019) The idea of moral decency and conduct on the inter-personal level should receive new attention, turning integrity, respect, fairness into virtues that counter not only the crisis but the system that perpetuates the same crisis. A common ethics would have to establish, of course, what is decent, moral and responsible behavior on the collective level. How do we decide on what is fair? How do we care for the interests and rights of the developing world and for future generations? And, finally, how do we break it down to the individual level, to make global warming tangible, visible and immediate for everybody and to make green virtues a part of our lifestyles?

It is the challenge of the present to find a suitable strategy for reaching down to the personal level of lifestyle in order to initiate a change in consumer behaviour and individual convictions and practices. Should we shame people into a different life style? Should we stigmatize a certain life style? Who has the power to invoke shame? Can we develop immunity to shame if we hang out with like-minded people? Do we care about the stigmatization of people in this way? Does moralist and moralizing behavior actually fuel the growing aversion against eco-friendly behaviour and green virtues, against decent speech and decent behaviour? How do we raise awareness of the fact that our life style causes harm to the environment and to future generations, if doing harm is not

Figure 8: Decent mobility – or just funny? (AH)

Figure 9: Decent nutrition – or just honest? (AH)

our intention, if a causal relation between our personal action and harm is not identifiable and this potential harm lies in a future not determined? (Jamieson 2014). Jamieson (2014) argues that common sense morality does not hold us morally responsible for our behaviour. He therefore pleads for an extension of common principles in order to show not only causality between the present human life style and climate change or to identify barriers of change, but to consider and intervene for the aim of changing present morality and encouraging individual moral responsibility. (Jamieson 2014; Gardiner 2012)

Figure 10: Decent consumption? "Save the planet, start now!", "Best prize: 3,99 EUR" (AH)

Bringing climate morals to the individual level means developing a common sense view on climate friendly life styles that goes beyond symbolic action in order to transform environmentally friendly conduct into a new orthodoxy. It is then not decent and morally reprehensible to say that climate has always been in a state of flux, to question climate change at all and the role of the human impact. It is justified to state that renewable energy is the future and that fossils fuels belong to the benighted past. It is not morally reprehensible to call those who stick to diesel, coal and oil "*derniers*", "*Vorgestrige*" or "Outdated" and denying anthropogenic climate change is not only indecent but a crime.

2.11 A Plurality of Competing Futures

Expectations regarding the future build on current innovations or socio-technical trends and developments that are still at a very early stage and whose innovative and transformative potentials for the economy and society will materialize much later, if at all. Some of the expectations go far beyond the guiding role of a mission statement or the prognostic content of the scenarios by making statements about a distant future, assigning importance to non-existent technologies in scientific, political and social debates. Even if expectation is oriented towards the future, analyses and assessments of the future must necessarily be based on past and present experiences. In terms of grammatical tense, they do not form a "future present" (Luhmann 1992), or "past future" (1979), but a "present future". (Luhmann 1992, for discourse-analytical distinction see Lösch 2014, 50ff) The future, at least as narrative, expectation, or vision, is happening now. The production of these expectations and their circulation takes place in different areas of society – in science, economics, politics, media and culture – and they influence social transformation processes in different forms (Adam/Groves 2007; Brown et al. 2000; Van Lente 1993).

Visions of sociotechnical futures seek to provide answers and solutions to problems posed by present societal challenges, or crises. It is the assumption that such challenges will become ever more pressing in the future which legitimates prognostic visions and makes their immediate impact imperative. However, when visions turn into practice, various stakeholders and political actors are involved with unequal access to resources, asymmetrical status positions and uneven discursive power. Because there are many visions and often contradictory ideas about how to realize them, futurizing

is controversial. It causes debate, conflict and controversy among stakeholders. Different means and practices are at hand for getting on top of the social production of futures, i.e. for setting the pathways for future development already at a very early stage, like the formation of paradigmatic and canonic bodies of "valid" knowledge, dominance over (media) discourses, or influence on policies.

Debates about possible and probable futures thus do not remain in the observational, evaluative, and descriptive mode, but shape future developments by setting dominant themes and mission statements, by closing them to influences of alternative knowledge and practices, and by defining validity. Against such domineering practices of futurizing stand the practices of alternatives that aim at opening discourses, considering other viewpoints and narratives as alternative knowledge and creating alternative spaces, times and practices. The more attention and discourse power advocates of alternatives gain, the greater their transformative influence. Different future designs and visions can therefore coexist, ignore each other or compete. They clash when non-congruent visions seek to occupy the same attention space in the present and when opposing practices of futurizing confront each other. In these power arenas of competing future designs, the politics of the future unfold.

Hölscher (2016) points out that the plurality of futures is a distinct feature of modern times, replacing historical notions of teleological pathways into one single future. Kosellek's (1979) linguistic and semantic analysis of exacerbating struggles over defining political and social positions since the French revolution points to exactly this distinct structural change: The description of political and social positions was no longer limited to their present conditions but pointed increasingly towards possible future conditions: "Zunehmend wurden Zukunftsbegriffe geprägt, erst künftig zu erringende Positionen mußten sprachlich vorformuliert werden, um überhaupt bezogen oder errungen werden zu können. Der Erfahrungsgehalt vieler Begriffe wurde dadurch geringer, der darin enthaltene Anspruch auf Verwirklichung proportional dazu größer." (Kosellek 1979 and 2017, 113)

McCrays historical analysis confirms the spectacular historical opening of the future as a contested sphere: "The future offered a blank space on time's map, a temporal vacuum in which to project one's hopes and fears. Creating visions of the future and the technologies that might help shape it is a political act as well as an exercise of imagination. But the future is not a neutral space. Inevitable disagreements as to what the future will be like and how it might be realized make the future a contested arena where diverse interests meet, debate, argue and compromise." (McCray 2013, 16) The question is how social science and humanities research can investigate arenas of politicized futures without making (un)willing contributions to one dominant narrative. Studies on sociotechnical futures and their respective practices (such as visions, imaginaries and expectations) often assume that innovations and sociotechnical changes are influenced by one stabilized, dominant and successful vision of a future. This is often a strategy that reconstructive studies use with hindsight in order to tell a consistent, linear story line about the roles of past futuristic visions and imaginaries, showing how a variety of actor expectations have converged in commonly shaped visions or imaginaries, and how they have correlated with the specific trends and results of such processes. Such research, then, focuses on dominant visions whose accumulation of power has become historically evident by having gone through a process of stabilization in settings of diverse interests and network of different actors. (See here the work on sociology of expectation, Borup et al. 2006; as well as Konrad 2010; guiding visions, Dierkes et al. 1992; Actor-Network-theory Models and stabiliza-

tion of actor networks or promise requirement cycles, van Lente 1993; as well as stabilized socio-technical imaginaries, Jasanoff/Kim 2013.)

This focus on dominant narratives and stabilized visions may obstruct researchers' understanding of the field of multiple visions and channel scientific interest into already powerful narratives. It likely results in a lack of knowledge of emerging alternative topics and debates and limits understanding of complexity and competition in the politicized field of futurizing. Historical studies, like McCray's (2013), describe the emerging networks of visionary entrepreneurs, arguing that by constructing and claiming the future in writing these networks rejected other possible futures (McCray 2013, 17). Neglect of alternatives may even contribute to enforcing a scientific tunnel view which adds to the discursive resources of already dominant visions. Besides the obvious restrictions on scientific perspectives and a lack of empowerment for seeking alternatives, the focus on the hegemonic power of dominant visions underestimates the productive role of a diversity of concurring visions and of their productive interplay, that is constitutive for the formation of each vision as part of a larger constellation of visions of socio-technological futures. Instead, we need to understand the emergence of dominant futures and the related processes of their construction and re-construction in different settings, by diverse actors. Clashes of competing futures in this sense are constitutive of successful narratives, but competing futures interact with each other, resulting in processes of assembling, appropriating, hybridizing, recombining and integrating certain elements of visions, expectations and future imaginaries.

