Digital Threats to Democracy

Studies in Digital Politics and Digitalization Policy-Making

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PhD Thesis

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Contents

Resumé

Denne artikelbaserede ph.d.-afhandling undersøger i tre artikler mulige trusler mod demokratiet skabt eller forstærket af digitaliseringen. Artikel 1 addresserer digital misinformation som demokratisk problem relateret til post-faktuelt demokrati. Post-faktualitet relateres til det både nye digitale medialandskab og politisk polulisme. Artiklen viser hvordan misinformation kan undergrave demokratisk legitimitet relativt til en deliberativ opfattelse af demokrati, og hvordan visse former for misinformation, der angår valgprocedurere og valgresultater kan true demokratiet i lyset af en minimalistisk demokratiopfattelse. Et ideal om faktuelt demokrati præsenteres, hvor arbejsddeling mellem borgere og eksperter skal sikre, at borgerne har den politiske autoritet, og eksperter har den epistemiske autoritet således, at politisk lighed opretholdes imens samfundsmæssige problemer addresseres på basis af evidens. Artikel 2 undersøger nærmere det nye informationsmiljø og de transformationer af opmærksomhedsøkonomien som digitaliseringen har medført for politisk kommunikation. Den tager udgangspunkt i George Franck's teori om opmærksomhedsøkonomi, hvori medierne spiller rollen som en finansiel sektor. Det påpeges dog, at Francks analyse har et blind punkt for den høje grad data og tilkomsten af digitale platforme har påvirket opmærksomhedsøkonomien og forstærket mulighederne for at producere og udbrede nyhedsindhold i overensstemmelse med forbrugernes efterspørgsel – inklusiv vildledende og distraherende indhold. Den foreslår og definerer forskellige spekulative opmærksomhedsbobler, herunder politiske, og påpeger at boblerne har skiftet karakter med den digital transformation. Artikel 3 vender sig mod digitaliseringspolitik og undersøger empirisk hvorvidt og i hvilket omfang demokratisk problematiske antagelser om den digitale udvikling som en uundgåelig accelerende udvikling, som demokratier bliver nødt til at tilpasse sig til, kan konstateres i nyere danske digitaliseringsstrategier. Der konstateres et skift i midten af 2018, hvor antagelser om teknologisk acceleration og uundgåelighed erstattes af mål om at *påvirke* udviklingen med "danske" demokratiske værdier. Artiklen diskuterer til sidst, hvorvidt sådanne målsætninger er realistisk i lyset af teknologisk determinisme, konstruktivisme og en teori om socioteknologisk selektion.

Summery

This article-based PhD thesis examines in three articles potential threats to democracy posed or amplified by digitalization. Article 1 addresses digital misinformation as a democratic problem related to post-factual democracy. Post-factuality is related to both the novel digital media environment and political populism. The article shows how misinformation may undermine democratic legitimacy relative to a deliberative notion of democracy, and it shows how certain forms of misinformation concerning the election procedures and results may threaten democracy according to a minimalist notion. An ideal of factual democracy is presented, in which a division of labor between citizens and experts is to ensure that the citizens hold the political authority, and experts hold the epistemic authority such that political equality is in place, while societal problems are addressed on basis of evidence. Article 2 examines further the novel informational environment and the transformations of the attention economy that digitalization has entailed for political communication. The baseline is George Franck's theory about the attention economy, according to which the media play the part of the financial sector. However, it is pointed out that Franck's analysis has a blind spot pertaining to the extent to which data and the emergence of digital platforms have influenced the attention economy and amplified the affordances for producing and diffusing news content according to consumer demand, including misleading and distracting content. It suggests and defines different types of speculative bubbles of attention, including political bubbles, and points out that the bubbles have changed with the digital transformation. Article 3 turns to digitalization policy making and examines empirically whether and to what extent democratically problematic assumptions about the digital development as an inevitable and accelerating development, to which democracies need to adapt, are to be identified in recent Danish policy papers concerning digitalization. A shift is found mid-2018, where assumptions about technological acceleration and inevitability are supplanted by aims of *influencing* the development according to "Danish" values. Finally, the article discusses whether such aims are realistic in light of technological determinism, constructivism and a theory of sociotechnical selectionism.

Introduction Part I: Overview and Context

Background of Articles

This PhD thesis contains three research articles. Authors are listed alphabetically.

Article 1
"Reality Lost – Post-Factual Democracy"
Vincent F. Hendricks and Mads Vestergaard.

Originally, a shorter version of the article was published in German as Hendricks, V. F and Vestergaard, M., (2017). "Verlorene Wirklichkeit? An der Schwelle zur postfaktischen Demokratie", in: *Aus Politik und Zeitgeschichte*. 13, pp. 4-10. Written in English and translated to German by the journal. A slightly extended version of the English manuscript has also been published as Hendricks, V. F. and Vestergaard, M. (2018). "Post-Factual Democracy", in *1984 and Philosophy: Is Resistance Futile?.* Di Nucci, E. & Storrie, S. (ed.). Chicago: Open Court Publishing Company, Vol. 116. pp. 269-282.

The version of the article submitted now as part of this PhD thesis has been revised and significantly extended, and this version of the article is unpublished.

Co-authorship: Vincent F. Hendricks and Mads Vestergaard have contributed equally to section 1 – 6 of the article. The sections 7 - 9, in this version after revisions and extensions by Mads Vestergaard, have Mads Vestergaard as sole author.

Article 2
"Digital Transformations of the Attention Economy of Political Communication and Political Bubbles"
Mads Vestergaard
Unpublished.

Article 3
"The Need for Speed – Technological Acceleration and Inevitabilism in Recent Danish Digitalization Policy Papers"
Mads Vestergaard
Published in *SATS – Norther European Journal of Philosophy* 2021; 22(1): 27–48.

Objective, Field, Connections and Clarifications

1. Concerns for the Future of Democracy

In the summer of 2019, Pew Research Center and Elon University's Imagining the Internet Center conducted their 11th canvass on the "Future of the Internet" directed at different technology actors and experts such as scholars, researchers, business leaders, policy makers, developers and innovators as well as activists (Pew Research Center, 2020). The topic was the future impact of technology on democracy, and the experts were asked to answer the following question:

"*Between now and 2030, how will use of technology by citizens, civil society groups and governments affect core aspects of democracy and democratic representation?*".

Of the 979 respondents, 49 percent answered that, "technology will *mostly weaken core aspects of democracy and democratic representation in the next decade*", whereas 33 percent projected that it will "mostly strengthen core aspects of democracy and democratic representation", and 18 percent that "*no significant change*" will happen due to technology (Pew Research Center, 2020: 4).[1] Thus, a majority consisting of almost half of the responding technology experts prognosed pessimistically that the technological development during this decade will challenge democracy and impact it negatively. A common denominator for the majority of the worries about the future of democracy (four out of seven) is that they relate to the novel digital *informational environment* and its potential implications for democracy. The experts expressed worries that exploitation of citizen's "digital illiteracy" will produce an "ill-informed public"; worries about *info wars*, where "technology will be weaponized to target vulnerable populations"; worries about how misinformation may sow confusion and "tech-borne reality distortion", and worries about the weakening and "decline of trusted, independent journalism" due to social media platforms and their effects

[1] As made clear by Pew Research Center, this is a non-scientific canvas representing only the viewpoints and opinions of those selected experts actually responding to the canvas and the results are thus not based on a random sample of any well-defined population. The respondents were given the opportunity to comment and explain their responses, and those explanations have been categorized in different themes collecting optimist and pessimist reasons for their hopes and worries.

(Pew Research Center, 2020: 5). This constellation of concerns gathers around the digital transformation of the media landscape as the main theme, and the worries expressed relate to the novel opportunities and practices of misleading, misinforming and manipulating users, consumers and citizens facilitated and afforded by this transformation, and their potential negative consequences for democracy. This theme concerning digital transformations of the informational environment and the ways those transformations may challenge democracy, especially due to new affordances for effectively diffusing misinformation and disinformation, is also a main theme for this PhD thesis addressed in two of the thesis' three articles. The last worry expressed by tech experts reported in the canvass also relates to the new affordances for manipulation.[2] However, the main concern is about the *speed* of the technological development and the inability for democracies to respond fast enough to the challenges: "The speed, scope and impact of the technologies of manipulation may be difficult to overcome as the pace of change accelerates" (Pew Research Center, 2020: 5). This theme of technological acceleration and the focus on the ability, or lack of ability, of democracies to respond timely, or to respond at all, to challenges posed to democracy by an accelerating technological, digital development, is addressed in the PhD thesis' third and last article. This leads to the objective of the thesis.

2. Objective and Brief Overview

The objective of this PhD thesis is:

to examine threats posed to democracy by digitalization.

More specifically, it explores the novel digital informational environment of political communication and its affordances and incentives for diffusion of digital misinformation (article 2), and investigates potential implications for democracy and the ability to address challenges and mitigate societal problems (Article 1). In addition, the thesis examines assumptions of inevitabilsm and technological accelerationism inherent in recent

[2] The two residual worries reported in the canvass concern increased power imbalance due to (1) corporate and political elites serving themselves and their own goal designing and implementing technologies and due to (2) "surveillance capitalism" creating "an undemocratic class society system pitting the controllers against the controlled" (Pew Research Center, 2020: 5).

digitalization policy making in Denmark, pointing to potential problematic implications for democracy, and discusses the findings in light of constructivism, technological determinism and technological selectionism (article 3). More specifically, and in order to provide a preliminary overview of the articles and their contributions, the thesis aims to:

1. Conduct an interdisciplinary integration of the phenomenon and notion of post-factual democracy, (new) media studies, attention economics, political populism and different approaches to democracy. (Article 1).

2. Illustrate how misinformation may pose a threat to democracy according to a notion of deliberative democracy as well as according to a minimalist theory of democracy. (Article 1).

3. Introduce a notion and ideal of factual democracy, in which a division of labor between citizens and their political representatives on the one hand and experts and expert advisers on the other is in place, ensuring that the citizens hold political authority, thus avoiding technocratic governance, and experts hold the epistemic authority, thus avoiding post-factual disregard for facts and evidence. (Article 1).

4. Extend George Franck's (2020) pioneering attention economic framework by integrating the digital transformations of the attention economy of political communication – a blind spot in Franck's theory. In addition, to shed light on how those transformations contribute in realizing what Franck denotes *mental capitalism* (2005, 2020) to an even further degree than Franck suggests, and on the potential implications of this for journalism and digital disinformation and misinformation (article 2).[3]

[3] Following Tucker et al. (2018: 3), "misinformation" refers to "false information that may be unintentionally propagated" and "disinformation" refers to "deliberately propagated false information". This distinction implies that disinformation is a subset of misinformation (Guess and Lyons, 2020). However, when referring other scholars who do not necessarily following that distinction, I employ the terms they use in the context.

5. Introduce and define notions of attention bubbles of news and politics thus extending Franck's structural analogy between media institutions and the financial sector by translating and transferring the theoretical elements describing speculative bubbles from financial markets to information markets. (Article 2).

6. Suggest the plausibility of the claim that introduction of data extraction and analysis as well as algorithms in both financial and information markets may amplify tendencies to speculation and thus contribute to inflating bubbles potentially undermining the social purpose of both finance and journalism. (Article 2).

7. Examine empirically, employing qualitative content analysis, whether and to what extent assumptions, narratives and imaginaries of inevitabilism and technological accelerationism are to be identified in recent Danish policy papers concerning digitalization. (Article 3).

8. Critically address the potential negative democratic implications of the empirical findings from the qualitative content analysis of the recent Danish policy papers in light of criticisms provided by Rosa and Zuboff and in relation to a notion of discursive closure. (Article 3).

9. Discuss the empirical findings and the theoretical question of democratic agency, thus entering the field of philosophy of technology, in light of the constructionism inherent in the approach of Science and Technology Studies, technological determinism and a theory of sociotechnical selectionism. (Article 3).

3. Connections between the Articles

As this brief overview may suggest, there is a thematic interconnection between the three articles. They all address the same main theme of digital threats to democracy, which it is also the objective of the thesis to examine. However, article 1 and 2 are more closely connected as they both address the transformations of the media landscape and informational environment resulting from digitalization as the main object of research. Both explore the new conditions for political communication, including the conditions for

misleading and manipulating, but from different angles. Where article 1 provides an overview of different technological, psychological and economic factors contributing to post-factuality and investigates how post-factuality and misinformation may be considered democratically problematic according to specific notions of democracy, article 2 focuses specifically on the informational environment and its digital transformation and offers a more detailed account and structural analysis of the attention economy of political communication. This account, in contrast to the brief description of attention economy in article 1, includes the important factor of data extraction and analysis as an essential component influencing the conditions for political communication and the interaction between political actors, media actors and citizens. Even when article 3 is not addressing conditions of political communication and the transformation of those directly, and instead explores the domain of policy making examining accelerationist and inevitabilist assumptions inherent in policy papers concerning digitalization, it is still connected to article 1 and 2 at another (meta)level – besides the main theme and objective of examining digital threats to democracy. Article 3 is connected to article 1 and 2 due to it's stance on inevitabilism and technological determinism in the following sense.

If the technological, digital development is inevitable, necessarily accelerating and autonomous, following it’s owns laws, as entailed by stronger positions of technological determinism, then democracies have no agency vis-à-vis the technological development, and no ability to control and change its trajectory by influencing it politically according to democratic and civic values. In such a case of technological determinism, all one can do in the face of digital disruptions of democracy – such as the those caused by affordances and incentives for misinformation and disinformation explored in the first two articles – is, metaphorical speaking, to lean back and watch the show, which will go on anyway no matter what citizens, politicians, activists, commentators or scholars think, say or try to do about it. No matter whether technological determinism is true or not, assumptions, narratives and imaginaries about the technological digital development as an inevitable development to which one can only adapt, but not influence, may themselves contribute in fostering fatalism and political apathy. If resistance is considered futile anyway, why bother in the first place? Such political apathy may curb and impair political mobilization and activism, as well at democratic legislation and regulation, aiming at countering and mitigating the challenges posed to democracy by the technological, digital development,

including misinformation, disinformation and post-factual conditions (explored in article 1 and article 2). Such an argument has been made by Zuboff (2019). According to Zuboff (2019: 182), inevitabilism is widespread in Silicon Valley and may be considered "a full-blown ideology" of the tech community. This ideology of inevitabilism is referred to as an "trojan horse for powerful economic imperatives" which is carrying "a weaponized virus of moral nihilism programmed to target human agency and delete resistance" and described as a "cunning fraud designed to render us helpless and passive" (Zuboff, 2019: 183). Inevitabilist ideology *naturalizes* what Zuboff (2015, 2019) has named and criticized as *surveillance capitalism*, and the threats its undemocratic practices, according to Zuboff, pose to democracy. As she (2019: 313) notes, "[i]nevitabilist ideology works to equate surveillance capitalism […] with nature: not a human construction, but something more like a river or a glacier, a thing that can only be joined or endured".

Thus, following Zuboff, inevitabilist assumptions in themselves may pose a threat to democracy at the metalevel of ideology because such assumptions may undermine intentions and attempts to influence the development politically according to democratic values as being futile. This meta-threat to democracy addressed in article 3 is thus connected to article 1 and 2 and the domain of digital politics and political communication addressed in them, because assumptions and imaginaries about the digital development held by policy makers, as well of the public, may be important factors for whether and how challenges such as misinformation and post-factual conditions are approached and addressed politically, if addressed at all.

Besides those thematic and metalevel connections between the articles, they may also be considered as contributing to the research field of (post-2016) digital politics – at least if this field extended to include policy-making and policy papers concerning digitalization, and the inherent assumptions, which there is some precedence for.

4. Digital Politics – A Rapidly Evolving and Maturing Research Field

Persily and Tucker (2020: 1) note that widespread worries about implications of social media platforms for democracy has led to an "explosion in research" and "[a] new field is forming" investigating the Internet and social media's impact on democracy, in which the "research comes from disparate corners of academia" like political science, psychology, communication, and economics among others. Humprecth et al. (2020: 494) note a growing

transdisciplinary research interest "among scholars from different disciplines such as communications, political science and psychology" in investigating online disinformation, which is "likely to be harmful to democracy" (pp. 4). Kuehn and Salter (2020) even suggest that a *new* research field is emerging contributed to by different academic disciplines. Employing Foucauldian terminology, the authors (2020: 2590) suggest that a new academic "episteme" is currently forming, in which "the objects of knowledge" are "contemporary threats" to the democratic promises of the Internet. Under the heading "Digital Threats to Democracy", they, in turn, enlist fake news, filter bubbles/echo chambers, hate speech and surveillance as such objects of knowledge posing threats to democracy. Such claim that a whole *new* research field is emerging may, however, be an exaggeration. The increased cross-disciplinary research interest in investigating digital threats to democracy may also be considered the result of transformations in, and evolution and maturing of, the interdisciplinary research field investigating *digital politics* (Dutton, 2020; Löfgren, 2021).

Digital politics refers broadly to the introduction of digital technologies and digital media in democratic politics, especially in political communication, debate and interaction. Lidén (2015: 3) defines digital politics as "the use of information and communication technologies in democratic political processes concerning information, discussion, and decision making". According to Dutton (2020: xviii) the notion of digital politics, "refers primarily to an increasing tendency for political actors to interact and channel their goals, strategies, activities and messages through digital platforms and media. It also enables networked individuals to respond more often and more rapidly to those actors' messages, as well as to exchange ideas with one another in narrow, wide or multiple circles". A central theme for research in digital politics is the question of how the introduction and increased use of digital technologies and digital media impacts and to some extent reshapes politics and "what these changes […] might mean for political communication in general" (Coleman and Freelon, 2015: 3). Research in digital politics includes scholarly approaches and contributions addressing and investigating the implications of the changes, resulting from the introduction of digital technologies and media in politics and political communication, for *democracy*. According to Dutton (2020: xvii), "[m]any of the big questions concerning contemporary societies are questions about digital politics". One example of such "big" questions mentioned by Dutton is, "[w]ill the Internet and related digital media bring democracy to the world, or 'kill' democracy […]?" (Ibid.).

From the mid-1990s and in the 2000s, research in digital politics was characterized by democratic optimism and hopes that the internet and digitalization would bring democracy to the world as well as benefit and enhance democracy in already democratic Western polities (Miller and Vaccari, 2020). The novel information and communication technology (ICT) was dubbed *liberation technology* and considered means for expanding "political, social, and economic freedom" (Diamond, 2010: 70).[4] The decentralized structure for information flows, communication and interaction that the internet and ICTs facilitate was thought to be necessarily resistant to central control due to the technical features of the technology itself. As summarized by Miller and Vaccari (2020: 5), the "prevalent view" was "that the technical features of the communication infrastructure would necessarily militate against centralized control; that this function would inevitably create opportunities for free expression; and that these opportunities were necessarily conducive to political liberation".[5] In the Western democracies, the internet and digital technologies were also to a far extent considered tools for enhancing democracy and empowering the citizens.[6] By facilitating increased and broader participation in the political deliberation, by providing platforms for otherwise politically marginalized voices to express themselves, and by making possible to circumvent gatekeeping (elites of) journalists, the internet and the digitalization of the media were mostly perceived as means for strengthening democracy (Hindman, 2008; Miller and Vaccari, 2020).

This widespread optimistic narrative took a substantial blow in the year 2016.[7] The campaigns and public debates leading up to United Kingdom's referendum on EU membership, resulting in *Brexit*, as well as the one leading up to the presidential election in

[4] According to Diamond (2010: 70), liberation technology "essentially" refers to "the modern, interrelated forms of digital ICT—the computer, the Internet, the mobile phone, and countless innovative applications for them, including "new social media" such as Facebook and Twitter."

[5] An example of such optimist belief in the impossibility for authoritarian regimes in controlling the information flows may be found in then-President Bill Clinton comment on China's early attempts to gain control of the internet, "Good luck. That's sort of like trying to nail Jell'O to the wall" (Zhong, 2018).

[6] For a dissenting voice pertaining to the optimist tendency, see for instance Hindman (2008).

[7] As noted by Miller and Vaccari (2020), the first significant blow to the widespread optimist narrative came with the Snowden revelations in 2013 exposing how the digital technologies broadly believed to strengthen democracy and empower the citizens both afforded and were used by government agencies in US and UK for mass dragnet surveillance of its citizens intruding on their privacy. Referring Lyon (2015), Miller and Vaccari (2020: 8) note that this revelation became a gamechanger for surveillance studies dividing them in "before" and "after Snowden". However, in the context of this thesis (see section 2 in this introduction) and (two of) its contributions addressing political communication, the events of 2016 and their effects on the popular perception and scholarly approaches, stand out as more significant.

USA, resulting in the victory of Donald J. Trump, were infested with high levels of digital misinformation and disinformation and factually misleading news content, from both foreign and homegrown actors, made possible by the internet and digital social media platforms (Benkler et al., 2017, 2018; Allcott and Gentzkow, 2017; Rose, 2017; Persily, 2017).[8] Those events and the year 2016 became a turning point shifting the dominant narrative about democracy and digitalization, especially pertaining to the effects and implications of digital media and social media platforms for the informational environment of political communication and interaction, and in turn, for democracy. Salter et al. (2019: 4) notes that, "the election of Donald Trump and the Brexit referendum, have shaken the foundations of Western democracies, and turned that optimistic view to significant concerns about the role of digital media in eroding democratic participation". Chadwick (2020: 2) concurs pointing out that in "our post-2016 moment", the sentiment among scholars researching digital media is characterized by "deep pessimism" in contrast to the earlier underlying baseline of "optimistic visions for democratic change". Miller and Vaccari (2020: 3) also point to a "shift in narrative about digital media from tools of liberation to tools equally well suited to illiberal and anti-democratic ends". They (2020: 10) also note that, "scholars are increasingly aware that some aspects and uses of the internet may threaten key features of democracy—as a project, as a possibility, and as a system of government". This awareness is, according to the scholars (2020), reflected in a change in the allocation of scholarly attention and the research questions about potential implications for democracy of the Internet and digitalization. This change of scholarly approaches has also been observed by Persily and Tucker (2020: 1), who with reference to the elections in 2016 point out that, "[a]s conventional wisdom concerning the effect of the Internet on democracy abruptly shifted, so too did much of the research". After 2016 research in digital politics has thus shifted its main focus from the potential democratic benefits of digitalization to the potential challenges and threats to democracy posed by digitalization.

In the introductory chapter of the recently published volume *A Research Agenda for Digital Politics*, Dutton (2020: xxviii) describes the research field of digital politics "rapidly evolving" and contends that it has only recently reached its mature stage of its development. According to Dutton (2020: xxiv), a part of this maturity is the

[8] It may be added that traditional domestic media outlets, especially tabloid and partisan media, also played a significant part in diffusion and widespread circulation of the misleading content (Benkler et al., 2017, 2018).

interdisciplinarity characterizing the field as such – or the "wide range of theoretical perspectives from different disciplines" contributing to it. Another is that the scholars in the field are not "cheerleaders for new technology" (p. xviii) anymore.[9] Chadwick critically observes that earlier scholarship in the field (including his own) was "mostly driven by pro-digital media perspectives" (2020: 3). In effect, it neglected the negative aspects and effects of digital media in general and social media in particular. In order to "better equip the field for researching the post-2016 context", Chadwick (2020: 2) points out four challenges for future research in the field related to the earlier (pre-2016) optimist tendencies and disregard for "the pathologies" of digital and social media. The first is that earlier analyses of digital media and politics tended to select "pro-liberal democratic" cases to investigate, but after the events of 2016, however, "the time ripe for research to focus attention on intolerant and democratically dysfunctional aspects of digital media engagement" (2020: 3). Secondly, research in the field had a tendency of employing "the engagement gaze" (2020: 4) assuming by default that engagement is democratically valuable in itself. As result, scholars have disregarded the (potentially democratically undermining) goals of the engaged, disregarded how designs in the informational environment may incentivize forms of engagement that erodes "liberal democratic norms", as well as disregarded the potential "longer-term, negative systemic consequences" of such engagement. Thirdly, there has been a widespread "rationality expectation" in the field implying that users are thought to "act on the best information available in the media system" and that this is "to be found online because the Internet has comparatively few biases and distortions impacting upon production and circulation of political knowledge" (p. 6). Finally, Chadwick points to a disregard for tradeoffs between "affective solidarity" and rational deliberation, and the force of affective ties and group affiliations online, and identity-confirming cognitive biases amplified by the affordances of social media and the Internet (p. 7).

Returning to the claim at the beginning of this section that a whole new research field exploring *digital threats to democracy* is emerging (Kuehn and Salter, 2020), it seems premature when the development in the field of digital politics is taken into account. In light of Dutton's (2020) characterization of digital politics as a recently matured field, not

[9] However, neither are they "fearmongers" (Dutton, 2020: xviii). Dutton also warns about the risk of dystopian pessimism after "the pendulum of opinion has swayed heavily to the side of dystopian perspectives" as also described above.

dominated by utopian-optimist assumptions (anymore), and in light of Chadwick's (2020) criticisms of the (pre-2016) optimist tendencies and proposal for post-2016 research to explore potentially democratically undermining aspects of digital and social media, investigations in digital threats to democracy may be considered a part of post-2016 research in digital politics. Accordingly, studies and investigations of potential digital threats to democracy, such as those conducted in this PhD thesis, may be included as part of the matured post-2016 field of digital politics.[10] This inclusion of the thesis in the post-2016 field of digital politics finds more support in Chadwick (2020). According to Chadwick (2020: 9), an "important task" of post-2016 research in digital politics "is to identify the conditions under which democratically dysfunctional information spreads online, exposing potentially large numbers to content which […] many then choose to share in their own social media networks". The thesis aims to contribute to the (post-2016) research field of digital politics by contributing, in two of its three articles, in identifying the conditions conducive for democratic dysfunctional information, drawing especially on attention economics as research approach. The third article, however, does not explore implications of digital transformations of the informational environment of politics and political communication, but explores policy-making and policy papers concerning digitalization and the inherent assumptions of accelerationism and inevitabilism. However, Dutton (2020: xxviii) also mentions "[t]he politics of regulating the Internet and social media" as an "important" topic for digital politics and encourages new researchers joining the field to shape the research agenda of digital politics admitting that his presentation of the field is "neither comprehensive nor omniscient". The dimension of political regulation of digital technologies opens a door for extending the scope of the field to also include research in digital *policy-making* besides digital *politics* (for the difference between the two, see for instance Esser, 2013). Commenting on Dutton (2020), Löfgren (2021) also makes the point that the scholarly community researching digitalization of public administration – e-government –

[10] An important requirement in this context is that investigations of digital *threats* to democracy should abstain from making broad and universal claims of the dystopian-determinist kind. The scholars of the field, as mentioned in previous footnote "are neither fearmongers" (p. xviii). The thesis seeks to avoid this risk by specifically addressing specific threats to democracy according to specific notions of democracy. See section 5 and 6 in this introduction.

ought to be more included, and include themselves, in the research field of digital politics.[11] The (pre-2016) *Handbook of Digital Politics* (2015) also includes a chapter on "Internet Governance" with one of the contributions (Moss, 2015) addressing the ideological dimension (cyberlibertarian optimism) of policy-making concerning the internet and digitalization. Thus, there is some precedence for including research in the domain of policy-making concerning digitalization, including its ideological dimension, in the field of research in digital politics. Add to this that Dutton (2020: xxii) emphasizes "[c]hallenging technologically deterministic assumptions" as a central task for research in digital politics, which article 3 does in the context of policy-making concerning digitalization. A final point in this context, and another reason to include article 3 in the field of digital politics relates to political and democratic participation: When research in digital politics investigates new avenues for political and democratic participation provided by digitalization (Coleman and Freelon, 2015), it may also be considered relevant to address the question of whether there might be assumptions, narratives and imaginaries *about* digitalization that demotivates democratic participation and political mobilization. Such assumptions, narratives and imaginaries would thereby also contribute to undermining, at the level of ideas and ideology, the early promises of digitalization as enhancing democratic participation.

Keeping this in mind, the PhD thesis as a whole aims to contribute to the field of interdisciplinary research in digital politics, extended to also include questions concerning digital policy-making and digitalization of public administrations on its research agenda – as encouraged by Löfgren and to some extent also by Dutton.[12] The research approach of the thesis is, it may be added, mainly critical towards the potential democratic implications of digitalization as it focuses specifically on and investigates potential digital threats and challenges to democracy, rather than opportunities, as objects of research. According to Chadwick (2020) such critical approaches focusing on the negative aspects of digitalization in relation to democracy is and should be a part of the post-2016 research field of digital

[11] Löfgren (2021) is a review of the volume *A Research Agenda for Digital Politics* (Dutton (eds), 2020), in which he points out, mildly critically, that only one of the contributions in the volume addresses digitalization of public administration and e-government.

[12] However, in the title of the thesis the notion of (digital) "policy-making" has been included partly in order to showcase that this dimension of the thesis (article 3) potentially may be considered outside the scope of the field according to the definition of digital politics (Dutton, 2020) with its focus on digital transformations of the interaction and communication between political actors and citizens and thus its proximity to disciplines in media studies researching implications of digitalization of the media and media landscape.

politics evolved beyond its premature default optimism. However, the threats examined are *specific* and related to *specific notions* of democracy in order to avoid the tendencies, warned against by both Dutton (2020) and Miller and Vaccari (2020), of delivering too broad, too pessimistic and too determinist claims and conclusions (see the following section 5).

Before proceeding to the second part of the introduction, in which the articles and their contributions are presented in more detail and relevant theoretical and methodological considerations and references to relevant surrounding state-of-the-art literature are provided, a few clarifications, qualifications and disclaimers are in order.

5. *It's Complicated*...

Questions and claims pertaining to the implications of the internet, digital media and digitalization for democracy can be phrased in such general terms that the mixed and muddy reality to some degree is lost in grand universal claims of both optimistic and pessimistic kind. This has been noted as one of the problematic tendencies in earlier research on digital politics and on the relation between democracy and digitalization (Dutton, 2020; Miller and Vaccari, 2020). No matter whether the approach is optimist or pessimist, nuances and mixed results and consequences of digitalization may be lost when the questions asked are too general, and bivalently call for yes or no answers. For instance, when it is asked whether digitalization *as such* is good or bad news for democracy *as such* – or whether the Internet will democratize *or* undermine democracy – highly complex matters and developments are oversimplified and details and nuances risk being sacrificed for the sake of broad claims and clear cut, but also speculative, answers potentially disregarding the developments and phenomena that do not fit the narrative. Thus, the best general and universal answer to the very broadly phased question of whether digitalization benefits and enhances democracy or it challenges or undermines it, is *that it's complicated*. Digitalization may be good news for some aspects of democracy in some contexts, while bad news challenging democracy, or some aspects of democracy, in others. As pointed out by Adams and Prins (2017: 10), digitalization may for instance "facilitate transparency of government information and help empower citizen participation in policy making". However, digitalization and emergence of digital media platforms, may also create a "room for manipulation" and facilitate a "shift of control to entities with less, or no, democratic

legitimation" referring to transferal of control from democratic governments to tech companies (2017: 13). Along the same lines, digital technologies and ICTs, especially social media platforms, may fuel and facilitate political mobilization and protests (as the Arab Spring or the Occupy Movement), but those same technologies may also be used by governments for surveilling and cracking down on dissent (Diamond and Plattner 2012; Pasquale, 2015; Unver, 2017).

Because of this complicated, nuanced and mixed reality of digital politics and digital transformations of democracies, grand claims about the positive or negative effect of digitalization on democracy *as such* are more suited for sensationalism, potentially attracting attention to one's research when communicating in popular media, than actually for describing and addressing exactly *why* and *how* it is that *specific* aspects of digital technologies, or specific affordances of those technologies, may be considered as posing threats to democracy. Thus, it is important to make clear that this thesis does not presume or aim at providing a general theory about the relation between digitalization and democracy or an answer to a general question of whether digitalization is threat or benefit for democracy. Rather, as also highlighted in the objective of the thesis above, the thesis examines *specific* threats to democracy posed by different aspects of digitalization: One is the diffusion and consumption of political digital misinformation technologically afforded by the internet and social media platforms and economically incentivized by the digital (attention and data) economy. Another is the assumptions and imaginaries of political actors and policy makers, which frame digitalization as an inevitable accelerating technological development to which polities necessarily must adapt and are unable to influence potentially fueling fatalism, compliance and political apathy.

However, to claim that a specific aspect of digitalization poses a threat to democracy *as such* is itself a general – indeed too general – claim. What *democracy* is and ought to be, and thus how on what ground something may be said to pose a threat to it, is in itself a controversial matter calling for qualifications and a disclaimer.

6. Democracy – An Essentially Contested Concept

The literature on democracy is vast and the academic discussions about democracy are complex with different models, theories as well as justifications of democracy coming from disciplines such as political science and philosophy. As noted decades ago by political

theorist, Robert Dahl (1956: 1), "there is no democratic theory – there are only democratic theories". This observation still holds today. Held (2006: 1, emphasis in original) points out, referring to the etymology of the word, that "democracy" means "a form of government in which […] the people rule" also entailing "a political community in which there is some form of *political equality* among the people". However, when it comes to determining further who counts as part of the people and what it actually means or entails that the people rule, the consensus stops and gives way to disagreement between different conflicting views on, and models of, democracy. Held (2006: 2) lists, for instance, seven different positions pertaining to what is to be considered as rule by the people, and thus as democracy, ranging from the more minimalistic conceptions as "the rulers being chosen by the ruled" to more demanding and maximizing positions as a participatory one holding that "all should govern, in the sense that all should be involved in legislating, in deciding general laws, in applying laws and in governmental administration". Thus, as noted by Lindseth (2017: 345), there is no agreement or consensus view about "what democracy *is* or what it *ought* to be", and thus the fundamental disagreement pertaining to democracy is both normative and descriptive. Following Adams and Prins (2017) and Lindseth (2017), democracy is an *essentially contested concept*. The notion of essentially contested concepts has been defined as concepts which, "inevitably involve endless disputes about their proper uses on the part of their users" (Gallie, 1956: 169). Thus, what is to be considered a democracy and what counts as *democratic* are matters of endless disputes not to be decided on one time and for all. Add to this that the concept of democracy is highly value-laden and denoting a polity, phenomenon or development as *democratic* is also to make a positive normative evaluation of it, whereas to characterize something as undemocratic entails a negative normative evaluation (Collier et al. 2006). As critically noted by Przeworski (1999: 12), "democracy has become an altar on which everyone hangs his or her favorite *ex voto*. Almost all normatively desirable aspects of political, and sometimes even of social and economic, life are credited as intrinsic to democracy: representation, accountability, equality, participation, justice, dignity, rationality, security, freedom, . . . the list goes on". Thus, calling something democratic is also to appraise it as good. Gallie (1956: 184) also notes that this is especially the case with democracy; "the concept of democracy […] is appraisive; indeed many would urge that during the last one hundred and fifty years it has steadily established itself as the appraisive political concept *par excellence*".

This thesis does not presume or aim at providing a definition or a theory of democracy to settle the matter once and for all. Neither will it settle on a specific determination or definition of democracy already suggested and discussed in the rich and vast literature. What democracy is, and what it ought to be are, of course, important questions and discussions, but addressing them in order to provide answers – by for instance providing and arguing for a list of necessary and sufficient conditions for democracy – is outside the scope of this thesis. The way this thesis approaches the contested, and value-laden, notion of democracy is to take scholarly and institutional concerns about digital threats to democracy and the future of democracy, described above, as its point of departure. This also entails that the fundamental approach of the thesis to democracy is appraisive of democracy assuming, to a large extent, the superiority of democratic governance vis-à-vis other forms of government – as for instance authoritarian, oligarch, technocratic or aristocratic governance – from the outset.[13] If democracy and democratic rule are not considered highly valuable and superior to alternatives, it would not necessarily be problematic that something or a development, like digitalization, *threatens* democracy.

The challenge posed by the fundamental disagreement between different theories and models of democracy on how to define, justify and defend democracy is being met by relating the potential digital threats and harmful phenomena to *specific theories of democracy* according to which they show themselves as posing a threat or being democratically problematic.

To be concrete: In article 1 addressing post-factual democracy, the potential democratically undermining implications of high levels of circulated and consumed digital misinformation is considered in first relation to a notion of deliberative democracy, according to which misinformation may impair the democratic legitimacy of political decisions. Second, certain forms of misinformation, concerning beliefs and disbeliefs pertaining to election procedures and their results, is considered in relation to a minimalist concept of democracy and it is argued that this kind of misinformation may be democratically undermining even for such minimalist notion of democracy, which thus has

[13] However, in article 1, section 8, on factual democracy, the superiority of democracy vis-à-vis technocracy and epistimocracy is addressed to some extent. In article 2, an aggregative notion of democracy is criticized as being insufficient considered from a problem-solving perspective.

an implicit necessary *epistemic* component. Thirdly, (post-factual) disregard for expertise is critically addressed in relation to a notion of democracy, in which division of labor is necessary to ensure that the citizens are deciding the fundamental aims and direction of society and experts providing the knowledge and expertise about the means to those ends – providing the knowledge about which policies to enact in order to realize the aims decided by the citizens. In article 2 on the attention economy, the implications of digitalization of the media environment and the affordances and incentives for political attention bubbles, democracy is addressed in relation to a perspective focusing on the ability to effectively solve problems and mitigate challenges, and an aggregative notion of democracy, according to which the sole criteria for evaluating politics and policy making is satisfaction of citizens' preference, to some extent is criticized for being insufficient. In article 3, however, democracy is addressed at another level concerning democratic *agency* and touching upon questions discussed in the field of philosophy of technology (Feenberg, 2006). Whether democracies are able to address and mitigate the problems and challenges to democracy posed by the digital transformation, including digital misinformation and disinformation, through regulation and policy-making concerning digitalization depends in the first place on whether and to what extent democracies, and polities as such, are able to influence the technological development *at all*. It depends on whether and to what extent humans individually and collectively in democracies are able to control and steer the technological development and to what extent the technological development is "autonomous", following its own laws independent of human intentions and aims (Feenberg, 2006). In short, it depends on whether technological determinism is true. Besides such (ontological) questions about democratic agency pertaining to philosophy of technology, assumptions, narratives and imaginaries about the technological development as inevitable may – true or not – themselves to some extent become self-fulfilling prophecies if they are believed to be true by political actors, because such beliefs, as mentioned in section 3 referring Zuboff (2019), may induce fatalism and political apathy undermining motivation for democratic interventions, regulation initiatives and political activism.