For the social sciences and humanities, these social practices of futurizing, of producing and using narratives, are still largely a black box. Presuppositions, values and attitudes in futurizing often remain latent and implicit, while partisan interests and risks remain unseen and unspoken. Just how respective ideas of the future influence decision-making processes often remains unclear. Likewise, we have an insufficient empirical understanding of the social and organizational contexts in which references to the future become virulent. The functions of concepts of the future in these contexts and their social effects are not yet transparent. Under what conditions and in which contexts is the future gaining importance? Is collective and individual visioneering in the present a compulsive, compensatory activity for dealing with growing future contingency, chaos, confusion and complexity?

On the one hand, increasing uncertainty may favour a pragmatism of small steps, short-term outlooks and lower half-lives. On the other hand, it may also open up the space for utopian thinking. Under conditions of uncertainty social change seems to accelerate without any sense of direction or purpose. We can see a constant demand to address societal issues by overcoming presentism and to include aspects of *longue durée*, of history and future in social analysis. The most prominent examples are found in the principle of sustainability, the principle of stabilization, the principle of transformation, which are all related to the foundational morals in modern society and issues of individual and collective responsibility. The concept of sustainability adds a new perspective on the *longue durée* in terms of innovation processes. A negative view of innovation as an "obligation to innovate" in the face of adverse conditions thus turns into a positive view of innovation as proactive and responsible "transformation". This level of increasing complexity could be the reason why it is so attractive to conceive of the future as an open sphere of opportunity and power. From the perspective of future designers, the futures are an imagined terrain that is claimed between the stakes of hope and fear. And precisely because it is open it turns into a matter of politics.

This poses a challenge for the social sciences and the humanities to as we try to understand which social problems are answered by prevalent appropriations of the future and which problems are not. How could the social sciences and the humanities evaluate and respond to society's latent and manifest desire for the future? Is the social scientific practice of observation, analysis and critique of visions as socio-epistemic practices an intervention into these very practices? And do such interventions therefore become a force to be reckoned with in the social practice of visioneering? Such questions of agency and performativity remain to be answered. Does it have an effect on individuals and groups? How does it frame actions and decisions by demonstrating diversity in futurizing? And does it aid the establishment of consensus? Keeping the question "Knowledge for What?" in mind helps us to focus on the effects of scientific analyses of futurizing activities. The practice-oriented concept of futurizing here bifurcates into a forward guiding mode that seeks to limit alternative thinking to present day concerns and needs, and into a mode of utopian thinking that could liberate presently gridlocked rationalities.

3 The Politics of the Future

3.1 Politicizing Futures

If we consider the future as a social product of the present unfolding in both ideas and practices, which relate to past and present experiences and constitute the context for possible future constellations, then the future is open only in a conceptual sense. Such total conceptual openness is countered by factual political, regulatory and other formative aspects that impact on present imaginaries, visions and debates, thus constituting pathways into biased futures. This assumption also helps to consider the basic configurability of the future. The more the design of the future lies in the potential spaces of the present, the more present narratives of the future become a political issue and the future an embattled terrain of alternative time-space constellations.
By providing compelling narratives of a future world, biased visions of futures may set the frame for future politics and spur innovation pathways, orienting the latter along normative assumptions of what is considered "the good life", or what is defined as future social improvements. In this sense, the politics of the future could be a decisive tool to get a head start on innovation, future markets, political power and economic advantage in the global economy, or it could be a precautionary means to save future generations from possible misery. Often, these two approaches (proactionary or precautionary) are not mutually exclusive, but precautionary strategies many times result in narratives of positive futures. Hölscher (2016) refers to the German Energy Transition resulting from the protests against nuclear energy as an example for the positive construction of futures.

The presence of socio-technical futures is often latent, tacit, and unspoken. However, with increasing awareness of their performative power they receive more public attention, sometimes they are even strategically launched, staged and used. Visions of socio-technical futures influence decisions about the future distribution of resources, future power constellations, networks, and economic, legal, linguistic, and symbolic frameworks of decision-making. It is the sphere of values, emotions, and knowledge, where expectations evolve and reconfigure current narratives of technological progress and the future. And that it is why this sphere receives increasing attention in the area of governance. Knowledge about the fact that networks and their institutional arrangements are crucial, results in a technology policy that dispenses with direct impact and introduces indirect contextual control (see Rammert 1998). Visions are particularly important at the early stages of technology development with high levels of uncertainty. A context sensitive analysis discloses visions as framing culture and practices. Other concepts that are going in a similar direction are the management of guiding ideas (Dierkes/Hoffmann March 1992).

3.2 The Future as Resource

How do techno-political visions of possible, plausible and desired futures play a role in the accumulation of resources and capital, and consequently of power for political actors? Resources that help accumulate economic, social and cultural capital must be considered in a temporal dimension. Future designers attempt to heighten the influence of the future versus the past and the present. This may manifest itself in identity politics or through strategic inventions of tradition. The present determines discursive frameworks for knowledge, action and meaning but the future is increasingly turned into an object of desire and design. The timely acquisition of cultural, economic and social resources (i.e. attention, money, networks) and techniques to increase the symbolic value of actions and narratives are important prerequisites and necessary conditions for gaining credibility in

the socio-epistemic practices of futurizing. The struggle for the future is strongly intertwined with the struggle for resources and power. In this way, the future not only gains importance as a temporal dimension of conventional resources, but credible visions of the future turn into crucial resources in competitive environments. Furthermore, the capacity for futurizing is decisive for advancing the struggle of improving positions in the political economy.

Figure 11: Implementation of desires for future. BMW presenting the fulfilment of YOUR mobility visions, referring to YOUR (customers) imagination of the car of the future. Seen at Frankfurt Airport May 2019. „The future is now." (AH)

Visions gain economic value as a resource by providing orientation and semantically designing the interfaces between the present and the future (Adam/Groves 2007). They also enable communication and action in the form of media objects (Lösch 2006) and knowledge objects (Knorr-Cetina 1997; Star 2010). They coordinate practices and enable forward planning (Dierkes et al. 1996; Beckert 2016) and they also activate audiences through the creation of normative imperatives and by providing spaces of possibility (Jasanoff 2015). These functions have been elaborated in further detail in the ITAS/KIT Vision Assessment Project (see also Schneider/Lösch 2018). An illustrative example is McCray's commentary on a journalist's understanding of the Singularity-Vision's power: "The Singularity is not a great vision for society, one journalist said. 'It is rich people building a lifeboat and getting off the ship'". (Andrew Orlowski, in McCray, 270) Defining and framing a powerful vision may serve to accumulate resources that serve to protect a livable future for a few according to their present-day competences and needs. Ideas like singularity, digitalisation or smartification evoke a diversity of contrasting positions. And because they play a decisive role in the run for promising future positions in the political and economic sphere, these visions turn into not just guiding imaginaries for present day action but into means, resources and important assets for stabilizing developmental pathways. They are important means of politicizing future. Consequently, in this paper, I attempt to conceptualize futurizing according to its role and function in society as a capacity to stabilize promising pathways and positions, the ability to envision as assets (cf. Birch 2017), the mastery of narratives and semantic control as resources and the possession of visionary resources as temporal capital (following Bourdieu).