7. Digitization and Digitalization

The notion of digitalization also needs qualification and clarification. It should be noted that *digitization* and *digitalization* denote different processes and developments, but also that

the terms are connected in the sense that digitalization is only made possible by digitization in the first place. *Digitization* (Brennen and Kreiss, 2016: 1) refers to "the technical process of converting streams of analog information into digital bits of 1s and 0s with discrete and discontinuous values", and dates back to the mid-1950s and the emergence of the early electronic computers. Digitization, converting analogue to digital information having the "capacity to be easily, cheaply, and accurately transferred between points" (Brennen and Kreiss, 2016: 3), and that "can be used repeatedly by a number of different people without diminishing or degrading the original digital object", which "combined with the low cost of reproduction, permits cheap, faithful, and widespread copies of digitized content" (Brennen and Kreiss, 2016: 4). The authors point out that digitization "has become ubiquitous" and that almost all "the media technologies we routinely interact with are digital" (p. 5). This development and emergence of digital media has, in turn, facilitated *digitalization* referring to "macrolevel changes in social structure and practice caused by digitization" (Ibid.). Brennan and Kreiss (2016) determines digitalization as, "the ways that digital media variously structure, shape, and influence the contemporary world" (p. 5). This determination of digitalization is used as baseline by Adams and Prins (2017: 6), but they also note that the "digital media" referred include "data and databases" as well as "computer programs and software, social media, digital visualization and video, online and mobile games and applications, web pages and websites, location-based services, social media, e-books, etc.". The focus on data characterizes the definition of digitalization offered by Tittin-Ulbrich et al. (2021) to an even larger extent, connecting the notion of digitalization to that of *datafication*. According to Tittin-Ulbrich et al. 2021: 10) digitalization is a "societal transformation process that uses ubiquitous digital technologies to connect ever larger social spaces. It submits more and more social and economic interactions to the simultaneous collection, analysis, and manipulation of digital data in real-time, and consequently influences individual or collective behavior in significant ways".

In this thesis, the notion of digitalization is used according to the first, broad, definition as *the ways that digital media variously structure, shape, and influence the contemporary world.* However, data, databases and practices of data extraction, analysis and usage play a central and decisive part in digitalization's *shaping of the world* and must be understood as an integral part of broad determination of "digital media" employed by Adams and Prins (2017: 6) and referred above. The objective of the thesis, to *examine*

threats posed to democracy by digitalization, is also to be understood according to this broad definition of digitalization. The notion of digitalization employed thus includes both technological developments such as the emergence of the internet, and it's networked informational infrastructure, the emergence of digital media and social media platforms and the introduction of data extraction and analysis and data driven and processing algorithms (made possible in the first place by *digitization*), as well as the societal, social, economic and political implications of those developments. Whether some of these implications are disruptive and pose threats for democracy is investigated in the thesis. When digitalization is thus determined, a central impact digitalization has on the world is that the practices of data extraction and analysis facilitate new business models and may provide new economic incentives, or enhance old ones. As pointed out by Zuboff (2015, 2019) the technological affordance of digital media and technologies for logging and extracting data has facilitated new business models exploiting and profiting from extraction and usage of data, such as Google's and Facebook's, and paved the way for what she denotes surveillance capitalism. This economic dimension of digitalization, the aspects of how introduction of data extraction and analysis may influence market conditions, mechanisms and the (political) economy as such, is central to article 2 in the thesis addressing the digital transformations of the attention economy of political communication and the business model of the attention merchant. In relation to the notion of digitalization, article 3 stands out and addresses the notion of digitalization itself more directly by examining descriptions of and assumptions about digitalization inherent in recent Danish policy papers, and explores potential implications of those for democracy. It is not only the technological, social and economic aspects of digitalization that shapes and influences the world, so do ideas, narratives and imaginaries about what digitalization is and implies as well as what it should be and should imply. And those ideas may themselves be democratically problematic when out-ruling democratic agency from the outset.

Now this introduction turns to presenting the articles and their contributions one by one, as well as relevant methodological and theoretical considerations and references to relevant state of the art literature.

Introduction Part 2: Presentation of the Articles

Article 1

Title: *Reality Lost – Post-Factual Democracy*

Article 1, *Reality Lost – Post-Factual Democracy*, suggests, defines and explores a notion of post-factual democracy and connects it to political populism, the attention economy of the new media landscape and its affordances for diffusion of digital misinformation as well as to psychological mechanisms resulting in resistance to facts. In turn, the article argues that post-factual conditions, emerging from high levels of circulated and consumed misinformation and disregard for facts and expertise, may undermine democracy.[14] It is argued that democracy, even according to a minimalist conception, requires a minimal level of factuality in order to be democratic at all. However, as the article argues, in order to be a well performing, or well-functioning, democracy able to effectively solve societal problems and mitigate challenges (or solve or mitigate them at all) through collective democratic decisions and policy making, more than a bare minimum of factuality is required. This, in turn, may potentially be ensured by a division of labor between citizens, and their political representatives, collectively deciding on the aims and ends on the one hand and experts and expert advisers providing the expertise about the means to those ends on the other. Finally, the article suggests and defends a notion and ideal of *factual democracy*, in which such a division of labor is upheld, and (post-factual) disregard for facts and sound scientific evidence is curbed through institutional mechanisms aiming at securing trustworthy as well as trusted expert advice.

The article takes a concrete historical event as point of departure: the presidential inauguration of Donald J. Trump in 2017 and the following debate on factual questions. The public debate about the number of participants and the weather during the inauguration speech, resulting in introduction of the notion of “alternative facts”, is interpreted as symptomatic for a tendency of post-factuality. The concrete events on January 6th 2021, the *Storm on the Congress,* at the end of Trumps presidency is also referred in the article as an example of how specific forms of misinformation, pertaining to the election procedures, may undermine democracy.

[14] To be more precise, it is argued that post-factual conditions may undermine democracy according to *specific* notions of democracy.

Post-factuality is characterized by a politization of facts such that even factual questions possible to decide on empirically become contested political matters. In addressing post-factuality, the article addresses the phenomenon also denoted by the more popular notion, and word of the year 2016, *post-truth* (Oxford Dictionaries, 2017*).* However, by narrowing down to the notion of "post-factuality", it makes clear the exclusive focus on factual statements thus avoiding potential misunderstandings and meta-ethical discussions on the truth-value of normative statements. Post-factuality is determined as situations in which opportune, but misleading, narratives replace facts and evidence as basis for political debate, opinion formation and policy making, resulting in a disregard for facts and expertise. The inherent element of misleading narratives as able to *replace* evidence and facts is informed by and depends on a theoretical framework provided by attention economics. The attention economy – in which attention, not information, is the scarce and valuable resource – arises as a consequence of the overabundance of available information relative to the limited finite amount of attention necessary to receive, consume and process the information. This creates a deficit of attention and turns attention allocation into a *zero-sum game*; spending attention on one piece of information means not spending it on another. Under those conditions of attention scarcity, narratives may replace each other by crowding them out from the spotlight of individual attention or the collective aggregated attention of the public agenda. If factually misleading narratives receive far more attention than factually sounder ones, which are thus crowded out of the public debate, they may thus be said to replace them to some extent, thus fueling tendencies to post-factuality.

Besides describing and defining post-factuality, the article explains its emergence as, partly, caused by the technology and business models at work in the novel media environment. On the one hand, the networked media sphere amplifies psychological mechanisms of resistance to facts and fuels diffusion of misinformation as "fake news" (Allcott and Gentzkow, 2017) as well as divisive fear- and anger mongering narratives deployed especially by political populists and conspiracy theorists. On the other hand, the business models in the attention economy of the media creates economic incentives for producing and disseminating misleading, but attention attracting, narratives and content. Taken together, the technology and the market conditions in the attention economy create an informational environment conducive to misinformation and divisive populist narratives potentially undermining factually based democratic deliberation, opinion formation and

reasoned collective democratic decisions. Such an informational environment may potentially also undermine democracy itself and may thus be said to pose a threat to democracy.

The article does not presume to present a universal theory or universal claims about the (negative) impact of digitalization of the media landscape, and the digital misinformation it affords, on democracy *as such*. In the introductory chapter to a volume on digitalization and democracy, Adams and Prins (2017: 5) makes clear that it will not "provide a *general* or *unified theory* about how digitalization and democracy relate", but instead provide "illustrations of how digitalization can be beneficial with an eye to democracy, and where it can go wrong". To some extent following such an approach, but exclusively focusing on "where it can go wrong" (ibid.), the article aims to *illustrate* how an *aspect* of digitalization – digital misinformation, the media environment affording it and the digital economy incentivizing it – may pose threats to democracy according to *specific* conceptions and definitions of democracy.[15]

The article contributes with an interdisciplinary integration of different fields of research, as well as concrete events and popular debates, relevant for illustrating, describing and explaining different, but interconnected, aspects of the phenomenon of post-factuality. Those research fields include (new) media studies (section 3), the growing field of attention economics (section 4), political theory concerning political populism (section 5), and theories of and discussions on democracy from political science and political philosophy (section 6 and 7). Such interdisciplinary integration of different research fields may contribute to an overview across academic disciplines potentially providing a more holistic comprehension of the phenomenon of post-factuality – as well as its close cousin, the widely used notion post-truth. Kuehn and Salter (2020: 2600) suggest a "multifaceted, integrative approach" for exploring and addressing digital threats to democracy, with digital misinformation being presented as one of those. By conducting an interdisciplinary integration of relevant academic fields, the article aims to contribute to such a *multifaceted and integrative* comprehension of the phenomenon of post-factuality, which entails

[15] As mentioned earlier, this PhD thesis as such will not seek or presume to provide a universal theory of the relation between digitalization and democracy, but rather to illustrate how specific aspects of digitalization – very briefly: digital misinformation (article 2 and 2) and inevitabilist assumptions inherent in digitalization policy papers (article 3) – may pose threats to democracy according to different specific notions of democracy.

exploring how digital misinformation is afforded, incentivized and may pose a threat to democracy. A contribution from St. George House consultation (2018) also points out that challenges to democracy from misinformation and disinformation "require examination from multiple perspectives to untangle and understand their constituent causes and effects". The article aims to contribute to such an examination.

The article also aims to contribute to discussions on the implications of misinformation, as well as post-factual or post-truth conditions for democracy (section 6). It does so by (1) illustrating how misinformation may undermine democratic legitimacy according to a specific notion of deliberative democracy (Gutmann and Thomson, 2009), and by highlighting the difference between the (less severe) democratic problem of an *uninformed* or politically ignorant electorate and the (more severe) democratic problem of a *misinformed* electorate. In addition, (2) by identifying an *implicit epistemic requirement* inherent even in a (self-acclaimed) minimalist notion of democracy (Przeworski, 1999), which identifies democracy with competitive elections, and justifies it minimalistic as the kind rule that ensures peaceful transferal of power. It is argued that certain forms of misinformation – those related to the fairness of the election procedures and the validity of the results of elections – may threaten democracy and the peaceful transfer of power even according to such a minimalist notion far less demanding than, for instance, models of deliberative democracy.

The article finally contributes by suggesting and describing a novel notion of factual democracy, which in opposition to post-factual democracy is *both* democratic as the people, the citizens, have the *political authority* (in contrast to technocracy), but also informed by scientific evidence and expertise as experts and expert advisers have the *epistemic authority* (in contrast to post-factual disregard for facts and sound scientific evidence). As mentioned above, in factual democracy, there is to be a division of labor between citizens and their representatives, and experts and scientists, according to which the citizens decide collectively on the *aims* to pursue and ideals to realize politically, whereas experts provide the knowledge about the *means* that can fulfill those aims and realize those ideals.[16] This

[16] The notion of factual democracy shares common ground with the notion, and ideal, of "factual politics" (Macmullen, 2020: 98), which (highly demandingly) entails that "political decisions are informed by and responsive to relevant empirical conditions" and that the citizens hold their empirical beliefs on which they base their political judgements "because they use an epistemologically reliable method for forming, evaluating, and revising such beliefs". Macmullen (2020: 99) also highlights the requirement of a division of

notion of democratic division of labor draws on Christiano (2012), who suggests and defends such a model. He points out that with such division of labor, democratic governance and the ideal of political equality is *compatible* with the extensive use of expertise and expert policy advice. The article takes this contention of compatibility one step further and uses Christiano's metaphor of democracy as a car with citizens at the steering wheel deciding on its directions (deciding on the aims to realize politically) and suggests that an argument for a stronger position than Christiano's compatibility claim may be made on the basis of this understanding and metaphor of democracy: the position that extensive use of expertise is not just compatible with democracy, but is also *necessary* – at least to the degree that the aims set by the citizens actually are to be effectively realized, or metaphorically, to the extent that the car is to reach its destination.[17]

Phenomena and notions of post-factuality and post-truth politics has been widely discussed in scholarly literature after 2016 and the US presidential election and UK's referendum on EU membership resulting in *Brexit*. Many scholars employ the notion of post-factuality or post-truth for describing the events of 2016 (Rose, 2017; Boler and Davis, 2018; College of St. George, 2018; Marshall and Drieschova, 2020; Sismondo, 2017; Suiter, 2016; Allcorn and Stein, 2017; Spoelstra, 2020). Berlin and Bueger (2017: 334) addresses post-factuality as challenge to expertise and how researchers and experts can try to meet it through a "strategy of practical reflectivity". McIntyre (2018) relates the phenomenon of post-truth to post-modern philosophy and its problematization of the notion of objective truth. Macmullen (2020) approaches the phenomenon of post-factuality and post-factual politics in terms of the epistemic attitudes of the citizens in a given polity. Other scholars take a critical stance towards the post-factuality and the discourses they a part of (Farkas and Schou, 2019). From the field of Science and Technology Studies, the notion of post-truth has also been criticized for being ahistorical and as implying a disregarding for how facts are embedded in, and co-produced, with norms and values (Jasanoff and Simmet, 2017). There has been devoted much scholarly attention to investigating the topic of digital misinformation and disinformation in general (Benkler et al., 2017, 2018; Allcott et al., 2019;

labor between experts providing the facts and the citizens who are to "decide [what] to do with and about the facts" on the normative basis of their values in order for factual politics to be democratic rather than technocratic.

[17] To develop this suggestion into a valid argument is, however, outside the scope of this thesis.

Gosh and Scott, 2018; Vosoughi et al., 2018), and fake news in particular (Allcott and Gentzkow, 2017; Gelfert, 2018; Vargo et al., 2017; Bakir and McStay, 2018; Fourney et al., 2017; Lazer et al., 2018; Tandoc et al., 2018). Whereas much of the literature on fake news, and other forms of digital misinformation, has its outset in the political context of the US, misinformation and fake news have also been studied in an Asian context (Tang et al., 2021; Tandoc et al.,2019), and European (Sängerlaub et al., 2018). Some scholars have also investigated how the notion of "fake news" is being weaponized and discursively instrumentalized by governments in Asia to justify repression and curbs on free speech (Neo, 2020) as well as in other regions of the world (Humprecht, 2019). Along the same critical lines, it has been argued that the term "fake news" has become a *floating signifier* employed in political struggles for discrediting opponents with Donald Trump's use of the term as cardinal example (Farkas and Schou, 2018). Lately, the Covid-19 pandemic has also triggered scholarly research in fake news and digital misinformation concerning the virus and the vaccines (Yang and Tian, 2021; Freiling et. al., 2021; Shelton, 2020). It has been argued that research should focus less in the content of fake news and misleading content as misinformation and disinformation and more on the infrastructural conditions of its diffusion and circulation, including the (attention economic) commodification of attention (Gosh and Scott, 2018; Kuehn and Salter, 2020; Fuchs, 2020; Gray et al., 2020). A part of the literature focuses on which factors make people more susceptible to believe and furtherly spread fake news. Bakir and McStay (2017) analyze how the novel digital affordances of specifically target citizen's emotions and personality is an important element in spreading fake news, arguing that there is a greater need to focus on the role of digital marketing and its (negative) effect on democracy. This focus is shared by Martel, Pennycock and Rand (2020) pointing to the role of emotion in susceptibility to believing in fake news and showing that heightened emotionality is predictive of belief in fake news content. Some contributions focus on how the relationship between political affiliation impact fake news beliefs (Michael and Breaux, 2021), and likewise demographics such as age and culture (Loos and Nijenhuis, 2020) as well as the *third-person effect,* describing that people tend to think that others are more influenced by media content than themselves, as a driver of susceptibility to believe in fake news (Tang et al., 2021; Corbu et. al., 2020). Other researchers have investigated implications of misinformation and disinformation, and post-factual and post-truth conditions, for democracy. Chambers (2020) explores post-truth

conditions, and diffusion of fake news fueled by social media, arguing that it may challenges democracy by hindering citizens' ability to deliberate reasonably. From a position of deliberative democracy, McKay and Tenove (2020: 712) argue that digital disinformation threatens to undermine democratic deliberation by inducing, for instance, epistemic cynicism and affective polarization, thus posing "a variety of potential harms to democracy". Benson (2021) explores how fake news impacts the ideals of deliberative democracy and contends that it undermines deliberation. However, he also argues that consumption of and belief in fake news to a large degree is facilitated by epistemic *laziness* rather than partisan biases and identity confirming motivated reasoning. This, in turn makes the problem of fake news less server because epistemic laziness, according to Benson (2021), is easier to mitigate then partisan cognition. Lee (2019) argues that the spread of misinformation, especially in the online sphere, imposes severe threats to the processes of democracy as they depend on the availability and access to reliable information for citizens and their trust in public institutions. Connecting the spread of disinformation to populism, Bennett and Livingston (2018) suggest that high levels of circulated disinformation can be traced back to citizens' decreasing trust in democratic institutions, and that disinformation contribute in disruption and (further) polarizing of the public sphere challenging norms of liberal democracy. However, there is not consensus among scholars pertaining to the potential negative implications of misinformation and disinformation. Miró-Llinares and Aguerri (2021: 5) suggest that there is currently a "moral panic" pertaining to the treats posed to democracy by fake news. They have performed a review of empirical studies on the phenomenon of fake news and argues that establishing causal relationships between fake news and proposed negative effects are not scientifically backed in academic literature. But when addressing the "impact of fake news on democracy", the scholars (2021: 11) narrow down the question about the potential threat posed to democracy by fake news to the question about "the relationship between fake news and Donald Trump's victory". This may be considered *too* narrow, especially when considering potential long-term political, social and cognitive effects of misinformation and disinformation harder to identify and measure empirically than the level of exposure to fake news during one presidential campaign.

Article 2

Title: ***Digital Transformations of the Attention Economy of Political Communication and Political Bubbles***

The article addresses political communication with an *attention economic* approach, according to which attention is both a scarce cognitive resource for the individual and at the same time highly valuable as an income when received from others, which in turn facilitates competition on attracting (valuable and limited) attention. The article thus describes the informational environment created by the media as an attention economy of political communication. The article explores the digital transformation of this political attention economy and the implications for political communication and democratic debate. It suggests that in this attention economy of political communication, bubbles of attention may inflate contributing to a detachment of the political debate from the real world, its problems and their potential solutions. Bubbles of attention may also emerge in informational environments created by mass media. However, the article aims to show that the digital transformations of the media landscape and informational environment may contribute in facilitating an increase in attention bubble formations as well as facilitating more malignant bubbles. This is a plausible implication, according to the article, because the digital transformation has enhanced the affordances and incentives for attention *speculation* compared to the era of mass media.

In the introduction to the article, the notion and ideal of the Marketplace of Ideas is addressed. It is pointed out, referring to Herbert Simon's (1971) observation that attention is a limited cognitive resource spent on processing information, that the Marketplace of Ideas is not as efficient, and its actors not as rational, as it tends to be implied. Information needs attention to be processed, and attention is a cognitive resource in scarcity, which means that the amount of information an actor can be informed by is constrained by the actor's limited attention – the bottleneck for consciousness. This entails that the real existing Marketplace of Ideas, where information is exchanged, is also an attention economy, in which the attention (needed for receiving information at all) is the scarce resource in need of allocation, and not information of which there is vast supply – especially after the emergence of Internet and the resulting explosion of the amount of easily available information. Referring Wu (2018), it is pointed out that those attention economic

conditions, in turn, pave the way for novel forms and tactics of political repressive speech control and censorship targeting the attention of the listeners, rather than the information provided by speakers. Those tactics may be invisible as repressive speech control if the necessity and scarcity of attention is not factored in the notion of the Marketplace of Ideas. Thus, the introduction to the article points out that because of this the notion of the Marketplace of Ideas could use a reality check and an attention economic update in order to better reflect the real existing Marketplace of Ideas – a reality check the article aims to contribute to.

The first main part of the article starts out with presenting attention economics and the notion of the attention economy drawing on and integrating two different attention economic approaches. On the one hand, it draws to a small extent on the aforementioned early observations of Simon (1971) describing attention as being a *resource* needed to be spent in order to receive information, which in turn have paved the way to approaches focusing on the scarcity of attention as a limited cognitive resource when spent by a (bounded rational) actor (see for instance Baumgartner and Jones, 2005). On the other hand, and to a significantly larger degree, it also draws on the attention economic theory and framework of the Austrian philosopher and architect, George Franck. Franck has contributed with a theory of attention economy especially focusing on the value of attention when it is received from others (1993, 2005, 2016, 2020). Accordingly, attention is not only to be considered a limited cognitive resource to allocate in a world of abundant information for the individual. It may, and should, also be considered as an *income* for those attracting and receiving other's attention according to Franck. Besides as an income when received, Franck (2005) argues that attention works as both *currency* and *capital* in a highly speculative attention economy created by the media. In this attention economy, the media play the part which financial institutions and investment banks play in the money economy: They invest (attention) in promising (attention) assets in order to earn (attention) dividends from their investment when successful (in attracting attention) on the market. According to this structural analogy between financial institutions and the media, the media are providing *credits* of attention when they offer presentation space or time in TV or radio shows and in the written press, and this is done in order to attract attention to themselves – to their shows and articles. The attention attracted by viewers, listeners and readers by the media through their investments can then be resold on a secondary market of advertisers

thus exchanging the attention income into pecuniary income. As noted in the article, Tim Wu (2016) has also named and described this business model of (commercial) media as the business model of *the attention merchant*. According to Franck (2016), the attention economy abides to the market mechanisms entailing that the supply of information offered by the media is organized according to the perceived demand revealed by consumers' preparedness to pay attention to it. Thus, attention credits are offered to those expected to satisfy the media consumers' preferences. Such organization of the supply of media content according to consumer demand, in turn, contributes to what Franck calls *mental capitalism* implying that the amount of attracted attention becomes a measure of the worth and value of that which attracts (or fails to attract) attention. However, Franck's theory, including a recent contribution (2020), does not sufficiently address and take into account the transformations of the attention economy resulting from digitalization of the media, the rise of social media platforms and the new practices of data extraction and analysis. When he addresses social media platforms (2020), the focus is almost exclusively on the business model, which social media according to Frack share with traditional broadcasted mass media outlets, at the expense of the technological dimension and the emergence of data driven algorithmic information curation employed by online platforms. In turn, he also disregards how those technological innovations may influence the business model and the incentives of platforms vis-à-vis mass media institutions. Thus, his theory may arguably have a blind spot pertaining to the digital transformation of the attention economy and its implications. The first main part of the article ends by addressing this blind spot, aiming to fill in the blanks, surveying changes in the attention economy resulting from the digitalization of the media not addressed by Franck (2020). However, as pointed out in the article, those changes do not undermine Franck's fundamental thesis about media content being supplied according to perceived demand which contributes to fostering mental capitalism. The opposite is the case. They rather strengthen and underpin Franck's fundamental claim because those changes, especially the introduction of data extraction and analyses, significantly enhance the opportunities and incentives to provide content according to the demand and the preferences of consumers, which are exposed to the suppliers and distributors of media content due the extraction and analysis of user data. And additionally, the users, or segments of users, may be targeted directly with both adds and other content tailored to their specific preferences revealed by their past behavior (and

due to big data analysis, also by the past behavior of others categorized as being like them) exposed by the extracted user data.

The second main part of the article extends the attention economic framework of Franck to also include the informational *content* supplied by (attention seeking) actors and institutions as *assets* in the attention economy. In Franck's theory, the main focus is on the attention seeking actors and they are implicitly considered assets invested in by the media. This extension is done in order to be able to describe an attention economy of *political communication* and public debate, in which the informational content supplied, distributed and consumed (in exchange of attention), such as news stories, are understood as assets invested and speculated in by political and media actors in order to profit from them. This extension draws on theoretical resources from the tradition of agenda setting studies. This tradition shares a number of fundamental assumptions with attention economic approaches pertaining to the scarcity and the value of attention as well as the competition on attracting it, which suggest that agenda setting may be understood as attention allocation at macro level. Thus, this part of the article integrates, to some extent, agenda setting studies and attention economics with a specific focus on the role and value of agenda setting and attention in politics and political communication. Agenda setting studies offer theoretical tools consisting in a framework for analyzing news content in terms of objects – issues – and their attributes – interpretations of what the issue is about – which may be used for extending the notion of attention economic assets to include informational content such as news stories. With this extension, the basic theoretical elements for understanding and analyzing political communication and debate in attention economic terms of *markets*, *assets* and *prices* are in place.

However, agenda setting studies are fostered in the era of mass media and well-suited for studying the information environment they created. The information environment, as also mentioned above pertaining to Franck's theory, has changed since because of the digitalization of the media landscape, introduction of data and the rise of platforms, and thus the (extended) attention economic framework needs to be updated to the digital era to reflect and be able to describe the current attention economy of political communication. To highlight those digital transformations of the attention economy of political communication is the purpose of the third main part of the article. It sheds light on

the digital transformations of the *markets*, the *assets* and the *currencies* paid thus updating the attention economic framework to the current informational environment.

With the extended attention economic framework updated for the digital era as baseline, the article in the final main part suggests, describes and defines notions of speculative bubbles of attention emerging in the attention economy of political communication. The suggested notions of attention bubbles draw on financial economics and are defined by transferring the basic theoretical elements employed to describe asset price bubbles on financial markets to the attention economy of political communication. In attention economies, bubbles may be determined as situations in which an informational asset is invested – or rather *speculated* – far more attention (and engagement) in than the fundamental value of the asset, its real worth, justifies. The notion of the fundamental value of an asset, transferred from the domain of finance, is analyzed and elevated to generic level as a reflection of the acclaimed purpose of the institutional setting and context of the asset in society as a whole. Accordingly, science bubbles, news bubbles and political bubbles describe situations where the societal purpose of science, journalism or politics, determining fundamental value in the respective domains, is in disproportional mismatch with the amount of attention paid and invested. Examples of attention bubbles in the domain of news and journalism may for instance be found in strongly framed or partisan news content as well as in digital misinformation and misleading "fake news" stories (Allcott and Gentzkow, 2017) attracting vast amounts of attention, but are of low or no value according the purpose of journalism of enlightening, informing and qualifying the public debate. Bubbles of attention may work as distractions, attracting limited attention from what matters in a societal perspective and thus contributing to impairing the collective ability to acknowledge, address, migrate or solve real-world problems. Notions of attention economic investing and speculation are suggested and it is pointed out that it is plausible that the recent transformations of both financial markets and markets of attention due to the introduction of (big) data analysis and data-driven algorithms for automatic trading or automatic content curation respectively may contribute in affording and incentivizing increased speculation and inflation of bubbles in high speed.

In a recent contribution assessing "digital threats to democracy" reviewing recent empirical literature and investigations from different disciplines, Kuehn and Salter (2020) categorize and list such digital threats as being fake news/misinformation, hate speech,

filter bubbles/echo chambers and digital surveillance. The scholars (2020: 2601) warn against only addressing such specific digital threats to democracy in isolation, or according to what they call "a siloed approach" without view to how they are interconnected. Besides empirical investigations in threats addressed in isolation, Kuehn and Salter (2020: 2600) call for research exploring digital threats to democracy "from a systemic perspective" and "as mutually constituted phenomena or derived from the same structural conditions". Those structural conditions consist in the novel digital "political economy" and economic system based on monetization of attention and user data, and of both together in "advertising practices of audience segmentation and behavioral profiling" (Ibid.). As examples to follow, scholars such as Zuboff (2019), Gosh and Scott (2018) and Srnicek (2017) are mentioned in passing.

The article aims to contribute to this body of literature, drawing on contributions of the aforementioned scholars, approaching digital threats to democracy from a systemic perspective describing and analyzing the novel digital political economy, in which both attention and behavioral data are commodified, monetarized and capitalized on, in order to, in turn, to explore its potential implications for political communication and debate. Thus, the article aims to contribute, from a systemic perspective, to the description and analysis of the recently emerged and current *data-driven attention economy of political communication and debate*.

Besides early observations and contributions on the scarcity of attention as cognitive resource (Simon, 1971; Kahneman, 1973) and on "information overload" (Toffler, 1973), the notion of attention economy and attention economics began to gain traction in the English-speaking research community in the middle of the 1990ties (Citton, 2017). In a widely quoted and referred contribution, Goldhaber (1997) suggested that a new kind of economy was emerging, the attention economy. The scholar points to the value of receiving attention from others and suggests that in this new economy, attention from others works as a new kind of wealth about which competition is growing and which increasingly supplants money contending that, "in a pure attention economy money has no essential function". Even in what he denotes "the transition phase" to this new economy, attention becomes primary to money as "[m]oney flows to attention, and much less well does attention flow to money". Beck and Davenport (2001) has approached and described attention economy from a business perspective, noting the challenge of attention deficit in

a world of abundant information and advocating for the necessity for *attention management* as "the single most important determinant of business success" (p. 3). From the field of economics, Falkinger (2007, 2008) has contributed with formalized equilibrium models of attention allocation and competition in information rich and information poor worlds respectively. From a baseline in economics and computer science, Huberman and Wu (2008) have suggested an algorithmic mechanism to maximize "the expected utility" of information selection, and thus of attention allocation, in information rich environments. Professor at Columbia University Law School, Tim Wu, has made valuable contributions (also mentioned above) analyzing the business model of the *attention merchant*, tracing its history from the penny press in the 1800s to becoming the main business model for internet services (2016), and shedding light on repressive attention economic tactics of speech control targeting the bottleneck of audiences' attention with information flooding working as *distractions* (2018), thus connecting attention economics with political communication. The connection between attention and political communication and debate has been made at the empirical level by Benkler et al. (2017) conducting a network study on the "attention patterns of audiences" during the presidential election in USA 2016. This study adds to other empirical contributions, employing an attention economic baseline assuming that attention is limited and competed for, studying allocation of "collective attention" in different contexts (Wu and Huberman, 2007; Hodas and Lerman, 2012; Weng et al., 2012) including misinformation (Mocanua et al., 2015). From a critical perspective and attention economic baseline, Williams (2018: 16) has suggested that the so-called "Information Age" rather is to be considered and named the "Age of Attention". According to Williams, the commodification and monetization of attention, along with user data, made possible by the advertising industry, incentivizes tech businesses to keep users engaged as much and as long as possible with all means available. As a consequence, the users are constantly distracted from their own goals by design in order to fulfill the goals of the tech companies of keeping them *hooked* and engaged resulting in what Williams (2018: 127) names a "regime of attentional serfdom". From a Marxist perspective, and employing traditional Marxist notions, Christian Fuchs (2020) has argued that when information is not sold, but provided free of charge in exchange of attention, then information is not a commodity. Attention, however, is a commodity as it is sold to the advertising industry and therefore has an exchange value. In turn, the exchange value of attention turns, according to this

Marxist perspective, attending to something into productive *work*. Fuchs contents that, "audiences are workers who produce attention" (2020: 168). But it is work for which the audience-worker is not being paid (2020: 135). Along this strain of Marxist criticism focusing on labor, and labor conditions, in the attention economies, it has been suggested that influencer culture and the monetizing of attention has increased and diffused sexualized labor from the traditional domains of prostitution and pornography (Drenten et al., 2020). Nixon (2020: 77) has also addressed the political economy of news business and how capitalizing on news in the economy of attention depends on "exploiting the audience labor" of producing this attention.[18]

However, Georg Franck is standing out as a pioneer in this new and still emerging field. By translating traditional economic notions such as currency, capital, investment, speculation, credit, etc. into attention economic notions, his theory offers a detailed structural analogy between the pecuniary economy and the attention economy, including the analogy between the financial sector and the media. The choice of using Franck's theory as the attention economic baseline for the article is motivated by this evaluation of Franck's framework as the best the field (still) has to offer.[19] This evaluation is supported by scholars in the field praising it as the most developed and pioneering framework of attention economics. Franck's theory and structural analogy has for instance been praised by Krieken (2019: 4) as being "one of the more nuanced and penetrating theories of the economy of attention" and "more developed" than other attention economic approaches (2020: 2). This is fully in line with Citton (2017: 18), who acclaims Franck's theory as being, "no doubt still the best […] analytic framework for this new field".

The article aims to contribute to the new and emerging field of attention economics by extending Franck's framework to include informational items and news content as assets in an attention (and engagement) economy of political communication and debate. It also aims to contribute the field, and to Franck's framework especially, by adding a new element to the structural analogy between (speculative) financial markets and the attention

[18] From this Marxist perspective, attention is primarily understood as an activity, as work, and not as a cognitive resource.

[19] However, still only used as *baseline*, as Franck's framework still had to be is extended, drawing on agenda setting studies and updated for the digital era, drawing on systemic analysis focusing on the role of data (Ghosh and Scott, 2018; Srnicek, 2017), in order to describe the current data-driven attention economy of political communication and debate.

economies of the media by suggesting and defining notions of attention *bubbles* emerging on those markets. Markets which according to Franck (2005, 2016, 2020) are phone to, and to some extent driven by, speculation may also, as suggested in the article, be hospitable to inflation of speculative bubbles of attention.

The notion of speculative bubbles of attention is inspired by a contribution suggesting and defining a notion of *science bubbles* (Pedersen and Hendricks, 2014) and to some extent by the methodological approach suggested by Hendricks (2016) as pertaining to what he names and describes as *bubble studies*. Pedersen and Hendricks (2014) take the notion of asset price bubbles emerging in financial markets as baseline and defines science bubbles by translating basic theoretical elements of financial bubbles into the domain of scientific research and research founding. The notion of *assets* is translated into *scientific fields*, and the notion of *fundamental value* of the assets, a measure of their real long-term worth, is translated into *truth*, resulting a notion of scientific bubbles as instances of optimistic overinvestment in specific scientific fields, such as neuroscience, relative to their ability (or lack) to track the truth. This translation or transferal of basic notions abides to what Hendricks has described as the approach of *bubble studies* (2016). The guiding principle is to take asset price bubbles on financial markets as baseline, but generically redefining bubbles in terms of information as *collective information control problems* and expanding the study of bubble phenomena across different domains and disciplines. This implies transferring the basic theoretical elements from financial economics to the domain in question and mapping what may be considered assets, markets, liquidity, investors, returns and investment horizons in the context etc. into the domain investigated.

The article contributes in fulfilling this aim of bubble studies by transferring the generic theoretical building blocks from the notion of asset price bubbles on financial markets into the domain of the attention economy of political communication. Such transferal of the theoretical elements describing financial bubbles to the attention economy converges to some degree with approach of Franck, who, as mentioned above, transfers notions of currency, capital, investments, credit etc. from economics to the attention economy resulting in the structural analogy between the financial sector and the media. Thus, following Franck's approach – which to some extent converges with the approach of bubble studies suggested by Hendricks in the specific context of bubble phenomena (2016) – the article contributes to the structural analogy between finance and communication,

offered by Franck's pioneering theory, by adding the element of speculative bubbles of attention to his framework, according to which the markets of attention are *already* described and analyzed as speculative markets.

The notion of attention bubbles implies a critical approach towards the reduction of value to the amount of attention attracted that characterizes mental capitalism according to Franck (2005), and as pointed out in the article, is equivalent to what is named the *Efficient Marketplace of Ideas Hypothesis* in the article. Introducing the notion of fundamental value in the attention economy entails the introduction of another measure of value and worth than the price paid in the currency of attention – another foundation for value providing a normative standard according to which the real worth of a given asset is measured. But this does not mean that the notion of fundamental value, suggested in the article, is based on dogmatic claims referring to ontologically backed (objective) values disconnected from what is (subjectively) valued by individuals. The notion and analysis are to some degree inspired by the early Critical Theory of the Frankfurt School and its featured critical strategy, *immanent critique*. Immanent critique addresses mismatches between reality and ideals, between practice and the justification of that practice (Stahl, 2013). The analysis of the notion of fundamental value elevates it to generically level as an instantiation of the acclaimed *purpose* of the institutional setting, in which the asset in is an asset, in society as a whole. To approach and evaluate activities, practices and institutions according to their self-claimed purpose makes it possible to conduct immanent critique based on discrepancies between *ideals* and *reality*. If the purpose of finance is investment – i.e. allocation of resources to enterprise – then speculation can be criticized on this to the institution immanent normative basis.

The notions of bubbles of attention – i.e. news bubbles and political bubbles – the article suggests and defines are not *filter bubbles* (Pariser, 2011) feared to produce echo chambers and facilitate polarization by feeding the confirmation biases of the users (Barberá, 2020). The notion of a political bubble has also been used as a metaphor for politicians being isolated and disconnected from reality because they are *inside* a bubble (Latham, 2014).[20] This is not the way the notion of bubbles is used in the article. Neither is

[20] Such metaphorical use of the concept of bubbles, entailing that one is *inside* a bubble and therefore detached from the reality, and from being exposed to different viewpoints and opinions *outside* the bubble, also characterizes the notion of filter bubbles. That the algorithmic information curation of online platforms as

the notion of political bubbles, suggested in the article, referring to rigid ideological assumptions and political conditions facilitating the inflation of financial bubbles as in McCarty et al. (2013) or more generally to political detachment from reality due to dogmatism and ideology.[21] In the article, political bubbles are, as mentioned, understood and defined in analogy to asset price bubbles emerging on financial markets. Such bubbles may also cause investors losing grip with reality, but it happens through a dynamic process of *inflation* of prices (attention and engagement attracted and produced) relative to fundamental value (the relation to reality) – not though being isolated *inside* a bubble. The *political* bubbles suggested in the article are also distinct from the notion of *policy* bubbles recently suggested as notions describing policy *overreactions* and *overinvestments* (Jones et al., 2014; Maor, 2014, 2020). However, like the notion of political bubbles suggested in the article, the notion of policy bubbles is inspired by the notion of asset price bubbles in economics (Maor, 2020). According to Maor (2020: section 4), policy bubbles may be defined as, "a sociopsychological phenomenon which occurs when policy overreaction/overinvestment due to distorted policy valuation is sustained by positive feedback over an extended period of time". Even when policy bubbles thus understood also denote situations of overinvestment, they do not describe *overinvestments of attention* in an attention economy of political communication created by the media, which the *political* bubbles suggested in the article do. The translation of the notion of bubbles from financial economics to the *attention economy* of *politics*, rather than policy-making, and conceptualizing the *overreactions* in terms of attention (and engagement) may thus be considered a contribution in its own right to the "scientific study" of bubbles in political science which according to Maor (2020: 15) "is still in its infancy".