3.3 Multiple Quests for the Future – Clashes, Repercussions, Adaptations

Sociotechnical futures address the imperatives for social change and transformation arising from the constitution of problems that are assumed to be ever more pressing in the future. However, futurizing practices are enacted by various stakeholders and political actors with unequal access to resources, asymmetrical status and uneven distribution of discursive power. There is a diversity of visions of socio-technical futures, with a diversity of objects of fascination, anxieties, and hopes, a diversity of expectation, positions and debates. Most of them are visible while others are not. Debating an issue may limit and polarize positions. Therefore, debates may have the effect of opening or

Figure 12: Simulating the Digital Me, Frankfurt Airport May 2019 (AH)

Figure 13: Concerns are bestselling. Booktable at local bookstore in Karlsruhe, Summer 2018. „The creative power of the machines", „The world in a state of emergency", „Inform yourselves!", … (AH)

restraining potential futures. Dominant narratives and practices may represent pro or contra positions. In either case they are embedded in a field of diverging, adaptive, opposing or concomitant practices of multiple stakeholders that interact with, and refer to, each other. Accordingly, the quest for the future itself evolves into a competition around the most convincing narratives, the most valuable resources and the most powerful practices. While visions may promote positive futures, they may also perpetuate present discursive inequalities. Visions reflect the social and political contestation and present power constellations as much as they offer hope for change by drafting alternative visions in diverse fields of social knowledge production. The struggle and competition around these visionary resources and capacities become dominant features of an epoch in which the future has collapsed into the present.

Looking at the field of visionary practices not as single action-cause relations, but as products of the dynamic interrelatedness of present positions in a wider discursive field, critical social science shifts focus not on to dominant visions, but to analysis of a multiplicity of visions and future designers who debate, negotiate and struggle over contradicting futures and over diverse imaginaries of better futures and over the ways to implement them. With a view to research designs, the multiplicity of actors turns into a multiplicity of perspectives at different levels: the object of concern, the scope of the concern, or proposing solutions to the problem. Each claim attention and struggle over notions of appropriateness and legitimacy. The future consequently becomes a contested domain and an embattled resource. The pluralism of futures and aspirations for safeguarding the future create the paradoxical situation where the stakeholders of social movements seem united in the intention to "care for the future", at the same time that the focus on securing a livable future creates divergence and dispute.

For these reasons, research designs should not focus on singular visions, their functions and effects, but should develop a systemic understanding of complex constellations of actors and their interrelated practices in order to understand how visionary practices emerge and how their practices become dominant, transform or decline.

The future contains uncertainty. The future contains promises. The future contains fears. But, in a positive sense, the future is also open and diverse. It is utopia that offers the dream of a different life. It is a world not yet born where collective and individual attentions meet, become congruent or clash. One of the main tasks for social sciences therefore is not to support or evaluate certain scenarios, but to create awareness about potential colonizations of the future. If there is any normative involvement, social sciences and humanities should pursue a self-reflexive programme of enabling a maximum number of actors in futurizing and thus ensure a plurality of potential imaginary futures. Ideally, there should not be condemnation of esoteric futures, nor a concentration on normative scientifically legitimized truth statements about what needs to be done. This poses a challenge for the social sciences. How do we deal with this demand for futurizing, the social quest for future, as well as the urge to govern developments into preferred futures and its effects?

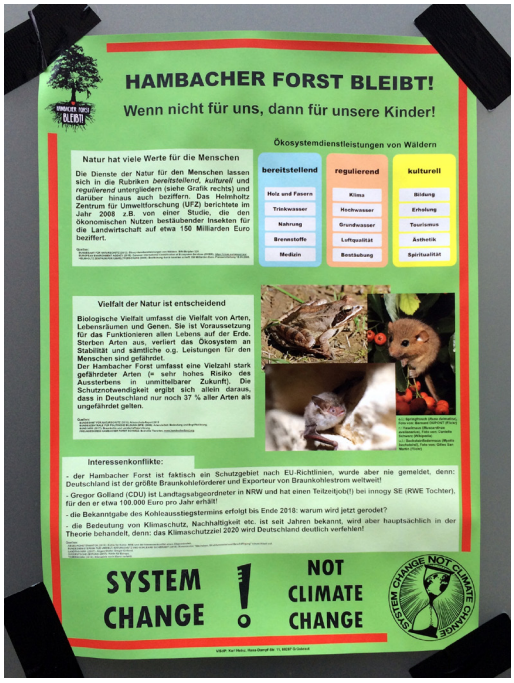

Figure 14: Social conflict and battles for the future. „The Hambach Forest remains! If not for us, then for our children!" (AH)

4 The Role of the Social Sciences and the Humanities in the Politics of the Future

Dealing with collective and individual demands for the future (for decision making and orientation) despite the uncertainty of the future is a unique challenge for the social sciences. In light of the growing need for orientation, the relative uncertainty of forecasting (forecasts), scenarios (possible futures) and designing roadmaps (possible routes into preferred futures) raises the epistemic question: How do the social sciences deal responsibly with this societal need if they cannot provide certain knowledge of the future? Ignoring the desire for the future and the need for orientation, choice and decision-making in complex times seems impossible and would deprive the sciences of their critical-reflexive as well as their problem-solving functions.

Often, the social scientist assumes the role of a critical observer, happily setting about revealing hidden ideologies and deconstructing grand narratives. There is also often an accompanying anxiety of providing a veneer of responsibility for client-centered, or industry-driven research. Indeed, how can the social scientist deal with the general desire for the future without succumbing to the partisan interests of particular futures? Where does second-order observation and analysis end and where does intervention begin? Should the social scientist concern him- or herself with questioning power structures and deconstructing ideologies or instead focus on bringing to light the complexity of alternative visions and futures hitherto ignored or sidelined? The theory of the "present of technical futures" or the "hermeneutics of technological futures" (Grunwald 2015) provide an alternative analytic approach that fulfills a critical-reflexive function at the same time as reacting to needs for social orientation. It shifts analysis from speculation about possible futures to interpretation of the observable presence of socio-technical constellations. Analyses of present ideas, visions, and expectations of the future, especially of socio-technical futures, can …

- survey the discursive field about the future.
- provide an overview of topoi, discursive strategies and actors.
- shed light on the horizons of expectations and motivations of the actors involved.
- give voice to invisible or marginal positions and call attention to power relations.
- bring alternatives into play.
- identify the arenas of interpretive struggles, debates and controversies.
- trace innovation paths and show crossroads, ruptures and continuities.

This understanding of scientific practice and the shift in the public understanding of science may open up the scope for the exploration of new socio-technical futures. Science is not an activity apart from, but within, society. Its stakeholders are diverse and the change and shift according to contexts of "matters of concern" (Latour 2003; Jasanoff 2005: Civic epistemologies; Pinch 2015). Technoscientific controversies (Latour; Jasanoff) are not only bound to laboratories and academic sites, but include science acting in society and for society. (Latour 1988). In this sense, we can expand the notion of "social controversies as laboratories for studying how science and technology work in society". (Jasanoff 2012) From this perspective, social audiences are not characterized by deficient knowledge that would have to be addressed through science brokers in the form of some professional marketing campaign. (Bodmer/Wilkins 1992, public understanding of science, critique by Jasanoff 2014) Instead, social actors can be considered as the empowered creators of the social and material world of the future. Such a new understanding of social discourse and the different

roles of its participants provides insights into how the power of discourses is socially constructed and how the social attitudes and actions are framed by narrative and concepts. Combined with the principle of responsibility, discourse analysis could itself become an intervention in the social construction of narratives. Eventually, this might lead to a new understanding of futurizing as a practice of attributing meaning and creating controversies.

Such transformations may also enable a shift in the scientific endeavour of responding to the epistemic challenge posed by the future. A more thoroughgoing subscription to the moral principle of responsible science and insight into the power of narratives could lead to a more precautionary approach of social science that is focused on analysis and critique, or to a more proactive approach to social science that is interwoven into the production and design of emerging socio-technical constellations. However, introducing ethics into innovation processes should not lead to a confusion of social science and social engineering. In a sense, recent concepts of coproduction, interventionist or participatory approaches have tried to regain ground in the contested field of futurizing practices. The future is seen here as a constellation and practice that is conceptualized in the here and now, a future that builds on the memory of the experiences, preferences, and identities of the present. This different way of relating to the future and of solving the epistemic challenge of how to know and create futures causes a present transformation in social science subjectivities: from detached analysis to engaged critique, from engaged critique to political intervention, from political intervention to co-production and from co-production to future design. Transformational shifts do not refer to a sequential, evolutionary development of self-awareness and positioning of social scientists in the face of a technically determined world. Rather, transformation maps a gradual shift in the importance given to already existing but transforming identity formations and scientific subjectivities. The following discussion of this transformation proceeds according to three paradigmatic levels of scientific engagement with the future as an object of research: analysis, politics and design.

4.1 The Analytical Approach

Classical future analysis consists of observation involving empirical methods, categorizing, framing and description. It aims at understanding imaginaries of the future, their functions and their use in everyday practices. The future as practice of forming imaginaries, structuring expectations and attributing meaning is therefore targeted through the hermeneutics of imaginaries, of narrations or discourses. A discourse analysis would go beyond hermeneutics by understanding futures not as text, but as a practice, investigating the processes of their formations, settings and structures, actors, topics, strategies and framing practices (See ITAS Vision Assessment Project and their definition of visions as socio-epistemic practices, Publications by Lösch and Schneider). Central to this type of analysis is also an investigation of guiding principles and values as they pertain to the future as well as unconscious images, expectations, desires, values, needs and presuppositions. It would also involve a critical examination of the social functions of futurizing as agenda setting and agenda framing for institutions and business.

This includes a critical mapping of the projections of the future to new technologies and a cultural understanding of technology as a medium that structures social formations, the use of technical discourses and technical artefacts as a means of habitualization, for the formation of lifestyles and corresponding subjectivities and as a form of capital (symbolic, social, cultural). In addition to a

reconstruction of the production of meaning (e.g. strategies of temporal asymmetry, periodization, causality constructs and projection of linear futures to the illusion of progress, avoidance of circularity of innovations, recursive interconnections in time, forms of time constraint, references to past, cognitive pre-structuring through metaphors), humanities and social science can also reconstruct futurizing practices (emotionalization, dramatization, aestheticization, staging of technology, integration/connection/exclusion of discourses, competing discourses), reconstructing the institutional contexts (degree of institutionalization of debates, actors, production of temporal normativities) and a assessing the social implications.

The center of a dominant discourse can be approached by analyzing what lies beyond its boundaries. For example, what does an analysis of antihegemonic movements tells us about the perceptions of hegemonic narratives and normalities? Historical comparisons of earlier times and the assessments of new technologies by social movements and how they stage their use of material culture and techniques (cargo bikes, community workshops, fablabs) can elucidate and disrupt hegemonic narratives and normalities, as can their staging of their lifestyles in terms of representation of alternative temporalities (festivals, communal meetings, enactment) and demarcation strategies in the performance of such temporalities (deceleration, slow food, permaculture). In addition, the cultural "techniques" of remembering (and forgetting) to produce an alternative temporality are also explored through nostalgia and historicization as well as by modeling visions and scenarios. Meanwhile, the paradigms of societal development will be discussed in their temporal framing: growth versus stabilization, new production versus reuse, high-tech innovation versus recursive innovation and, last but not least, the question of how discourses on sustainability and responsibility have made caring for future a commitment to the present.

A critical assessment of socio-technical futurizing, building up insights into these questions then includes:

a) the analysis of the practices of functionalizing and legitimizing imaginaries of the future

b) the understanding of the strategies and tactics of controlling the elaboration of visions and utopias

c) a description of the processes and practices, the underlying interests and functions, the context-sensitive controls of values, settings, symbols, regulations and knowledge construction.

Ultimately, this analysis should provide insight into the question of why futurizing exists when it cannot be built upon expectations of certainty, why it can provide orientation in fuzzy constellations, why it enables decision making through choice and why it can clear up ambiguity and ambivalence. Historical examples of the past practices of futurizing also provide valuable instruction and guidance. They prove that the human ability to imagine the future and corresponding practices are a product of modernity. As discussed previously, Kosellek (1979), Blumenberg (1966), Hölscher (2016), McCray (2013) and Assmann (2013) provide conceptual insight into historical analyses of past and present future imaginaries. With it, the analytical approach aims at a contextual history of discourses of the future. Why is there an increasing focus on future temporality? Why is there a paradoxical loss of utopia and proliferating speculations on the future? What are the conditions, representations and practices of emergent futures in late modern societies? The epistemic challenge that the future poses – to deal with uncertainty and to respond to the need for orientation and decision making at the same time – is there clarified by looking at past and present imaginaries of futures and their formation as effective history (*Wirkungsgeschichte*).

The historical reconstruction of past practices of futurizing and their production of emerging socio-technical constellations offer a means of interrogating the conceptual constraints of the present epoch. Such investigations can also challenge epistemic principles, enabling us to look behind normalised assumptions as well as making visible moral stakes and myths that are taken for granted. In addition, such an approach can help us to understand the *longue durée* of the constitution of visions and the mechanisms of instrumentalizing a narrated past for a desired future. They give a long-term picture of the nexus between past, present, future (Guldi/Armitage 2017).The historical interest in mapping the counter discourses and alternative stories of the past also permit an examination of past utopias revealing how their visions are entangled in a constellation of concurring, alternative and parallel narratives. It also reveals blind spots in our current perceptions of normality where we are unable to see beyond the limits of currently imaginable practices. But, above all, they give a long-term picture of the nexus between past, present and future (Guldi/Armitage 2017). A more historically oriented social science therefore enables us to meet present day challenges with a larger perspective where we perceive risks and crises more clearly and to overcome short-term thinking and practice in favour of long-term understandings of underlying principles and morals. Beyond such historical perspectives, counterfactual and utopian thinking may also play a role in "engag[ing] false myths about the future and talk[ing] about where the data come from…look[ing] to many different kinds and sources of data for multiple perspectives on how past and future were and may yet be experienced by a variety of different actors." (Guldi/Armitage 2017)

An analysis of futures reveals the ways in which the future is constituted as a political space and where controversies about futures are mobilized as resources for societal change. By analyzing practices of futurizing and socio-technical futures the social sciences and the humanities offer an invaluable contribution. In this respect, debates about futures and their diverse practices are resources that are to be drawn upon in deciding over success or failure. It was with such an approach in mind that David Armitage and Jo Guldi called in their history manifesto for a new emphasis on historical analysis and to include historians in the long-term planning of governmental and international bodies. (Guldi/Armitage 2017)

All of this leads into the following question: Does this call to involving social sciences in planning processes involve a reconfiguration of the position of social sciences in present societies – as stakeholders in the proactive and responsible construction of utopias and imaginaries?