An important, and final, disclaimer is that the article does *not* address the promises made or the range of concrete initiatives taken by platforms such as Facebook, Twitter and Google in order to reduce and curb the diffusion of misinformation and disinformation (as

Facebook and search engines as Google select and show content according to prior engagement of the users does not *necessarily* entails that their confirmation bias is being feed with likeminded opinions and viewpoints. If opposing viewpoints are fueling emotions of anger or fear, then to show users such opposing viewpoints and opinions may potentially be very effective in producing user engagement.

[21] See also Maor (2020) referring McCarthy et al. (2013) in determining *political* bubbles as occurring, "when political and bureaucratic executives as well as legislators hold, or are informed by, rigid and unchangeable ideologies, doctrines, or ideas that are sustained by positive feedback processes over an extended period of time".

well as hate speech and defamations) since 2016. The article aims to provide a structural analysis of the attention economy and the informational environment's fundamental affordances, mechanisms, and incentives, and their digital transformations. This aim has facilitated and motivated the choice of disregarding such concrete initiatives. Thus, pronounced tweaking of algorithms, integration of fact checks and attachments of warning labels to supposed misinformation and disinformation, censoring and closing down of accounts, inclusive the accounts of the American president Donald Trump while still in office, links to sound information on Covid-19, etc., etc. are not addressed in the article. Those developments and initiatives as well as their effects and wider implications are important topics, but addressing them are outside the scope of the article and the thesis as such.

Article 3

Title: *The Need for Speed – Technological Acceleration and Inevitabilism in Recent Danish Digitalization Policy Papers.*

Article 3 explores digitalization in the domain of policy making. It addresses official Danish digitalization strategies and policy papers concerning digitalization of both the public administration and Danish businesses as well as for enhancing the Danish citizens' digital skills and competences. The article has two main parts. The first part of the article is empirical and explores the notion of digitalization inherent in Danish policy papers of the period 2015 – 2020. It examines whether and to what extent implicit and explicit *assumptions* about digitalization as an *inevitable* and *accelerating* development are to be traced and identified in the empirical material. The second part of the article critically highlights and discusses implications of the empirical findings for democracy. First, by applying Hartmut Rosa's (2010; 2013) critique of the acceleration society to the empirical findings. Second, the notion of *discursive closure* (Markham, 2020) is employed for highlighting fatalism and political apathy as potential (democratically) problematic effects of inevitabilism. Finally, it discusses the question of democratic *agency* – or what Rosa (2010: 71) describes as collective democratic self-determination or "political autonomy" – vis-à-vis the technological development, drawing on theoretical approaches of technological determinism, the constructivism inherent in the approach of science and technology studies and a theory of sociotechnical selectionism.

The first, empirical, part of the article is (in contrast to the second part of the article) to a large extent uncritically applying a normatively neutral research approach in order to provide a representative and comprehensive description of the notion of digitalization – and the assumptions pertaining to it as well as the imperatives motivated by it – in the empirical material. In order to describe the notion of digitalization and the assumptions pertaining to it inherent in the material, I have used qualitative content analysis as method (Mayring, 2000; Silverman, 2005; 2011; Schreier, 2014). According to Schreier (2014: 170), qualitative content analysis is "a method for systematically describing the meaning of qualitative data". Schreier also notes (2014: 181) that the research aim of describing – not criticizing or theory building – the material entails that the research approach of qualitative content analysis is

to some extent "ontologically and epistemologically naïve" taking the material "for granted" – in contrast to for instance the critical approach and aim of discourse analysis. I have made this methodological choice in order to clearly distinguish the descriptive from the normative dimension of the article, and also thus for providing an empirical contribution potentially in its own right not necessarily depended on a critical or normative framework as theoretical background. This approach and the separation of the descriptive and normative parts are also motivated by concerns about my own preconceptions, biases and prejudices pertaining to the matter. This does not mean that the article does not fundamentally have a critical approach and aim, but only that the criticism of the empirical findings and their implications for democracy is reserved for the second part of the article (section 3.1 and 3.2).

The empirical material analyzed consists of 12 official Danish policy papers and strategies concerning digitalization, including strategies for increased usage and development of artificial intelligence, increased usage of health data and enhanced cybersecurity. The sources of the material are the Danish authorities responsible for digitalization and supplying public data as well as the top level political and administrative bodies in Denmark: The Danish government and the different ministries, Local Government Denmark (LGD), which is the association of Danish municipalities, the Regions, which are political and administrative bodies at the regional level between the central government and the local municipalities (especially responsible for the health care sector and its digitalization). All of the analyzed policy papers are available and have been accessed at official webpages of the aforementioned political and administrative bodies such as the different governmental ministries or the responsible public authorities as the Agency of Digitalization (see full list of policy papers, the sources and links to the material in Appendix 1).[22] The selection of the empirical material has been guided by a criterion based on the status of the policy papers as *official* Danish strategies, which are signed and published by one or more of the official Danish administrative and political bodies at local, regional or national level exclusively. This criterion excludes, for instance, reports and papers either commissioned by the Danish administrative and political bodies, but outsourced to private consulting companies, or made and published in public-private partnerships. Thus, for

[22] When available, English versions of the policy papers have been used. However, four of the policy papers analyzed are not available in English, and the Danish versions are used with the relevant parts, quotes and sections translated during the pilot coding process.

instance, the report *Hack the Future of Aid* (Haahr, 2017) made in a partnership between The Danish Ministry of Foreign Affairs and the private companies Coinify and Sustaninia as well as *Kommunernes* f*em teknologiske temaer* (Dare Disrupt, 2018) commissioned by LGD to the consulting company Dare Disrupt are excluded from the analyzed material. Relevance pertaining to the article's research aim of examining explicit and implicit assumptions about digitalization is another criterion for including and excluding policy papers in the empirical material. Both the official strategy on research and innovation *Danmark – klar til fremtiden* (Government, 2017b) and the strategy for managing of IT projects and systems in the state *Et solidt it-fundament Strategi for it-styring i staten* (Government, 2017a) have been excluded from the material. Even when both to a different degree touch upon and address aspects of digitalization, their content is not sufficiently relevant in relation to the specific research aim of examining *assumptions* about digitalization and the digital development – rather than the administration and management of projects and systems – relative to the material that have been selected.[23]

When performing qualitative content analysis, the approach to the material can be either deductive or inductive (Bengtsson, 2016) – or in other words, either concept-driven or data-driven (Schreier, 2014). The deductive and concept-driven approach takes "previous knowledge" such as theories, prior research or everyday knowledge pertaining to the matter as its starting point (Schreier, 2014: 176). This implies that the codes and main categories applied to the material are created by the researcher(s) before the analyzing process begins (Bengtsson, 2016). This creation of codes and categories is done on the basis of the research interest and question of the study and theoretical considerations guiding the research design. In contrast, when employing an inductive data-driven approach, the codes and categories are generated *during* the analyzing process as they emerge from the material (Bengtsson, 2016; Schreier, 2014). However, as also noted by Schreier (2014), both conceptual and data driven approaches are used in many cases of qualitative content analysis in a systematic, but also partly iterative and flexible process matching codes and categories with the data.

[23] However, it may be added, this choice of excluding those official strategies not deemed sufficiently relevant is also motivated by time constraints, which, as pointed out by Schreier (2014), must be factored in and considered when constructing the research design.

From the outset, my approach was deductive, or concept-driven, aiming specifically at examining whether and to what extent specific assumptions about digitalization, or the technological digital development, as accelerating and inevitable were to be found in the material.[24] This approach was inspired and motivated by *previous knowledge* – the point of departure for the concept-driven approach according to Schreier (2014). This previous knowledge was based on media coverage (Arve and Bernsen, 2018) and popular contributions (Bernsen, 2019; Vestergaard, 2019; Vestergaard, 2019a) suggesting that assumptions of inevitabilism and technological accelerationism have found fertile ground among political elites in Denmark at both local and national level potentially posing a challenge to democracy. Scholarly literature analyzing the rhetoric and narratives used by political actors and Danish institutions (Schiølin, 2019) and at tech events in Denmark (Hockenhull and Cohn, 2021) also contributed to this previous knowledge with which I approached the material. The analyzed policy papers were first approached with a specific focus on acceleration and implicit assumptions of inevitabilism using codes such as "[t]he development is accelerating", and "Denmark must adapt to the development"[25], as well as main categories such as "assumptions about the development" and "imperatives for Denmark". However, during the initial reading through and trial coding of the material in the pilot phase (See Schreier, 2014), a new theme, and imperative, emerged from the data: the aim and possibility of Denmark influencing the development rather than adapting to it. This (preliminary) finding facilitated the new code "Denmark should influence the development" and motivated another preliminary round of inductive data-driven coding of the material. In turn, the second preliminary data-driven coding, and the categories and subcategories emerging from it, facilitated a revision of the research design and expansion and revision of the coding frame to be used in the main analysis phase (Schreier, 2014). To supplement a concept driven approach with a data driven has also, in any case, been advised by Schreier in order to avoid the risk inherent in the concept driven approach of leaving parts of the material unaccounted for, which potentially undermines the aim of qualitative content

[24] And, in turn, to examine whether and to what extent those assumptions, if any found, may be said to reflect sociotechnical imaginaries about the digital development already addressed and traced in preceding scholarly literature.

[25] This code is (more latently than the more manifest code pertaining to technological acceleration) connected to the notion of inevitabilism, according to which the future development is inevitable, and thus cannot be influenced politically or democratically. This, in turn, makes *adaptation to* the development imperative if negative consequences and harms are to be avoided (See Schiølin, 2019).

analysis of providing "a valid description of the material" (2014: 171). According to Silverman (2005: 153), it may be added, to conduct such changes in the research design during the (initial phases of the) process is not necessarily problematic as, "sticking with your original research design can be a sign of inadequate data analysis rather than demonstrating a welcome consistency".

The result of the analysis, employing the revised and extended coding frame, was more nuanced and mixed than I expected – and prematurely prejudged it would be – based on my previous knowledge. On the one hand, assumptions of technological accelerationism as well as inevitabilism, prescribing (rapid) adaptation to the (accelerating and inevitable) development, were identified in the material. On basis of those findings, it was possible to identify the core elements and tropes of two accelerationist and inevitabilist sociotechnical imaginaries described in the literature – the so-called *data imaginary* (Beer, 2018) and the imaginary of *the fourth industrial revolution* (Schiølin, 2019) – as implicitly or explicitly inherent in the material. On the other hand, however, the aim and possibility of Denmark influencing the development was also found in the material, but in another part of it: the part of the material published after mid-2018. At mid-2018, a shift was identified both pertaining to the question of inevitabilism with the assumed need for adaptation to the development highly prominent before the shift vis-à-vis an aim and assumed ability – and thus of agency – of Denmark to influence the development prominently featured in the material after the shift. In addition, a shift in the main ideal and values mostly promoted and featured in the material was also identified around mid-2018: from an emphasis on mainly economic values such as growth, productivity, competitiveness and efficiency to a significantly increased emphasis on non-economic – democratic and civic – values such as equality, responsibility, transparency, trust, and protection of privacy. In addition, notions of data ethics and ethical data usage were identified in the material published after the shift, which was coupled with the revised aim of influencing the development according to (data) ethical principles and democratic values, including respect for privacy.[26]

This discovery of the shift in the material during the empirical analysis facilitated a significant change in the second, theoretical, part of the article, which originally (and prematurely) was intended exclusively to provide criticism of accelerationism and

[26] As suggested by Schreier (2014), examples of codes and categories are provided in Appendix 2.

inevitabilism as democratically problematic drawing on Rosa (2010; 2013) and Zuboff (2019). This criticism is still part of the article, but has been related specifically to the empirical material published before the turn of mid-2018, to which it validly applies. However, the final discussion of the empirical findings in light of technological determinism, constructivism and sociotechnical selectionism has been both motivated and guided by the finding of the 2018-turn in the material. The change happening at the 2018-turn shifting prescriptions of political adaptation to the assumed inevitable accelerating technological development to aims of influencing the trajectory of the technological development (in an ethical and democratic direction) raises the question as to whether the latter is a realistic aim – or possible at all. This question of whether the presumed ability to influence the technological development politically is *real* triggered philosophical questions about agency, the drivers of history and technological determinism. The question of whether a polity like Denmark, or other bigger polities for that matter, is able to influence the technological development at all depends on the question of whether humans have (collective-political) *agency* vis-à-vis the technological development. According to positions of hard technological determinism, holding that the social and political, and society as such, are unidirectionally determined by the technological development and that this development follows from historical laws (Dafoe, 2015), political aims of influencing the development are futile and beliefs in democratic political agency illusionary as the course of history is predetermined.[27] However, if human agency and freedom of choice, individual or collective-political, is ascribed a major role in the technological development and for the course of history, as it is the case in the tradition of Science and Technology Studies (STS), it may difficult to explain why, for instance, Moore's Law has the predictive power it has shown to have.

By engaging in this discussion on agency and technological determinism, thus entering the field of *philosophy of technology* (Feenberg, 2006) in the final part, the article contributes to the main objective of the thesis – to *explore threats posed to democracy by digitalization* – but at another, philosophical, level than the two previous articles. If democracies (1) do not have real agency and the ability to influence the development, which at the same time (2) is determining the social, political and society as such, real *rule*

[27] "Historical laws" may for instance be Moore's Law on exponential growth in computing power or Kurzweil's generalization of Moore's Law into a universal law of evolution and history, the so-called law of accelerating returns.

by the people is arguably ruled out. Without real agency, without the ability to influence the development, the future of societies and the course of history, the citizens would rather be ruled *by* technology. This may qualify as a techno-*cracy* in an historical-ontological, rather than political, sense of the word (Boenig-Liptsin and Hurlbut, 2016). To use a metaphor on democracy provided by Thomas Christiano (2012) and referred and used in article 1 in this thesis: In case hard technological determinism holds true, the citizens are not sitting in the driver seat of the car setting the direction – or, less metaphorically, collectively deciding on the fundamental aims society is to realize – but are rather sitting in a train wagon unable to influence the course or set the direction because the train necessarily follows the predetermined trajectory of the train tracks.

Besides contributing to the main objective of this thesis, the first part of the article makes an empirical contribution to research in e-government and studies of digitalization policies and policy making in Denmark. By analyzing the official Danish digitalization strategies and policy papers of the period 2015 – 2020 as empirical material, identifying implicit assumptions and the values and ideals promoted, it – in the specific context of Denmark – contributes to the growing body of research critically studying "the implicit assumptions and ideological underpinnings of digital reforms" (Hjelholt and Schou, 2017: 371).

Employing a qualitative approach studying policy papers and conducting and analyzing elite interviews, Jæger and Löfgren (2010) have provided a historical account of the formation and transformation of e-government policy making in Denmark in the early years. From being "sub-ordinated to the government's overall information society strategies" (p. 258) in the 1990ties, the role of e-government changed through the 2000s and has become a distinct policy field in its own right in 2010. The authors note a change happening through the period pertaining to the societal problems that e-government is to address and provide solutions for. They conclude (2010: 267) that, "the whole field of e-government has shifted from a broad democratic vision of a more open, transparent and service-minded vision, in which the problem was that the citizen lacked access to public data, to a business-like strategy in which the main problem was how to cut down on public expenditure by means of new technology". This conclusion resonates with the findings of more recent contributions on transformations in the field of e-government in Denmark. The scholars Morten Hjelholt and Jannick Schou from the IT University in Copenhagen have

conducted extensive research on digitalization in Denmark. Studying official policy papers pertaining to digitalization, including the *national digital strategies*, as empirical material employing methodological approaches from discourse analysis (Hjelholt and Schou, 2019), cultural political economy (Schou and Hjelholt, 2018) and archival research drawing on Bourdieu's Field Theory (Hjelholt and Schou, 2017), they have provided historical surveys of Danish digitalization policy-making and its transformations. Their findings (Hjelholt and Schou, 2017; Schou and Hjelholt, 2018; Schou and Hjelholt, 2019) highlight how the main values promoted, the political aims as well as the ideological and normative underpinnings have changed from 1994 to 2016. They identified a significant shift in the dominant values and ideals promoted in the policy papers in 2001. Before 2001 democratic and civic values and ideals such as participation, solidarity and equality were relatively dominant and afterward, "economic ideals" such as efficiency, competitiveness, and growth became relatively dominant (Hjelholt and Schou, 2017: 372).

The study of the official Danish digitalization policy papers, conducted in section 2 of the article, contributes to this body of research employing qualitative content analysis for identifying the main values and political ideals promoted in the empirical material of the studied period. It thus contributes by adding a new chapter of empirical research in the *most recent* digitalization policy papers 2015 – 2020 to those aforementioned historical accounts of e-government in Denmark and shifts in the aims, values and ideals inherent in official Danish digitalization policy papers. An interesting finding in relation to this literature is the turn of mid-2018, where the tables to some degree turned again and the relative dominance of economic ideals decreased and democratic and civic values and ideals gained more prominence.[28] The analysis also finds that tendency to describe those civic and democratic values nationalistic as specifically "Danish values", noted by Jæger and Löfgren (2010) as well as Hjelholt and Schou (2017) in relation to the period 1994 - 2000, is reemerging and gaining prominence in the post-2018 policy papers. Hjelholt and Schou (2017; Schou and Hjelholt, 2018; 2019) focus especially on the notion of digital citizenship

[28] However, the turn of 2018 does not imply a simple return to the 'democratic' period before 2001, in which the main tendency (but not exclusively) was to present information technology as a "democratic tool" (Hjelholt and Schou, 2017: 378). The non-economic values of the post-2018 period are to a significant extent motivated *by* economic concerns and justified as means for realizing potential economic benefits of future competitiveness and economic growth and less as intrinsically valuable ideals to realize through digitalization reforms as means – as democratic tools – to those ends. See also beneath on *the competition state*.

and assumptions about the citizens inherent in the policy papers. They show that in the period after 2001, citizens are increasingly framed as rational utility maximizing agents, described *as if* they were businesses and assumed to expect and demand efficient public services. The finding of this tendency also resonates with the results of the qualitative content analysis I conducted for the later period 2015 – 2020, in which the citizen is (still) categorized on par with businesses and assumed mainly to expect and demand efficiency from the public sector. However, even if the tendency to some degree can be identified through the whole period, it is most prominent in the first period, 2015 – 2018. In the period 2018 – 2020, the *trust* and *confidence* of the citizens in the public authorities, especially in their usage of data, gain prominence and the citizens are assumed to demand trustworthiness from public services, besides efficiency, as a distinctive feature of citizens separating them from businesses.[29] Another contention of the two scholars (Hjelholt and Schou, 2017; Schou and Hjelholt, 2018; 2019) is that the welfare state has been transformed into *the competition state,* and that this development reflects in the digitalization policies and the values (of competitiveness) they promote. This claim resonates with the article's empirical analysis of the following period, which finds that a logic and ideology of the competition state implicitly runs through the policy papers 2015 – 2020, mostly prominent before 2018, but also present after, where the democratic and civic values promoted to a large extent, as mentioned above, are justified and motivated by benefits for future competitiveness of Danish companies. However, as pointed out in the article (section 2.2), the theme of technological acceleration, as well as imperatives of speeding up the digitalization of Denmark (section 2.4), gains prominence in the policy papers from 2015 onwards. This focus on speed and acceleration is reflected in the (implicit) competition state logic extensively framing it temporally by equalizing competitiveness with speed and digitalization with a race between nation states on being first and ahead, and thus reaping most of the (economic) benefits (see section 2.3 of the article). Even if a level of complexity is added, this also basically holds for the post-2018 period: The aim of influencing the development with the so-called "Danish" democratic and civic values is closely connected to the aim of being fast and ahead of other countries. Speedy digitalization is presented as a (necessary) condition for being able to influence the development, and this aim of influence

[29] However, this finding was left out of the article due to constrains on the maximum number of characters from the journal in which it was published.

is, in turn, motivated and justified – according to a competition state logic – by the prospects of future competitive advances for Denmark and Danish companies.

The empirical part of article, section 2, also contributes to the growing research field, drawing Science and Technology Studies, studying *sociotechnical imaginaries* (Jasanoff, 2015) in a Danish context.

Schiølin (2019) has explored whether and to what extent a sociotechnical imaginary of the fourth industrial revolution, promoted by World Economic Forum (WEF), has been (well)received by prominent political actors in Denmark and integrated as a central part of the self-description of the recently founded Danish institutions the Siri Commission, Tech Diplomacy and the Disruption Council. Analyzing the rhetoric used by WEF and the Danish institutions, he concludes that the imaginary has successfully been transferred to the Danish context and points out three narrative strategies inherent in the sociotechnical imaginary – inevitabilism, dialectics between pessimism and optimism, and epochalism – together constituting what he dubs *future essentialism* and criticizes for posing a threat to democratic self-determination by narrowing down future possibilities to the (perceived) necessity of being fit for the (digital) future. Conducting ethnographic fieldwork, Hockenhull and Cohn (2021) have studied how corporate sociotechnical imaginaries about digital technologies have been enacted at tech events in Denmark in the period 2017 – 2018. They found that simplistic historical narratives and projections of the future played a significant part in the enacted sociotechnical imaginaries creating *hype* and engaging audiences. The scholars (2021: 307) also notes that those narratives often contain, "claims [that] were often broad, undocumented, generic, or reproductions of tropes of this type of statement, such as Ray Kurzweil's […] "Law of Accelerating Returns"." Hockenhull and Cohn (2021: 310) also point out and critically addresses inevitabilism as characteristic of those narratives, as they "provide the most simple and immediate description of the past, presenting these developments as self-evident history. Such histories frame the audience with naturalizing arguments that suggest that it could not have been otherwise".

The article contributes to this research by empirically tracing sociotechnical imaginaries about digitalization and inevitabilism in the *official* Danish *policy papers* concerning digitalization as empirical material. It thus contributes by showing that accelerationist and inevitabilist assumptions and narratives, already identified in less formal contexts such as statements of political actors, self-descriptions of institutions and at tech

events, also are to be identified in more formal and politically binding digitalization strategies arguably significantly more consequential for policy-making and implementation than the aforementioned contexts. That inevitabilist sociotechnical imaginaries are also traceable in the official Danish policy papers thus makes the criticisms of those (see section 3.1, 3.2 and 3.3) more pressing and important as they have found their way into what have been be described as the "production side" of politics, where solutions are found, decided on and enacted (Esser, 2013: 164).

Finally, with the final empirically informed theoretical discussion of the findings in light of technological determinism, constructivism and selectionism (section 3.4 – 3.6), the article contributes to a limited small extent to the field of philosophy of technology (see Feenberg, 2006). It does so not by introducing a novel theory or revising theories already suggested and defended, but by applying theory *to* the empirical findings thereby integrating them in a broader philosophical and theoretical discussion on democratic agency and human *political* autonomy vis-à-vis the technological *autonomy* assumed by technological determinists. This sheds light on necessary structural conditions, which need to be in place for actually realizing the post-2018 aim of influencing the development found in the material. In addition, it (briefly) applies Putnam's (1975) classical argument for scientific realism in the domain of technology. The discussion also provides a concrete and empirical case – the case of Denmark – which potentially may inform theoretical discussions about agency and the ability – or lack of ability – for democratic polities to influence the technological development. And with a dose of realism pertaining to the prospects of influencing the development, the article, in turn, sheds light on potential avenues of political interventions and actions that are not futile from the outset due to unrealistic hopes and imaginations.

Articles

Article 1: Reality Lost – Post-Factual Democracy

Vincent F. Hendricks and Mads Vestergaard

"*Good policy takes account of politics but is never made in the absence of expertise. Facts are indeed stubborn things, and they must be taken into account if the future of humanity is to be preserved, long term.*"[30]

1. Introduction

On the day of Donald Trump's inauguration January 20, 2017 certain issues took center stage, caught the bulk of public attention and were subject of much heated debate about the facts: Did the sun start to shine as the inaugural speech commenced? How big was the size of the crowd attending the inauguration? Was the attending crowd bigger or smaller than the one present for President Barack Obama's inauguration in 2009?

Contrary to what is evident from the vast amount of video and photo material from the inauguration ceremony – namely that the sun did not shine at any point during the speech – President Donald Trump claimed in his speech at the CIA headquarters:

"The rain should have scared them away. But God looked down and he said, 'We're not going to let it rain on your speech.' In fact, when I first started I said, "Oh no." First line, I got hit by a couple of drops. And I said, 'Oh, this is, this is too bad, but we'll go right through it.' But the truth is that it stopped immediately. It was amazing. And then it became really sunny, and then I walked off and it poured right after I left" (Sharman, 2017).

Trump began his presidency with a factual claim easily falsified: Examine the pictures and videos. The size of the crowd attending the inauguration became another issue of heated dispute. At the Salute To Our Armed Services Ball January 20, Trump claimed "Even the media said the crowd was massive. That was all the way back down to the Washington

[30] Science and Security Board (2017).

Monument." (Sharman, 2017). Already back at a speech for the intelligence community at the CIA headquarters crowd size had cropped up: "We had a massive field of people. You saw that. Packed. I get up this morning. I turn on one of the networks and they show an empty field. I say, 'Wait a minute. I made a speech. I looked out. The field was ... It looked like a million, a million and a half people.' Whatever it was, it was. But it went all the way back to the Washington Monument" (Sharman, 2017).

Photos from the inauguration unequivocally reveal that the crowd did not stretch that far and passenger data from the transportation authorities in Washington tell a different story too. All the same, at the first White House press briefing January 21 Press Secretary Sean Spicer doubled down. He attacked the media for “deliberately false reporting” on the size of the crowd and stated categorically that “This was the largest audience ever to witness an inauguration, period, both in person and around the globe” (Ford, 2017). He was later the same day backed by top adviser Kellyanne Conway. In NBC's "Meet the Press" confronted with the discrepancies between the publicly available evidence and Spicer’s statement she defended the statement as being not a lie or a falsehood, but a set of “alternative facts” provided by Spicer. When Spicer reappeared at a press Q&A on January 23 he made the statement that “Sometimes we [The White House] can disagree with the facts” (Smith, 2017).

Does it make sense at all to deny easily verifiable facts, march up “alternative facts” or “disagree with the facts”? Not from a logical nor epistemological point of view. Logically the concept of “alternative facts” is nonsense. As NBC journalist Chuck Todd made clear to Conway, one cannot give “alternative facts” without being wrong or lying. Facts are facts. Statements about matters of fact are either true or false. An alternative to a true factual statement is just a false statement. Epistemologically one cannot just “disagree with the facts” without being wrong. One can disagree that it *is* indeed the facts. But to disagree *with* the facts is to disagree with reality. Whether you disagree or not, the sun is shining if and only if the sun is actually shining --- like it or not. Now, as *political strategy,* this dubious relation to the facts may actually make sense. It may indeed have become a winning strategy. Both the presidential election and the example immediately above may be seen as symptoms of an emerging post-factual democracy.

2. Post-Factual Democracy and Post-Truth Politics

A democracy is in a post-factual state when facts and evidence are replaced by opportune, but misleading narratives as basis of political debate and policy making and disregarding factual truth turns into a winning political strategy thus detaching political support and public opinion from the facts.

In post-factual democracy facts and evidence have lost their authority. When facts lose their authority, disregarding them or furnishing easily exposable lies may become a winning strategy.[31] That is the novelty and what the "post" designates. It is nothing new that politicians cook up falsities, have lenient dealings with the truth and sometimes lie. There has never been a golden age of democracy in which politicians were simply honest and authentic. Politics have always been a somewhat dirty business with its fair share of deceit and masquerading.[32] Yet, not being directly exposed was an essential part of the game.[33] What is novel in post-factual democracy is that one does not even have to make an effort to hide lying or excuse "disagreeing" with verifiable facts. Being caught lying is of little consequence, if one successfully can blame the media exposing the lie for lying themselves and not being trustworthy.[34] If the media exposing the lies are successfully branded as partisan, as part of the opposition[35] or a part of an illegitimate elite - or if the electorate

[31] According to the fact checking site *Politifact*, for instance, 70 percent of Donald Trump's factual statements expressed during the election campaign (until the date of the survey, September 26) were false. For Hillary Clinton the ratio of factual false statements was 28 percent in comparison (Sharockman, 2016).
Another example may be found in the British referendum on EU membership, the so called Brexit. As centerpiece of the victorious Leave campaign was the false, and repeatedly debunked, claim that UK sent £350 million to the EU, that could (and would) be redirected to the National Health Service. A promise and claim that was put in the grave the very night of the referendum and labelled "a mistake" by UKIP leader and Leave advocate Nigel Farage (Travis, 2016).

[32] As the fictional Machiavellian character, Frank Underwood states to fellow Democrats the TV show House of Cards: "I don't know if you've noticed, but politics is no longer just theater. It's show business." Underwood, F. (2016): "Chapter 47", *House of Cards:* Season 4, Episode 8, Netflix, March 4.

[33] As Niccolo Machiavelli instructs: "...if it be sometimes necessary to conceal facts with words, then it should be done in such manner that it shall not appear; or should it be observed, then a defense should be promptly ready" (Machiavelli, 1882: 422).

[34] The recently published report on global trust concludes, that there is currently crises of trust in institutions generally and trust in the media in specific has plunged to "an all time low". Globally just 43 percent now trust the media institutions and in Germany the number is 43 percent (Edelman, 2017).

[35] As White House chief strategist, Stephen K. Bannon, bluntly stated: "The media here is the opposition party." (Grynbaum, 2017).

does not even trust fact checkers[36] - then being caught lying carries no severe sanctions or blow to their political career and reputation. In post-factual democracy, to be in sync with the facts is of secondary importance, if important at all.

The diagnosis of post-factuality points to the same phenomenon as the term "post-truth" as defined by Oxford Dictionaries: "Relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief" (Oxford Dictionaries, 2017). The post-truth diagnosis has also been integrated in World Economic Forum's *Global Risk Rapport 2017*. It lists post-truth politics as a challenge to democracy, global governance and our ability to solve the pressing problems the world faces (World Economic Forum, 2017). There is verily something correct about the diagnosis. Yet the preference is here to employ the term "post-factuality". It omits the controversial philosophical question of truth, which could also include questions of normative truth in case of cognitivist meta-ethical positions. Post-factuality denotes more narrowly factual truth: A truth which may be decided upon via the traditional sources of sense experience, science but also journalism depending on the type of factual question at hand. Thus, the thesis of post-factuality less demanding than what is indicated by the term "post-truth".

The division of labor between political actors and the sources providing facts is nowadays challenged. Facts are not taken for granted or given, but have themselves become a part of the political battlefield. Here everything is politicized. When solid verifiable facts are being politicized into the political logic of bipartisan opposition, there is no real fixpoint for political debate. The facts, then, become something one cherry-pick depending on whether they are in accordance with a certain political opinions and/or party affiliation. It is not only opinions that are chosen, but the facts too.[37] When people choose their own facts, they end up living in their own different "realities". Even the question of

[36] A survey conducted by Rasmussen Reports (2016) found, that just 29 percent of likely American voters replied positively to the first part of the question: "Do you trust media fact-checking of candidates' comments, or do you think news organizations skew the facts to help candidates they support?"

[37] Selective cherry picking of facts, in which one only acknowledge and accept the facts suited to confirm one's political biases, may be both a conscious tactical political maneuver and a consequence of psychological phenomenon of (unconscious) *confirmation* and *selection bias.* Psychological experiments have robustly documented that the factual information people tend to give attention and believe in is the information already in synch with their political opinions. For more on the close connections between post-factuality, psychological bias mechanisms and their amplification in the current fragmented media world, see Manjoo (2008).

whether the sun is shining is in this extreme scenario dependent on political opinion. If it is all political, everything is relative and factual reality has left the stage of politics. Incipit, post-factual democracy.

3. New Media and Fake News

Post-factuality is in no small part fueled by the media environment. A recent analysis from Buzzfeed News of the current political debate on digital media in Germany shows a high level of online proliferation of false stories, fake news and conspiracy theories (Silverman, 2016). Negative stories about chancellor Angela Merkel, her immigration policy and its consequences are the ones that generate most Facebook engagement as to reactions, shares and comments. Whether the stories actually reflect reality does not seem to matter much for their popularity and circulation. Rather the other way around. The top scoring stories creating most engagement on Facebook in 2016 include unsubstantiated accusations of Merkel having mental problems or even being "insane", conspiratorial stories about Merkel controlling mass media outlets as ZDF and some fake news came up with a picture "showing" Merkel taking a selfie with the terrorist behind the Brussels attack (Silverman, 2017).

The popular Buzzfeed analyses align with a scientific study from 2016 demonstrating that unsubstantiated conspiratorial claims reverberate, are circulated and receive attention in time and volume on par with verifiable factual information (Mocanua et al., 2015). When it comes down to potential for virality, the factual quality of the information is of secondary importance. In the new online media environment, it seems that rumors, false claims and bogus stories live long and prosper. Sticking to the truth is not a necessary condition – let alone sufficient - for stories and media content to be widely circulated receiving ample attention. Thumping online attention may, even if the content is debunked,[38] have real impact on democratic debate, opinion formation and the political landscape.

[38] A psychological study (Thorson, 2013) on the phenomenon *belief echoes* document robustly that misinformation sticks and false rumors and fake news may be damaging to reputation even when acknowledged as falsified. Experiments show that agents who presented to false rumors, are told they are false and accept their falsity, still have had an assessment change pertaining to the person the false rumors related to. Correcting false information does not stop it from having a measurable effect on individual - and not unrealistically also on public opinion.

The media landscape itself has changed dramatically with the Internet, digitalization and social media. The traditional media institutions have lost their monopoly in disseminating information. Conventional gatekeepers, journalists and editors, of information and factual knowledge have witnessed severe challenges to their power and institution. This has been celebrated as the democratization of the media.[39] The new digital and networked media environment has made it possible --- at little or no expense --- to publish media content and information on online platforms, blogs, communities and social media. Thus, everyone is now a node in the networked public sphere and may voice their opinion. Contrary to optimistic hope, empirical studies show that the allocation of attention is not more equally distributed between information sources, than when mass media had de facto monopoly of information distribution. The allocation of attention (still) abides to power laws (Hindman, 2008; Webster, 2014). When it comes to informational impact on the Web, the winner takes it all – a few major news outlets and online platforms get the bulk of attention and set the agenda. Yet this development has undermined the gatekeeping and informational filtering role of professional journalism. It comes at a price. The professional journalists and editors have guidelines for ethical conduct and virtues of good journalism. The Society of Professional Journalists in USA consider the broad democratic purpose of journalism to being public enlightenment and states a set principles journalists should abide to, if they are to live up to the task set forth. To seek truth, verify and report it accurately and fairly is the very first principle (Society of Professional Journalists, 2014). Journalists' gatekeeping function in the age of mass media included filtering out or exposing falsehoods, unsubstantiated rumors and bogus stories as being exactly that. There has, of course, always been bad journalism, tabloidism and sensationalism, false claims, biases and partisanship. Yet, media actors generally, in varying degree, were expected to subscribe - and were held professionally accountable - to values of truthfulness and (some measure of) objectivity and fairness. Now, on the other hand, political actors of all sorts, citizens and issue proponents, but also anonymous cynical actors with the sole purpose of making money, concentrating power or status by attracting attention do not have to go through the gate of the media institutions and the journalistic gatekeepers. The result: Fake news beating verified news stories in social transmission.

[39] See for instance Benkler (2006).

4. The Market of Attention

Post-factuality is not so much a consequence of a lack of factual information and sound evidence obtained through reliable methods of experience, journalism or science. In the information society, the amount of publicly available and easily accessible information is overwhelming. But information need to be attended to in order to matter. If nobody pays attention, no information is transferred, communicated or disseminated. Attention is the price for receiving any kind of information. The amount of attention is fixed and limited: Attention is a scarce resource.[40] As the hours of the day are constant and limited, so is the amount of possible attention allocatable by individual actors. Individuals have a limited attention capacity. Any actor may only consume and be informed by a limited quantum of information. At macro level, this is reflected in a limited amount of public attention each day. To set the *agenda* is to allocate public, media and political attention. Even when the amount of available information is in overwhelming supply, an agenda is limited and constrained by what Hilgartner and Bosk (1988) refers to as *carrying capacities*. Carrying capacities constrain the maximum amount of information and issues that can be on an agenda. In the media, the carrying capacities consists for instance in the space available in newspapers or the time available in a TV or radio shows. The media's carrying capacities fixes the limits for the information circulated and what receives broad public and political attention. The political system also has carrying capacities consisting in the limited time available each day setting an upper limit to the issues attended and addressed to in hearings, debates etc. (Hilgartner and Bosk, 1988). And both media actors and political actors and citizens have individually certain cognitive carrying capacities as their time and attention is limited, and thus so the issues and information they are able to attend.

The scarcity of attention makes the *selection* of information decisive. As pointed out by Kelley and Yantis (2009: 1), "[i]nformation selection is a critical component of an organism's successful interaction with the environment". When information is selected and attended to, limited attention is also allocated. And whether and to what degree the

[40] As Simon (1971: 40) already pointed out in the dawn of the digital age concerning the growing disproportionality between the information demanding attention and the limited quanta of attention in supply results in a poverty of attention: "In an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it."

individual actor is factually informed depend on how her limited time and attention is allocated. People allocating attention to unreliable information and epistemic unsound sources like conspiracy theorists, pseudo-scientific or political or religious propaganda sites will become less factually informed than people seeking factually information from epistemically more reliable sources. The same goes for actors who disregard politically relevant information, news and feeds and earmark attention to and consume entertainment media products instead. If the actor's attention is spent on sports, then he is not reading a politically relevant or informative newspaper article in that time period. With the vast amounts of available information online, users are able to select what information to attend to a far more extensive degree than earlier. This opportunity may potentially amplify psychological tendencies to *selective exposure,* which refers to the "phenomenon whereby people choose to focus on information in their environment that is congruent with and confirms their current attitudes in order to avoid or reduce cognitive dissonance" (Williams et al., 2016: section 4). In addition, *filter bubbles* may partly be understood as a results of *online information selection* done automatically by content curating algorithms. The notion of filter bubbles refers to the suggestion and worry (Pariser, 2011) that online, users are increasingly shown more of the same kind of content due to personalization based on prior engagement on social media platforms as Facebook and search engines such as Google. Filter bubbles and their effects are feared to facilitate echo chambers of likeminded agreeing (too much) with each other at the expense of being exposed to diverging views and opinions, which, in turn, is feared to contribute to social fragmentation and political polarization (Barberá, 2020). Both the individual psychological tendency to selective exposure and the algorithmically induced information selection (and filtering out of other information) according prior engagement online may to some degree be understood in attention economic terms as issues of (suboptimal) allocation of attention.

The quality of information circulated is crucial for the factual quality of public deliberation. If politically irrelevant issues, junk evidence and partisan contributions receive high levels of attention, then other relevant issues and sound information may not receive enough to actually inform and impact democratic deliberation. In turn, the public agenda is dominated by narratives instead of facts. Opinions instead of knowledge. Stereotypes instead of representative instances. Political bubbles instead of political substance. One

outcome is post-factual democratic discourse where facts and evidence are of secondary importance since they do not enjoy sufficient attention compared to unfounded narratives.