Science is already often charged with expectations that go beyond analysis and reflexivity. As analytical insights into debates can be experienced as detached and reflexivity as scepticism or as simply confusing, "making things more complicated than they are". But science is also often relied upon in the same context rather paradoxically as a means of arriving at more thoughtful and informed forms of orientation.
Debates about possible futures are becoming increasingly heterogeneous and controversial. If science therefore is ought to offer orientation, it must confine itself to a role that lies beyond forecasting, scenario formation and debating hermeneutics, above all when society expects science to lead the way into the future and to provide orientation. Should an analysis of futures limit itself to the role of mediator between particular positions? Should it make visible discursive processes, boundaries, prohibitions, rituals, doctrines? Should it visualize the underlying interests of pseudo debates? Should it question consensus building? How can we possibly engage with technology futures without losing observer status?

4.2 The Policy Approach

The second type of scientific approach which attempts to solve the epistemic challenge of the future is policy oriented. It is concerned with the ability to act in times of uncertainty. It adresses both the assessment of routines and practices and of the construction of narratives and governance for decision-making processes.

As laid out above, futures can be considered as visions or imaginaries that are constituted in present times, relate to past and present experiences, and constitute the context for possible future constellations. Therefore, the future is open only in a philosophical sense. It is not something that simply happens and which we face with a fatalistic *Zukunftsangst* or a happy *laissez-faire*, everything-will-be-all-right-in-the-end attitude. It is not a terrain where there are just precognitions of catastrophes or hopes of salvation. Instead, there are political, regulatory and formative aspects of present imaginaries and debates that constitute path dependencies. Pathways into futures occur in a context and framework of regulative ideas, knowledge and values and they increase their dominance with communicative and media representation that are better suited, for whatever reason, to contexts of political and legal regulations, economies and natural conditions.

A policy-oriented approach is characterized by a controlled reflexivity or a kind of monitoring that is carried out by advisors, committees and other counseling bodies, conducting a second-order observation of knowledge production processes in the technical and natural sciences. It makes visible the visions and expectations of possible and probable futures, as well as the practices of producing, governing and regulating such knowledge, their discourses, institutions and stakeholders. A critical review of futurizing discourses should also work out how debates and controversies are generated artificially in order to induce uncertainty and to delay political regulation.

A critical approach that examines power constellations, dependencies, structures and agencies in the formation of imaginaries of the future, extends the array of stakeholders and their matters of concern. Here, science itself assumes the role of an actor and detachment becomes impossible. After all, in the final analysis science has to respond to the principle of responsibility in the form of public dialogue and democratic engagement.

The moralization of science in an effort to reach a sustainable future implies considering the well-being of the whole system and the needs of future generations. However, a resulting purpose-driven transformation of society that is sustainable cannot be the project of just a few elitist groups. It also requires the detection of shortcomings and meeting the challenges posed by future innovations as well as analysing the social contexts of emerging socio-technical constellations, the perception and integration of new technologies in existing value systems and the appropriation of new technologies in social practices, normative systems, power structures and interest groups. This is a task for social sciences dealing with visions of the future regarding emerging technologies – in a sense establishing an early warning system for futurizing activities, providing feedback on all levels of the construction process, striving for an inclusion of marginalized alternative visions and establishing a moral framework for scientific and technological practices. However, the trap of advocacy science opens up if social science practices are used to establish consensus on certain visions or establishing narratives of shared visions with communal significance. Policy oriented science transgresses the boundaries of pure scientific and technological practice and targets an application of

economic, social and practical knowledge for building structures, systems and processes (Cabrera Trujillo 2014, 203). It is a collective activity that is not limited to engineers but also encompasses policy advice, expert committees and other groups involved in constructing socio-technical scenarios and drawing up roadmaps. Understanding this technology requires a process of constructing causal relations between technology and a desired future (Grin/Grunwald 2000). The focus consequently shifts from the representations of constellations of emerging technologies in possible futures to the analysis of processes of producing futures.

While vision assessment describes the methods of understanding and assessing visioning and futurizing, vision management refers to the governance of processes and pathways into desired futures using available tools and technologies. The concept of visioneering advances this concept to the level of scientific and technological practices of intentional technological development (McCray 2013; Kim/Oki 2011; Sand/Schneider 2017). It has to be considered a technology, a governmental practice with a high degree of diversity and controversy. It relates to the construction of narratives and forward guiding by framing and steering attention. Its central idea is that with the construction and engineering of new technologies a vision of a desired state of being could become true and ultimately shape and alter society. (Cabrera Trujillo 2014) Adding to the technological aspect, the community building effort is crucial. New technologies made to realize visions of a radically new world need supporters, networks of like-minded people, and a supportive politics and technology. Thus, visioneering can be seen as a heterogeneous engineering practice involving not only research and building prototypes, but also promoting ideas, generating public attention and creating networks. (McCray 2013) Visioneers work at the "blurred boundary between scientific fact, technological possibility and optimistic speculation" (Cabrera Trujillo 2014, 202). It is unsurprising, therefore, that their visions are often contested, as it is not clear what kind of real impact or negative side effects new technologies could have.

The problem with social sciences has often been described as a problem of lag. The lag that opens up between observation and creation with the consequence that social sciences has little to say about the future and is only concerned with the past. In order to increase their impact, then, ought social scientists strive to gain a more active approach to the social world so as to become an actor in the creation of the future? Under these circumstances, a task for social sciences is not only to understand the mechanisms of visioning but to engage thoughtfully in a process of production by contributing complementary expertise on social, cultural and political factors in the production of possible futures.

4.3 The Design Approach

I would like to call the third and final approach the design approach.
In contrast to politics, design is not only concerned with processes of governance and representation, but with connecting values, intentions, norms and morals within the sphere of creation and the material landscape of techno-scientific objects. Compared to management and engineering, design involves a planning impulse. Design thinking tries to connect different perspectives and actors in order to achieve multiple solutions and create support through shared ownerships and joint responsibility. It is based on a trial-and-error attitude and is feedback-driven, following the principle of experiential learning and action research. (Reeves et al. 2016) Design is conceptualized here as

a principle of thinking and action that involves both observation of unmet needs and immediate action, analysing the constraints, framing opportunities, generating ideas and, finally, solving problems. It is a course of progress that might be characterized as discover, define, develop, and deliver.

Following a design principle is more than just shifting a focus of analysis to material culture or to the concerns in modern technology of how to organize and design the machine-user-interfaces and surfaces of technological objects. The analysis of the rise of the design principle goes beyond the cultural history of artefact surface design. This is not to dispute or neglect the high relevance of seeing artefacts as intersections of technology and culture and of looking at developments in surface design to understand technological and cultural change. (Lubar 1993) On the contrary, looking into new challenges for design in contexts of ever smaller things, or the disappearance of things, is crucial for understanding the changing relations between form and function and the impacts of various technologies on society.