Attention is, besides being limited in supply, also in extreme high demand --- attention is the most valuable asset online. The competition for attention is brutal. Especially media institutions and actors are competing for attention in terms of readers, listeners, viewers and clicks. The currency of media institutions *is* attention. The huge amount of money companies spend on marketing and advertising is largely to gain consumers attention. In this market of attention substantial money may be made by harvesting attention, by being an *attention merchant* (Wu, 2016). The result is an economic incentive to get attention by all means necessary. The factual quality of the information does not matter from a monetary point of view. A click is a click and may be cashed into dollars or euros. The production of fake news becomes a viable business strategy in this environment. The story is the same when it comes to *political* capital but here political populism feeding on and contributing to polarization is the strategy.

5. Viral Narratives and the Rise of Populism

Political populism is characterized by employing narratives of exclusion and polarization. Populists' common claim is that they - and they alone - represent the true will of The People – in singularis – (Müller, 2016). Populism is conceptually dividing

1. the population into the real people and the "others", and
2. political actors into political representatives of the real people – the populists themselves – and "others," who are not representing the will of the people and thus according to the populists themselves lack democratic legitimacy.

This symbolic construction of The People, and the populists themselves as its only true representative, makes populism anti-pluralistic. In the framework of populism, political adversaries are not construed as representing legitimate challenging viewpoints and opinions – a basic condition for a pluralistic liberal democracy. Instead, they are branded as part of an elite betraying the people, neglecting their wishes and not listening to their voices. If you are against the populist, you are against the people and thus lack democratic legitimacy, the meta-narrative goes. Besides being anti-pluralistic, populist narratives of

exclusion and polarization tend to have a narrative structure of us-vs.-them. This is pointed out by Corbu and Negrea-Busuioc (2020: 183) holding that populism is characterized by a "Manichean distinction between the good "us" and the evil "them," the people versus various out-groups".[41] Such Manichean narratives may be very suited for fueling emotions of anger against or fear of the *other* (Corbu and Negrea-Busuioc, 2020). This, in turn, also make them suited for attracting a lot of attention and to set the agenda in the current media environment. Berger (2011: 1) has suggested that *social transmission* of information, the sharing of information through "interpersonal communication" like the viral diffusion on information on social media platforms, is driven in part by emotional "arousal" mobilizing the aroused individual to action, including sharing. In an empirical study on virality, Berger and Milkman (2012) has further shown that news stories feeding on high arousal emotions as anger (indignation)[42] and fear have a high probability of going viral and thus attract a lot of attention. According to Berger and Milkman (2012), negative high arousal emotions of anger and fear on the one hand together with positive high arousal emotions of awe on the other are *activity mobilizing emotions*. They motivate agents to act - contrary to emotions of sadness or comfort, which are *activity demobilizing*. Acting also means sharing, retweeting, upvoting and other online acts fueling social transmission of media content and information. Accordingly, if you want your content to go viral, make people angry and/or afraid – and, as mentioned above, the populistic narrative structure of us-vs.-them with some "other" as the evil villain may be effective in producing both anger and fear vis-à-vis the threatening "other".

Different versions of this structural polarized narrative feeding on indignation and fear of the *other* may thus arouse and mobilize people to act. In an online environment, this may translate into high levels of social transmission. When it comes to the potential for virality, getting the facts right does not matter as much as getting the emotional effects of

[41] Conspiracy theories and narratives follows the same bipolar structure, but ad a for conspiratorial narratives necessary grain of secrecy. As determined by Douglas et al. (2019: 4), conspiracy theories may be understood as "attempts to explain the ultimate causes of significant social and political events and circumstances with claims of secret plots by two or more powerful actors … While often thought of as addressing governments, conspiracy theories could accuse any group perceived as powerful and malevolent". See also Bergmann (2018) for common denominators of conspiracy theories and populism.

[42] In the study (2012), Milkman and Berger uses the category "anger", but the news articles thus categorized feeds specifically on indignation. Indignation has a structure that entails that someone (the narrative villain) does something unjust to someone else (the narrative victim). Indignation is anger about a perceived injustice. This align with the titles of the articles hinting at economic and political corruption: "What Red Ink? Wall Street Paid Hefty Bonuses", "Loan Titans Paid McCain Adviser Nearly $2 Million".

the narratives right (Corbu and Negrea-Busuioc, 2020). Whether or not they adequately reflect and represent the facts – and all of the available relevant facts – may thus be of secondary importance for attracting attention and impact. Corbu and Negrea-Busuioc (2020: 182) have also pointed out an interrelation between populism on the one hand and misinformation and disinformation on the other. They argue that both, "feed into one common ground: the Manichean distinction between "us" and "them," which is the inner core of populism and at the same time the context in which people appropriate news that is counterfeit to various extent". According to the scholars, both populist narratives and different forms of misinformation and disinformation are characterized by consolidating already held stereotypes, amplifying prejudges and attribution of blame to out-groups. In addition, and importantly, the scholars in turn argue (2020: 193) that when news content and narratives appeal to and consolidate "people's own stereotypes, prejudges and attitudes" they become more susceptible to accepting factually misleading narratives, "not questioning their truthfulness any longer".[43]

Disregard for facts may also be enhanced by the anti-elitism of populism, which includes distrust in established journalism and expertise as cognitive authorities (Pedersen et al., 2018). The "other" in populist narratives may refer horizontally to immigrants, ethnic or religious minorities as the out-group threatening national security, identity and values of the in-group people (Fawzi, 2020). However, it may also refer *vertically* to different *elites* as the out-group other (Hameleers, 2018). Besides established political elites in for instance Brussels or Washington claimed to being corrupt and betraying the People, it may also target the *media elite* of mainstream media. Professional journalists and established media actors are routinely blamed by populists for being biased and hiding the truth at the expense of the interests and needs of the (ordinary) people (Hameleers, 2018; 2020). Another characteristic target for populists as the *others,* standing antagonistically against the people, are *experts*. As pointed out by Hameleers (2020: 2175), "[e]xperts, such as scientists, are accused of relying on inaccurate top-down analyses of important societal issues that do not, according to the populist rationale, alleviate the people's problems. Against this backdrop, ordinary citizens are assumed to be more knowledgeable and better able than experts to come up with solutions to societal problems". Targeting established

[43] For a nuanced and descriptive approach to stereotypes and stereotyping, see Beeghly (2015).

journalists and experts as malignant outgroup-others contributes to creating *distrust* in them and their institutions. Also, as pointed out by Hameleers (2020: 2175), especially the anti-expertise component of populism connects its narratives to ”postfactual relativism, in which facts delivered by institutions have increasingly been interpreted with skepticism and distrust”. Why trust journalists or experts to provide facts and sound factual information if they are perceived, and by populists branded, as antagonistic others blind or indifferent to the interests of the people, or even more divisively as *enemies of the people*? Reportedly, Donald Trump told a CBS journalist that his repeated attacks on the established press were carried out exactly to spread distrust in journalists for immunizing himself against critical converge: “You know why I do it? I do it to discredit you all and demean you all, so when you write negative stories about me, no one will believe you” (Quoted after Panievsky, 2021: 2137).

The point here is not that populist narratives and communication do not relate to facts and reality at all. Citizens supporting and voting for populists may be angry and fearful with a solid foundation in the facts facing them. Rising inequality, stagnation of real income for middle class households, decreasing job security, increasing economic and educational divide between urban and rural areas may be very real reasons and motivations for indignation (for more on economic factors related to globalization potentially fueling political populism, see Rodrik, 2018). However, it is a trademark for populism to *simplify* a complex reality (Mudde and Kaltwasser, 2017). In the populist framework, the complexity of the real world and its causal relations are reduced to a simplified and Manichean distinction between the (good) “people” and the (malignant) “others” to whom blame is attributed and who are thus playing the role of culprits.[44] This simplified distinction and perceived societal antagonism has also been described by Reinemann (2020: 217) holding that populism, “propagates a view of society in which societal grievances are mainly traced back to groups of ill intent, reducing issues to questions like “Who benefits?” and “Who is to blame?” […]. As a result, the political elites (e.g., “the establishment”) and/or out-groups (‘them’, e.g. refugees, minorities, artists, journalists, the wealthy) are portrayed as being fundamentally

[44] Political communication employing simplifications, stereotyping and symbolism is of cause not reserved to political populists (Dahlgren and Alvares, 2016). But because of the populist’s ideological anti-pluralism, they are less restricted in employing clear cut narratives structured on an exclusion of the stereotyped “other”, than political actors who are more restricted by basic values of liberal democracy as pluralism and individualism.

opposed to the ingroup and its interests. No matter how different these groups may seem, they may be regarded as functional equivalents as they represent the actors viewed as responsible for the decline, suffering, and neglect of the "real" people".[45]

Populists may be understood as a kind of political modern-day Snake Oil vendors trading political assets that are in high demand, but are far from paying off the promised and expected utility. According to such an approach, populist communication may be considered a successful strategy for what Akerlof and Shiller (2015) have labeled *phishing for phools* in the market of politics.[46] The notion of phishing is inspired from illegal online fraud deceiving users to give up personal information (as their bank account information), but is defined more broadly by Akerlof and Shiller (2015: xi) as "getting people to do things that are in the interest of the phisherman [the one doing the phishing], but not in interest of the target" and phools are the ones being successfully phished. Phishing for phools may be conducted in different ways, but one is to appeal to people's emotions to the effect that they "override the dictates of […] common sense" and another to exploit "cognitive biases" (Akerlof and Shiller, 2015: xi). In order to conceptualize the bad decisions people are phished to make – those that are "not in interest of the target" according to the above definition – the authors coin (2015: xii – xvi) the notion of NO-ONE-COULD-POSSIBLE-WANTs and provide examples as financial insecurity, bad health and *bad government*.

A recent example of what may be considered *bad government* (that NO-ONE-COULD-POSSIBLE-WANT) conducted by elected populist leaders may be found in the handling of and communication pertaining to the COVID-19 pandemic. Eberl et al. (2021: 272) have pointed out that elected populist leaders, like Trump in USA and Bolsonaro in Brazil, have contributed in supplying and spreading misinformation and conspiracy theories

[45] Indignation as motivation and fuel is not reserved for populists. Indignation, anger directed against injustice is and has been an essential driving force in political struggles and emancipatory movements and individuals through history from liberals to marxists. Indignation may indeed be a proper response to the facts and reality. Being indignated and opposing elites does not necessarily make one into a populist. Following Jan-Werner Müller (2016), anti-pluralism does. Cherry picking and a highly selective use - and omission - of facts along with narratives of scapegoating, simplistic flawed causal inferences and stereotyping may be added to the populist formula.

[46] Akerlof and Shiller (2015: xvi) also address phishing in politics connecting it to political communication showing the politician as an ordinary guy, as "one of us" – or in populist terminology *one of the people* – while at the same time spending a lot of money on the campaign. As authors put it, "because we are human, we are prone to vote for the person who makes us the most comfortable. As a result, politics is vulnerable to the simplest phish, whereby politicians silently gather money from the Interests, and use that money to show that they are "just one of the folks."" (Ibid.).

about COVID-19 and have "arguably" contributed to an *infodemic* on the matter by "openly disagreeing with scientific experts, public administrators and other political leaders on how to respond to the crisis" (Eberl et al., 2021: 272). Such populist anti-expertise stances may in turn be fueling *distrust* in experts, scientists and institutions, which are playing a central role in mitigating the negative consequences of the pandemic – especially if the experts and institutions are populistically or conspiratorial branded and blamed as part of the elite of *others* standing antagonistically against the people. The tactic of undermining trust in authorities, including epistemic authorities as scientific experts, in times of a pandemic where citizens' behaviors and public trust in (health) authorities providing information and guidelines are decisive, may potentially have dire consequences and result in populist lead countries being less able to effectively mitigate and being hit more severely. A recent contribution (Baylerlein et al., 2021) concerning COVID-19 policy responses, citizens' behavior and the impact of the pandemic in terms of excess mortality in different populist governed and non-populist governed countries provides empirical support for this actually to be the case. The scholars (2021: 27) found that the excess mortality during the pandemic "is systematically higher in populist governments […] with excess mortality on average being 10 percentage points higher *ceteris paribus* in populist governed countries in comparison to non-populist governed countries". Such an excess mortality rate at 10 percentage points higher in populist lead countries may be a suited candidate for *bad government* and what Akerlof and Shiller call a NO-ONE-COULD-POSSIBLE-WANT. Simplicity and blame attribution in explanations may make for effective political communication, social transmission, virality and mobilization. But to actually *govern well* when in power solving real-world problems and migrate challenges – that may be contributing in fueling the indignation – demands commitment to a complex reality with complex causal relations as well as a basic level of trust in expertise and science rather than simplistic populist or conspiratorial attributions of blame to outgroups.

With its simplistic narrative culprit template dividing the citizens into the good people versus the malignant and corrupt "others" suited well for social transmission, populism may have become a winning political communication strategy in post-factual democracy. But if that is the case, what may be lost are both the idea and practice of politics being actually able to effectively deal with the real-world problems and, not least, maybe even democracy itself.

First, the latter question of how some forms of misinformation may impair or even undermine democratic governance is addressed. Then in the following and final section, we address the former question of the role of expertise in a factual democracy able effectively to solve problems and provide good outcomes without outsourcing the political authority of the citizens to technocrats.

6. Democracy and Misinformation

Whereas populism and its claims of democratic illegitimacy of opposing opinions and parties strive well under post-factual conditions, the legitimacy of post-factual democracy may itself be put into question. Questions of democratic legitimacy and discussions of how to understand and define democracy are covering a vast field of different schools, research fields, literature and contributions, which this article does not presume to cover. The aims here are far less ambitious addressing (1) the question of voter competence in face of not just voter *ignorance*, but of *misinformed* voters, and (2) of pointing out an implicit necessary *epistemic* element in a specific minimalistic theory identifying democracy with competitive elections and peaceful transference of power (Przeworski, 1999).

From political science, Lupia (2006) has addressed the question of voter competence in the face of voter ignorance of political facts. He argues that the requirement of politically well-informed voters and criticisms of presumed voter incompetence are *elitist* overstating the importance of factual political information for casting a competent vote. Lupia (2006: 220) points out that when political scientists survey the level of "political knowledge" of voters, and often deem it insufficient, it is based on testing whether they can provide the correct answers to factual questions of the type *who is currently holding X political office*? According to Lupia (2006), such questions may be important for elites of political scientists and journalists, who as part of their job have to know such facts and will have their reputation damaged among peers if they do not, but they are not necessarily important for the regular voter or necessary for voter competence. Even when not being able to correctly answer factual political knowledge questions asked by political scientists, the voters may be *sufficiently* informed to be competent for the task (of voting) at hand by employing different *proxies.* Such proxies – working as informational shortcuts – could be endorsements of how to vote by politically aligned actors or the party affiliation of a candidate, which may provide sufficient information for casting a competent vote even when the voter is ignorant and

uninformed on factual details on the condition that those facts would not change the vote if they were known. According to Lupia (2006: 228), "[w]hen citizens can use endorsements to cast the same vote that they would have cast if they had better information, the finding that citizens cannot recall minute legislative details is irrelevant". Thus, according to this approach, voter ignorance of facts does not necessarily pose a democratic problem as it does not necessarily impair the ability to vote competently.

A similar, optimistic, approach to political ignorance of the citizenry is (even) to some extent taken by the late Habermas and implied in the notion of deliberative democracy offered in a (relatively to the authorship of Habermas) recent contribution from 2006. According to Habermas (2006: 418), deliberative democracy entails that "the legitimation process must pass through a public sphere that has the capacity to foster considered public opinions". Citizens are supposed to form "rationally motivated" opinions, which should be the basis for collective democratic decisions (Habermas, 2006: 418). The deliberative processes and the "impact of arguments" are to contribute in producing "reasonable outcomes" of the decisions processes. In order to foster *considered* or *rationally* motivated opinions, and to contribute to reasonable outcomes, the deliberation in the public sphere has the "normative requirement that *relevant* issues, *required* information, and *appropriate* contributions be mobilized" (2006: 418). Habermas (2006: 420) also addresses the question of "public ignorance" and politically uninformed citizens, but even when demanding that the "required information" is mobilized as part of the public deliberation, this does not entail the requirement that citizens are sufficiently factually informed. Instead, he argues that by employing heuristics and informational shortcuts, the citizens can "definitely form reasonable attitudes toward public affairs" (2006: 420). Accordingly, politically uninformed citizens do not necessarily pose a profound problem to *this* notion of deliberative democratic legitimacy offered by (the late) Habermas in this contribution[47] as they are still able to form the necessary rational attitudes and considered opinions.

However, as pointed out by Brown (2018), there is a difference between the epistemic state of being ignorant of certain facts and thus to be *uninformed* on the one hand, and the epistemic state of holding false beliefs one believes to be true and thus to be *misinformed* on the other. Misinformed citizens and voters pose a more profound challenge

[47] We do not here presume to cover or represent the whole authorship, developments or contributions of Habermas as such, only the specific contribution (Habermas, 2006).

to collective democratic decision-making than an uninformed citizenry does. As Brown (2018: 208) argues, "[a] voter who is consciously ignorant of the two presidential candidates' views on foreign policy may deliberately refrain from making her choice on that basis and rely instead on knowledge she does possess. By way of contrast, a voter who cares greatly about foreign policy but has been misinformed—that is, one who holds false beliefs—about the candidates' positions on that matter is more likely to make a poorly justified choice".

As pointed out by Gutmann and Thomson (2009), misinformation may also undermine the justification of political decisions made by the government, and according to their notion of deliberative democracy in turn to some extension impair the democratic legitimacy of the decisions. According the scholars, (deliberative) democracy demands that collective decisions are justified by giving *reasons* for the decisions: "In a democracy, leaders should […] give reasons for their decisions, and respond to the reasons that citizens give in return" (2009: 3). This practice of reason-giving in deliberative democracy is an element in gaining democratic legitimacy of the collective decisions. A main purpose of democratic deliberation is thus to "promote the legitimacy of collective decisions" (2009: 10). However, when reasons offered for a decision are false (as in misinformation) or deceptive (as in disinformation), the democratic legitimacy of the decision is impaired. Gutmann and Thomson (2009: 4) use as example the case of the war in Iraq justified by weapons of mass destruction that did not exist: "When a primary reason offered by the government for going to war turns out to be false, or worse still deceptive, then not only is the government's justification for the war called into question, so also is its respect for citizens".
However, even if deliberative democrats (as Gutmann and Thomson) demand giving reasons for decisions in order for them to be legitimate there are other less demanding and more minimal notions of democracy, which do not require reasons or rational deliberation as justifications of decisions. Here we will only address one such minimalist notion of democracy and show how it also has an implicit epistemic requirement that may be undermined by certain forms of misinformation.

Przeworski (1999) has defended a minimalist concept and definition of democracy according to which the sole criteria for democracy is that the rulers are elected in competitive elections. Against deliberative democrats, Przeworski argues that it is the election procedure and winning the competition of the ballots that grants and legitimizes

political authority, not deliberation, arguments and reasons – "it is the result of voting, not of discussion, that authorizes governments to govern, to compel" (Przeworski, 1999: 48). With reference to Schumpeter, democracy is defined minimalistic as "just a system in which rulers are selected by competitive elections" (1999: 23) and defended on the minimalist ground that it is the "only system in which citizens can get rid of governments without bloodshed". The point we want to make here is that even *this* minimalist notion of democracy, and the validity of the argument provided by Przeworski defending it, depend on an *implicit epistemic requirement* of a minimum level of factuality.

According to Przeworski (1999: 48), elections may be understood as peaceful substitutes of violent rebellions, as the distribution of votes "constitutes ''flexing muscles': a reading of chances in the eventual war" for the political adversaries competing for power. This entails that the election results provide peacekeeping *information*:

"If elections are a peaceful substitute for rebellion […], it is because they **inform** everyone who would mutiny and against what. They inform the losers —''Here is the distribution of force: if you disobey the instructions conveyed by the results of the election, I will be more likely to beat you than you will be able to beat me in a violent confrontation''— and the winners—''If you do not hold elections again or if you grab too much, I will be able to put up a forbidding resistance.''" (Przeworski, 1999: 49, our emphasis).

For this mechanism to work, securing peaceful transferal of power through elections, a necessary condition is that the losers of the election actually *believe* that they have lost the competition on the ballots and the result is not in itself misinformation or disinformation. If you do not believe in the results to be factual and representative for the distribution of votes, then the distribution does not constitute a measurement of the chances of winning a potential rebellion or civil war. Thus, the results need to be trusted as representative to have the peacekeeping effects argued by Przeworski. If the losing part does not hold the belief that it actually lost the election, the minimalistic aim of changing government peacefully may be undermined. In order to accept defeat obeying the winners in practice has thus as necessary *epistemic* condition that the defeated *acknowledge* their defeat as real and hold the *belief* that they were actually defeated. If they believe that they actually won by getting most votes, but was cheated for the victory and only fraud is causing the

proposed win of the other side, they do not become informed about relations of the relative strength of the opposing parties in case of rebellion and civil war. Thus, the argument offered for the minimalist definition democracy depends on a minimal *epistemic* requirement. Returning to the presidency of Donald Trump, an example of this may be found in the storm on the American Congress the 6th of January, where supporters of the factual loser of the election, Donald Trump, (were) mobilized and attacked the Congress to "stop the steal" of the election (Barry et al., 2021). If the citizens are not trusting the *result* of election procedure itself, and the media reporting it, the peacemaking institution of elections is undermined. Thus, even such a minimalist conception of democracy, according to which competitive elections of the representatives are the sole criteria for democratic rule, must as a minimum factual requirement include an epistemic dimension consisting in the electorate's *belief* in the result of elections themselves. However, in order of a democracy to be able to collectively to solve problems and produce good outcomes, stronger epistemic requirements apply.

7. Factual Democracy

Without a minimum level of factuality, the collective decisions that result from the democratic procedures are not aligned with the world for real. If the deliberation and decisions are detached from reality, it becomes impossible to actually and effectively solve the real world problems and global challenges that countries and the international society are facing. If we are to do something to effectively avoid a climate catastrophe, the first necessary condition is to acknowledge that man-made climate change in fact is real. If we are to solve the all too factual problems the world is facing, it is necessary to grant authority to the facts. More precisely, granting authority to and upholding a level of trust in institutions and agents that produce and procure factual knowledge by reliable methods. In a factual democracy, the epistemic authority on factual matters is thus delegated to the agents and institutions employing reliable methods for obtaining the factual knowledge in question. Two of the reliable methods for obtaining facts are professional journalistic research and sound scientific inquiry (Hendricks and Vestergaard, 2019), and in factual democracy both journalists and scientific researchers play an important part in producing

the factual informational foundation for debate and decision-making – and they must be trusted with the epistemic authority to do so.[48]

As to journalism, if politically inconvenient journalism and news content is dismissed as "fake news" as practiced by Donald Trump, and even simple verifiable facts – as whether the sun shined during Donald Trump's speech in Washington D.C. on January 20. 2017 – are up for political debate, the facts are politicized, relativized and losing authority, and the debate a symptom of post-factual tendencies of detaching politics from its foundation in the real world (see section 2). To be able to agree collectively on such basic and easily verifiable facts and holding minimal level of trust in the journalists and institutions reporting them is necessary in a factual democracy. However, fact checking the weather is a relatively easy and simple task compared to fact check the reality of human-made climate change and long-term prognoses of its consequences (Brown, 2018). When it comes to such questions and challenges, trust in experts, expertise and scientific research is necessary.

This need of expertise raises questions of the *authority* granted scientists and scientific research in a factual democracy: Can scientists be granted sufficient authority to provide the scientific and technical knowledge needed for effective, fact based, problem solving without democracy is undermined and replaced by *technocracy* defined by Fischer (1990: 17): A "system of governance in which technically trained experts rule by virtue of their specialized knowledge and position in dominant political and economic institutions"? Such technocratic rule could for instance entail granting climate scientists the political authority to enact the climate policies they consider best or necessary based on their scientific knowledge or granting political authority to a board of economists to enact the economic policies they find best. This may raise another, to some extent related, question: Why *not* settle for technocracy according to Fisher's (1990) definition above, and delegate decision-making to technical and scientific experts thus granting them the *political* authority to make the best and most effective decisions, or for an *epistocracy*, in which a minimal

[48] That facts and institutions uncovering them have epistemic authority in factual democracy does not entail that journalists or experts are always right nor that what at a given point in time is considered to be the facts do not change. Both science and journalism are fallible and both institutions sometimes produce false claims, wrong theories and junk evidence. However, more and better science and journalism are to correct those mistakes and falsehoods. There is difference between rejecting science and journalism as being an untrustworthy part of the elite (as in populist narratives of mistrust) and the internal critique of bad science or bad journalism coming from inside the fields themselves.

level of competence and knowledge is required for "holding political power" including the right to vote (Brennan, 2011: 701)?

One approach for arguing for democratic rule against alternatives as technocracy or epistocracy is to disregard the quality of the outcomes of the decisions procedures and justify democracy as being intrinsically valuable. As argued for instance by Griffin (2002: 120), democratic rule may be defended on the normative ground that it is an "intrinsically just procedure" affirming the equal moral status of the citizens by distributing the political power of voting equally. However, such an approach is not tenable as an argument for *factual* democracy, where the collective ability to solve or migrate real-world problems, and thus the outcomes of the decisions, is an important factor to consider. A more suited approach for arguing against technocracy, or epistocracy, in this context of factual democracy are those of *epistemic democrats* as Landemore (2012) taking the quality of outcomes into consideration (for another, and weaker than Landemore's, position advocating epistemic democracy against epistocracy, see the influential contribution of Estlund (2008)).[49]

Landemore (2012: 3) argues that "a democratic decision procedure is likely to be a better decision procedure than any nondemocratic decision procedures, such as a council of experts or a benevolent dictator".[50] Her argument draws on the *Diversity Trumps Ability Theorem* showing that a *diverse* group of randomly selected problem solvers performs better than a group of experts, who individually perform over average (Page, 2007). Cognitive diversity may bring more perspectives and experiences to the table thus contributing in enlarging "the pool of information" on basis of which decisions are made (Landemore, 2012: 100). An example of this could be that *lay expertise* based on personal experiences may provide "situated understandings" not available to the certified experts of

[49] Estlund (2008: 22) opposes epistocracy arguing that arguments for epistocracy tend to imply an "expert/boss fallacy", which (wrongly) infers political authority from expertise. According to Estlund (2008: 33), political authority and "legitimate coercive power" demands a general acceptability from "all qualified points of view", which cannot satisfied in an epistocracy as there is no agreement on who the political experts – the potential epistocrats – are. Thus, the acceptability criteria cannot be satisfied, and epistocracy cannot be justified. For criticism of Estlund's argument, see Lippert-Rasmussen (2012), who, however, also provides a more modest argument against epistocratic authority, or the *authority claim* rejected by Estlund (2008), allowing for epistocratic rule in some cases, "where it actually would be best" (p. 257).

[50] Even if Landemore (2012: 50-52) argues against "the risk of epistocracy", the notion of a nondemocratic decision procedure by "a council of experts" fits Fisher's (1990) definition of *technocracy* and Landemore's criticism may thus apply to technocracy in this sense (even when Landemore (2012: 204) uses the notion of technocracy differently as a "branch of government").

the field (Lambert and Rose, 1996: 80). As shown by Epstein (1995) in context of medical research in HIV/AIDS, lay expertise may contribute to the production of knowledge in the field as well as of development *of* the field. More generally, experts also have both limited attention and disciplinary biases potentially making them blind to other relevant perspectives and information. The discipline of economics has for instance been criticized for having lost the connection to the economic and social reality due to a research approach blinding the economists to important information and facts, in turn, contributing in blinding them to possibility of the 2008 crash happening.[51] Educational programs in economics have also been criticized for their homogeneity (across different educational institutions) and exclusive focus on certain research approaches and methods not leaving room in the educational curriculum other heterogeneous perspectives, approaches and methods.[52] If experts of a field are receiving the same education and employs the same methods and approaches, it may bias them and the allocation of their research attention effectually blinding them to highly relevant aspects and perspectives. Taking this into account, an *econocracy* (Earle et al., 2016), in which economists schooled in the same methods and approaches were in charge for economic policy-making could thus end up not being optimal for the economy. Scientific fields can lose the grip on reality too if groups of (too) like-minded are not challenged and enriched by divergent perspectives and approaches adding to the pool of information.[53]

According to Landemore (2012), the *Diversity Trumps Ability Theorem* entails another theorem, *Numbers Trump Ability*, which provides an epistemic argument for the value of inclusive democratic decision procedures. The more inclusive the decision

[51] See for instance Akerlof and Shiller (2009: 1): "The public, the government, and most economists had been reassured by an economic theory that said we were safe. It was all OK. Nothing dangerous could happen. But that theory was deficient. It had ignored the importance of ideas in the conduct of the economy. It had ignored the role of animal spirits". And Krugman (2009): "As I see it, the economics profession went astray because economists, as a group, mistook beauty, clad in impressive-looking mathematics, for truth. [...] Unfortunately, this romanticized and sanitized vision of the economy led most economists to ignore all the things that can go wrong".

[52] See for example the Institute of New Economic Thinking (https://www.ineteconomics.org/) and its worldwide student network Young Scholar's Initiative (https://www.ineteconomics.org/community/young-scholars?p=community/young-scholars), the international movement Rethinking Economics (http://www.rethinkeconomics.org/) and Evonomics (http://evonomics.com/).

[53] Note that there is a significant difference between such scientific based internal critique of a (neoclassical) paradigm in economics and for example skepticism about man-made climate change. Climate sceptics have for the most part been unable to get through peer review and publish their "findings" in a scientific journal of the field, whereas the criticists of economics count leading scholars and Nobel Laureates among their ranks. See also Christiano (2012) on internal disagreements in the field of economics.

procedure is, the higher level of cognitive diversity, and thus "the smarter the solutions resulting from it" (Landemore 2012: 104). However, as argued by Brown (2018), this argument for epistemic democracy is too optimistic, and detached from conditions at work in the real existing democracies, as it underestimates the negative influence of misinformation and disinformation on the quality of democratic deliberation and its outcomes (see also section 8). Brown (2018: 206), concludes, "not that epistemic democracy is valueless as an ideal, but that misinformation currently prevents the citizens of mass democracies from reaping the benefits of the "wisdom of crowds."". Besides this (media) reality check, as Brown (2018) points out, Landemore's identification of *diversity* with *numbers*, and thus with (almost) all-inclusive democratic procedures, is flawed as the epistemic value of diversity may just as well be employed as an argument for diversity in the non-elected elite. Or, as argued by Brennan (2016: 85) sufficient diversity in the group of citizens sufficiently cognitively qualified for being part of the epistemocratic electorate pointing out that Diversity Trumps Ability Theorem "doesn't imply that it's literally best to have every single citizen vote, or even to have most of them vote".[54]

However, Holst and Molander (2019) have pointed out that the epistocracy–epistemic democracy discussion tends to be construed as a choice *between* experts or citizens – and between epistocracy and democracy – ignoring that experts already are, and in order for democracy to be factual also needs to be, an integrated part of the decision-making processes providing necessary specialist knowledge to the table. According to Holst and Molander (2019: 544), Landemore (as well as Estlund) are "more concerned with explaining why we should prefer a democratic regime to an epistocratic one than with discussing what sort of epistocratic arrangements could be normatively acceptable under democratic conditions". Following this approach, considering expert influence on democratic decisions processes as a fact of modern democracies, the question becomes, *what the role of experts should be in a factual democracy in order for it to be both factual and democratic?*

In factual democracy, scientifically authorized parties must inform policy-makers and the public about facts and research findings, whenever this is relevant to the policy process but should not be authorized to make the decisions (as in a technocracy), which are to be

[54] For criticism of Brennen's argument for epistocracy, see Moraro (2018) arguing that Brennan mistakes the cognitive capacity of the citizens for their trustworthiness.

made through (inclusive) democratic procedures. Political actors and policy-makers on the other hand should take notice and enact policies informed by the best available evidence in relevant fields. Pedersen (2014: 547) offers a similar approach to the relation between science and democracy arguing that in a "well-ordered society, [1] democratic decision-making and public debates must be informed by a scientific approach to the relevant facts; (2) democratic decisions and public policies that deliberately ignore relevant scientific facts are illegitimate or otherwise normatively defect; and (3) the scientific community must inform policymakers about facts and findings, where this is relevant, but should leave decision-making to the democratic process". Such a division of labor makes possible that the citizens hold the *political authority* and the process of collective decision-making is sufficiently inclusive to qualify as *democratic* and at the same time ensuring that this collective decision-making is informed by the best evidence available provided by the researchers and scientists holding the *epistemic authority* in their respective fields thus qualifying the decision-making as *factual*. To some extent, such a division of labor is corresponding to the traditional division between facts and values, as also noted by Pedersen (2014). By taking notice of the distinction between facts and values, and abide to the division of labor – thus neither politicizing or ignoring facts obtained by solid state of the art methods, nor reducing normative questions pertaining to aims, values and ideals to pursue to factual ones – is it possible to have a factually qualified informational foundation for collective decisions without those decisions are themselves outsourced from the citizenry.

A contribution by Thomas Christiano (2012) also supports such a division of labor and approach to expertise and democracy arguing that extensive use of expertise and scientific knowledge is compatible with political equality and democratic rule.[55] Christiano proposes a basic understanding of democracy and metaphor, according to which the citizens in a democratic polity are "in the driver's seat with regard to the society and equals in the process of driving the society" (2012: 33). Christiano employs an approach of *means* and *ends*, of aims and instruments to achieve those aims, to divide the labor in modern democracies. Citizens are to choose "the basic aims the society is to pursue" consisting in "all the non-instrumental values and the trade-offs between those values" on which there is

[55] See also Cerovac (2016) for a similar approach elaborating on Christiano's (2012) position.

disagreement between the citizens (Christiano, 2012: 33). When electing their political representatives, the citizens choose between "packages" of those aims, values and trade-offs, which are then to be realized by negotiation and majority rule (2012: 33). However, in order to actually and effectively advance the aims set by the citizens according to their values, the *means* or instruments – the policies enacted and implemented – to achieve those aims should be based the best available evidence and scientific research of the relevant fields. The political decision process should thus be "truth sensitive" entailing that it "does not ignore the best available science" (Christiano, 2012: 48), while still keeping the citizens in the driver seat of society setting the direction.[56] Without truth sensitivity, "democratic decision-making will fail to advance the aims that are supposed to animate the system" (p. 36).

Continuing this line of thought and elaborating on Christiano's car metaphor: Sitting in the drivers' seat of a car holding the authority to decide on its direction does not take one in that direction if, for instance, the steering wheel of car does not function properly. This example suggests that a stronger version of Christiano's argument for use of expertise as *compatible* with democracy can be made: In order for the citizens to actually be *drivers* of society steering it towards their aims, expertise and truth sensitivity are to some extent *necessary*. Without expertise knowledge on the policy instruments that work, the democratic ideal of the citizens in the drivers' seat of society offered by Christiano is arguably undermined by the (potential) inability to successfully steer society in the preferred direction. If the citizens' aims are to be achieved partly or fully, the policy instruments employed for realizing them must be effective to some degree, and this may in some cases require expertise as necessary. Following from this approach, the question is not whether democracy is compatible with extensive use of expertise, but rather whether democracy (in this sense suggested by the car metaphor at least) is compatible with

[56] In addition, truth sensitivity is also, on the side of the community of experts, depended on "robust debate among a variety of different kinds of theories, each of which is taken seriously by the others so that stronger and less biased theories emerge from the debates" (Christiano, 2012: 49). This component of truth sensitivity has – according to Christiano, specifically addressing truth sensitivity in the social sciences (2012: 49) – democracy as "necessary condition" because "it is only when all the different sectors of society have the means of articulating their diverse points of view that social science can generate a process of knowledge production that is sensitive to the conditions of all the different parts of society". This aspect, in turn, means that ordinary citizens also play a role in setting research agendas of the experts and in knowledge production, and not only setting the aims thus making the division of labor less clear cut than the car-driving metaphor may suggest – at least when it comes to the social sciences.

systematic *disregard* for expertise and the relevant best available evidence. This way of turning around the question of the compatibility between democracy and expertise pointing to disregard of expertise as potentially democratically problematic converges to some extent with the second of Pedersen's (2014: 547) criteria for a well-ordered society (mentioned above) holding that, "democratic decisions and public policies that deliberately ignore relevant scientific facts are illegitimate or otherwise normatively defect". In the specific context of this article addressing post-factuality, it may be argued that such an approach supports a position (at least) questioning whether what has here been described as post-factual democracy actually qualify as *democratic* – besides in name only.

However, the division of labor suggested above between scientific *knowers* and political *deciders* – of factual scientists on the one hand and normative politicians and publics on the other – may be too simple without sufficient grounding in the mixed and muddy realities of scientific research, policy-making and their interrelation. As pointed out by Jasanoff (2011), scientific policy advice is not a simple matter of speaking truth to power nor is the traditional dichotomy of facts and values able to adequately describe – as well as prescribe – the role of expertise in democratic policy-making. Jasanoff (2011: 33) points out that science is not a pure and value neutral endeavor isolated from the rest of society, but is "embedded in the social" entailing an "interpenetration of knowledge-making with norms and values". Thus, the notion of the pure normatively neutral scientist providing just the (value free) facts to political actors is an idealization and abstraction not reflecting empirical reality. Besides, the *expert* advising policy-makers plays another societal role and abides to different criteria than the scientist, whose "primary mission is fact-making" (Jasanoff, 2011: 24) – even when this scientific mission is embedded in social norms and values. Rather than providing *truth*, the role of the advising expert is "judicious use of available knowledge for the public good" (Jasanoff, 2011: 28). Thus, "[p]olicy-relevant science comes into being in a territory of its own that is subject to neither purely scientific nor wholly political rules of the game" (Jasanoff, 2011: 20). Experts are building bridges between scientific knowledge and policy-making and operate thus in a field, in which both normative criteria for political legitimacy and epistemic criteria for knowledge production and assessment are of concern. This *dual justification* (Pedersen, 2014) has been addressed by Lentsch and Weingart (2011: 8) arguing that high quality expert advice must at the same time be both *epistemically* and *politically* "robust". Epistemic robustness concerns the quality and validity of the scientific

research and the knowledge claims it produce, whereas political robustness of scientific knowledge concerns "acceptability and the feasibility to implement recommendations based on it" (Lentsch and Weingart, 2011: 8). In order to advise well the expert must therefore consider both what is politically possible and normatively legitimate as well as the quality of the scientific knowledge on which the advice is based. Thus, the distinction between the scientific-factual and the political-normative is not clear cut for the expert policy adviser abiding to both epistemic and normative criteria for providing high quality advise.