It is not surprising that the design concept has thrived in the realm of challenges posed by converging technologies. Contrary to engineering, the process of creation at the interfaces of new technologies like converging technologies does not only aim at realizing a preferred future using new technologies. It has a new quality because it addresses present utopias of the complete design of the world. Ecomodernism, for example, accepts the idea of the anthropocene, that human impact on environment is irreversible and at a point of no return. Ecomodernism therefore follows the design principle where the earth is conceived of as a "human planet". (Ecomodernist manifesto, Asatu-Adyaye et al. 2015). The former critical notion of anthropocene is being reconceptualised as great anthropocene, by carefully and systematically using knowledge and developing technology for the goal of making life better for people, stabilizing the climate and protecting the natural world: "In this, we affirm a long-standing environmental ideal, that humanity must shrink its impacts on the environment to make more room for nature, while reject another, that human societies must harmonize with nature to avoid economic and ecological collapse." (Asatu 2015: Ecomodernist manifesto)

Protection of the environment should work not by expanding the human dependence on nature but by becoming independent of nature's resources. While this will potentially lead to a decline in our environmental impact and reduce material dependency on nature, it also increases our dependency on technology. Technology provides the devices and processes of creating a material world, not fully synthetic but far more independent of the environment (seen as the material world) than in the engineering world. The extension of the technosphere could even create new environments with unforeseen possibilities. Armin Grunwald points out that this approach conceptualizes technological progress not only as necessary condition but also as sufficient condition for development which neglects the potentially negative consequences, ambiguities and uncertainties of future new technologies. (Grunwald 2015a) Whereas anthropocene involves a critical assessment of the transformative impact of human beings on the environment, ecomodernism embraces the idea of anthropocene, transforming its negative connotation into something positive by pragmatically taking up the challenge of a fully designed world. This new paradigmatic understanding of design entails both the trial and error process of fast creation and the foundational belief in a malleability of the world (*Gestaltbarkeit der Welt*).

The difference of this principle in comparison to the engineering principle resides in its relationship with the material world. Engineering is a process of gaining control over the environment using and implementing technologies (techniques, systems, practices, devices), procedures and systems to regulate our relation to the material world. The design principle advances this further to a new understanding of the relationship between humans and the environment. Its characteristic is no longer just control but creation. It is not a coupling process (along the lines or an alienated relationship of exploitation or a harmonized relationship of restraint and protection), but a decoupling of the human world and the environment using technology as a means of making humans ever more independent of the environment. At the same time this is an effort to regain control over technology as a means of control – not simply over the environment but over the breadth of the human capacity to respond to environmental issues.

Such malleability provides the means to alter the world according to what is perceived as our collective needs and wants. It invests in ideas, narratives, expectations and correlating visionary practices that aim at constructing technologies, institutions and innovation that serve our aims. It constructs worlds (images and prototyping, cf. Dickel 2019) that makes wished imaginaries of the future more plausible and effective. According to this mode of thinking, any design strategy is useless if there is no clear vision of where that strategy is supposed to take us. Therefore, a clarity of visions and a limitation of choices for plausible options are of the utmost value in design processes that attempt to retain flexibility in organisational practice. Ideally, transition design creates pathways from preferable futures into probable and, ultimately, possible futures. It dynamically adapts visions guiding action while adjusting intentionality, meaning and values. In a way, design is opportunistic.

Needs and wants are captured in the realm of the conceivable between past and future and thus in a continuum of repetition with small modifications of the past. Alternatives are perceived as accessible when existing entanglements of past experience and anticipated futures are made conscious. To turn the preferred into the possible offers a boundless liberation in the sphere of thinking and wanting. The theory of possibilism is referred to by young climate change activists who belief in the active role of humanity in shaping their environment. They deliberately construct narratives and imaginaries of other possible worlds in order to settle the horizon of another world into the realm of the achievable. However, such visions of the conceivable and imaginable are within a stable social consensus. Often, they are not radically new. In this way, efforts to imagine alternative futures using methods that promise to efficiently innovate in the shortest possible time by optimizing existing resources may ultimately support the status quo. But how else ought we to discover the radical other, the other world that lies outside the realm of the imaginable other than through such an open-ended form of experimentation and play? Accordingly, in order to allow for the new to emerge and to surpass existing knowledge it is necessary to create conditions that allow for experiments in framing that are neither too concrete nor too loose. It also a means to deal with and not shut down noise, epistemic difference and barriers (Bachelard 1938/1993) and to enable "cognitive estrangement". By way of illustration, I will refer to three examples of depicting and imagining bridges. The first picture was taken in Shanghai in 2017. It shows a road construction that was considered futuristic back in the 1970s but is now a commonplace reality in many so-called mega cities.

Figure 15: Road construction in Shanghai 2016 (AH)

Figure 16: "Bizarre Entwürfe aus Nordkorea", Spiegel online, 3.7.2014

Figure 17: The Flying Bridge, Mercedes Benz Future World

The second picture shows an infrastructure design from North Korea, which was shown in an 2014 Article on Spiegel online titled "Bizarre Entwürfe aus Nordkorea" (Bizarre designs from North Korea). The framing "North Korea" is apparently what makes it "bizarre" because, if considering the third picture, the Flying Bridge by designers from Mercedes Benz Future world, one might ask: what is the difference? Cognitive estrangement occurs when things that we consider normal are put in another context and thus disrupt our expectations. So, if visions appear to be visionary in one context and absurd in another, and at times are not visionary at all because they perpetuate the existing in another setting, we may ask: Where is the realm of the real visionary, or the radical new, precisely situated?

Jameson (2005), in his collection of essays on the relationship between utopia and politics, posed the question of the practical-political value of utopian thinking in modern societies where visions are often taken as similar approaches to renewing and transforming an unsatisfactory present. With the now universal belief in the power of the free market, where all alternatives to capitalism – like communism and socialism – are said to have failed, other socio-economic systems are inconceivable and unavailable, "the Utopians not only offer to conceive of such alternate systems; Utopian form is itself a representational meditation on radical difference, radical otherness, and on the systemic nature of the social totality, to the point where one cannot imagine any fundamental change in our social existence which has not first thrown off Utopian visions like so many sparks from a comet". (Jameson 2005, xii) However, as discussed before, utopia is also constructed according to anthropomorphic principles, namely according to our imaginaries that represent experiences of the past and the present – "on the social level, this means that our imaginations are hostages to our own mode of production (and perhaps to whatever remnants of past ones it has preserved)." (Jameson 2005, xiii)

Jameson therefore proposes not to focus on the content of utopia but on its representations and to search for not what has been said but to decipher what cannot be said and what cannot be imagined and therefore represented. Additionally, he advocates an illumination of the historical conditions of what is thought to be possible as well as under which conditions utopia becomes possible and viable. It seems, for Jameson, that the more a utopia becomes imaginable the less it is different from the current state of affairs, or in other words: "for more surely a given Utopia asserts its radical difference from what currently is, to that very degree it becomes, not merely unrealizable but, what is worse, unimaginable." (Jameson 2005, xvi) Hence, the problem with utopia is that it is an unconscious expression of wishes and if expressed deliberately and fully not properly utopian. (Jameson 2005, 3)

Furthermore, utopia requires a moment of closure and reducing the complexity of a system: "The utopian vocation can be identified by this certainty, and by the persistent and obsessive search for a simple, a single-shot solution to all out ills. And this must be a solution so obvious and self-explanatory that every reasonable person will grasp it." (Jameson 2005, 11) Utopia in this sense is perceived as a negative action of liberation through destruction: "For the utopian remedy must at first be a fundamentally negative one, and stand as a clarion call to remove and to extirpate this specific root of all evil from which all the others spring." (Jameson 2005, 12)

Utopia aims at the demystification and elimination of the negative (money, property, wage labour, dependency) rather than achieving something imagined as positive. Utopia in this sense implies also a loss of the self, and with it boredom, unhappiness and misery, or the reconstitution of the self: "Here, truly, Utopia would be the place of radical difference indeed, and ourselves the most unimaginable aliens; while non-alienated life might prove to be the most alienating of all." (Jameson 2005, 191) Utopia may exist as an expression of dissatisfaction, if a consciousness is not in congruence with its surroundings (Mannheim 1929). The function of utopia is therefore to activate a critical comparison between the existing world and the utopian world. (Bloch 1918: Der Geist der Utopie, 1959: Das Prinzip Hoffnung; Landauer 1907)

However, it is not necessarily desirable to remain in the mind state of perennial critique. Theories of processual utopia by small steps (Hudson 1982 and 2003; McKenna 2001) beget the illusion of attainability and make utopias seem possible. Another current example gives Rutger Bregman with his book "Utopia for Realists and how we can get there" (2017), proposing a universal minimum income, fifteen-hour working week, and open borders. The misery of late capitalism is caused by overspending and an accumulation of unnecessary things and alienated work without meaning. Bregman proposes a reassessment of the social contribution of labour and calls upon the Left to develop a vision (he is convinced that right wing populists are more successful utopians). That these visions are called utopia tell us more about the current system of inevitability. These visions are imaginable at a very concrete level, but they are by name unattainable.

What, then, can social science contribute to establishing clearer visions and can better visions alter our sense of direction in new pathways? Jameson proposes an exploration of the narrative *pensée sauvage* of our political unconsciousness and to "detect and to reveal … the outlines of some deeper and vaster narrative movement in which the groups of a given collectivity at a certain historical conjuncture anxiously interrogate their fate, and explore it with hope or dread." (Jameson, 282)

5 Towards a Methodology of Reflexive Futurizing

I will now sketch out a methodology for dealing with the desire for the future and the urge to futurize, keeping in mind the epistemic challenge of uncertainty and the concurrent need for orientation and decision-making in society. The methodology should be applicable to all levels of futurizing, especially scientific, corporate, political and civil society's activities of the thinking and imagining to come.

Having discussed the three different approaches above, I doubt that actors in futurizing will be able to settle on a single approach that satisfies all needs. From the viewpoint of social sciences, the problem is to grasp the abundance of visions referring to a problem, and to analyse them not only visually and materially but to detect tacit visions and to view visions in constellations that relate to each other but are joined in a struggle for resources, attention and, finally, discursive power. In particular, addressing the latency of visions, their invisibility and vagueness, their multimodality and multifunctionality is especially pertinent. Furthermore, the social sciences have to reflect on their role as stakeholders in the practice of futurizing. Scientific work turned reflexive must realize that any form of scientific engagement with a vision (analysis, critique, deconstruction, design) focuses attention and at the same time distracts from other alternative visions.

If the future turns into being the target of contemporary politics and if social sciences become stakeholders, it has to reflect on its position. In addition to an archeology of practices of futurizing, we also need a critical mapping of the future designs and their strategies for structuring time. A critique of futures should also highlight how debates and controversies are artificially generated and

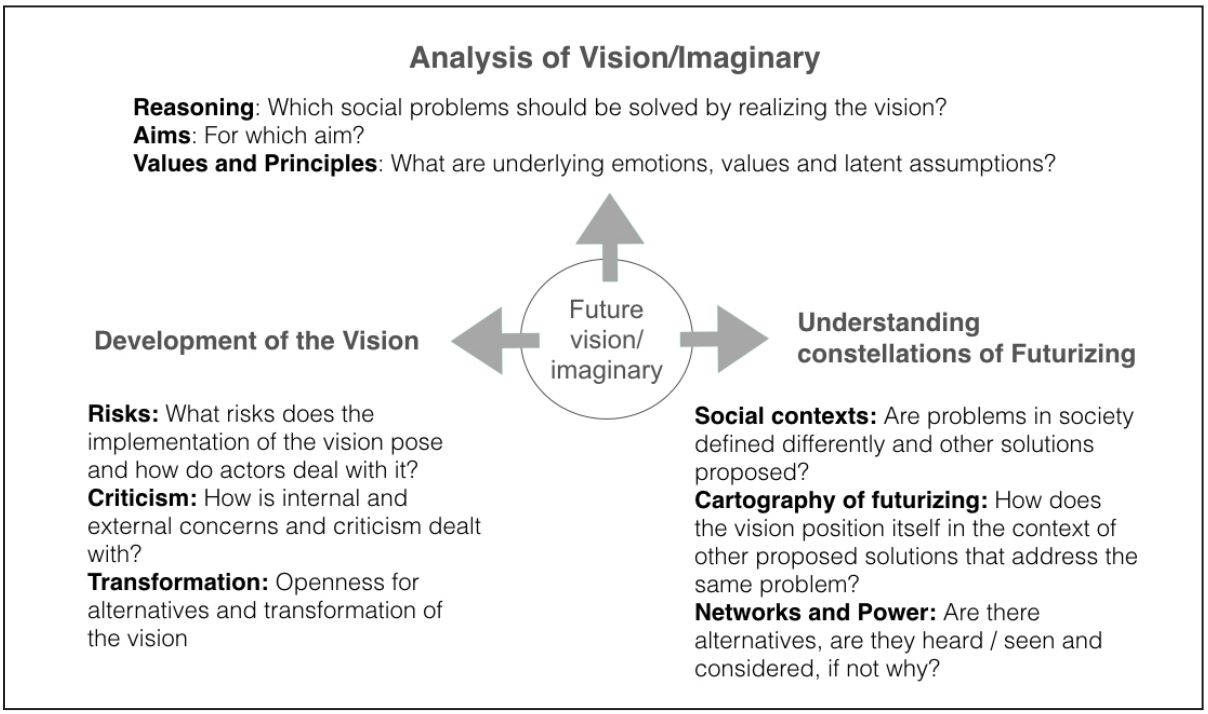

Figure 18: Key Questions for reflexive futurizing

used as a resource to create insecurity that delays political regulation and how fear and insecurity are generated to legitimize measures as prevention and to justify regulation.

Power is the accumulation of capital beyond what is essential and necessary. It aims at expansion, not preservation, while communicating this expansion as necessary for its preservation. Hence power is not to be understood as the monolithic block that casts long shadows, but as a fragile phenomenon characterized by feelings of insecurity and losing ground. Power struggles therefore aim at eliminating uncertainty, controlling social transformation, monopolizing the future and integrating marginal, potentially powerful stakeholders into their world. Their strategies can be described as using futurizing as a resource that is exploited for gaining or keeping power. They try to cope with the fleeting subtleties of anxieties to lose what is beyond the essential, therefore attempting to expand and not to reduce, to coopt serious criticism and to ignore marginal one.

The role of the social sciences and the humanities in futurizing is both to make futurizing possible for a maximum number of social actors, to allow for utopian thinking and to make visible the diversity of such visions and to protect the status of unavailability of the future against attempts to colonize it. Reflexive futurizing does not only comprehend its position in a diversity of visions but allows for a plurality and diversity of futurizing. The guiding principle is not to criticize, intervene or cooperate in design processes of futurizing but to combine an understanding of the social need to futurize with a normative approach to insist on the general unavailability of future. And it is the foundational principle of the unavailability of the future that, paradoxically, will secure the future as a possibility and enable a livable future.