The aim of securing high quality scientific policy advice as a (factual) foundation for policy-making faces challenges from both opportunistic expert advisers and from opportunistic political actors, who "selectively use science to pursue an agenda driven by their respective partial interests" (Lentsch and Weingart, 2011: 4). Pertaining to the expert advisers, Lentsch and Weingart (2011) point out three interconnected developments challenging the quality of advice: The supply of potential advisers has increased dramatically (1), which is connected to the development (2) that a lot of expertise formerly available in-house has been outsourced from the political administrations, which in turn has contributed in (3) creating "an advisory market" (Lentsch and Weingart, 2011: 6). This market consists of a lot of different actors as think thanks, research institutions, private and commercial consulting firms, NGOs, lobbyists etc., and "[o]nly a fraction of these is committed to serious academic research". At the same time, many of those actors have vested (political or economic) interests and to some extent depend on the income generated through commissions from the policy makers. This makes the "quality of advice … a serious problem on this market" (Ibid.). Thus, policy makers risk receiving, and taxpayers paying for, (economic or political) opportunistic low-quality advice lacking sufficient epistemic robustness from the advising experts, who may be incentivized to cater for the political interests of the policy makers paying the bills – or, in case of dependence on founding from the industry, to cater opportunistically for its commercial demand and interest – resulting in "policy-biased evidence" rather than "evidence-based policy" (Pedersen, 2014: 550). Pertaining to the political actors and policy makers receiving advise, a challenge raises from the ability of scientific advice to influence the legitimacy of decisions made by the political actors in the eye of the public. For instance, a government's energy and climate policies (or lack of the latter) may be de-legitimized by scientific knowledge diffused through the media

pertaining to the reality and severeness of the pace and the potential consequences of climate change. This potential "de-legitimizing function" of scientific knowledge disseminated in the media "implies that governments have a genuine interest in controlling the kind of advice given to them" (Lentsch and Weingart, 2011: 7). Thus, there is a strong incentive for political actors to politicize and cherry pick political beneficial research results and exclude or try to de-legitimize the research in the media as epistemically flawed even when epistemic robust. Both opportunistic expert advisers and opportunistic political actors may thus contribute to post-factual tendencies of disregarding the best available scientific evidence, and both may have a strong economic or political incentive to do so.

According to Lentisch and Weingart (2011: 5), the challenge of securing quality policy advice is to be meet "at the level of organisations" and their "institutional mechanisms and practices". Thus, the main question Lentisch and Weingart (2011: 9) ask is addressing the institutional setting of scientific policy advice: "which form must expert advice have, and in which institutional arrangements must it be generated and communicated to meet the dual requirements of political acceptability and scientific validity?". They (2011: 15 – 16) also provide four principles for quality policy advice: 1. Distance between the advisers and the advised securing independence of the advisers, which in turn is a precondition for the creditability of the advisers. 2. Plurality in the range of disciplines and advisers securing against expert-bias facilitating different perspectives – thus adding to the pool of information – safeguarding "the adequacy of the knowledge and the trust in it" (2011: 15). 3. Transparency of advice and decision-making processes to secure trust in them and in the arguments that inform them. 4. Publicity and openness securing equal access to all relevant information as a precondition of gaining or keeping trust. It is worth noting that the first principle is partly motivated by a concern for *credibility*, and the last three partly by keeping or generating *trust*, and the aim of staying or becoming *trustworthy* is may thus be said to be a common denominator running through the principles. This focus on trustworthiness highlights the central role trust plays, and must play, in a factual democracy. In factual democracy, the institutions producing knowledge on factual matters must be sufficiently *trusted*, not as infallible or elevated above public discussion and criticism, but as institutions with reliable internal mechanisms in place and a level of transparency, which makes them institutionally trustworthy for both political actors and the public.

However, this aim of building and keeping trust in scientific institutions and policy advisory bodies may still be challenged even when the institutional mechanisms and practices for securing their trustworthiness described above are in place. If misinformation, disinformation and divisive populist narratives of us-and-them feeding on emotions of anger and fear of the elites as the *other* (see section 5) spreads further and faster attracting far more attention than epistemically robust and verified scientific information and knowledge, such a media environment is itself a challenge to the goal of building or keeping trust in scientific institutions and the information and advice they provide. Thus, in order to build and sustain trust in science and research, science communication to the broader public in and through the media must also be of a sufficient quality, resisting over-simplifications, fear and anger mongering as well as unfounded science skepticism, populist or conspiratorial narratives pitting researchers against the people as part of a self-serving elite – even when profitable in terms of attracted attention. This, in turn, highlights the importance in a factual democracy of *trustworthy* and sufficiently *trusted* media institutions.

The four principles for institutional arrangements of scientific quality advise mentioned above may be worth to consider also in the context of the media landscape as potentially providing guidelines for how ideally to arrange media institutions and journalism in order to facilitate both trustworthy and trusted quality journalism: (1) Journalistic independence and distance to political actors. (2) A plurality of media actors of both professional journalists and other actors partaking editorial processes thus providing different perspectives and experiences avoiding biases of like-minded professionals. (3) Transparency in the editorial processes and decisions. (4) Openness – when possible without exposing sources protected by anonymity – about the relevant information on the basis of which the journalistic content is produced.

Article 2: Digital Transformations of the Attention Economy of Political Communication and Political Bubbles

Mads Vestergaard

1. Introduction

In the wake of the subprime bubble in 2008, and the financial crises it triggered, the economist Paul Krugman placed blame on economists (Krugman, 2009). The leading paradigm in economics, he argues, implies a strong market optimism. Scholars in the field of economics had, according to Krugman, been seduced by the beauty of the math of abstract perfect markets inhabited by rational agents and lost its connection to reality: "[A] romanticized and sanitized vision of the economy led most economists to ignore all the things that can go wrong" (Krugman, 2009). Like the overly optimistic Doctor Pangloss from Voltaire's *Candide, Or Optimism* (2013; [1759]), economists have studied and modeled markets as if we lived in the best of all possible worlds and became blind to the real markets, and the real humans inhabiting them as result. According to Krugman, this "panglossian" market optimism and resultant blindness to the negative aspects of economic reality, is a consequence of beliefs in efficiency of financial markets and the so-called *Efficient Market Hypothesis* (see Fama, 1970). According to the Efficient Market Hypothesis, the market always gets the prices right, including prices of financial assets. Asset prices are assumed to reflect all available and relevant information pertaining to the asset. Whatever information an investor holds (unless it is a case of illegal insider trading), the market always already "knows" and the information is already factored in the market price. This means that no one systematically can beat the market, including governments. The Efficient Market Hypothesis also has as consequence that financial asset price bubbles, like the subprime bubble, are ruled out as impossible a priori. Asset price bubbles are situations in which assets are overpriced and has been defined as situations in which *an asset systematically trades at prices far exceeding the fundamental value of the asset* (Vogel, 2010). The fundamental value is an estimation of what the asset is worth as object of long-

term investment without resell (van Lee, 2019). According to the Efficient Market Hypothesis, however, the market price for a given asset is always a reflection of its fundamental value, which entails that the market price is identical to the worth of the asset – or at least to the best of all possible evaluations. Thus, overpricing for more than a very short time period, and thus bubble formations, are impossible. If the Efficient Market Hypothesis had been true, then the mortgage-backed securities creating the subprime bubble would have been worth their price and not the almost worthless financial assets as they turned out to be when the bubble busted. An efficient financial market would have weeded them out in due course as low-quality assets not able to make the competition – nobody rational demands such "bad" financial products of high risk *and* high prices.

According to Krugman (2009), the market optimism inherent in the Efficient Market Hypothesis is related to an optimism regarding the cognitive capacities and rationality of the actors operating the market. In mush economic research, the market actors are modelled as *rational agents,* whose cognitive capacities are out of this world and their information processing power is unlimited. If information is available, rational agents will process it and act on it successfully maximizing their utility. A market inhabited with abstract rational agents able to process al available information instantly will be efficient and hence always get the prices right. According to Krugman, this idealization of the human cognitive capacities and rationality was a central part of the problem detaching economics from the real world. Economists convinced of the efficiency of markets "turned a blind eye to the limitations of human rationality that often lead to bubbles and busts" (Krugman, 2009).

A parallel to the market optimism criticized by Krugman may be found in the notion and ideal of *The Marketplace of Ideas*. The market metaphor of free competition of ideas originally dates back to John Milton as an (epistemic) argument for freedom of speech: "And though all the winds of doctrine were let loose to play upon the earth, so Truth be in the field, we do injuriously by licensing and prohibiting to misdoubt her strength. Let her and Falsehood grapple; who ever knew Truth put to the worse in a free and open encounter? Her confuting is the best and surest suppressing" (Milton, 1951: 51). In 1919, Justice Holmes, arguing far-reaching freedom of speech in Abrams v. United States, introduced the metaphor in American jurisprudence stating "the best test of truth is the power of thought to get itself accepted in the competition of the market" (quoted after Ingber, 1984: 3). In contemporary context and jargon, Gordon (1997: 236) sums up the core idea and ideal:

"The ideas and opinions compete with one another, and we have the opportunity to test all of them, weighing one against the other. As rational consumers of ideas, we choose the "best" among them. In the same way that "bad" products naturally get pushed out of the market because of the lack of demand for them and "good" products thrive because they satisfy a demand, so also "good" ideas prevail in the marketplace and "bad" ones are weeded out in due course".

This notion of the Marketplace of Ideas also depends on the optimism pertaining to the assumption of the efficiency of markets, or what may be called an *Efficient Marketplace of Ideas Hypothesis*. The market is supplying what is in demand, thus providing consumers with what they want. Thus, what satisfies the preferences of the consumers, manifested in their preparedness to pay, wins the competition. Otherwise, it loses out. When the products and ideas winning the competition in the marketplace due to consumer demand, are identified with "good" or "the best" products or ideas, *because* they win, such an identification is a case of market optimism. This optimism pertaining to the Marketplace of Ideas is, like Krugman pointed out in context of financial economics, also based on optimistic assumptions pertaining to the rationality and cognitive capacities of the actors inhabiting the market, who are being understood and modeled as idealized rational agents, or in the words of Gordon, "rational consumers of ideas" (Ibid.). In a similar way as the optimistic view of financial markets became blinders for economists, detaching them from the troublesome economic reality, the idealization of actors as rational agents and the Marketplace of Ideas as efficient, may potentially cloud the view for market failures, malignant phenomena and novel forms of repression of dissent voices. Like for Doctor Pangloss, and the panglossian financial economists, optimist assumptions may detach the optimist from the real world, the real agents in it and the real trouble they are getting into.

Reality and its inhabitants are not as rational as assumed and as result its real markets are not as efficient as they are assumed to be. As pointed out by Krugman, in contrast to the rational agents inhabiting markets of goods, assets or ideas in mainstream economic theory, human cognition and rationality has limits. This observation of our limited cognitive capacities itself, and its far-reaching consequences for human behavior and cognition, however, was provided early on by the economist Herbert Simon (1916 – 2001). He did what amounts to a reality check on the discipline of economics and suggested to

substitute the rational agent with a model of "a choosing organism of limited knowledge and ability" (Simon, 1955: 114). According to Simon's theory (and the paradigm of behavioral economics following to a far extent from his contributions), humans are (only) *bounded rational*. Our rationality, and our ability to maximize utility in a given situation, is restricted by the limits of our cognitive apparatus. Our ability to receive, process and act on information is restricted by our *attention*, which is to be understood as a limited cognitive *resource*. Attention is the "bottleneck" of human consciousness and cognition (Simon, 1985: 302). This insight is a game changer. It undermines the strong market optimism based on too optimistic views on human cognition, rationality and ability to receive and process information. We might miss out in relevant and important information, which in turn will not inform us or our decisions. Therefore, as consequence of bounded rationality and limited attention, the real existing marketplaces of goods or ideas are less efficient than presumed by many schooled in economic theory (Falkinger, 2007). Simon's observation also became a foundation for research in attention economics.

Employing an approach from attention economics and referring to Simon (1971), Professor at Columbia Law School, Tim Wu (2018), has critically addressed the digitalized information environment and the notion of the Marketplace of Ideas. He asks the question of whether the First Amendment has become obsolete and maybe even works *against* democracy and freedom of speech. Freedom of speech can be turned against itself employing the right to expression to control not what is *said*, but what is *heard*. The First Amendment protecting speakers from the government is suited to secure freedom of speech in *information poor* environments, in which the number of speakers is low. But today, the tables of the informational environment have turned and due to the Internet and social media, the cost of public speech has plummeted and the number of public voices has exploded. Public speech and speakers are no longer scares. What is scare is the attention of listeners. When this is the case, disfavored speech can be neutralized by being drowned in a flood of speech and information, instead of by shutting speakers down. Wu mentions online spread of fake news and (mis)information spreading bots as examples of flooding tactics crowding out unwanted voices and content, and points to evidence suggesting that the Trump Administration has employed them. Wu argues that such tactics can be even *more* effective than traditional censorship targeting the speaker with coercive means as jailing or worse. Trying to shut unwanted voices down can backslash and contrary to the repressive

intention result in even louder criticism, including for the act of censorship itself. As Wu points out, even the Chinese government, not restricted by the First Amendment and well versed in jailing critics, has increasingly begun to employ flooding tactics for public opinion control instead of the old school methods of direct censorship and repression of speakers (Wu, 2018).

If the understanding of challenges to free speech and democratic deliberation is based on an inadequate, idealized and outdated understanding of the Marketplace of Ideas, and entails a blindness to novel forms of speech control, employed in China, as a new forms of censorship, as it has been suggested by Wu (2018), it could use a reality check and an update.

This article aims to contribute to such a reality check. A more realistic understanding of the real existing Marketplace of Ideas, its market failures and the malignant phenomena emerging in it, may pave way for critical approaches founded on comprehension of the conditions, affordances and incentives at work in new digitalized informational environment. Besides novel forms of speech control targeting the listeners already pointed out by Wu (2018), this article suggests that different forms of speculative bubbles may emerge in the Marketplace of Ideas. The Marketplace of Ideas is also a marketplace of attention and the article suggests that in this marketplace speculative bubbles of attention may inflate. News stories may overheat and attract far more attention than their (journalistic) worth and when those stories are political from the outset or are politicized, they may inflate into *political bubbles*. When a bubble inflates on financial markets, it has been described as a process of "collective abandonment of reality" (Quiggin, 2010: 132). When financial bubbles are inflated, market actors act on basis of unfounded narratives, rather than factual knowledge and sound information and thus lose the firm grip on reality (Akerlof and Shiller, 2009). The article suggests that a similar kind of detachment from reality takes place when bubbles of attention, suggested and defined in this article, are inflated. Then the exchange of ideas detaches from reality, and its problems, to the effect that attention is spend on debating issues without much political substance, even with no relation to reality at all.[57] This, in turn, may impair our ability to collectively to mitigate the challenges and solve the real problems facing our societies effectively – or at all.

[57] Referring to "reality" and the "real world" may be philosophically controversial as pinning down what is real is not, as the history of philosophy an ontology bears plenty of witness to, a simple matter – to say at least.

Besides introduction and conclusion, the article consists of four main parts. First, attention economics will be presented as a theoretical framework. Professor at Vienna University of Technology, George Franck, has contributed with an extensive attention economic framework, only relatively recently discovered and acknowledged in the English-speaking research community.[58] Where Simon and his theory of bounded rationality primarily addresses attention as a limited valuable cognitive resource for the actor to spend on information, Franck's point of departure is the value of attention received from others (Frank, 1993; 1998). He describes the information markets of the media as highly speculative markets of attention, in which attention is both currency and capital and the media play the role of the financial industry (Franck, 2005; 2005a). Actors seeking attention are implicitly considered as *assets* of investment and speculation by the media in this attention economic framework. This attention economic framework is presented in the article's first main part in section 2.2 – 2.7. However, even in his late and recent contribution (2020), Franck does not sufficiently address the profound transformations of the attention economies and media landscape driven by digitalization and extraction of behavioral data, the rise of platforms, and introduction of algorithms as curators of information. Besides than by providing the users the opportunity to broadcast themselves, Franck does not consider social media platforms as being essentially different from traditional broadcast mass media, and he may thus be said to disregard the recent changes in and of the media landscape caused by digitalization. Thus, the article argues, Franck has a blind spot for the implications of the digital transformation of the attention economy of the media. In order to update his attention economic framework to the era of data driven social media platforms so it reflects and describes the current informational environment, it must be extended to include those transformations and their implications. To conduct such an update by filling in the missing (technological) pieces in Franck's framework, is the aim of the last part of the first main part of the article (section 2.8 – 2.10). The main theme of the

However, employing scientific and journalistic state of the art methods may provide the best approximation of reality available and referring to "reality" in this article to be more precise means "reality according to the state of the art methods of science and journalism".

[58] According to Citton (2017), a reason for this is that Franck has been writing in German and the translation of his seminal paper "Ökonomie der Aufmerksamkeit" (1993) to English "The Economy of Attention" (1999) was published in a marginal journal (ironically) not able to attract sufficient scholarly attention for his work to be acknowledged as groundbreaking contributions to attention economics.

digital transformations of the media environment, and the implications for the attention economy, however, reemerges in in different contexts through the article.

Secondly, the article addresses the tradition of agenda-setting studies fostered in the era of mass media and points out the basic assumptions it shares with attention economics, which suggests that agenda-setting may be viewed as attention allocation at macro level. Attention at macro level – presentation space on agendas – is limited in a world of information abundance and is allocated through competition in zero-sum games of agenda setting. Because of those shared assumptions, agenda-setting studies offer theoretical building blocks that potentially can be integrated in of transferred to an attention economic framework a la Franck's. This paves way for extending, drawing on the theoretical resources of agenda-setting studies, the attention economic framework offered by Franck to include informational items, such as news stories, as *assets* in the attention economy – besides attention seeking *actors* already construed by Franck as the attention economic equivalents of financial assets of investment, and speculation. Such an extension, in turn, makes it possible to describe an attention economy of *political communication* in attention economic terms of markets, assets and prices.

Thirdly, the article addresses the transformations of the attention economy of political communication resulting from digitalization of the media. As mentioned above, Franck's framework as well as agenda-setting studies are both fostered in the era and context of mass media. The attention economy of political communication has changed significantly due to digitalization pertaining to the markets, the assets and the prices paid. However, the integration of agenda-setting studies and attention economics into an attention economic framework for political communication (in the previous part of the article) makes it possible to focus on and highlight the differences and transformations of the attention economy of political communication in relation to *markets*, *assets* and *prices* from the era of mass media to the current *digital* media environment. This is main aim in this part of the article.

Fourth, on the basis of the updated and extended attention economic framework in which both agents and informational items as news stories are understood as assets, notions of *news bubbles* and *political bubbles* are suggested and defined. This is done by transferring and converting the theoretical elements used to describe asset price bubbles in financial economics to the attention economy. This includes an interpretation of the notion

of fundamental value at a sufficient generic level for transferring it from the domain of finance to the domains of news and politics. The suggested conceptual models of news and political bubbles may pave way for criticism of political communication when it detaches from the real world, and its real-world problems potentially undermining our ability to collectively solve the problems societies and the world are facing. In addition, surveying recent changes in both financial and markets of attention (and engagement) resulting from digitalization and introduction of (big) data analysis and algorithms, it is suggested that those changes may contribute in affording and incentivizing speculation to a larger degree than before, make the markets more volatile and facilitate an increase of bubble formations at an accelerated pace.

2. Attention Economy

Economics has traditionally been understood and described as the study of the allocation of scarce resources (Samuelson and Nordhaus, 2010). In a world of plenty, there would be no need to allocate resources. There would be enough of everything wanted for everybody wanting. A scarcity of goods – a limited supply in a world of infinite demand – is a prerequisite for economics as discipline. In the *Information Society*, however, information is not in short supply. To the contrary. We are drowning in available information. The challenge in today's information rich world is not to find something to read or information to pay attention to; it is to find the time and mental resources to attend to the available material. It is therefore off the mark to describe the new economy that have evolved in the information society as an "information economy". What has evolved is rather an attention economy, an economy of that which information itself demands to be received: Attention of the recipients.

2.1. Attention as Resource

When information demands attention and available information is in abundance, the result is a deficit of attention. As put by Simon (1971: 40) at the dawn of the information age:

"…in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is

rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it".

When one's attention is consumed by one item of information, it cannot be consumed by another. In order to efficiently take in, process, and act on information, we need to focus on one thing at a time. Humans do not multitask well. Even if we may sometimes multitask and pay attention to several things at once, such as talking on the phone while cooking, it generally makes us slower and more prone to making mistakes. Quality wanes when we split our attention rather than focus on one single item or activity (Sternberg and Sternberg, 2012).

At the micro level of the individual actor, the exclusive nature of attention means that each actor has a limited amount of attention to spend and invest in a given time period. Consequently, the actor may only consume and be informed by a limited quanta of information, issues and media content. Attention allocation is a zero-sum game. At the same time, attention is the main gateway to the mind, which information must go through to be processed and inform the agent. Attention spent is the (minimum) price one is paying for receiving information and therefore also a necessary condition for gaining knowledge, educating one self and developing skills. Thus, the actor's attention has value as a cognitive resource for the actor. How an individual actor is informed and what she knows – or thinks she knows – is dependent on how the limited attention is allocated. There may be important information available, that is not received, recorded, reflected or acted upon because no attention was paid to it. Spending attention, like spending money, comes with opportunity costs. If the actor's attention is spent on watching sports, entertainment shows or playing *Candy Crush*, then she is not reading a politically relevant and informative newspaper article in that time period, which is reflected in what the actor is informed about during that period - or misinformed about (Hendricks and Vestergaard, 2019).
If attention were unlimited as in the case of the abstract rational agents from standard economic theory, supplying information to the agents also implies that they processed it into a part of the informational basis upon which they evaluate the situation, make decisions and act. More information provided would always be better than less, and contribute to rational – that is utility maximizing – decisions and actions on part of the

agents. When attention is limited and the ability to process information therefore is restricted, *sorting* and *prioritizing* of information becomes decisive. When information is in abundance and attention is limited, selection of information in an ocean of noise, irrelevance or downright falsehood to locate and only attend to the most important, relevant, true or useful information becomes the challenge. Without attention management allocating it to the most important, individuals and business entities end up acting sub-optimally due to the control problem raising from inability to sort and select between all the incoming information and thus to act upon what really matters. However, attention is not only valuable as a *resource* to spend and allocate carefully. It is also valuable to receive as income.

2.2. Attention as Income

To receive attention is extremely valuable. In the words of George Franck, receiving other's attention is "the most irresistible of drugs" (2019: 8). The desire and struggle for attention and recognition from one's peers goes as far back as homo sapiens as such – if not even earlier in groups of primates – and may thus be conceived as a fundamental need. Being seen and attended to by others is a matter of life or death for babies and when it is no longer a necessity to survive, it is a necessity to thrive. Humans crave attention at an existential level. Gaining other's attention means to enter their consciousness and to play a part in their perceived world as someone that matters to them and make a difference. Being seen and recognized by others is necessary for self-esteem (Franck, 2019). Besides the basic existential need for being acknowledged, to gain the attention and being seen by others has extensive *social* value. Fame pays off socially and attention of many adds to one's prestige and social status. Receiving more attention than others creates social distinction from the others. Actors getting a lot of attention rise in the social hierarchy and if they succeed in gaining a sufficient large amount of attention, the actor joins the social elite of *celebrities*. Being a celebrity is by definition to receive large amounts of attention (Franck, 2019). Besides attention for the sake for attention – the joy of being in the limelight in itself – and the implicit raise in social status and distinction from others, attention is also desired as a necessary *mean* to communicate, inform (or misinform) and influence the beliefs and behaviors of others. When attention is a resource that is necessary to spend as a price to pay for receiving any kind of information for the agent, the flipside of the coin is, that to

successfully communicate and influence agents, the prerequisite is to capture and fixate their attention in the first place. Attention is the portal to people's hearts and minds. This makes attention extremely valuable for everyone with something to communicate, something to gain support for, something to protest or not least something to sell. Attracting and efficiently exploiting consumer attention is decisive in all forms of marketing, branding, and advertising. The aim of marketing is to influence behavior and persuade consumers into buying a certain product or voting for a specific candidate. However, no persuasion happens if no one is listening, reading or watching: "Before consumers can be affected by advertising messages, they need to first be paying attention" (Teixeira, 2014: 1). The same goes for political actors and candidates. Exposure is a vital resource for candidates running for political office. Without attention and visibility on the media scene, it is impossible for politicians to successfully communicate their opinions, policy proposals and programs, influence the electorate's voting behavior and gain both support and votes.
The value of receiving attention for different agents – either as an end in itself as fame and prestige, or as mean for successful communication or influence for commercial or political purposes – have resulted in a social reality, Franck (2016) describes as a huge *vanity fair* constantly running. The media environment – the mediated public sphere of interaction and exchange of opinions and ideas the media create – is an arena in which the competition on attention is hard. However, the notion of a *market* of attention and to understand attention not only as valuable, but as a *currency*, attention must be quantified and minted into homogeneous measurable units.

2.3. Attention as Currency

Franck distinguish person-to-person attention in the analogue world from mediatized attention channeled through different kind of media. As mentioned above, the person-to-person attention we pay to each other is individually valuable. But this analogue form of attention is qualitative. It matters from who one is bestowed attention. The worth and value of attention from others is relative to one's own regard for the person paying the attention. Attention from a highly respected person oneself look up to as a role model, is worth more than attention from people who are not recognized as such. The worth of (analogue) attention in unmediated interpersonal exchange is thus strictly individual (Franck, 2005a).

For attention to become a currency, the qualitative and individual value of interpersonal attention has to be converted into quantity. The worth of a dollar bill is not relative to from whom it is received it. Attention also needs to be homogenized into quantitative – and thus measurable – anonymous, abstract and comparable unites to create a system of equivalence and thus be able to play the part in the attention economy that money play in the pecuniary economy. Abstraction into countable units is possible when the information attracting and exchanged for the attention of the receiver is not supplied person-to-person, but is channeled through a *medium*. When information become *mediatized information* and an *accounting system* quantifying and measuring the attention invested in exchange for the information published by the medium is in place, then attention may act as a currency (Franck, 2005a). This quantification has been realized in the media environment with circulation numbers and audience ratings as the accounting system measuring the amount of received attention.

2.4. Media as Attention Merchants

The market of media is an information market. Informational products – be it news or entertainment – are supplied by different media outlets according to the demands of the media consumers – according to their preparedness to pay. Traditionally, this information market was one in which information was exchanged for money. A media outlet, say a newspaper or a book publisher, supply information to its readers – the customers buying the newspaper or book – in return for their money which is directly providing the income for the media. This has changed. As it happened in the dawn of modernity in science, the exchange of information for money has increasingly been converted into to exchange of information for attention. Media outlets operating in the current landscape are not primarily senders and sellers of information. They are to be understood as *attractors* of attention (Franck, 2005). They are selling the service of attraction and the information provided is only a *mean* to attract attention. Not that money is out of the picture. In contrast to public service taxation-financed media outlets, commercial media outlets are in it for the money. In that perspective, the media business is business as usually: Its purpose is maximizing profits for the stockholders of the company. However, the key to maximize profits in the media business is to first to maximize the amount of attracted attention to the media outlet. The attracted attention may then be exchanged for money in secondary

market in which advertisers are the costumers paying for access to the attention of the audience.

This business model has also been labelled and described as the business model of the *attention merchants* (Wu, 2016). The first known attention merchant was the businessman Benjamin Day, who started The New York Sun in 1833 and thereby created *the Penny Press*. At that time, the standard price for a newspaper was six cents, whereas The New York Sun was sold for one cent – a penny – each. The cost for producing the newspaper was above one cent each, so if the customers who should provide the income for the New York Sun had been the readers buying the paper a cent each, he would have lost money for each paper sold. When Day to the contrary become rich from the *Sun*, it was because he was actually catering to a different market, in which information and newspapers were not sold for money, but where the attention of the readers the newspaper had attracted was sold to advertisers. The readers were not the customers providing the (main) income for the business. They became the product – or more precisely their attention did – to be sold in another market to the real customers in the advertising industry who were providing the income turned into profits. The attention merchant model pioneered by Day later became the business model for broadcasted commercial radio and TV. In the broadcasted media, the business model reached its pure form. Broadcasted media content is as broadcasted free of charge for the consumer (besides the expense of acquiring the receiving devise as a ration or TV) and the whole income of the media outlet comes from selling attention of the consumers to advertisers. From a business perspective, programs aired on commercial TV are therefore merely means for attracting attention – for attracting as many eyeballs as possible – to advertisements. Programs on commercial TV have the purpose of making sure the viewers tunes in on the channel in the first place and *stay tuned* during the commercial breaks. As the artists Serra and Schoolman (1973) made clear in the short video *Television Delivers People*: “You are the product of t.v. You are delivered to the advertiser, who is the costumer”. Today, it is the standard model for most of the internet services and social media platforms and the basis for the expression: *If you do not pay for the product, you are the product* (Hendricks and Vestergaard, 2019). According to Franck (2016a), this business model was a game changer in the media world and the defining criteria demarcating between *Old* and *New Media*. In media studies, this distinction has traditionally been based exclusively on differences in technology. Old media employed analogue technology of

production, reproduction and dissemination of information products and new media digital technologies. To Franck however, the main difference is the business model, not the technology or the difference in mass media and networked, social, media. Franck (2016: 162) accordingly categorizes both broadcasted commercial TV, disregarding whether the employed technology is analogue or digital, and the Internet in the same category of *new media*: "Due to the lacking barrier of the sales counter, the new media are free to focus exclusively on the maximization of attention, including development of the technology of attraction. They can, moreover, fully make use of information and communication technology for addressing the preparedness to pay attention waiting in the population. They have turned this technology into an infrastructure that supplies information, like water or electricity, to every household, only to collect the attention spent in realizing the information."

A prerequisite for the attention merchant's business model, and the attention economy of the media world as such, is the construction of an aforementioned accounting system quantifying the attention attracted in homogeneous units creating an abstract system of equivalence in the same way numbers of citations do in science. This quantitative measurement of attention is provided by systems counting the number of sold newspapers, the circulation figures and ratings for radio and TV shows or the amount of visits or clicks online. The value of an advertisement to the advertisers is relative to the size of the audience it reaches. Fifteen seconds in prime-time TV is a lot more expensive then fifteen seconds after the late-night news because the price is a function of the amount of attracted attention the advertiser buys into in the two cases. Ratings make attention, or the service of attracting it, into a marketable product. Only when armed with rating numbers, the attention merchant is able to put a price tag (in terms of money) on the medium's presentation space and sell it to advertisers. Quantification of attention in ratings, converting it to a marketable product, has far reaching consequences and makes not only conversion of attention into money possible. Attention-minted-into-currency also makes it possible to accumulate it as capital and invest it according to the logic of financial markets. The attention economy is, like the money economy, an economy driven by credits, investments and accumulation of capital. According to Franck, "the media, within the attention economy, are what the financial sector is in money capitalism" (2005a: 107).

2.5. The Financial Industry of the Attention Economy

Being the financial sector of the attention economy, the media institutions:

1. Create the currency
2. Invest attention in order to receive attention dividends
3. Accumulate earned attention as capital

Together this makes the attention economy comparable to financial markets and it results in what Franck denotes as Mental Capitalism, in which the value of everything is reduced to the amount of attention it receives.

2.5.1 Creation of Currency

First, the media institutions create attention as currency by quantifying it and thus create the "money" of the attention economy like the banks are creating money when they grant credits and loans. When a bank grants a loan, it creates both money as credit and assets of debt. The loaner gets the money in form of a credit which then may be spend on consumer goods, a mortgage, investments or speculation. The credit-money are not created out of nothing as the bank gets an asset of debt balancing the credit given and assets in stock, but both the amount of money and the amount of debt in the world increase as consequence. In the attention economy, the creation of attention-currency is done by the media. It is their quantification of attention which converts it into attention-currency. Thus, even if the total amount of human attention as such is total and limited by the number of people inhabiting Earth, the total amount of quantified attention working as currency is not. When attention is converted from interpersonal in the analogue world to mediatized and quantified attention, the amount of attention-as-currency increases. The more time and attention people spend on different kinds of media – i.e., watching TV, clicking through the web, googling, engaging on social media etc., the more mediatized attention is on the market as currency. Thus, when interpersonal interactions are mediatized as it happens in social media interaction or messenger services transferring qualitative person-to-person attention into quantified mediatized attention, the amount of attention-as-currency circulating – and the amount of liquidity on the market of attention increases. Because the total amount of attention is limited and finite, it follows that the larger amount of the total attention is

mediatized and made currency, the less attention is left in stock for unmediated exchange of analogue interpersonal attention. The more attention agents pay to their phone, the less to their physical surroundings and other physically present people around them.

2.5.2. Investing Attention

The media institutions also work as investment banks of the attention economy. Mass media institutions *invest* attention in people and grant *credits* of attention when they are granting them presentation time and space (Franck, 2005; 2016; 2016a). When people are offered presentation time and space and the opportunity to attract attention, the media outlet is investing in the person in order to cash in dividends of the attention the person invested in attracts: "The investment of presentation time and space measures the expected strength of the candidate to attract attention." (Franck, 2016a: 7). In Franck's framework, agents are thus *assets* of attention and their worth for the media company is identical to the amount of attention they are able to attract in the future. Attention investments done by media outlets are thus investments in a market of derivatives and futures (Franck, 2016a: 160). If the person becomes a celebrity, or even better a *star*, the media itself also profits from the attention attracted by the star because it channels through the medium. The media outlet thus receives its return of investment in attention dividends from the agent – the asset – invested (media attention in the form of presentation space) in. The ability to attract attention may be accumulated by investments, speculation and when a critical level of earned attention is reached by the *attention interests,* which at that point of prominence automatically start adding even more attention to the fortune.

2.5.3. Attention as Capital

Attention does not only function as currency, but also as *capital.* It may be accumulated by media entities or individual actors. In contrast to the attention one pays – the attention one is constantly spending all the waking hours by attending to something – the attention one is receiving can be accumulated over time and add to one's attention capital. The capital consists in the capacity to attract attention in the future, and just as capital is in the money economy, this capacity is self-reinforcing: Attention attracts attention. Thus, attention comes with interests. Stars and celebrities are not only known for whatever they are doing, saying or producing. They are also known for just being known. A person or a media outlet

already able to attract a lot of attention are thus able to accumulate even more in a scale of magnitudes relative to its capital holdings. This results in a so-called *Matthew Effect* in the media world.[59] The ones already receiving a lot of attention will receive even more – at the expense of the ones not already rich in attention capital. Franck's observation that attention comes with interests is validated by recent contributions observing that distribution of online attention does not follow a normal distribution, but a distribution of power laws, where the winners take it all – or at least far most (Shirky, 2004; Hindman, 2008; Webster, 2014; Zang et al., 2018). Online, the tendency is that a few players get the bulk of the attention, while everyone else has to fight over the very limited attention at the tail of distribution. This power law distribution also means that the hope that the Internet and the advent of social media would undermine elites as such and level the playing field of the marketplace of ideas may have been too optimistic.

2.6. Mental Capitalism

The consequence of attention interests is a deepening inequality between the attention rich celebrities attracting scores more attention than they do spend themselves and the attention poor spending their attention without attracting more than a very limited amount from others. Franck describes the relation between the attention rich and attention poor as one of *exploitation*. The media makes few people into stars, but in doing so exploits the rest by harvesting their attention. This relation is highly asymmetrical. Media outlets can attract attention with an infinite number of cheaply reproduced copies of attention attracting information, whereas the attention those copies attracts is "live attention" only to be spend one time by the actor (Franck, 2019). This asymmetrical exchange of information for attention is resulting in a social redistribution of attention incomes to the benefit of the already attention rich at the cost of the exploited poor.

Increasing inequality, where the rich get richer through exploitation of the poor, which takes place through commodification and capitalization of attention by the media acting as the financial industries speculating in attention futures, amounts together to the emergence of what Franck (2005, 2016, 2016a) perceives as a new form of capitalism:

[59] The notion of the Matthew Effect comes from observations of accumulating unequal distributions of attention in the science community, where already well-known researchers also keep attracting the bulk part of citations (see Merton, 1988).

mental capitalism. Where the traditional industrial capitalism appropriated, commodified and privatized material phenomena as land into property and work into labor yielding profits to the capitalists, the new form of mental capitalism appropriates, commodifies and privatizes our mental life. Attention has become a "psychic currency" (Franck, 2005a: 6) of the novel form of capitalism and thus, our mental life is now for sale. The new capital logic of mental capitalism, the commodification and capitalizing of attention, has profound consequences for the whole society and is behind the change from elitist culture to a rating culture, the invasion of brands everywhere and the change from party democracy to a media democracy (Franck, 2005a). The increasing proportion of public space that is filled with advertisements for attention attraction (online adds as well as offline billboards, sponsorships etc.) bears witness to the approbation and privatization of our mental life at work in mental capitalism. From the perspective of Franck's attention economics, intellectual achievements in culture and art are done for the *sake* of advertising and sponsorships. The worth of a performance, a piece of art or a cultural phenomenon is in the attention economy of mental capitalism reduced to the amount of attention it attracts. No matter the content, quality is thus reduced to quantity levelling everything down to the same measurement rod of success as attractors of attention. In mental capitalism, the last reminiscent of a notion of objective values – values besides what the subject holds for valuable – is lost. The exchange of attention between subjects creates a system of valuation which in mental capitalism is reified, objectified and increasingly plays the role of former days ontological founded (in for instance God, Nature or Reason) system of evaluation (Franck, 2005). The worth of anything (and anyone) is derived from, and in the end reducible to, the amount of attention, it receives. As the financial capitalism of money, the mental capitalism of attention has also detached itself from its base in the real economy and is highly speculative. In the celebrity culture and attention economy of the media, there is no necessary connection between merit and success in attracting attention. Franck (2016) mentions Paris Hilton as a pure example showing that one may become a famous celebrity with no specific merit, high performance or accomplishments justifying it according some elitist standard – besides the standard of being able to attract more attention.

Another example is the success of Donald Trump in turning accumulated attention capital into the rather hard political capital of winning the presidency. Before turning to the next part of the paper extending the attention economic framework from agents to the

informational content supplied by them, it is worth the attention to observe how Franck's analogy between media as the financial industry of the attention economy plays out in the case of Donald Trump's spectacular presidential campaign.

2.7. The President of Attention

To illustrate his analogy between media and finance, Franck (2005a) employs an example of politicians as being objects of investment by the media: "If a politician is likely to increase the attention paid to that medium, it will grant him attention credit. If the politician's presentation is not profitable, or not profitable enough, then cash will have to be taken in hand. The media are financing the making of politicians in the same way that banks are financing business. Like business, politics is shaped by the respective financing conditions. Politicians will make an effort to present themselves in a way appreciated by the medium: they will not only watch out for their own image, but also for the ratings. If they are willing to act as carthorses for the respective medium, they can maximize their credit and minimize the money spent on media presence." (Franck, 2005a: 8). For a politician or a candidate running for a political office, to make one attractive as a promising investment of media attention is to make one self an attractor of public attention. If you are talented in media performance and know how to attract attention, for instance by being dramatic or out of line, you may be able to attract a large amount of attention investments free of charge (in money) because the media sees an opportunity to cash in attention dividends.