Reflexive futurizing can intervene in social practices as it interrupts the drama of repetition and encourages social change. Analyzing practices of futurizing then address the levels of presuppositions and beliefs, of decisions making processes, of action and practices, and feeds back into new constellations of actors and knowledge orders. Assessing constellations and practices of futurizing and forward thinking suggest the following questions:

- Which social problem should the practice of futurizing solve? (i.e. the grand challenges)
- Which solutions are thought and expressed in a society and what hopes and fears do they contain?
- How are they implemented and why, and with what future as common imaginary in mind?
- Which logics, values and latent assumptions does the preferred solution follow?
- Are there alternatives to this and are they heard or considered; and, if not, why not?
- How are these dominant solutions assessed by various social actors and is there agreement or not about who produces consensus or dissent?

Reflexive futurizing is geared towards an analysis of visions and imaginaries. It develops visions as it contributes knowledge and new perspectives on such visions and it assesses the emerging constellations and networks of futurizing.

At the level of analysis, it looks at the narrative and the structure of reasons given for futurizing action (Which social problem should the implementation of the vision solve?), it asks for the manifest and hidden aims of the vision and it discusses apparent values and principles (What logic, what values, latent assumptions does the vision follow?).

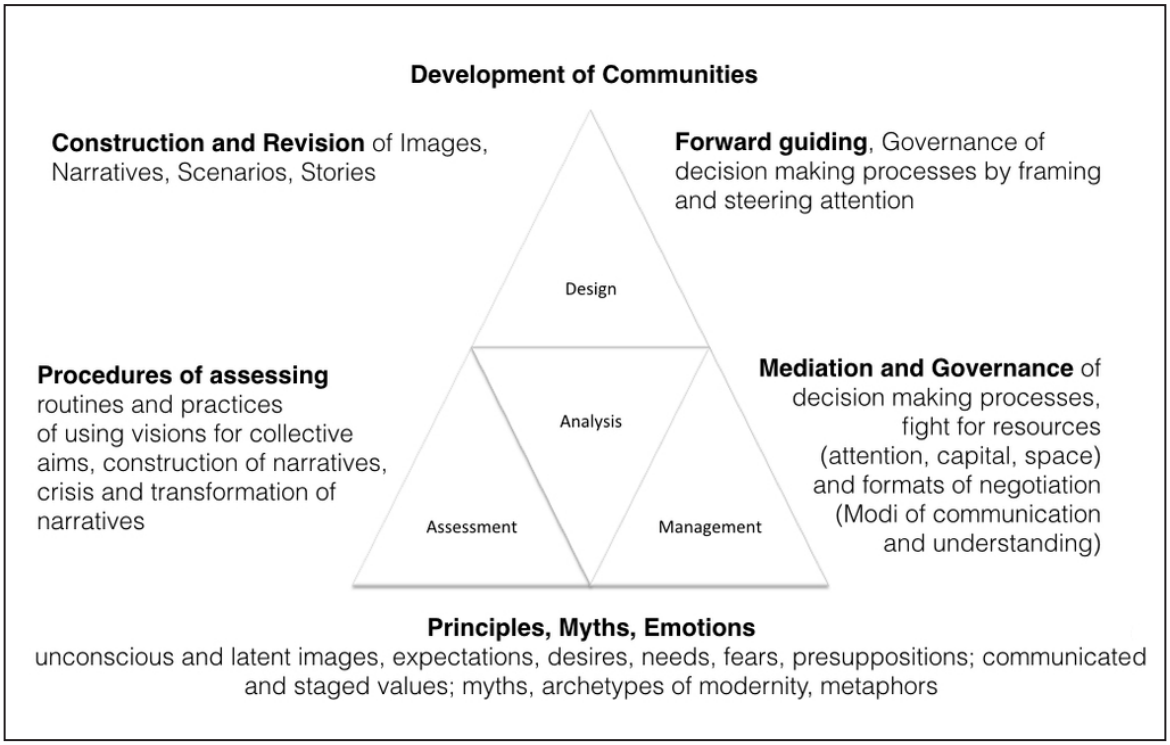

Figure 19: Dimensions of reflexive futurizing

Considering risks, concerns, criticism and change contributes to developing the vision/imaginary by asking: What are the risks involved in implementing the vision and how do actors deal with it? How are internal and external concerns and criticism to be dealt with? And how does the vision change by integrating different actors?

Reflexive futurizing also creates a visionary space by assessing the social contexts, mapping the visions and imaginaries present and understanding the networks and constellations of power. Relevant questions in this domain of inquiry are as follows: Are problems in society defined differently and other solutions proposed? How does the vision position itself in the context of other proposed solutions that address the same problem? Are there alternatives to these visions and are they also considered? If not, why not?

Finally, stakeholders who apply reflexive futurizing and merge several roles in their forward guiding practices become clearer about their respective roles and their tasks. That is to distinguish the levels of analysis, assessment, management and design in the practices of futurizing. Analysis implies an understanding of unconscious and latent images, expectations, desires, needs, fears, presuppositions, communicated and staged values, myths, archetypes of modernity and metaphors. Its assessment deals with understanding the consequences of these narratives and their resulting practices and routines of using visions for collective aims and the practices of constructing narratives, as well as understanding the crisis and transformation of narratives. Assessing futurizing also looks at social implications (stabilization of innovation paths, exclusion of alternatives). It also requires measuring spaces of possibilities, evaluating visions as narratives and the opening up of discursive experimental spaces (content, consistency, argumentation schemes).

The management of futurizing tackles the level of governing practices, including understanding and moderating decision-making processes, mediating the fight for resources (attention, capital, space) and evaluating the appropriate formats of negotiation (modi of communication and understanding). It also aims at understanding and pacifying present constellations (emerging conflicts, alignments, discursive co-optations), to moderate stakeholder processes, to open up participation, supporting and facilitate negotiation processes.

Finally, at the level of design, as stakeholder in the practices of futurizing, the social sciences and the humanities bring reflexivity into the technology development process, integrate knowledge and skills and shape visions as forward-looking narratives. This works by the construction and revision of images, narratives, scenarios, and stories, governance of decision making processes and by framing and steering attention and developing effective communities.

As a way of conclusion, I would like to reiterate the statements from the beginning of this paper: Our task is not to foretell the future, or to cure the modernist desire for a future, but to understand why it exists, and what it tells us about our present conditions.
We should not solely attempt to regulate futurizing, be it in a positive sense by making it more participatory or in a negative sense by supporting single fundamental(ist) western values, but we have to understand the forms, modi and functions of visions as means to safeguard a possible future. We have to be reflexive about the impact of futurizing as knowledge production and the role we would like to play in the struggle for the future. Decency is a crucial cornerstone of (scientific) futurizing under conditions of uncertainty and for providing orientation in fuzzy constellations. Reflexivity in action will most likely be able to combine the critical mission of uncovering hidden biases that serve vested interests but encourage the status quo to perpetuate itself and an engaged science that invests in direct action. This includes taking responsibility for the impact our research actions likely will have in closing down or opening up discourses and, consequently, in facilitating futurizing for a maximum number of social actors, allowing for utopian thinking, as well as – and this is probably the highest mission – to protect the unavailability of future against any attempts to colonize it.

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Figure 1: https://de.wikipedia.org/wiki/Greta_Thunberg#/media/Datei:Greta_Thunberg_4.jpg, 03-16-2020.
Figure 16: https://www.spiegel.de/fotostrecke/bizarre-entwuerfe-aus-nordkorea-architekten-entwerfen-ihre-vision-fotostrecke-116359.html, 03-16-2020.
Figure 17: https://www.mercedes-benz.com/de/design/insights/mercedes-benz-future-world-eine-vision/, 03-16-2020.

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