What Franck has shed light on in theory, Donald Trump successfully practiced in his presidential campaign. The disproportionate amount of TV airtime Donald Trump received in the presidential election 2016 relatively to other candidates (Hendricks and Vestergaard, 2019: 20) may be understood as an investment on part of media in him as an attention attracting asset able to cast off dividends of attention. Investing airtime in Donald Trump paid off in the number of viewers, the *ratings*, of the shows airing him. Trump made *good TV* making a dramatic spectacle effective in attracting viewers – and in turn money from the advertisement industry. During the primary election cycle in 2015, Donald Trump himself made a point, the overstatement put aside, fully aligned with and illustrative of Franck's framework: "I've spent zero on advertising because you and Fox and all of the others, I won't mention names, but every other network, I mean they cover me a lot, to put it mildly" (Gold, 2016). The amount of attention capital the brand of *The Donald* had already

accumulated by being a celebrity and TV star, along with his talent for keeping attracting it, made him a prime asset to invest attention in for the media outlets. Ex-post calculations estimate that Trump received what amounts of $4.96 billion in free earned media in the year leading up to the presidential election (Stewart, 2016). Already in 2013, this may have been a strategy for Trump, who is quoted for coming up with a game plan of attracting attention as mean of winning The White House: “I’m going to suck all the oxygen out of the room. I know how to work the media so they never take the spotlights off me.” (Stokols and Schreckinger, 2016). Sucking all the oxygen out of the room is a well-known metaphor in American politics. It refers to attracting all the attention, leaving none of that vital reserve to others. The reality TV star Trump, rich in attention capital, claimed that he could get the news media to dance to his tune and without charge score a major part of the attention other candidates had to pay great sums to get. He was right. For media actors the prospects of attention profits conversable into money profits was an offer too good to refuse. In the words of CEO of the TV network CBS, Lesly Mooves: “It may not be good for America, but it’s damn good for CBS […] The money keeps rolling in, and this is fun […] I've never seen anything like this, and this going to be a very good year for us. Sorry. It's a terrible thing to say. But, bring it on, Donald. Keep going.” (Bond, 2016).

2.8. George Franck on Social Media

However, news coverage and media attention from traditional mass media outlets are only one part of the picture. Social media, as for instance and Facebook, also play a significant part in the current media landscape and informational environment that must be taken into account to provide an adequate picture of the attention economy. But when it comes to social media, Franck’s theory arguably suffers from blind spots missing to take sufficiently into account the role of data, the introduction of data-driven algorithms as curators of information and the platform as business model.

As described above, Franck distinguish old media and new media according to the business model and not according to whether the technologies employed are analogue or digital. Traditional mass media institutions employing the business model of the attention merchant thus providing information as means for attracting attention – as broadcast commercial television outlets – are categorized accordingly as new media along with online digital media and the Internet as such:

"It was the business model much more than the technological base that became the distinguishing feature of so-called new, distinct from old, media. Old media are those still selling information for money (press, books, CDs, cinema, theatre etc.), new media are those bypassing the exchange of information for money in order to fully concentrate on the saleable service of attraction (commercial TV, the Internet)" (Franck, 2016: 37).

In Franck's most recent contribution (2020), social media are addressed specifically and analyzed according to his attention economic framework according to which the media are the financial sector of the attention economy. But to a far extent they are still conceptualized and approached as traditional mass media institutions with the main difference being social media's affordance of providing micro-credits making everyone a potential broadcaster and attention merchant. According to Franck (2020: 86), "[s]ocial media are mass media downscaled to the level of retail or, rather, the vendor's tray". In the age of mass media, the entrance bar to enter the market of attention was high. Social media has lowered the entrance bar severely by giving anybody with smartphone the opportunity to create a social media profile and from it spread informational content attracting attention of other users. This gives everybody the opportunity to become his or her own attention generating and maximizing entrepreneur in the attention economy – and with all means necessary to that end. As Franck points out, "[e]verybody can now engage in creating a media hype, be it by uploading a smartphone video on Youtube, disseminating a conspiracy theory on Facebook, or posting some intriguing fake news on Twitter" (2020: 86). Besides easy access to new markets of information and attention, social media provide the quantitative accounting systems necessary for measuring the amount of attracted attention. The number of *likes*, *shares* and other reactions to posts and shared content as well as the number of *friends* and *followers* users have are the new "currency" introduced on social media, which plays the same role of measuring attention earnings as audience ratings do in context of TV (Franck, 2020: 87). According to Franck (2020: 87, emphasis in original), this downscaling of the business model of mass media may be understood as the introduction of "*the personal bank account* into the economy of attention". The result is that social media have created a "new arena for the battle for attention" where "everybody is admitted" and the "gatekeepers characteristic of old media have disappeared" (Franck, 2020: 88). In this new easily accessible market for attention, the participating users are, as pointed out by

Franck (2020), both consumers and producers of content and everybody has the opportunity to produce and supply attention-attracting information, maximize attention income and accumulate attention capital. The new markets of attention have paved way for the raise of a new class of celebrities, for instance the successful Youtuber or "the influencer becoming a brand himself" (Franck 2020: 88). This new breed of social media made stars has been also been described by other scholars as "Micro Celebrities" (Marwick, 2015) or the "Instafamous" (Jin and Ryu, 2019). However, even when the entrance bar for joining the market of attention is lowered, the market is still abiding to a hierarchical structure with an elite whose attention incomes are in far excess of the average user. *Attention interests* and the resultant and aforementioned *Matthew Effect* of those already rich in attention receiving even more – attention begets attention – are also at play in the attention markets of social media. Franck attributes the success of social media to the influence of social proof in the attention economy, or to, "the inclination of people to pay attention to what others pay attention to" (2020: 86). This inclination to attend to what others attend to is amplified by the accounting systems of social media measuring received attention for each piece of produced or shared content, and according to Franck this entails that the amount of attention received is more important than the quality of informational content itself for its ability to attract even more attention. Franck also addresses diffusion of fake news, misinformation and disinformation on social media partly as result of this (social) psychological inclination. With sufficient attention attracted, "the details and consistency of the content are not so significant", and this has paved way for "measurement of attention to replace the checking of facts." (2020: 90). Besides the power of social proof on social media, Franck argues that *resentment* –desire for revenge – is a main emotional driving force of misinformation and disinformation on social media. Without journalistic gatekeepers to filter out disinformation (as well as defamation), social media have made it possible to supply and diffuse factually misleading content that confirms prejudices of other like-mined users. According to Franck (2020: 20), this makes production and diffusion of disinformation an effective strategy for attracting attention to one self: "Since it is so easy in social media to find fealty in resentment, aggressive insults, denouncement and disinformation prove to be capable strategies for attracting attention, paid in currencies such as clicks, dwell times, follows and likes". If a misleading story is appealing to prejudge and caters for emotions of resentment, it may generate a lot of attention income because it

is meeting a demand from "all those whose resentment is manifested by the preparedness to pay attention to whatever endorses it" (Franck, 2020: 90).

By exclusively focusing on the lack of gatekeepers and the emotional and psychological dimensions as drivers of misinformation and disinformation on social media, combined with an understanding social media as downscaled mass media, Franck misses to include important technological and economic dimensions, and innovations, of those new attention markets. Franck only addresses one part of the story of social media. Arguably, he has a blind spot not sufficiently addressing three connected factors, which both distinguish social media from traditional mass media institutions and contribute to digital disinformation: The *platform* as technology and business model, the role of *data extraction* and the introduction of *algorithms* as curators of informational content. In order to comprehend and adequately represent the current attention economy in the era of social media, as well as the consequences this digitally transformed media landscape may have for journalism and political communication, Franck's attention economic framework must be updated to include those factors and their potential consequences.

2.9. Platforms

Rather than downscaled versions of mass media, social media sites as Facebook and Twitter are instantiations of a novel business model and type of company: the platform. Srnicek (2017: 43) defines platforms as "digital infrastructures that enable two or more groups to interact". Along the same lines, van Dijck et al. (2018: 4) defines a platform as a "programmable digital architecture designed to organize interactions between users". They position themselves as intermediaries between different groups and actors – users, advertisers, companies, journalists and media institutions, political actors etc. – facilitating different kinds of interactions between them through the digital infrastructure or architecture of the platform. By mediating the interactions digitally, the platform has "privileged access to record them" (Srnicek, 2017: 44) and surveillance of the interacting actors and their activities through data extraction is essential to the platform as business model. According to Srnicak, the platform is an "extractive apparatus for data" (2017: 48) and has "data extraction built into its DNA" (2017: 89), and van Dijck et al. (2018: 4), adding algorithms to the picture, argue that platforms are "geared toward the systematic collection, algorithmic processing, circulation, and monetization of user data". Platforms are

"fueled by data" (van Dijck et al., 2018: 4) as the "raw material" (Srnicek, 2017: 89) extracted, processed and monetized differently by different types of platforms. Facebook and Google are (by far the biggest and most prominent) *advertising platforms* connecting users with advertisers and generating their revenue "through the extraction of data from users' activities online, from the analysis of those data, and from the auctioning of ad space to advertisers" (2017: 56).

The central role of user data and its economic value in the business model of the advertising platform entails that user *engagement* on the platform exposing personal information and producing and providing valuable behavioral data (and not only attracting attention of passive media consumers), is the main commercial aim of social media platforms as Facebook (Klinger and Svensson, 2015; Wu, 2018). Collection of data is the "core value of the Facebook platform overall" (Devito, 2017: 767). The ways in which platforms exploit the data systematically and automatically extracted from the users interacting through the platform changes the business model and the economic incentives of the platforms compared to the traditional attention economic business model in the era of mass media and broadcasting. Mass media commodified audience attention by "selling the time audiences spend consuming particular media content to advertisers" (van Dijck et al., 2018: 38), which makes the aim of maximizing the sheer quantity of attention attracted – the number of eyeballs – the decisive main commercial imperative. For a data-driven social media advertising platform as Facebook, however, the commercial imperative is not only attracting so much attention as possible from audiences and resell this to advertisers. The basic business model is to connect advertisers with the *right* users or groups of users and attract the attention from those most likely to pay attention to, engage with and be persuaded by the ads. This is the core of personalized and targeted advertising. In personalized advertising, user data and attention are both commodified, packed together and what is sold to advertisers is the promise to "match an advertiser with the correct users when needed" (Srnicek, 2017: 57). Rather than the two-sided attention economic markets of traditional mass media institutions, attracting audience attention and reselling it on a secondary market to advertisers, platforms facilitate *multi-sided* markets in which different kinds of actors interact and exchange. The platform, "aggregates, facilitates, and controls the connections and transactions between distinct groups of users: end users are connected

with advertisers as well as with service providers or complementors, ranging from micro-entrepreneurs to news organizations and universities" (van Dijck et al., 2018: 38).

Personalized and targeted advertising – matching ads with the *right* users – is made possible by behavioral data exposing information about the users. This data is not only extracted by the platforms from the users interacting *on* the platform, but also from users navigating the web in general or just carrying a smartphone in physical space. A part of the user data collected is the information provided by the users when creating a profile on a platform. When creating a profile on a social media platform as Facebook, for instance, users provide different amounts of data and information like their name, birthday, country of residence, education level, interests, favorite music, movies, books etc. However, this data is only the top of the iceberg of data collection. Huge amounts of data are collected by tracking users and their behavior employing different tracking technologies. The main and standard tracking technology consists in web cookies, being integrated in webpages and saved by the browser when loading the site, which track user activity on the page. Besides first-party cookies integrated by the owners of the website that are often, besides user tracking, contributing to convenience and seamlessness for the users navigating it, different amounts of third-party cookies from outside parties partnering with the site are built in websites tracking user behavior. Such user tracking "is typically done so that the website or its affiliates and associates can, over time, infer such things as the preferences, interests, and beliefs of the user" (Gosh and Scott, 2018: 6). Another main tracking technology is GPS location tracking of devices, especially smartphones, revealing its real-time position through triangulation of signals from GPS satellites, and thus the movement and movement patters of the carrier of the device. This data makes it possible to "predict with great confidence where a person lives, where he works, how he gets to work, who he spends time with, where and how he spends time with those friends, which brick-and-mortar business establishments he frequents, and what he does in his free time whether he plays baseball, watches movies, visits the local bar, or canvasses residences on weekends" (Gosh and Scott, 2018: 10). Users are also tracked across devises, for instance connecting data extracted from usage of a smartphone and online behavior from a laptop computer to the same individual creating a unique identifier for the individual, which becomes "the central anchor of user data collected across multiple applications, platforms, and devices" (Gosh and Scott, 2018: 11). The extracted data from the users through different tracking technologies and

sources is thus used to create individual user profiles as well as audience segments of users. The more data extracted from the users, to finer grained and precise data profiles and segments can be constructed by the platforms exposing an increasing amount of information about the users. This makes possible to predict probable user reactions to different ads and target those users, and groups of users, most prone to be persuaded by them (Gosh and Scott, 2018).

No human has anything close to the attention span and calculative capacities necessary for surveying and analyzing the vast amount of data extracted. The data analysis is an example of *big data* – referring to "things that can only be done at large scale that cannot be done at a smaller one" (Mayer-Schönberger and Cukier, 2013: 6). When a lot of users are providing a lot of behavioral data gathered in vast datasets, it becomes possible design and deploy algorithms seeking out and discovering statistical correlations and conduct probabilistic predictions. A prominent example of big data analysis and prediction, conducted by *Target,* shows that sufficient amount of data on consumption patterns of pregnant women makes it possible to employ algorithmic statistical analysis discovering correlations, which can predict pregnancies on basis of consumptions patters with 87 percent accuracy making targeted pregnancy advertising possible (Hill, 2012). Big data analysis and behavioral predictions are also at play in the matching of ads with the right users on social media platforms. The huge amounts of systematically extracted data is analyzed automatically by algorithms integrating it in profiles and on its basis calculate and predict which users and segments of users that probably would find an ad relevant, respond to it and targeted it specifically to those. Thus, algorithms are deciding which ads are shown to whom and when. Based on the data collected and analyzed, they "determine the content, timing, and consumer audience for the delivery and display of online advertising" according to inferred preferences of the users and statistical predictions of "responsiveness to different kinds of ads" (Gosh and Scott, 2018: 5). The data-driven matchmaking between users and ads may also employ machine-learning algorithms, which register the responsiveness of different users and user segments and optimize the targeting accordingly. Testing effectiveness and experimenting with targeting and tailoring of ads is done in big scale constantly optimizing the matchmaking between ads and users: "… algorithms can evaluate what is working best, in terms of geographic segmentation, daytimes, audience

segments, and publishers, to help marketers narrow their target so they are paying only for highly effective ads" (Kirkpatrick, 2016).

2.10. Digital Misinformation According to Demand

For the both platform and the advertisers alike, showing users personalized, targeted and thus "relevant" advertises is a win-win strategy where both parts benefits: "The business case is simple—the more relevant the ad, the more the user will engage with the advertisements they see and the longer they will stay on the platform" (Gosh and Scott, 2018: 13). This is not only the case for advertises, but for content shared on the platform in general. As pointed out by Presuel and Sierra (2019: 265), "[d]istributing any type of content that may interest their users means that those users will remain engaged and spend time on their services and that more data will be collected". Importantly, this also includes low quality informational content with little or no relation to facts and evidence as different kinds of digital misinformation, pseudo-scientific content, conspiracy theories, fake news and disinformation. Both the economic interests of the platforms in creating engagement and the data-driven algorithmic technological tools they have developed to that end and offers to advertisers facilitate effective personalized and targeted disinformation. This is argued by Gosh and Scott (2018: 30), who points out that, "[d]isinformation campaigns are functionally little different from any other advertising campaign, and the leading internet platforms are equipped with world class technology to help advertisers reach and influence audiences. That is the business. As such, the economic incentives of the platforms and the political objectives of disinformation operators are aligned". Not only regular commercial advertisers are able to employ the technological tools for automatized effective persuasion targeted and tailored to users of whom the extracted data provide information on their preferences, tastes and interests. Disinformation operators are also able to use the data-driven algorithmic matchmaking technologies for connecting the disinformation content with the users most susceptible to engage with it and to be persuaded – and deceived – by it. As it is the case for advertisers aiming to target ads to users finding them relevant, so it is for disinformers – the more they know about audiences "the easier it is to find, manipulate, and deceive them" (Gosh and Scott, 2018: 12).

This technological data-driven algorithmic toolbox available for both advertisers and disinformation operators is a central factor missing in Franck's account of the attention

economy in the era of social media and online platforms. According to Franck (2020: 90), disinformation and factually misleading content may be successful in attracting attention "if only it appeals to widespread prejudice". There is a *demand* for informational content that appears to be "confirming one's prejudices" including not only news content, but also "rumours, half-truths, conspiracy theories — even full-blown lies" (Franck, 2020: 89). The important *technological* factor, Franck does not address, is the greatly enhanced opportunities for gaining insight in and effectively exploit prejudices that results from the data extraction and the data driven algorithmic targeting tools provided by advertising platforms as Facebook. The tools provided for data driven targeted advertising are also effective tools for data driven targeted political disinformation: "At its core, the marriage of advertising technology and political propaganda is nothing more than applying the tools of the industry—behavioral data analysis, audience segmentation, and tailored message targeting—to the task of exploiting prejudice" (Gosh and Scott, 2018: 27). Employing the tools offered by the platforms, including machine learning algorithms optimizing themselves according to feedback on the most effective targeting, disinformation operators are also able to test which users and segments of users are responsive to the specific disinformation content and optimize the targeting and tailoring accordingly. This may create a positive feedback loop optimizing the effectiveness of the persuasion or deception; "the more successful the ad buy (including disinformation), the more effective the successive ad buys will be because the ad platform has learned more about the best targets" (Gosh and Scott, 2018: 19).

This data and algorithmic driven testing and optimization of both ads and disinformation content both underpins and drastically enhances the possibility of producing and supplying the informational content – the ads, the news content[60] and the disinformation – in *demand* and thus provide the users with content according to their preferences, which are revealed by the behavioral data extracted. However, the result of this technological affordance of demand driven content production and distribution based on extracted data, is *not* that Franck's description of the markets of attention is undermined. Quite the opposite. It is rather underpinned, strengthened and to some extent

[60] Data driven algorithmic curation of news content, and its potential consequences for journalism, will be addressed in section 5.6.

radicalized by filling in the missing technological link of the targeting tools provided by platform's data driven algorithms.

Franck describes the markets of attention as "markets in the full sense of the term. They organize supply by testing preparedness to pay. Only, in this case, payment is not effected in money but in attention." (Franck, 2005: 4-5). This sort of organizing supply of informational content according to effective demand – according to preparedness of paying attention revealed by the data – is possible at a new level because of the data extracting and algorithmic targeting technologies provided by the platforms.

This not only the case in context of ads and disinformation, but also for journalism and news content as such. Access to data and algorithm enabled audience analytics exposing the behavior and revealing the preferences of users and user segments affords production and targeted distribution of tailored informational content for the users (Zamith, 2019). This opportunity has paved way for a breed of "algorithmic journalism" (Anderson, 2011: 537) catering directly to the consumer demand of different segments of audiences according to quantified audience metrics provided by the algorithmically analyzed user data. This tendency of catering to the preferences of the consumers exposed by audience analytics may, on the one hand, turn journalism more responsive to the audiences providing informational content in demand. However, on the other hand, it may also undermine a cardinal virtue of traditional journalism inherent in the gatekeeping function of professional media actors. According to Anderson (2011: 542), algorithmic journalism, "lacks an emphasis on either "improving" the level of individual knowledge via better information, or by filtering out incorrect information". If the production of news is conducted according to quantified audience analytics, and maybe even done automatically by algorithms as a piece of "robot journalism" (Jung et al., 2016: 291), and the only criterium of production, selection and distribution of the content is the algorithmically predicted preparedness to pay attention of media consumers, then producing and distributing low quality content or even misinformation or disinformation confirming prejudges may be both afforded and economically incentivized.

3. Agenda-Setting and Political Attention Allocation

Franck's attention economic framework focuses on the attention attracted by and invested in *agents*. Thus, agents are equivalents to financial *assets* in Franck's description of the attention economy. If the notion of asset is extended from agents, including political candidates, to the *informational items* supplied by the actors in order to attract attention, to the news stories, the political issues and their different interpretations covered by news media and debated by politicians, the result is an attention economic framework of political communication. The tradition and rich literature of agenda setting studies provides the theoretical tools for such an extension of the attention economic framework and shares the fundamental assumptions of attention economics, but is focusing primarily on issues – on the informational *items* exchanged.[61] In agenda setting studies, a contention is that *issues* are "competing for positions on the agenda" (Mccombs, 2014: 33). It is not only people become celebrities sucking up attention. Political issues and narratives can also rise to the status of "celebrity" and become the dominant topics of public debate (Hilgartner and Bosk, 1988: 57, 67). This approach offers theoretical building blocks that can be converted into attention economics according to which informational items such as issues are considered *assets* of investments in the attention economy of political communication.

This part of the article first points out shared assumptions of agenda setting studies and attention economics. Secondly, it addresses agenda-setting in the context of politics and political science and finally from this baseline, it suggests that the theoretical building blocks of agenda-setting studies may be translated into attention economics terms and equivalents of markets, assets and prices.

3.1. Mass Media Agenda-Setting

Agenda-setting studies were introduced in the seminal study "The Agenda-Setting Function of Mass Media" (Mccombs and Shaw, 1972). The baseline is the (media critical) thesis that

[61] Following Zhu (1992) and Dearing and Rogers (1996), the public arenas model of Hilgartner and Bost (1988) is here included in the tradition of agenda-setting studies. They use the notion of "public arenas", but as made clear by Zhu, arenas have the same fundamental characteristics as agendas: limited carrying capacities making agenda setting a competition on scare and valuable attention. Zhu points out that the arena model is broader in scope as it includes definitions of the issues besides just the "attention to issues". However, the agenda setting tradition also includes that dimension of problem definition in the form of second order agenda setting of the aspects of the issues, which receive (most) attention (Mccombs, 2005; 2014). Thus, the public arena model and agenda setting studies, when second order agenda setting is included, are co-extensive in scope.

even if the media do not decide what people think, they are highly influential in what people think *about*. The main hypothesis of the study, conducted in Chapel Hill in North Carolina during the presidential campaign of 1968, holds that mass media by setting the *media agenda* also are setting the *public agenda*. An agenda is a set of issues ranked in a hierarchy of importance at a point in time (Dearing and Rogers, 1996: 2). The public agenda is a result of surveys asking the question: "What do you think is the most important issue facing our country today?" The media agenda consists of the set of the news items, the stories, covered by the set of studied media outlets. Those items are hierarchical ranked relative to level of exposure, which measure their salience. Media salience is on the one hand dependent on the *how much* coverage do an issue receive quantified in for instance number of articles, in inches of column space spend in a newspaper, or the number seconds in a TV newscast or a radio show. On the other hand, media salience is dependent on *how prominent* the news items are in the media – i.e. the number of front-page articles or main stories in newscasts etc. covering the issue. The issues, which the media prioritized and covered as the major or minor stories turned out to be highly correlated with the ones the public finds to be the most *important* issues. The media's agenda thus became the public's agenda. Mccombs and Shaw conclude on their findings: "In short, the data suggest a very strong relationship between the emphasis placed on different campaign issues by the media (reflecting to a considerable degree the emphasis by candidates) and the judgments of voters as to the salience and importance of various campaign topics." (Mccombs and Shaw, 1972: 181). Besides public and media agendas, the notion of *policy agendas* was introduced (Cobb and Elder, 1983) in the field describing the priorities of issues attended to by the political system: How are different issues prioritized and ranked relative to each other? As Walgrave and Van Aelst (2016) put it: "The political agenda is politics' priority list. It contains the items or issues that receive political attention".

Whether the studies survey the public agenda, the media agenda or the political agenda, and-or the correlations between them, agenda setting studies share basic assumptions with attention economics: the scarcity of attention/space or time on the agenda, attention allocation/agenda setting as a zero-sum game as well as the political value of attention/being on or setting the agendas.

3.2. Carrying Capacities

Agenda setting studies have as a fundamental assumption, fully in line with the observation of Simon (1971), that information is in abundance, but attention is limited and scares. According to Hilgartner and Bosk (1988: 55), "public attention is a scarce resource, allocated through competition". The scholars contend that there is a large population of social issues and conditions, and only very few is winning a spot on the news media agenda and thereby elevated to status of "social problems" demanding public concern and political action. Dearing and Rogers (1996: 22) describe agendas as sets of issues ranked hierarchical according to relative importance and characterize them in attention economic terms of resource scarcity: "space on the agenda is a scarce resource". Like attention is a limited and scarce cognitive resource for the individual at micro level, so is space on an agenda at macro level. Agendas have limited *carrying capacities*. Different agendas in different institutional settings have different carrying capacities, but all of them have an upper limit of the number of issues to attend and present. The size of media agendas is restricted by the space available in print media as newspapers, and radio and TV programs are limited by the time available. In the political system, time sets a limit to the number of possible hearings and debates (Hilgartner and Bosk, 1988) and thus restricts the political agenda. Besides the institutional carrying capacities, both media and political operatives are themselves limited by their individual carrying capacities: A journalist or a political actor only have a certain amount of time and attention to spend each day. This, of cause, also goes for members of the public. The public agenda is limited by psychological carrying capacities restricting the number of issues of concern to very few. Even when respondents in public opinion polling were allowed to mention as many issues of importance as they wished, no more than four or five were offered on average (Zhu, 1992: 828).

The limits of the carrying capacities of the agendas in different institutional arenas, as well as its operatives' individual limited attention result in a *zero-sum principle* of agenda setting. This principle is also fundamental, even if implicit implied and not explicit stated, in the tradition of agenda setting studies (Zhu, 1992). If a new issue joins an agenda, then another issue most leave because of limited carrying capacities of agendas as such. As put by Dearing and Rogers: "Agenda-setting can be a zero-sum game in that space on the agenda is a scarce resource, and so a new issue must push another issue down the agenda to come to attention" (1996: 3).

3.3. Objects and Attributes

The simplest model for agenda setting studies, employed in the first study of 1972, tests only for correlations between the salience of issues on the media agenda and the public agenda. This first order agenda setting research was extended to include second order agenda setting (Shaw and McCombs, 1977). Where first order agenda setting studies compare *which* issues are salient on the respective agendas, second order agenda setting also studies *how* the issues are comprehended, interpreted and presented. This is made possible by the development of an ontology of objects and attributes of those objects describing them. An agenda consists of a set of objects, which may be political issues, events or agents such as political candidates running for office. An informational object is defined as "that thing toward which our attention is directed or the thing about which we hold an opinion" (Mccombs, 2014: 40). However, each object also has a secondary *agenda of attributes* pertaining to it describing the object. Some attributes receive more attention and are thus are more salient than others when the object is presented and described. Attribute agenda setting is about which aspects are emphasized, or popularly speaking, which side of a story that is told. For instance, the object-issue of "the economy" have a secondary ranking order of attributes which could consist of "inflation", "budget deficit" or "unemployment" (Mccombs, 2014: 49). If the first order object of attention is "unemployment", the attributes emphasized in news stories addressing it, could for instance be "consequences of globalization", "disproportionality between number of unemployed and the number of jobs", "the current level of welfare", "entitlement mentality of the unemployed 'welfare queens'", "levels of education" etc. When it comes to persons and political candidates as the object of attention, the attributes describing it may consist of personality traits, scandals, sponsored policy programs, bills and proposals, stance or voiced opinions on political issues. How the attributes of a given news object are prioritized in terms of received attention, *frames* it a certain way and often hints at the causes and where to put the blame (Mccombs, 2014). This second order agenda-setting of the attributes framing the first order issues is also necessarily a zero-sum game as the carrying capacities restrict the number of attributes presented.

3.4. Agenda Setting as Political Power

Agenda setting works. Agenda setting studies have documented empirically that both (first order) issue salience and (second order) attribute salience transfer from media to the public. Mccombs (2005) concludes, reviewing the tradition's empirical results, "the media not only can be successful in telling us *what to think about*, they also can be successful in telling us *how to think about it*" (Mccombs, 2005: 546, emphasis in original). To influence how people think about and comprehend political issues is the "epitome" of political power in democracies, where public opinion is highly consequential for political actors accountable to the public and aiming for (re-)election. As noted by Mccombs (2014: 51), "[c]ontrolling the perspective of the political debate on any issue is the ultimate influence on public opinion". Agenda setting is thus a political process yielding and presupposing political power in some form. As Dearing and Rogers (1996: 3) put it "Attention to an issue, whether by media personnel, members of the public, or policy makers, represents power by some individuals or organizations to influence the decision process". This perspective of agenda setting as a question of political power has been the focus of political scientists studying decision-making processes and distribution of influence in different political systems. In a highly influential contribution (Bachrach and Baratz, 1962), political agenda setting is described as the *second face of power*. Power is not only a question of influencing political decisions taken, the "first face of power". It is also about influencing which issues receive attention and become *political* issues at all. Successfully to limit the scope of public deliberation to issues beneficial to the political actors setting the agenda is also an instance of political power.

This insight has taken up by a research approach addressing political systems, decisions and processes in terms of information and attention. Jones and Baumgartner (2005) have suggested a *theory of disproportionate information processing* for studying politics and policy-making. The model, employing the ontology of issues/objects and attributes/interpretations from agenda setting studies, has four stages, which all are subject to competition between different political actors:

1. Agenda setting: Political problematization of conditions or events turning them into political issues calling for concern and action from political actors and the political system.

2. Problem definition: The most significant attributes of the issue (selected in 1), interpreting and defining what the issue is really about and its causes, are settled upon.

3. Proposal and debate: Possible solutions related to the interpretation of what the issue (selected in 1) is really about (selected in 2) are proposed and compete on becoming *the* solution.

4. Collective choice of solution: The policies addressing the problem (selected in 3) are passed and made binding through the (voting) procedure of the decision-making bodies of government.

Simon's theory of bounded rationality and attention as a limited cognitive resource is referred as baseline for the model, which thus integrates the micro level of individual attention allocation with the macro perspective of agenda setting in the domain of political science.

3.5. The Attention Economy of Political Communication

The agenda setting process is a competition between issue-proponents for attracting attention to their preferred issues and their interpretations thus including them on the agenda (Dearing and Rogers, 1996). Some issues and interpretations of those are more beneficial to specific political actors than others. An opposition party will for instance have interest in attracting attention to what is wrong or goes badly, whereas the ruling party in what goes well and right on its watch (Thesen, 2014). Besides, political actors are due to history and public perceptions stronger on some issues than others. This have been described as political actors having *issue-ownership* and are thus able to benefit politically when those issues are on the agenda (Petrocik, 1996). Specific issues – the informational objects – as well as their attributes – the interpretations – may therefore yield political benefits to different political actors, which gives political actors incentives to promote and attract attention to their beneficial issues and to specific interpretations of those issues.

From the approach of information-based political science, Walgrave and Van Aelst (2017) have suggested an *Information and Arena Model* for describing the interaction between political actors, the media and citizens. According to this model, the media play a dual role as both providers of information and as constituting the environment – the arena – of political communication, debate and competition. The scholars (2017: 2) argue that, "[o]n the one hand, politicians try to gain access to the media arena to get attention and favorable coverage for them personally. On the other hand, politicians use the media arena to promote certain issues and their interpretation of these issues". According to this approach, political actors are competing on attracting attention to themselves, to the politically beneficial issues and to the beneficial interpretations of those issues in competition with other political actors also aiming at profiting politically by setting the agenda allocating attention at macro level. Thus, political communication may accordingly be viewed as a competition between different political actors on attention, and on influencing the allocation of attention, in a political attention economy.

Converted into an attention economic framework and terminology, the media are providing informational *assets* of attention investments – the news content – and the *markets* – the arenas of competition – in which the assets are exchanged and invested the *currency* of (politically valuable) attention in. However, as the media landscape has changed, so has the market conditions and mechanisms at work in the political attention economies, as well as the assets exchanged and currency invested in those assets. This transformation is the theme in the following part of the article.

4. Digital Transformations of the Political Attention Economy

The value and necessity of attracting attention in politics has not disappeared due to the advent of social media platforms and the resulting transformations of the media landscape. To gain political support still depends on gaining attention in the first place. As pointed out by Green-Pedersen and Walgrave (2014: 6), "attention is the gate to politics". Joining the arena of politics is entering a market of attention. However, both the media arenas, the markets of attention, and the informational assets exchanged in those markets have changed as result of the advent of the networked and data driven algorithmic architectures of social media platforms. This also influences agenda setting processes transferring some of

the power inherent in agenda setting from professional media actors as journalists and editors to users and algorithms.

This part of the article will address how the attention economy of political communication has been transformed due to digitalization of the media landscape and the rise of social media platforms (see also section 2.8 – 2.9). It focusses on changes in the *markets* of attention, the informational *assets* exchanged on those markets, and on what amount to the *prices* paid for those assets in attention economic terms.

4.1. Transformations of the Markets

In the attention economy in the era of mass media, the attention economy of political communication and debate was the arena created by the interaction of the political system and the mass media. As allocators of attention at macro level, gaining mass media attention was the prerequisite for gaining widespread public attention – a necessary condition for gaining influence and support. In other – attention economic – words, political actors were trying to sell themselves in a market of politics (the media arena) as promising assets for media actors – journalists, news reporters and editors – to invest attention in by granting attention credits in the form of presentation space in order to receive return of (attention) investment. This is in line with Franck's understanding of mass media institutions acting as the investment banks of the attention economy (2005, 2005a). To attract the necessary attention to set the agenda of mass media news outlets and potentially gain widespread political support for oneself or one's issues, political actors as producers of attention economic assets first had to cater for the demand of the gatekeeping and selecting media actors acting as institutional investors of attention. In turn, mass media actors rich in attention capital were investing attention in the informational assets deemed promising in being able to attract and yield attention profits when supplied and distributed from the mass media outlets to the public. The tendency of political actors to cater for the demand of media actors in order to receive investments of attention necessary for attracting broader public attention has also in media studies been described as *mediatization* of politics (Hjarvad, 2008).

The advent of digital media and social media platforms has changed media landscape and in turn the attention economy of political communication. As described by Chadwick (2017), the diffusion of the new digital technologies and the rise of social media

platforms have resulted in a *hybrid* media environment consisting of both traditional mass media institutions and new forms of online media and platforms. The transition from the mass media environment to a hybrid media environment has challenged the agenda setting power of professional media actors as well as the institutional (de facto) monopoly of news production, curation and distribution of mass media organizations. With emergence of social media platforms, political actors have been provided with new channels of communication directly to the electorate and segments of users – and citizens – without gatekeeping journalists selecting and filtering the informational content – of disinformation – produced and distributed (Broersma and Graham, 2013). Social media users are now able act not only as consumers, but also as producers supplying informational content and news items potentially going viral attracting lots of attention and potentially influencing the agendas of mass media institutions (Masip et al., 2020). In addition to this role of content producers, the users are also an important factor in *distribution* of content of social media platforms. The network structure of social media platforms is exchanging the one-to-many communication model of mass media and the role of the media consumer as passive receiver to structure of many-to-many communication, in which the role of the users is transformed from receivers to nodes in a network actively participating and contributing to diffusion of content (Jensen, 2015; Franck, 2020). In addition, and importantly, but as mentioned above left out of the picture by Franck (2020), decision-making algorithms have to far extent supplanted human media actors in curating – selecting and filtering – and distributing news content to the users. On platforms, the users, curating algorithms and their interactions have thus taken the role reserved for professional media actors as journalists and editors in mass media in selecting the informational content and news distributed. As described by van Dijck et al. (2018: 40), "[o]nline platforms replace expert-based selection with user-driven and algorithm-driven selection". *Platform selection* is determined as the result of interactions between users and algorithms and defined as "the ability of platforms to trigger and filter user activity through interfaces and algorithms, while users, through their interaction with these coded environments, influence the online visibility and availability of particular content, services, and people" (van Dijck et al., 2018: 40 - 41). The former privilege and authority of mass media in deciding which agents and informational content to be invested attention in by providing them presentation space is thereby challenged and supplanted by the novel networked media environment where

"cross- fertilization between platforms and followers" makes "particular content and issues […] 'go viral.'" (van Dijck et al., 2018: 43) thus attracting vast amounts of attention.

Content going viral is thus the result of the interplay between users and algorithms. On the one hand, the selection and distribution of informational content on social media platforms is a result of social media users sharing content with their peers, with *followers* and *friends*. Connectivity and "[v]iral distribution to like-minded others" made possible by the technological affordance for "updating in peer networks" has on platforms replaced the centralized "[m]ass dissemination" of traditional mass media outlets afforded by broadcasting technology (Klinger and Svensson, 2015: 31). The user's connections and social circle on the platform thus act as news editors contributing in deciding the content selected and distributed. As pointed out by Crawford et al. (2015: 5), "sharing on social networks has become a major distribution mechanism for news stories". Users sharing content with other connected users in a decentral network structure makes viral diffusion of content possible. However, algorithms are also contributing in fueling virality. According to van Dijck et al. (2018: 42 – 43), "platform algorithms have a propensity for virality or spreadability" pointing out that different lists of "trending topics" available to the users on different platforms' interfaces are not reflecting most shared content, but the content generating "the largest increase in user engagement". Thereby, algorithms are contributing in creating "feedback loops" (Schiller, 2015: 85) of attention and engagement, where short term increases in attracted attention and engagement cause further increases in attention and engagement. Such feedback mechanisms may amplify effects of social proof – or of *attention interests* in Franck's terminology – fueling hypes and trends, where content rapidly reaches large audiences attracting vast amounts of attention and engagement.

The *temporal* aspect of the markets of attention has also changed as result of social media platforms as distributers of news content. Traditional mass media news institutions and actors has to abide to *coverage beats* restraining supply and distribution of content to an open news window once a day for daily newspapers or one per show for broadcast radio and TV (Jones et al. 2014). However, on social media platforms, diffusion of content happens around the clock and is not constrained by pre-determined time slots of publication or airing. This affords for constant updates, sharing of content and real-time coverage (by professional or civil journalists) as events unfold and constant engagement with as well as attention to the content by different users in markets of attention that

always open and never closed. This entails that both political and civil actors do not – as it was the case of mediatized politics in the era of mass media agenda setting – necessarily have to cater for professional media actors and institutions for their investments of attention or presentation space in order for the political actor to invest attention in informational assets. News stories already receiving attention as part of media agendas are opportunities of *politicization* (Thesen, 2014), which may be translated into attention economic terms as opportunities of investing attention informational assets for political actors. With social media platforms and the opportunities of constant sharing, commenting and reacting to different news stories and content circulated, this form of investing and attracting attention by politicizing news content is possible at a new level.

Combined with the easy market access for everybody provided by social media platforms, this has contributed to increase the volume of interactions and exchange of information and attention drastically. Lorenz-Spreen et. al. (2019: 6) have pointed out that far more content is produced and consumed than before the advent of social media and argue that this increased "information flow" or "influx" has resulted in changes in the dynamics of collective attention allocation accelerating its pace of change. Based on a (long-term) empirical analysis of the temporal dynamics of allocation of collective attention online, the scholars conclude that, "producing and consuming more content results in shortening of attention spans for individual topics and higher turnover rates between popular cultural items" (Lorenz-Spreen et al., 2019: 6). Translating notions from financial markets to markets of attention, this development – the increased information flows – may be understood as an increase of the trading volume of informational assets in the era of social media platforms. This, in turn, results in increased "issue volatility" on the markets of attention, which has been determined in the tradition of agenda setting studies as a temporal measure of how long issues stay on the agenda receiving attention (McCombs and Zhu, 1995: 503). The shorter the *issue circles* (Ibid.), the faster the rate of change in the dynamics of collective attention allocation and the more volatile the market. Thus, the digital transformation of the attention markets and the rise of social media platforms have contributed in facilitating more volatile markets of attention then in the era of mass media.

4.2. Transformations of the Assets

Besides the novel market conditions of the attention economies due to networked viral content distribution around the clock afforded by platforms, the informational *assets* supplied and exchanged on the markets have also been transformed. Besides agents – as described by Franck (1998; 2020) – the informational assets in the political attention economy in the era of mass media were mainly news stories covering different political issues. As described above, in the tradition of agenda setting studies, news coverage and agenda setting was analyzed according to framework of issues as the objects and their interpretations as attributes of those objects. For instance, a news story on the issue of unemployment, frames the issue in certain ways and thus put forth an interpretation of what the issue is *about*. Thus, the main assets of the political attention economy of mass media may be described as *conglomerates consisting of the informational items – the objects – in combination with a description of the item – an attribute*. The news stories also came in *packages* of content in the era of mass media. News stories were an integrated part of a whole newspaper, a broadcast TV or radio show presenting different news stories covering different issues packed together as one product. Sales numbers and radio and TV ratings – the measures of success and economic worth – were connected to the whole package whether a newspaper of a broadcast news show. In contrast, the news content circulated on social media platforms is "unbundled" from the full package of content. Each news story or informational item has become a discrete unit itself (van Dijck et al., 2018: 54). This development has also been described as "atomisation of news" decoupling news from its source and breaking it "down into its constituent parts, so that it is now distributed and consumed on a story-by-story basis" (Masip et al. 2020: 36). In addition, besides the traditional news stories, novel kinds of informational items have emerged afforded by and shared on social media platforms. Or in attention economic terms, a new breed of informational assets has become part of the novel political attention economy: pictures, *visual memes* with and without text content (Du et al., 2020), tweets, Facebook posts, short video clips ect. These new informational assets are characterized by being short and limited in content compared to traditional news stories and consumed faster.

As result of this atomization or unbundling of news, news stories are circulated and consumed disjointly and each piece of verified hard news content is in constant competition on attracting attention with personal content created and supplied by one's social media

acquaintances and social circle, with entertainment content, visual memes, commercial content as well as disinformation and digital misinformation. In this constant competition enabled by the technological affordances of platforms, journalistic high-quality content of hard and verified news stories produced and supplied by professional media institutions and journalists – abiding to journalistic ideals of truthfulness and accuracy (see section 5.5) – are not doing well compared to emotional charged content fueling sentiments of fear, disgust and surprise (Vosoughi et al., 2018). This includes documented false information – digital disinformation and misinformation. On the basis of an empirical analysis of viral spread of different content on Twitter, Vosoughi and colleagues conclude (2018: 1147), "that falsehood diffused significantly farther, faster, deeper, and more broadly than the truth in all categories of information" and that this diffusion "was aided by its virality" and the "peer-to-peer diffusion" (2018: 1147) of social media platforms. The scholars also found that false *political* news stories diffused fasted and most broadly. This observation is confirmed by a study on the election relevant news content attracting most engagement on Facebook the final three months of the presidential election in USA 2016. The 20 leading false election stories generating most engagement – shares, reactions and comments combined – on Facebook outperformed the 20 leading verified news stories of legacy news outlets as *Washington Post* and *New York Times* in terms of engagement (Silverman, 2016).

In attention economic terms, such false and misleading "fake news" stories (Allcott and Gentzkow, 2017) may be understood as a novel breed of (very) low quality assets entering and flooding the information markets of the media, the production and diffusion of which is afforded (and incentivized) as result of the digital transformation.

4.3. Transformation of the Currency

When attention, as Franck has argued (2005, 2005a), has become currency, the price of an informational asset could be determined as the total amount of attention paid to it. This was the case in the era of mass media and broadcasting, which – as pointed out above – is the context in which Franck's framework is embedded making it unable to provide a comprehensive picture of the current, more complex, digital and data-driven attention economy. In the attention economy of mass media, the attention of media consumers was attracted by the content newspapers and broadcast shows disseminated one-way according to a one-to-many communication structure. The attention attracted and resold to

advertisers was thus the attention of *passive* readers, listeners and viewers receiving and consuming the information supplied. Such attracting of passive attention – of attracting *eyeballs* – is still a significant part of the picture and commercial broadcast media outlets employing this traditional attention economic business model still play a significant role in the media landscape.[62]

However, social media platforms and their affordances of interactive, participatory media consumption, content production and co-production facilitate more activity from the users than passive reading, listening or watching. Users are *engaging* with the content when they for instance *comment*, *share* or *react*. This engagement both provides *attention* – a prerequisite for engaging with content in the first place is that it has attracted one's attention – as well as *behavioral data* produced when engaging. In online engagement, the production of the traditional commodity of audience attention is thus coupled production of the commodity of user data – or what Zuboff (2015: 81) has named "surveillance assets" – both of which may be monetized and generate income from advertisers and the advertisement industry. Increasingly, audience engagement is becoming a central journalistic value serving as "a measure of success (of a story, whether hard or soft, text, video or audio; of the day; of an organization)" (Misop, 2020: 35) and as an "indicator of journalistic quality" (Misop, 2020: 5). Thus, in order to extend and update Franck's extended framework in order to provide a more comprehensive picture of the attention economy in the era of social media platforms, audience engagement must be counted in and added to the price paid for the informational assets in terms of passive attention. The attention economy of the era of mass media has as result of the digital transformation turned into an economy of attention and engagement. Thus, for an updated determination of the prices paid for informational assets in the current attention and engagement economy and hybrid media landscape, the aggregated passive attention attracted from readers, listeners and viewers and the aggregated active attention of engaging users added together determines the total amount of (passive and active) attention paid and may be employed as a measure of the market value of the asset.

With this extended, and for the era of social media platforms updated, attention economic framework for understanding political debate and communication as *investments*

[62] Broadcast TV was for instance still the most preferred source of news in USA in 2018 (Mitchell, 2018), in Australia (Masip et al., 2020), and in the European Union (Stoll, 2020).

of the *currencies* of attention and engagement in informational *assets* on *markets* of politics created by mass media and social media platforms in place, the article now turns to the final part suggesting notions of speculative bubbles of attention and engagement.

5. Bubbles of Attention

In what Franck (2005) diagnosis as the mental capitalism of the attention economy, the tendency is that the value of all cultural products from science and art to entertainment (and the social status persons) is increasingly reduced to received attention. Price paid in attention is identical to value. This identification between worth and attention amounts to an attention economic equivalent to the Efficient Market Hypothesis in financial economics, in which the worth of an asset is identified with the market price of the asset. In a political context this would mean that what attracts most attention and engagement is also the most politically valuable. Then the consumers of politics, the audiences and electorate, would always be right and evaluations of the quality of political products according to other criteria than popularity and public support would be out of the picture. However, this article holds and argues that such evaluations based on criteria other than attention attraction are necessary, if politics is to be more than a vanity fair. If the reduction of value to price (in money or attention) is made, no speculative bubbles are possible. Bubbles are defined by a detachment of the price from the value. Bubbles of attention describe situations in which the amount of attention paid far exceeds the value of whatever the attention is paid to. When political communication and debate lose the connection to the real-world problems that matter in the bigger societal picture, the situation may be a case of what is here described and determined as inflation of a political bubble. Political bubbles suck up huge amounts of attention, but with no or little real political substance to justify the amount of attention spend.

The last section of the article applies the approach of bubble studies (Pedersen and Hendricks, 2014; Hendricks, 2016) to the attention economy detecting and determining bubble formations in other domains than financial markets. Taking financial asset price bubbles as points of departure, a generic notion of fundamental value will be determined and applied in the domains, the information markets, of science, journalism and politics. Equipped with notions of fundamental value in those domains, news bubbles are

determined and political bubbles defined. Finally, examples of the latter are provided and notions of political investment and speculation suggested.

5.1. Financial Bubbles

Economic history offers a list of financial bubbles, dating all the way back to the first documented, speculative bubble: The Dutch tulip bulb bubble in 1636-7 (Brunnermeier and Schnabel, 2017). Fairly recent examples are the housing bubble bursting in 2008 causing the financial crisis, and the dot.com bubble around the arrival of the Millennium. Bubbles on financial markets are defined as situations in which financial assets are systematically traded at prices far exceeding their *fundamental* (Vogel, 2010) or *intrinsic* (Malkiel, 2016) *value*. An asset's fundamental value is a reflection of the *fundamentals* pertaining to the asset. The fundamentals are determined by expected growth-rate, expected (discounted) dividend pay-out, the degree of risk and the level of interest rates, which provides a measure of the opportunity cost in holding the asset (Malkiel, 2016: 98-102). Fundamental value is the expected long-term value of the income the asset generates for the one holding it. Estimates of fundamental value are thus estimates of how much money a trader would make from the asset in the long run, if the trader was to keep it and never resell (van Lee, 2019). The notion of fundamental value has laid ground for an investment theory labelled the *Firm Foundation Theory* as well as a rather simple investment *strategy*. The investor estimates and calculates the fundamental value of assets, compares with current prices in order to locate under-evaluated ones, where the current market price is lower than the estimated fundamental value, buys in and thus acquires more (long term) value than paid as the market price (Graham and Dodd, 1934). Accordingly, if tech-shares, mortgage-backed securities or tulip bulbs are traded at prices far above and beyond a realistic assessment of their long-term worth, then the price has inflated into a bubble and no longer represents the underlying worth of whatever the asset being traded. Vogel (2010: 16) describes and relates bubble formations to speculation and the motivations of speculators: "Speculators, in such circumstances [of bubble formations], are much more interested in profiting from trading in the asset than in its use or earnings capacity or true value". Speculators do not care of estimates of fundamental value and long-term returns, because they are trying to make profits on short term price fluctuations on the market swiftly reselling acquired assets at a higher price than the price paid. It does not matter what the long-term return of

investment adds up to, if any at all, if you can resell an asset at a higher price to somebody else willing to buy. Why worry about the long-term worth, if you can find a "bigger fool" willing to pay more than you did – no matter the worth (van Lee, 2019).

Following Bogle (2012) investment and speculation may be defined and distinguished in terms of temporality and the time span for the expected return of investment. Investing is long term and speculation is short term trading. Financial *investment* involves assessing the fundamental value of assets, while *speculation* may ignore estimates of the fundamental value and play on the market. This distinction goes back to Keynes. He defined the difference between speculation and investment: "Investment is an activity that predicts an asset's return during its lifetime, whereas speculation is an activity that predicts the market's psychology" (Peterson, 2016). In *The General Theory of Employment, Interest and Money* "investment" is exchanged for "enterprise", but the content and distinction is the same: "[T]he term speculation [is appropriated] for the activity of forecasting the psychology of the market, and the term enterprise for the activity of forecasting the prospective yield of assets over their whole life" (Keynes, 2016: 143). Speculating, thus disregarding fundamental value and playing the market, involves higher order reasoning, where the agent do not stop at her own evaluation of the asset, but trade on estimates of other traders' evaluations of the value of the asset – or even other evaluations of others evaluations of the value etc. (van Lee, 2019). Keynes illustrates this with a famous example of a beauty-judging contest. The winner of the contest is the one who chooses the six pictures out of a hundred, which best approximate the six pictures chosen by the whole group as such. Instead of basing one's judgment on one's personal taste or judgment, the smarter strategy in that situation is to try to guess which pictures the other participants select and go for those. However, as the other contestants may be expected to do the same, the trick is to involve in higher order reasoning and try to predict the average opinion about what the average opinion predicts about the average opinion – and so forth (Keynes, 2016). Instead of evaluating the fundamental value in terms of perceived beauty, the speculator evaluates how the others are evaluating (second order) and bet on this or goes even a step further and bets on (third order) an evaluation of the evaluations of the evaluations of the others.

This strategy and theory of market speculation has been named *Castles-in-the-Air*, which illustrates its contrast to the *Firm-Foundation-Theory* of investment, in which

fundamental value matters as the solid foundation. If one is betting on the bets of others, there does not have to be anything substantial or real value about which to bet. Then castles – and fortunes – can be build out of thin air. Anything goes – as long the crowd is in on it and keeps building castles out of thin air. Malkiel (2016: 34) points to the consequence of the castles-in-the-air theory as being: "There is no reason, only mass psychology".

5.2. Algorithmic High-Frequency Trading

A lot has changed on financial markets since the time of Keynes. Traditional human traders in financial markets have been joined by decision-making algorithms automatically executing trades according to pre-programmed instructions and strategies without human intervention. According to Kissell (2021: 1), the digitalization of finance and the introduction of algorithms have transformed the markets and "disrupted the financial environment" pointing out that the relative part of the overall trading volume accounted for by algorithmic trading in American markets was up at 93 percent in 2019 – an explosive growth from 1 percent in 2000. Thus, at present, short-term speculation without view to fundamentals is therefore not a matter of predicting the *psychology* of the markets, and the crowd of other traders as in the times of Keynes. Rather, it is about of predicting, using prediction algorithms, near future price fluctuations caused not by human traders and their decisions, but by other algorithmic traders and their automatic decisions. Algorithmic trading has been defined as a, "tool for professional traders that may observe market parameters or other information in real-time and automatically generates/carries out trading decisions without human intervention" (Gomber et al., 2011: 14). Algorithms employed by increasingly powerful and fast computers with extensive calculative capabilities are able to access, analyze and decide upon amounts of market data and information that far exceeds the capacities of cognition, attention span and calculative abilities of human traders (Yadav, 2015). This includes news and news announcements from different sources as traditional news media, companies and financial and political institutions accessed and analyzed according to their potential impact on the market by text-mining *newsreader algorithms* using automatized sentiment analysis (Gomber and Zimmermann, 2018). The sources of accessed and analyzed information and data include social media platforms as Twitter (Cremonesi et al. 2018). Besides the capacity for analyzing, deciding and trading upon *quantities* of data in far excess of what is possible for humans,

algorithms are also able to do so at a pace much *faster* than human traders (Yadav, 2015). This highly accelerated decision-making and trading and reduced reaction time to incoming news may provide significant and profitable advantages for traders able to as one of the first to react to news and for instance either buying assets just before other traders get the news and buy thus raising the price or selling out as one of the first before the price drops. Algorithmic trading may be conducted according to different trading strategies, including long-term investments where assets are hold for longer periods (Brogaard, 2010). This is not the case for high-frequency trading, a subcategory of algorithmic trading. High-frequency trading exploits the ultrahigh speeds made possible by the increasingly fast computational and communication technologies, and high-frequency traders compete on being the fastest to receive and act upon information in order to make profits on *very* short-term price differences – as in arbitrage trading – and movements – as in momentum or "directional" trading (U.S. Securities and Exchange Commission, 2020: 38 - 41). This has caused an "arms race" on speediness between high-frequency traders employing increasingly fast and powerful computer technologies, obtaining faster connections and locating trading centers and data access points in close physical proximity stock exchanges in order to reduce network latency and get mili-, micro- or even nanoseconds ahead of other traders (Budish, 2015). According to Cvitanic and Kirilenko (2010: 2), high frequency trading "employs extremely fast automated programs for generating, routing, canceling, and executing orders in electronic markets. HF traders submit and cancel a massive number of orders and execute a large number of trades, trade in and out of positions very quickly, and finish each trading day without a significant open position." Thus, it characterizes high frequency trading that assets are only held for very short periods and the investment horizon – or *speculation horizon* according to the distinction between investment and speculation employed in this paper – is narrowed down to the end of each trading day. This excludes long-term investments where asset are acquired and held for longer periods based on evaluations of the fundamental value of the asset and the prospects of long-term return of investment.

According to Professor on the Chair of Entrepreneurial Risks at ETH Zürich, Sornette and colleague Becke (2011), high frequency trading has destabilizing effects on the financial markets and contribute in formation of asset price bubbles. According to the scholars, high frequency trading "can be understood as accelerating time" (Sornette and Becke 2011: 14) as if one is watching a movie about previous financial time series before the introduction of

high frequency trading in accelerated speed. In this thought experiment, the trade volume of one whole day in 1962 conducted by traditional low frequency, human, traders could be done in only one second of high frequency trading (in the limit case that all trade volume is accounted for by high frequency trading). Thus, the authors argue, what would amount to a crash in the financial markets each year would in this ultrahigh speed of high frequency trading turn into a crash every 4 minutes. Admitting this thought experiment to be naive and too simplified, the authors hold that high frequency trading works as an "accelerator to previous market dynamics" including formation of financial bubbles and "[b]y definition and intrinsically by its time-acceleration nature when it dominates the trading volume, HFT will give many more crashes per unit calendar time" (Sornette and Becke 2011: 14). An important market dynamic, pointed out by Sornette and Becke (2011), contributing to the formation of bubbles in traditional markets populated by human traders is herding of traders imitating and trading on the social proof of what other traders are doing, who on their part are doing the same. This may create a positive feedback loop causing prices to raise (or drop) significantly without changes in the fundamentals of the asset thus inflating bubbles. This dynamic also applies to algorithmic high frequency traders. Algorithms also herd and trade according to information on what and how other (algorithmic) traders trade, but at a much faster pace. An example of this is provided by the Flash Crash of 2010 not caused in the first place, but amplified, by high frequency traders trading with each other at rapid pace reacting to the same signal – a mutual fund selling 9 percent of its previous volume. This resulted in a game of "hot potato" between high frequency traders selling out and creating a feedback loop causing prices to drop drastically and rapidly in a few minutes (Sornette and Becke, 2011: 11). This example of herding between algorithmic high frequency traders points to a general issue pertaining to high frequency traders executing short term trades:

"Short term traders may be specifically prone to herd to the same information, driving the price further away from its fundamentals [...] The more momentum traders there are in a market and the higher the diversion from fundamentals, the fewer fundamental traders survive, further strengthening momentum traders" (Sornette and Becke, 2011: 7)

Thus, according to the scholars, the short-term time horizon of investment of high frequency traders thus fuels the tendency of speculation in price fluctuations supplanting long-term investments according to informed evaluations of fundamental value and crowding out fundamental and informed investors. This tendency of increased affordances and incentives for short-term speculation may undermine the social purpose of the financial markets as institutions: capital formation and the allocation of capital to promising and well-managed enterprises and businesses with prospects of long-term returns of investments for the investor.

5.3. Social Purpose and Fundamental Value

The hard question to answer when suggesting a notion of political bubbles is how to define fundamental value in politics. If we take a step back and view the notion of fundamental value of financial assets in light of the *purpose* of the financial industry and financial markets as institutions in the big picture of society as such, it provides a hint of how to approach fundamental value in other domains than finance.

The purpose and justification of finance is not making banks and bankers rich. It has a broader social purpose. Keynes writes "The measure of success attained by Wall Street, **regarded as an institution of which the proper social purpose is to direct new investment into the most profitable channels in terms of future yield**, cannot be claimed as one of the outstanding triumphs of laissez-faire capitalism" (Keynes, 2016: 142, my emphasis). The purpose of finance as societal institution is what Keynes also denotes as "enterprise" – long-term investments, not short-term speculation. Finance and financial markets have as its social purpose to allocate capital and resources to promising companies and thus contribute in creating growth, jobs and innovation. This point is also made by Bogle (2012). He points out that the "economic mission" of the financial sector is capital formation, which is the "process of allocating investment capital to the most promising industries and companies, both those that seek to provide better and better goods and services at increasingly economic prices to consumers and businesses, and innovators that seek to do the same, only faster." (Bogle, 2012: 16). When the purpose of finance is allocating resources through long-term investments, the long-term prospects of the asset are also measures and estimates of how well the asset contribute in realizing the overall purpose as such. To make a good investment means to invest in assets, which in the long run yield reasonable

dividends to the investor. If a company stock has high fundamental value, the company fulfills its main financial purpose from an *investment* perspective: To generate profit and earnings by running an economically healthy and competitive business. This means that the fundamental value of an asset, defined as the total amount of pay-offs it yields if not resold, is a reflection to the stated purpose of the institutional arena of which it is a part:

The fundamental value of an asset is a measure of how well the asset serves the purpose of the institutional arena in which it is an asset.

This suggests that at a generic level, fundamental value in a specific institutional context may be defined according to the social *telos* of the institution. How does this definition play out in the case of science, journalism and politics?

5.4. Fundamental Value in Science

According to Franck (2002), science is also an attention economy. Researchers invest their attention in studying other researcher's published work and employs it as means of production for their own scientific production according to Frack (2002). This scholarly attention works as a currency, as a measurement of the worth of the contribution, when quantified into the homogeneous units consisting in the number of *citations* the contribution receives. Citation is not costless in terms of attention. It transfers a part of the earned attention of the one who cites to the cited (Franck, 2002). The higher the number of citations, the more attention is paid, and the higher the *attention income* for the researcher. The number of citations generated, in turn, adds to the scientific reputation of the scientist. However, even if science, according to Franck (2002), may be described as a competition for scholarly attention, it still has a purpose externally to the mission of attracting attention and recognition from one's peers: *Truth*. As Franck puts it: "The hallmark of scientific information is truth" (Franck, 2002: 6). In the end, the purpose and the final criteria of success of science is whether and to what extent it tracks and arrives at truth (leave aside philosophical discussions on definitions of truth). Thus, in the attention economy of science it is possible to isolate a value (besides attention and self-esteem producing recognition and reputation) that may be understood as the *fundamental value* of scientific research. Truth as the fundamental value in science has also been suggested in a contribution presenting a

notion of *science bubbles* according to which the fundamental value of a research field is determined as its ability to track the truth (Pedersen and Hendricks, 2014).

However, we have no access to truth of science outside of science that would make it possible to compare scientific information with the pure objective reality and thus be able to decide on truth-value. As all observations are laden with theory, we do not have an external measurement rod outside of science pinning down the truth-value of scientific theories and information (Franck, 2002). Yet, this epistemological obstacle, or even impossibility, does not mean that truth is not the aim and thus in the end the measurement rod of worth and success relative to its purpose.

The epistemological problem of deciding on truth-value outside the domain of science has its parallel in economics. Criticism has been pointing out, that fundamental value for financial assets is impossible to estimate from an external viewpoint not connected to the price formations and fluctuations on the market. Estimates of fundamental value of an asset are done by calculating the earnings it will yield long-term factoring in future pay-offs, future growth rate, risks and interest rates on alternative investments. Thus, fundamental value depends on forecasting the future and is thus uncertain business. The long-term return on an investment also depends on various market fluctuations. Hence, the dissociation between investment in the long run and speculation in the short run is not absolute. However, that the distinction is not absolute and fundamental value is practically impossible to calculate does not mean that there is no such thing as fundamental value – or that the distinction between investment and speculation does not exists at all. For instance, when the Dotcom-bubble was inflated at the turn of the Millennium, just changing the company name – and nothing besides – adding a ".com" had a general and measurable positive effect on the stock prices of the company (Cooper et al., 2001). It seems fair to assume that those rises in prices did not represent raises in the fundamental values and their earning potential in the long run (van Lee, 2019). Even when we will never be able to *know* the fundamental value of assets, this does not mean that trying to approximate it epistemically employing the best available evidence in order to make good long-term investments is out of the picture.[63]

[63] The suggestion here is not that fundamental value in Kantian terms is a constitutive idea we will become able to pin down as an object of knowledge. The suggestion is rather that it may serve as a regulatory ideal we

5.5. The Purpose of Journalism

Following Kovach and Rosenstiel (2007), the purpose and principles of journalism is determined by the function news play. The press as a democratic institution – the Fourth Estate – has an aim of public enlightenment. Journalism is "story telling with a purpose" and the purpose consists not only in attracting and engaging an audience, but also to *enlighten* it. Journalistic quality "is measured both by how much a work engages its audience and enlightens it" (Doyle, 2018: 23). It ought to inform the public about important matters and qualify public debate, deliberation and opinion formation. The press ought to shed light on societal problems and adopt the role as gatekeeper of the public debate, guarding its quality by screening out lies, falsehoods and nonsense. Simultaneously the media has to act as watchdog of the powers that be, holding them accountable to the public while revealing possible abuses of power. Journalism also plays a part in informing the political system and political actors (Van Aelst and Walgrave, 2017). News coverage is providing information of social conditions and societal problems, which may call for political concern and action, and by including an issue, or a new attribute of an issue, on the agenda, the news media are directing both public and political attention towards those problems. The press thus surveilles the environment, detects and interprets problems and problematic conditions (Lasswell, 1948). According to *American Press Association* (APA), journalism is a kind of cartography, which metaphorical speaking draws a map and make it possible in practice to navigate society in an informed way. When the purpose of journalism is enlightenment in this broad sense of cartography, the fundamental value of a news story as a journalistic asset depends on its *truthfulness*, *proportionality* and *representativity.*

Journalism is committed to truth. Not in the absolute sense of full certainty and one time for all. Like science, journalism is fallible, may miss out on relevant information or perspectives not paid attention to in the first place, and its results is thus up for later revisions. As noted by the *American Press Association* (APA), journalism as an activity of truth tracking "is a process that begins with the professional discipline of assembling and verifying facts. Then journalists try to convey a fair and reliable account of their meaning, valid for now, subject to further investigation" (Quoted after Hendricks and Vestergaard, 2019: 53). Lies, falsehoods and other forms of misleading information do not inform and

never arrive at and are able observe or measure, but which still is able heuristically to guide and govern our epistemic activities and evaluations of the worth of assets – be it financial, scientific, journalistic or political.

contribute in navigation, but do quite the opposite – no matter whether it is the aim as in disinformation, by mistake as in misinformation or because truth value is considered irrelevant as in "bullshit" (Frankfurt, 1986). The fundamental value of for instance the *New York Times* stories on the existence of active WMD in Iraq in 2002-2003 showed themselves to approximate nothing, as they were false pieces of misinformation based on misleading sources (Cozens, 2004).

Journalism is committed to proportionality. Drawing a map enabling informed navigation includes keeping news in proportion, but not leave out important details. As the *American Press Association* (APA) puts it: "Inflating events for sensation, neglecting others, stereotyping or being disproportionately negative all make a less reliable map" (Doyle, 2018: 23). The fundamental value of a news story on something that is not important in the big picture or blown out of proportion. For instance, the stories on the so-called *War on Christmas* do not amount to much in terms of informing on what matters even if FOX News are able to attract viewers by rerunning it every year since 2004 (Molloy, 2019). What *really* matters is itself a contested matter, of cause, and is to a certain extent a subjective question diverging between individuals, groups and political affiliations. However, even if the relative importance of issues and attributes is essential contested, this does not condemn us to a strong position of relativism in which everything is just as important as everything else. When sailing a ship, evading an iceberg is more important that fixing the coffee machine and information on an iceberg approaching has more value than information on the broken coffee machine. And this would also be the case, if a majority of the passengers and crew – or even all of them – were concerned with finding information on how to fix the coffee machine.[64] As pointed out by APA, even when evaluations of importance and proportion are contested, their ambiguity does not lesson the significance (Doyle, 2018).

Journalism is committed to comprehensiveness. For a map to function as a mean of navigation, it must represent the territory without too many or too big black spots. A certain level of completeness is necessary for the map to be representative of the territory. In journalism, this means that it should aim for comprehensiveness and thus telling the most

[64] This example was provided by Martin Vestergaard in the context of allocation of research attention in economics and became the focal point for the final plenary discussion at the conference *Reawakening - From the Origins of Economic Ideas to the Challenges of Our Time*. Organized by Institute of New Economic Thinking Oct 21–23, 2017, Edinburgh, Scotland.

relevant sides of the story. The most important attributes pertaining to a certain issue ought to be covered in order to tell a story that is representative of those aspects of reality that matters in the context.

5.6. News Values and Algorithmic Values

The digitalization of the media landscape and advent of social media platforms have also influenced the values according to which news coverage and journalism operates. The *news values* of traditional journalism according to which the press has produced, selected and disseminated news stories have been challenged and risk to be increasingly sidelined by the *algorithmic values* of social media platforms. This, in turn, may contribute to diverge journalism from fulfilling its purpose as democratic institution informing citizens truthfully, comprehensively on matters of societal importance.

In the era of mass media and traditional news distribution, the news stories selected and supplied to the consumers in a newspaper, a radio or TV-show were selected by humans – by journalists and editors as mentioned above in section 4.1. Such curation of content was done according to criteria of *relevance* (Devito, 2017). What was considered relevant to the news audiences was decided by editors according to news values inherent in professional journalism providing criteria for newsworthiness. Besides *novelty*, the value of *societal concern* was a top ranking and central news value and thus important criteria for the selection of news stories to include in a newspaper or a broadcasted news show disseminating it to the audience of news consumers (Devito, 2017).

However, the information and content selected and disseminated as relevant is increasingly decided automatically through algorithmic procedures and calculations including or excluding content on basis of algorithmic criteria (Gillespie, 2014). On a social media platform as Facebook, algorithms have been introduced as intermediaries automatically contributing in curating and selecting informational content in constant interaction with the human users sharing content (as described in section 4.1). This is also the case for the Facebook News Feed. The interaction of users and algorithms in selecting and curating content is decisive for the content shown to different users in their individually

personalized Facebook News Feed. This has been pointed out by Devito (2017), who has studied algorithmic curation of the Facebook News Feed.[65]

Rather than traditional journalistic news values, the algorithms curating the content in the Newsfeed are selecting, including and excluding, according to "algorithmic values" (Devito, 2017: 5), which are value judgements concerning relevance of content embedded in the design of the algorithms by coders and engineers. In case of the Facebook News Feed, the three primary top ranking algorithmic values have been found to be *friend relationship*, *explicitly expressed user interests, prior user engagement* (Devito, 2017). On the full ranking list of algorithmic values – nine in total[66] – *content quality* occurs, but only as the least important in the bottom of the list. Devito (2017: 15) concludes that, "this leaves us with a combination of a business and a personal concern as the core of Facebook's algorithmic values, in direct contrast to the combination of a novelty and a societal concern that drive news values".

Algorithms, such as the ones curating the Facebook News Feed, selecting content primarily according to values of *personal relevance* and the business interest of encouraging more engagement and thus extract more data may contribute in replacing the primary journalistic value of *societal relevance*. The value of *societal relevance* is equal to what in this article has been pointed out as a necessary component in journalism fulfilling its democratic purpose: Informing citizens truthfully and comprehensively on *matters of societal importance*. The replacing of societal relevance and concern with values of personal relevance and concern as main principles of content curation may thus contribute to inflating news bubbles attracting attention and engagement in far excess of their fundamental journalistic value.

Such personalized algorithmic curation according criteria of personal relevance has also been pointed out as contributing to creation of what Pariser (2011) has named *filter*

[65] As the algorithms curating the Facebook News Feed are secret and protected as such, the scholar did not have access to the algorithms and therefore could not access and review them directly. However, in order to gain insight on the inside of the "black box" (Pasquale, 2015) of the algorithms and their curations principles, Devito conducted content analysis on public documents as patent applications, Facebook communications in the *Newsroom, notes from Facebook employees* and Facebooks SEC filing (Devito 2017: 8). It must also be noted that not only is the Facebook News Feed algorithm blacked boxed as a secret, it is also constantly being tweaked and changed. It is a moving constantly changing object of research (in a black box). Thus, Devito's analysis only provides a time specific snapshot of the workings of the algorithm – at best.

[66] The full list is: *Friend relationship, explicitly expressed user interests, prior user engagement, implicitly expressed user preferences, post age, platform priorities, page relationships, negatively expressed preferences, and content quality* (Devito, 2017).

bubbles and described as “personal ecosystem[s] of information that's been catered by […] algorithms to who they think you are”. According to the filter bubble thesis, the consequence of curation algorithms personalizing content selection for the individual user according to the revealed preferences exposed by data is that users increasingly only are exposed to content aligned with their preferences, excluding other content, thus increasingly showing more of the same. Such algorithmically personalization may, it has been feared, contribute to increasing isolation in *echo chambers* with likeminded others confirming each other’s opinions and potentially polarizing into more extreme positions and opinions and segregating the public into fragmented publics (Barberá, 2020). According to Pariser (2015), creation of filter bubbles fueling echo chamber effects results from the selection criteria of the Facebook News Feed algorithm, which, “in particular will tend to amplify news that your political compadres favor”.

However, the news bubbles suggested in this paper are of another kind and even when they also may undermine fact-based discourse like filter bubbles are feared to do (Benkler et al., 2018), they are defined through a transferal of the basic theoretical elements employed in economics to describe financial bubbles to the markets of attention, rather than being determined by a metaphor of being *inside* a bubble as characterizing the notion of filter bubbles.

5.7. News Bubbles

According to the above determination of the purpose of journalism as cartography and its following threefold criteria, the fundamental value of a news story may be defined as its *ability to truthfully and comprehensively inform the public and political actors on what matters*. A news bubble may according to the above determination of the fundamental value of news assets be defined as s*ituations in which a news story or item or story receives a level of attention and engagement in far excess of its ability to inform on what matters.* According to the notions of fundamental value in journalism and news bubbles, what amounts to journalistic *investment* and *speculation* can be determined. Media actors *invest* in news stories as assets, when they cover issues and attributes representative of societal conditions, which in the big picture matter sufficiently to quality as a societal problem calling for public concern and maybe, but not necessarily, political action. Media actors *speculate* when they disregard fundamental value of a news asset only aiming at generating

and maximizing attention and engagement profits in the short term. When for instance tabloid mass media outlets produce and supply emotionally charged (soft) news stories focusing attention exclusively on personal aspects or individual cases without any societal relevance – thus not informing on matters that matter and call for societal concern – it may count as a weak or mild form of attention speculation. Such tabloid informational assets do not address what *matters* in the bigger picture. The tabloid stories may be factually true, but by lacking either *comprehensiveness* or a subject matter that *matters* in the bigger picture, their journalistic fundamental value is still in the lower end.

However, as result of social media platforms and the technological and economic affordances they provide, the opportunities of journalistic speculation have been drastically enhanced. The automatized algorithmically driven advertising systems created and made accessible to all kind of actors by advertising platforms as Google and Facebook has made it possible for third parties publishers to produce and supply content online and earn money income per click it receives (Benkler et. al. 2018). This affordance of turning attention and engagement into money income though automatized systems has turned speculation in attracting clicks into a viable and potentially profitable business model for different kind of actors, including producers and disseminators of attention and engagement attracting, but factually misleading, content and disinformation. The enhanced opportunities speculation also reflects in the kind of informational assets speculated in. Returning to the example of the final months of the presidential election in USA 2016, the stories producing most engagement on the Facebook platform was the false and misleading stories: "*Pope Francis shocks world, endorses Donald Trump for president"* and *"WikiLeaks confirms Hillary sold weapons to ISIS … Then drops another bombshell"* (Silverman, 2016). Those two top ranking stories on Facebook were afterwards tracked back to producers and suppliers of disinformation in Macedonia earning money through the advertising revenue the clicks cast off (Hughes and Waismel-Manor, 2021). Such fabricated, false and factually misleading stories and disinformation do not represent reality or informs anybody on anything. To the contrary, they mislead and when evaluated as journalistic assets, they have *no* fundamental value. However, they were nonetheless able to go viral attracting vast amounts of attention and engagement. Thus, according to the definition suggested above, they may be considered malignant instances of news bubbles: the level of attracted attention and

engagement is in far excess of their ability to illuminate, interpret and represent real-world problems. Being factually false, they do not represent any *real*-world problems at all.

News bubbles are close cousins to the political bubbles this paper suggests. As pointed out in section 4.1, the attention economic markets of politics are the interconnected media arenas in a hybrid landscape, in which political actors use news stories as assets of investments in order to profit from them in received attention and public support. This is the markets, in which the political bubbles emerge. Thus, political (attention) bubbles inflate on the same markets of attention as news bubbles. Political and media actors are also trading and investing (attention and engagement) in the same informational assets. A news bubble may develop into what qualifies as a political bubble, when political actors invest their attention in it and thereby politicizing it as a political concern demanding attention from the political system. If the attention paid to a news asset is in far excess of its journalistic fundamental value, due to lack of truthfulness, proportionality or representativity, it is already a news bubble inflating, and when it attracts further investment of *political* attention and engagement, the news bubble may turn into a political bubble. When for instance a misleading news story on WMDs in Iraq in The New York Times is referred to – invested in – by political actors rich in attention capital, like the Vice President Dick Cheney did September 8, 2002 using the story in New York Times as part of his justification of the Iraq war (Suarez, 2004), the news bubble of this journalistic low-value story is politicized into a political bubble. A political bubble may also result when political actors are producing the asset, which makes the asset political from the start, by voicing an opinion, tweeting a tweet or otherwise pushing a narrative that is then invested mass or social media attention and engagement in when either media actors cover it as news or social media users in interaction with platform algorithms make them go viral. Either way, political bubbles inflate, when the level of attention and engagement to a political asset far exceeds the fundamental value determined by the purpose of politics as institution. What is the purpose of politics?

5.8. The Purpose of Politics

Politics is about power. By making and arguing that point, Machiavelli laid the foundation of political realism in contrast to different forms of idealisms. Politics is about achieving and holding power, and not about fulfilling some extra-political aim (as the good life) or

standard of morality (as justice) or the like. The cynical core of this understanding of politics has lived on in modern political science studying democratic politics as (just) a struggle among different interests on positions of power, resources and benefits in society (Jones and Baumgartner, 2005; Baumgartner and Jones, 2015). Lasswell (1936) has defined politics accordingly as the question of "who gets what, when, and how". In democracies, the battle for power is turned into peaceful competition for support, votes and political positions yielding power. In theories of *aggregative democracy,* democratic politics is understood as a mean of aggregating individual preferences. According to this model, "the aim of democracy is to aggregate individual preferences into a collective choice in as fair and efficient a way as possible" and the challenge in relation to which democratic institutions are to be evaluated is "how to reach a fair and efficient compromise given the many conflicting preferences expressed in the political community" (Miller, 1993: 55). In this prevalent tradition in political science, judging government performance is a question of how well the preferences of the citizens correspond to the public policies enacted by the government (Baumgartner and Jones, 2015). From this perspective, the standard to which politics is measured is *preference satisfaction,* which may also be understood as the *purpose* of democratic politics in this tradition; Good government is doing what the citizens want. However, this understanding of democratic politics has been criticized for missing at least half of the story.

As pointed out by Esser (2013), aggregative models for democracy tend to reduce the core of democratic politics to elections, but democratic politics is more than permanent campaigning for election. Baumgartner and Jones (2015) have pointed out that the standard of preference satisfaction is not sufficient; a large part of politics is not about matching policies to the preferences of the citizens. Besides, as Baumgartner and Jones also point out (2015), what if the preferences of the citizens for instance are based on false beliefs, unfounded myths or disinformation? To govern only with preferences satisfaction as criterium of success, could make a (rather absurd) situation possible in which enacting policies leading to a catastrophe would be considered good governance. If a majority of the public, contrary to the overwhelming scientific evidence, does not believe in climate change as caused by CO_2 emissions and has policy preferences thereafter,[67] then satisfying those preferences and (keep) heading for climate catastrophe would according to the aggregative

[67] It could for instance be preferences for policies deregulating or subsidizing oil and coal industries.

model of democracy fulfill the purpose of democratic politics as enacting what the people want. Even policies leading to disaster would be elevated above criticism because as the value of political statements, positions and policies – like the value of financial assets according to the Efficient Market Hypothesis – would be identical to the aggregated support from the public. This suggests that the criterium of preference satisfaction is itself unsatisfactory as a measurement rod for political value.

Following Green-Pedersen and Walgrave (2014), Baumgartner and Jones (2015), Jones and Baumgartner (2005), Esser (2013), democratic politics is also about solving problems and changing real world conditions through policy-making. As alternative to aggregative models focusing on representation and satisfaction of preferences, an information-based perspective has gained foothold in the field of political science. In this strain of literature, the standard of *problem solving* has been suggested for evaluating government performance as an alternative to preference satisfaction (Baumgartner and Jones, 2015). When this framework is adopted, including the criterium of real-world change addressing problematic conditions, it paves way for pointing out situations of political overinvestment and over-valuation relative to the real worth – relative to the fundamental value – of the political news stories and informational items in question. When the price paid may be in far excess of the value of what is being paid for, the basic elements of bubble formations in the domain of politics are in place.

5.9. Political Bubbles

The notion of political bubbles suggested in this final part of the article draws on the information-based understanding of politics as problem solving though policy-making. The standard of problem solving provides the social purpose of politics relative to which the fundamental value of political assets may be determined. However, as made clear by Green-Pedersen and Walgrave (2014) even when politics is about problem solving, this does not mean that there is a fixed set of objective problems agreed on by the members of society, which the political system then addresses. Politics is also about whether and how societal conditions *become* political problems and how those problems are comprehended and interpreted as pointed out by Jones and Baumgartner (2005). In relation to their theory of disproportionate information processing as an approach for studying agenda-setting in politics and policy-making in four stages (see section 3.4), the political bubbles suggested in

this article emerge in the first stages of the process and are thus located at the informational *input side* of the political system. As part of the informational input to the political system, news coverage plays an important role in detecting and interpreting problematic state of affairs in the environment (Walgrave and van Aelst, 2017; Lasswell, 1948). According to this function of the press – the institutional purpose determining the fundamental value of news stories and items as political assets – consists in their ability to direct public and political attention to problematic conditions that matter and potentially call for political action and intervention. Thus, the fundamental value of news stories and items consists in their ability to adequately represent something as problematic and interpret what the problem is about.[68] The fundamental value of news stories or items as political assets may thus be determined as their *ability to illuminate societal conditions of political concern as problematic and adequately represent what the problem is about*.

The definition of asset price bubbles on financial markets is, as mentioned earlier, situations in which assets systematically trade at prices far in excess of their fundamental value. Bubbles are determined as a mismatch between price and value and denotes situations of disproportion due to inflation of the price. This is also the case for political bubbles suggested here. A political bubble is the result of a significant disproportionality between levels of attention and engagement (price) a news item (asset) receives and its potential for enlightened and informed problem detection and definition (fundamental value). By systematically replacing

asset with news story or informational item

price with the aggregated sum of political attention and engagement

fundamental value with ability to adequately represent problematic societal conditions of political concern

[68] When it come to the novel kinds of news items afforded and exchanged in the digitally transformed informational environment and attention economy, such as graphic memes, the interpretations of the problems pertaining to what the problem is about, if any such can be identified at all, may be highly ironic, latent and implicit compared to traditional news stories. There may also be cases where an interpretation is not be found such as in statements or reports informing that an event happened or a person made a statement for instance and nothing besides.

a political bubble may be defined as a

situation in which a news story or informational item receives a level of political attention and engagement in far excess of its value as representative instance of problematic societal conditions of political concern.

What does the criteria of being a "representative instance" consist in? Illuminations and interpretations of problematic conditions need to be grounded in the real world and representing it sufficiently accurate and comprehensive, if the resultant policy-making is to succeed in effectively addressing what matters. Otherwise, the limited attention (and engagement) of the political system and of the public risk being spend on non-representative individual cases or on, from a societal perspective at least, unimportant details. The relation of representativity may be determined by the extent to which the news story being invested in as a political asset is connected to *real world indicators*. In the era of mass media, the notion of real-world indicators was introduced in agenda setting studies by Funkhouser (1973). This was done in a study on the correspondence between news media coverage of major issues in the 1960's, not only to public agenda, but also to "the realities underlying those issues" (pp. 62). As defined by Dearing and Rogers (1996: 23) a real-world indicator is a "variable that measures more or less objectively the degree of severity or risk of a social problem". The introduction of real world-indicators makes it possible to compare respective agendas with the social reality and critically assessing the correspondence – or lack of – between public political deliberation and social reality – and not only agenda vis-à-vis agenda. However, the first, necessary condition for as news story or item to be a representative instance of problematic conditions is that the conditions *exist* in the first place. If not, attention and engagement is spent on misleading information, disinformation and pseudo-problems with no grounding in the real world at all. An instance of the latter could be the non-event of the so-called Bowling-Green Massacre that never took place in the real world, but was referred to as justification of the controversial policy banning travel from seven Muslim-majority countries of the Trump administration anyway (Smith, 2017). Contemporarily, with the new breed of low-quality informational assets having entered the market (as described in section 4.2), the *fact check* may be considered the first and primary

real-world indicator necessary for there to be any representation of *underlying realities* at all. Political bubbles may thus both denote situations in which the real-world indicators are not sufficiently comprehensively represented and situations where there is no representation of reality *at all* because the informational content is factually *false*. The following section provides examples of both.

5.10. Examples: Danish Welfare Queens and American Birthers

According to the definition suggested above, political bubbles may denote situations in which the problem attended by the news story is real and qualify as a matter of societal concern, but in which a specific interpretation of the problem is attracting attention in far excess of the evidence provided by real world indicators. This may exclude other relevant aspects of the issue from receiving attention with the result the stories circulated and invested in politically do not comprehensively represent the underlying realities of the issue (provided by the real-world indicators) and it causes. Such bubbles may for instance inflate if stories based on few individuals are attracting sufficient attention to effectively frame whole groups of individuals without being representative for the group according to real world indicators. The *Poverty Debate* in Denmark 2012 – 2013 may provide an example. The debate was triggered by a welfare recipient "Carina", who on nationally broadcast TV claimed to be "poor" while owning a flat screen TV and with a budget including dog food and cigarettes, which earned her the nickname "Poor Carina". The debate was reignited when another welfare recipient, Robert Nielsen, on another TV show admitted to be "lazy" and preferred receiving welfare grants to being employed with a "lousy job" (Daley, 2013). Leading political actors, including the prime minister Helle Thorning Smith, invested politically commenting directly on the stories on the individual cases (Thorby-Carlsen et al., 2013). In April 2013, a reform of the Danish social policies cutting welfare grants for certain groups and restraining the conditions for receiving them was adopted by the Danish Parliament, the purpose of which, according to leading negotiator from the opposition Ulla Tørnes, was "to get rid of Lazy Robert" (Boserup, 2013).[69] Thaysen and Nedergaard (2013) have conducted a study, employing methodologies of agenda-setting studies on the coverage of social security area made by the seven leading Danish newspapers during the

[69] The original and full Danish quote reads, "Vi vil populært sagt Dovne Robert til livs" (Boserup, 2013, my emphasis).

Poverty Debate. The study finds that only 40 percent of the articles contained real world indicators at all – broadly determined as facts and statistics on the group of welfare recipients in contrast to information on individual persons – whereas direct references to the individual cases "Poor Carina" and/or "Lazy Robert" are present in almost 30 percent of all articles on welfare grants. In addition, experts and social researchers were only used as sources in 12 percent of the material, less than private citizens (14 percent) and far less than political actors used in 44 percent of the articles. The study concludes that, "the newspapers cover two controversial and not representative single issues of social security recipients, Carina and Robert, nearly as much as they cover relevant research and other representative facts about social security recipients as a group." (Thaysen and Nedergaard, 2013: 163). This excessive focus on two individual cases is reflected in a disproportionality between the media coverage and social reality. During the period, the Ministry of Employment's own statistic show that only a minority of 27 percent of the welfare grant recipients were evaluated to be able to work and thus receptive to incentives. The majority of 73 percent was not evaluated as being receptive to economic incentives as the unemployment of the majority group was caused by other factors than lack of incentive and/or mentality of entitlement: abuse of alcohol or substances and disease. The individual cases of "Poor Carina" and "Lazy Robert" received an amount political attention that far exceeded their value as *representative instances* of societal problems: according to available social research, they were representative for only 27 percent of welfare grant recipients at maximum. The Poverty Debate may be considered an example of news stories (assets) allocating attention (price) excessively on individual cases and the aspect of entitlement mentality at expense of other relevant aspects and individuals according to real world indicators thus not representing the issue comprehensively (fundamental value) thereby qualifying as news bubbles. Those news bubbles became political bubbles by being politicized by political actors investing political attention and engagement in them commenting directly and justifying policy-making referring to them.

However, this kind of political bubbles – even when attracting a disproportional amount of attention to one aspect at the expense of others due to the zero-sum allocation of the limited attention – are not *as* undermining for reality based political debate and the ability to address and migrate real world problems in policy-making as the political bubbles of inflated *falsehoods*. When falsehoods and disinformation attract large amounts of

attention, engagement and contribute in setting agendas, it may also qualify as political bubbles. An example of a blatant falsehood inflating into a political bubble on hybrid markets of attention and engagement created by social media platforms, partisan mass media and online media outlets may be found in the *birther* conspiracy theory. According to the birther conspiracy theory, Barak Obama was not born in USA, but in Kenya, and not electable as president in USA – and, in addition, is secretly Muslim. The birther conspiracy theory first emerged as a fringe postulate in 2004, but it gained traction online and was "amplified" on social media platforms during the 2008 campaign to the effect that Obama released his birth certificate same year (Kelley-Romano, 2017: 36). However, that did not stop the conspiracy theory, which persisted in attracting an increasing amount of attention and engagement as well as believers postulating that the published certificate was fake (Farley, 2009). In 2011, Donald Trump started publicly supported the conspiracy theory continuously in both tweets and when occurring on different broadcast news shows attracting vast amounts of attention to the (false and falsified) story (Kelley-Romano, 2017). According to Benkler et al. (2018: 18), this was what "launched his political career" in the first place. Trump speculated in an informational asset of zero fundamental journalistic value, politicized it as candidate for the republican nomination as presidential candidate 2012 and profited politically on it. He was "able to capitalize on […] birtherism to his political advance" (Kelley-Romano, 2017: 37) and first admitted that Obama was born in USA in 2016. However, the effect on the public of the misinformation has shown itself to persisting and lasting as a YouGov poll conducted in 2019 show that 34 percent of adult American citizens hold it as either "definitely true" or "probably true" that Obama was born in Kenya (*The Economist* and *YouGov Poll*, 2019).

Returning to the novel methods of speech control targeting the listener referred in the introduction of this article, political bubbles may have the same effect as pointed out by Wu (2018): crowding out unwanted information and viewpoints from the widespread agenda. The birther conspiracy theory conceptualized in this article as a political bubble has also been named a *Rumor Bomb* by Harsin (2014: 32) and described as means of distraction - as tools for controlling the agenda by occupying (limited) attention crowding out other pieces of informational content:

"Muslim Obama [Rumor Bombs] were also quite successful from the agenda-setting and attention economy point of view. They recuperated public argumentative space and tabloidized it, so that some policy issues could not be debated not just in a more systematic and rational fashion, but not debated at all. […] [Rumor Bombs] have multiple functions, the most important being the way they occupy attention, circulate and force responses (Obama finally releasing his full-form birth certificate!). Meanwhile, another mass shooting occurs, Guantamo remains open, and Global Warming imperils the future of humanity".

Because the attention is limited and the zero-sum principle of agenda setting (McCombs, 2005) and attention allocation (Franck, 2020) abides, distraction may be as effective a power tactics as the old school repression of speakers. Whether as deliberate political tactic or as result of attention speculation by media and political actors disregarding fundamental value altogether just playing the markets, political bubbles have similar effects as rumor bombs and out-crowding tactics targeting the receiver's limited attention resource. Political bubbles may work as informational *weapons of mass distraction*.

5.11. Political Investment and Speculation

In politics, like in journalism (as described above), a distinction similar to Keynes' between financial speculation and investment may be drawn. Political *investment* takes into account available research and real-world indicators pertaining to societal conditions deemed problematic and tries to assess the expected returns for society for different policies potentially enacted to address the conditions evaluating the potential long-term effects and side effects if the policies were carried out (Hendricks and Vestergaard, 2019). Political *speculation* is maximizing short-term media attention, engagement and public support employing all means necessary without evaluation of or regard for expected returns and side effects. Political speculation may take the form of focusing attention excessively on individual non-representative cases already receiving news coverage. Examples of this may be found in the above-mentioned Poverty Debate in Denmark. Political speculation may also entail total disregard for the truth of content speculated in as in the example of the birther theory, which Donald Trump successfully speculated in.

Social media platforms and their affordance of data and algorithmically driven targeted personalized communication, viral peer-to-peer sharing and distribution of content

and curation algorithms designed for fueling virality enhance the opportunities of political speculation significantly. Speculators are now able to play the social media markets catering directly for the preferences of targeted individuals or user segments revealed by behavioral data as well as for the emotional and algorithmic drivers of virality. This, in turn, provides novel strategic means for maximizing short-term attention and engagement profits and political support, while disregarding political fundamental value; producing and speculating in political assets without regard for relation to real world indicators, for estimated results of political proposals or even for the basic truth-value of the informational asset speculated in.

5.12. Digitalization, Bubbles and Social Purpose

Returning to the structural analogy between financial markets and markets of attention and between media institutions and the financial sector – suggested by Franck (2005; 2020) and extended in this paper to include data collection and deployment of algorithms in both domains – there are also parallels between the affordances and potential effects of data driven algorithmic finance and data driven algorithmic news dissemination.

In finance, the introduction of algorithms may amplify herding effects and contribute in creating positive feedback loops, the dynamics of which may rapidly raise or drop the prices of financial assets and the level of attention and engagement for informational assets. As it was the case in the flash crash of 2010, algorithms can contribute in creating such feedback loops. In addition, and more generally, as also pointed out in section 5.2, digitalization and introduction of algorithms in finance, making high frequency trading possible in the first place, may also contribute in facilitating and incentivizing short-term trading and thus increased speculation in price fluctuations on the markets. This may potentially out-crowd fundamental investors trading according to evaluations of the fundamental values of assets increasingly replacing investment with speculation. In turn, this development of increased speculation may undermine the broader social purpose of finance – capital formation and allocation of resources to promising enterprises – and contribute in driving asset prices away from their fundamental values, thus contributing to inflation of financial bubbles.

In the attention economies of the novel media landscapes, the algorithms may also fuel herding and contribute in creating positive feedback loops contributing to inflation of

bubbles of attention and engagement. As pointed out in section 4.5, platform algorithms showing users what is *trending* are often designed to register not the most shared content, but the content with most short-term *increase* in attracted attention and engagement. This may contribute to positive feedback loops between users and the platform algorithms resulting in rapidly raising the level of the attracted attention and engagement for the "hot" topic or content. This, in turn, may contribute in inflating news bubbles and political bubbles where – according to the definitions suggested in this article – the amount of attracted attention and engagement is in far excess of fundamental journalistic or political value of the informational asset. For instance, this may be the case when successful disinformation and misinformation goes viral and is thus attracting scores of attention and engagement without abiding to the cardinal journalistic virtue of truthfulness. Such inflations of attention and engagement bubbles happened extensively on social media platforms during the final months of the presidential election in USA in 2016. This example also provides an attention economic parallel of the out-crowding of fundamental traders on digital algorithmic markets mentioned above in context of finance. The digital misinformation and highly partisan, journalistic low quality, news content that flooded social media platforms during the period did to some extent even "crowd out true narratives" and well-documented and verified news stories (Benkler et al., 2018: 39). In addition, this flood of journalistic low-quality content even contributed in setting the broader agenda of legacy mass media outlets (Benkler et al., 2018: 189 – 214) taking up limited attention and presentation space thus crowding out other potential election stories and coverage.

The digital developments in and transformations of the markets described in this article may thus drive both finance and news away from their social purpose, which provides their fundamental value, as either allocating capital to enterprises or directing and allocating the attention of citizens to truthful news stories on what matters. Thus, both in finance and in the attention economy of the media, digitalization, data collection and introduction of algorithms may fuel tendencies to speculation distancing finance and news to the real economy and social reality respectively.

In addition, the access to user data providing information on user preferences and effective demand makes it possible and incentives production and distribution of news content according to exposed and revealed preferences of the media consumers. This affordance may also contribute in undermining the societal purpose of journalism according

to journalistic ideals of providing the information the citizens *need* rather than providing the content they *want* – thus satisfying their short-term preferences rather than their longer-term political interests in solving or mitigating societal problems and challenges.

6. Conclusion

This article has suggested and argued that the real existing Marketplace of Ideas is an information market embedded in a speculative attention economy created by attention merchants of the media. It was pointed out, Referring Simon (1971) and Wu (2018), that the actors operating this marketplace are bounded rational, and not the rational agents of mainstream economic theory, which implies that their informational processing powers are limited and their attention – being the bottleneck of consciences – is a limited and scare cognitive resource in need of allocation in an information rich environment. Such an attention economic reality check on the Marketplace of Ideas may curb some of the optimism often entailed by the notion. Like the market optimism ascribed to economists by Krugman (2009) may have blinded them to the inflating housing bubble and their beliefs in market efficiency from the outset ruled out the possibility of bubble formations as such, the optimism implicit in the notion of the Marketplace of Ideas, may blind scholars, commentators and political actors to malignant phenomena, market failures and the possibility of emergence of bubbles in the attention economy. If the Marketplace of Ideas were efficient, the ideas receiving most attention and gaining most influence and (short-term) support would also be the most valuable ones. Otherwise, they would been weeded out during the competition. Accordingly, the market always prices assets correctly as no one in better position to judge than the aggregate consumer demand. If this *Efficient Market of Ideas Hypothesis* is held, then evaluation and criticism of the quality of political communication and debate and of the ideas exchanged is out of the picture. In this (market) conception of news and politics, preferences are the final arbiter of value and no reason, foundation or justification beyond the preferences are possible as standard of evaluation. The market is providing consumers with what they want, and what they want – their preferences – is revealed in what they are prepared to pay for. What they are prepared to pay for is then post-facto determined as the “good” products. The consequence is that all evaluation of quality – all determinations of “good” or “bad” products and ideas – is a

matter of preference satisfaction and no other (elitist, expert or platonic philosopher king) standard applies.

The article presented George Franck's attention economic framework suggesting a structural parallel between financial markets and markets of attention created by the media as the financial sector of the attention economy. The identification of value with the amount of attracted attention – *The Efficient Market of Ideas Hypothesis* – is equivalent with Franck's notion of mental capitalism. The mental capitalism Franck diagnoses, implies that no other standard of evaluation or measurement rod of value and worth than attention attracted is viable. The consequence is a highly speculative attention economy, which in parallel to speculative financial markets may become detached from the real economy and the real world. After Franck's framework has been extended, drawing on theoretical resources from the tradition of agenda setting studies in part 3 of the article, both agents and informational items may be integrated in an attention economic framework of political communication and may be considered assets of attention investments in a market of attention. This market, in turn, is governed by power laws of distribution due to the attention interests as pointed out in part 2 of the article. Such an economy is prone to speculation, where attention is invested *because* attention is already invested without regard to the worth of the assets invested in. Thus, the article suggests, this economy is also phone to bubbles of attention.

Bubbles are inflated *Castles in the Air* with no solid substance, or at least not as much substance to justify the price. The same kind of detachment from reality and loss of substance may happen in political communication. Attention bubbles occur when individual cases, narratives or statements are blown out of proportion and vast amounts of attention is spend on what in the bigger societal picture must be considered insignificant and inconsequential – or even worse, spend on misleading information and fabricated falsehoods. In such situations, political communication and public deliberation lose grip on reality and its real-world problems, and in turn potentially impairs the polity's ability to effectively deal with and solve them. The notion of political bubbles is thus coined to describe such situations and to provide a conceptual tool for critically accessing the quality of political communication and point out malignant attention speculation.

However, Franck's framework constructed in the era of mass media and do not sufficiently take into account the role of platforms, data and algorithms. Those factors had

to be included and integrated in the theoretical framework for it to be able to describe and critically address the novel media landscape and informational environment recently emerged as result of the advent of social media platforms. Franck's attention economic theory was thus itself outdated and in need for an update and a reality check. Compared to the media landscape in the era of mass media and the heydays of agenda-setting studies, this new environment may result in more malignant bubbles of inflated falsehoods, more diffused disinformation and more *news on demand*. The tendency of reducing citizens to customers and evaluate the value or quality of news and politics according criteria of preference satisfaction and preparedness to pay (attention and engagement) – may thus be enhanced by the digital transformations of the media landscape. Franck points out and addresses this tendency critically, but he does not address how the digitalization of the media and the introduction of data driven audience analytics may contribute to it. The article has aimed to contribute in filling in the missing pieces in this blind spot of Franck. The digital transformations addressed in the article, but unaddressed by Franck, are of importance as they may contribute in sidelining news production, distribution and consumption according to the purpose of professional journalism and supplant the aim of providing the citizens with the information they *need* with the aim of providing news stories, including misinformation and disinformation, they *want* in the short term. Such news or politics on demand may satisfy the preferences of the consumers in the short term, but the risk is that they also potentially undermine democratic deliberation based on facts and aimed at effectively mitigate societal challenges in the long term.

Facing challenges such as the climate crisis, the time is not for distractions or speculative democratic politics not (also) evaluated according to a standard of evidence-informed problem solving. If democratic politics is to be more than preference satisfaction, the electorate and citizens are not reducible to costumers, who are always right. Maybe approaches to politics, which frame political communication as exchanges and investments on a market (whether a market of attention or not) are themselves contributing to the problem.

Article 3: The Need for Speed – Technological Acceleration and Inevitabilism in Recent Danish Digitalization Policy Papers

Mads Vestergaard

1. Introduction

This article explores sociotechnical imaginaries of digitalization in the context of Danish policymaking. It addresses notions of *speed* and *acceleration* and examines whether, and to what extent, imaginaries of digitalization as an inevitable accelerating development can be identified in Denmark's recent digitalization policy papers.

Sociotechnical imaginaries are defined by Jasanoff (2015: 4) as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology." Accordingly, sociotechnical imaginaries have to be collectively adopted and institutionalized to qualify and are characterized by being both descriptive of how society is perceived to be as well as normative prescribing how society ought to be, and become. This entails what society ought *not* to be, or become, thus expressing "shared fears of harms that might be incurred through invention and innovation, or of course the failure to innovate" (Jasanoff, 2015: 5). Studying sociotechnical imaginaries may shed critical light on narratives partaking in creating the future. Especially when the future is construed as inevitable. Not accepting imaginaries of technological futures as inevitable may be a first step in changing the current trajectory of technological development.

The coupling of digitalization with speed and acceleration has been identified in a corporate context by Beer (2019) as a key element in a *data imaginary* entailing an imperative of speeding up to stay competitive that creates a sense of urgency. In a Danish context, Hockenhull and Cohn (2020) – ethnographically studying articulations of sociotechnical imaginaries of digitalization at Danish tech events in 2017–2018 – have found the claim that technological, digital development is accelerating and will continue to

accelerate in the future to be reoccurring. Studying the discursive strategies at work in the sociotechnical imaginary of the Fourth Industrial Revolution and how it has recently been institutionalized in Denmark, Schølin (2019: 560) also points to inherent assumptions of accelerating technological development and a message of "urgency to act fast." This article draws from those contributions employing the notion of the *data imaginary* (Beer, 2019) and of the *Fourth Industrial Revolution* (Schølin, 2019) by identifying them in recent Danish policy papers. Thus, it contributes to this research by extending the field of study from the data analytics industry (Beer, 2019), Danish institutions (Schølin, 2019), and tech events (Hockenhull and Cohn, 2020) to official Danish *policy papers* concerning digitalization.

Analyzing recent Danish digitalization policy papers, the article also contributes to the body of research on Danish policymaking. Hjelholt and Schou (2017) have studied Denmark's digitalization policies from 1994 to 2016, dividing the period into two phases: 1994–2002 and 2002–2016. In the first phase, the main and relatively dominant political ideals were non-economic, civic values of solidarity, equality, and inclusion, access to information, and enhanced democracy. In the second phase, economic ideals of efficiency, optimization, growth, flexibility, and competitiveness became dominant (Hjelholt and Schou, 2017: 376). This article adds to this research by analyzing the most recent Danish digitalization policy-making from 2015 to 2020, showing that even if the economic ideals are dominant through the period there is still a shift in 2018, after which the civic and non-economic values (re)gain prominence.

In the second part, the article examines how narratives of inevitabilism may be considered problematic from a democratic point of view. This part draws on Hartmut Rosa's critical diagnosis of the acceleration society and his related criticism of narratives of necessity as well as the notion of discursive closure when applying them to the empirical material.

In the final part, the article discusses the empirical findings in light of technological determinism and constructivism and introduces a theory of socio-technical selectionism (Dafoe, 2015) as a nuanced and valuable contribution to the discussion. It allows a role for human agency in the development of technology and provides a mechanism for explaining how technological trends seemingly following their own logic or laws, as Moore's Law, may emerge. If the trajectory of technological development is to be influenced by civic values and ethical principles in the longer run, this approach may contribute in shedding light on

the factors that need to be addressed. In this final discussion, the article crosses the disciplinary boundaries of Science and Technology Studies (STS) it has drawn on, and takes a more critical position toward social constructivism, which to some extent is inherent in the notion of sociotechnical imaginaries. With this final part, the article enters the field of philosophy of technology by addressing and discussing the level of realism inherent in both the imaginaries of inevitable accelerating technological development and the aims of influencing it.

2. Analysis and Findings

I have conducted qualitative content analysis (Silverman, 2011) of official Danish policy papers in the period 2015–2020 concerning digitalization and technological development as empirical material.[70] The material was first approached and coded with specific attention to notions of speed and acceleration coupled with digitalization as well as implicit assumptions of technological inevitabilism. However, in order not to miss significant aspects and nuances, I did a second round of inductive coding (Mayring, 2000), thereby providing a more comprehensive and nuanced picture of the material.

2.1. Digital Transformation

The notions of "digitalization," "digital development," and "digital transformation" often signify profound changes in organizations and society due to digital technology. Even when digitalization occasionally is identified with increased usage of new technologies and data – and digitalization and data are presented as "two sides of the same coin" (Government et al., 2018: 4) – digitalization is emphasized to imply cultural and organizational change. LGD (2015: 4) claims that even if digitalization "is about available and well-structured data and smart technology, the ability to exploit the data and technology depends on the "ability to create change in organization and culture," and later (2019: 6) that "digitalization is to a far extent about technology and data, but it is about much more than that. It is about

[70] The empirical material consists of 12 policy papers concerning digitalization, including artificial intelligence, (digital) health and cybersecurity, of the period. Besides the central Danish government, the sources include Local Government Denmark (LGD, the association of Danish municipalities), the Regions (administrative bodies between the central government and the municipalities), and the Agency for Data Supply and Efficiency (an institution under the Danish Ministry of Energy, Utilities and Climate responsible for securing the quality of and providing public data to both the private and public sector).

fundamental changes in our society." Digitalization as an agent of change is a recurrent theme. Digitalization is "a key driver of change" (Government et al., 2018: 45), and "an effective and efficient tool to rethink processes and workflows in the public sector" (Government et al., 2016: 12), and "creates opportunities for developing a completely new public sector" (LGD, 2015: 7). Digitalization is also directly identified with the notion of the Fourth Industrial Revolution or "Industry 4.0." (Government, 2017: 9), which has been declared to "revolutionize everything" (Schwab 2016: 13). The most direct and radical phrasing of the profound transformative force of the digital development couples it with technological acceleration, claiming that

> "…the rate and evolutionary power of technological developments will accelerate in the years to come. Digital development will be so fast, profound and unpredictable that it will challenge and change society in ways we cannot even begin to imagine." (Government et al., 2016: 4)

2.2. Technological Acceleration

Time and speed already play significant parts in the earlier *Joint Government eGovernment Strategy 2011–2015*. It declares that digitalization has "quickly transformed everyday life for many citizens and companies," and points out that Denmark is in a good position, leading the field of public digitalization, which Denmark "must capitalize on" (Government et al., 2011: 3). In addition, the main motivation for the strategy is to "accelerate the adoption of digital solutions in the public sector" (ibid.). An expected main benefit is the opportunity for *saving time* and *accelerating* processes and case processing, thus reducing waiting time for both citizens and companies alike.

However, in the policy papers from 2015 and onwards, a new temporal theme emerges, the *increasing pace* of digital development. The pace is not only described as *fast* and *quick* (Government et al., 2018: 9; LGD, 2015: 4), but also as *faster* than the pace of earlier technological developments; "Technological progress has always influenced our society. What is new about the digital transformation is the speed of the change" (Government 2018: 16). Digital development is repeatedly claimed to be *accelerating* (Government 2018a: 5; Government et al., 2016: 4; LGD, 2015: 21, 2019: 6). It is also declared as a matter of fact that the development will continue to accelerate in the future;

"[t]he development of new technologies will accelerate" (Government. 2018a: 6); "Denmark and the rest of the world is facing an increasingly rapid digital transformation of trade, industry and society" (Government, 2018: 6); and "the rate and evolutionary power of technological developments will accelerate in the years to come" (Government et al., 2016: 4). In addition to tropes of present and future technological acceleration, digital development is also described as being *exponential*. In one instance it is declared that "[t]he use of digital technologies and solutions is increasing exponentially in society as a whole" (Government et al., 2016: 55), another that "[t]he volume of data is growing exponentially, as are the applications for it" (Government, 2018: 49).

2.3. The Digitalization Race

A reoccurring trope is the characterization of Denmark as already being in a good position, referring to digitalization ranking lists placing Denmark in front or as "the best in the world" (Government, 2018b: 3). However, the increased and accelerating pace of digital development has been declared a challenge for Denmark (Government, 2018), potentially undermining Denmark's relative position in a race of digitalization between countries and challenging its future competitiveness, growth, and prosperity. Being fast, and faster than other countries, in digitalization is identified with benefitting the most from digitalization. Digitalization creates benefits "especially for the countries that are quick to adapt" (Government, 2018: 15) and "[t]he countries that acquire digital opportunities first will gain the greatest rewards" (Government, 2018: 14). The competitiveness of both companies and nations are coupled with their level of digitalization and position relative to other countries and companies, thus identifying competitiveness with being *fast*, *up-to-date*, and *ahead* in digitalization (Government, 2018: 18, 21). Thus, if the digital transformation is too slow relative to other countries and Denmark lags behind in what is framed as a digitalization race, Denmark risks losing out on the rewards of economic growth, new jobs, and prosperity reaped by the countries digitalizing fastest. This way of framing digitalization integrates the notion in a broader logic of the *competition state* (Genschel and Seelkopf, 2015) framing digitalization as part of a race between not just companies but nation states, in which one's relative position is decisive for one's competitiveness, and hence future jobs and prosperity.

2.4. The Imperative of Speed

The strategy for meeting the challenge of technological acceleration is to accelerate the digital transformation of Denmark in the public sector, in private companies, and of the Danish citizens through education in digital competencies (Government, 2018; Government, 2018b; LGD, 2015, 2019). This reflects the stated political vision through the period, according to which Denmark is to be a "digital frontrunner" (Government, 2018: 4, 19; 2019: 7). This vision entails an *imperative* of speed. For instance, it reads; "the public sector is too slow to incorporate emerging technologies and digital welfare solutions" (Government, 2018b: 8), and that "the goal [of nationwide high speed Internet] is realized too slow!" (LGD, 2015: 11). The imperative of speed is likewise reflected in the metaphors adopted: Digitalization is "breaking the sound barrier in public schools" (LGD, 2015: 3), and there is "no time for resting on the laurels, the world and the digital development moves fast – and we need to stay ahead" (LGD, 2015: 4). A main question pertaining to digitalization of health care is how to create "sweeping, important changes on a sure footing and as quickly as possible?" (Government et al., 2018: 16).

2.5. Keeping Up

A main challenge presented is *out-of-date* legislation hindering further digitalization. In public digitalization, a task is, for instance, to "secure that laws and rules do not constitute a barrier for digitalization" (LGD, 2015: 11). To realize the vision of Denmark as digital frontrunner the digital transformation of Danish companies also needs to be accelerated (Government, 2018). A means to this end is creating better framework conditions that facilitate fast digitalization and digital innovation by adopting regulations that are *up-to-date* and *keeps up* with the development. For instance, it reads "[f]or us to exploit the opportunities [in sharing economy] it demands that our legislation is up-to-date and construed in a way that the companies can be in front with digitalization and automatization" (Government, 2017: 9). The goal is to "to keep Denmark at the cutting edge of regulation in the digital field" (Government, 2018: 52) and this includes continuously evaluating whether the existing regulation is "outdated and should be modified in regard to digital development" (Ibid.). *Agility* is the regulatory ideal. Danish regulation is to be agile and "more agile than it is in other countries" (Government, 2018: 7). Being up to date is identified with being relatively more agile in market regulation than other countries, and the

aforementioned ongoing evaluation includes “a digital check of our neighboring countries in relevant legislative areas” (Government, 2018: 52). This reinforces the framing of Denmark as partaking in a digitalization race, including competition on agile regulation vis-à-vis other countries. The goal is to adopt the most agile regulation in order to “attract and retain innovative companies that use new digital technologies and business models” (Government, 2018: 52). An initiative is to allow for commercial experiments with new technologies and business models, including data-driven ones, and innovations in the sharing economy. Allowing for commercial experiments is motivated by the fast pace of the development rapidly out-dating laws and regulation: “the digital development is moving too fast for the rules to keep up with the changes. This must be accommodated by providing better opportunities for companies to test new business models” (Government, 2018: 48). It is mentioned, however, that also when testing, “the overall purpose of the law and protective intention are maintained” (Government, 2018: 52).

2.6. Data as Speed

Data play a significant role in the material. Besides describing data as a valuable “resource” (Government, 2018: 42; Government et al., 2016: 9, 38), it is presented as a necessary accelerator for increasing speed, getting ahead, and providing competitive advantages. For businesses in the retail trade, for instance, a benefit is to “quickly identify new trends in the market and adapt products and logistics more quickly” (Government, 2018: 43). Staying ahead in the digitalization race and competition depends on access to and usage of data. For instance, if “Danish businesses are to exploit the potential in artificial intelligence and strengthen Denmark’s position as a digital frontrunner, it is vital that they have access to data” (Government, 2019: 34); “In order to keep up with the fast development [in personalized medicine] the usage of data will be increased” (Government and The Regions, 2016: 8). In the context of public digitalization, increased data usage and sharing are presented as means for speeding up processes, providing the benefit of *saving time*. Time saved equals higher quality of the services delivered to citizens and companies, as “[t]ime is one of the important service parameters in a digital society” (Government et al., 2016: 25). Besides creating a *coherent* and *efficient* public sector, speeding up processes is a main motivation for the aim of increasing sharing of data between public authorities. Individuals and businesses should, as a benefit from data sharing, not have to “spend time” on

submitting the same information more than once (Government et al., 2016: 25). For public employees, access to data is a means to reduce case-processing time, paving the way for rapid, and in the longer run automatized and immediate, decisions and notifications. This saves time for public employees, who are then able to allocate it to other tasks (efficiency gains), and for the citizen or company awaiting the reply. This perceived connection between increased usage of data and the imperative of speed and acceleration is especially prominent in the mission statement of the Agency for Data Supply and Efficiency (2016: 2):

> "Society is changing more and more rapidly, whilst the demands on the public sector are increasing. This requires us to make quick decisions about how to develop and change society. When knowledge about society is digitised we are provided with faster and more precise insight into the development of society. Digitisation thus makes it possible to develop and adjust society at a speed never previous seen."

2.7. 2015–2018: Adaptation to the Inevitable

The policy papers in the first part of the 2015 to mid-2018 period have a tendency of framing technological and digital development as inevitable. Technological, digital development (often used in singular) is presented as something happening *to* actors and polities – happening *to* Denmark as well as the rest of the world – and not done *by* actors such as politicians, citizens, or companies. The accelerating digital development is presented as a fundamental and unalterable condition, to which one has to *adapt*. For instance, "Denmark must adapt to the fast digital transformation in society, like the rest of the world, and more speedily address the new opportunities and challenges" (Government, 2018b: 3), "[t]he need to adapt to change is nothing new. […] What is new about the digital transformation is the speed of the change" (Government, 2018: 16), and "[t]he rapid digital development places great demands on our ability to adapt" (Government, 2017: 16). However, the most direct phrasing of the assumption of inevitability reads:

> "It is not whether or not the changes will happen, but how, as a society, we are prepared to adapt and to exploit the opportunities offered by the new technologies" (Government et al., 2016: 4).

2.8. 2018–2020: Staying Trustworthy

However, the full picture is more nuanced. During the period, a change happened and from mid-2018 the relative dominance of the economic ideals and the imperative of speed decreased (while still being prominent) relatively vis-à-vis civic ideals such as rule of law, participation, and equality. While being present in the whole period, notions of *trust* and *confidence* find significantly more prominent roles. Also notable is the introduction of the notion of *data ethics*. During the last phase, the relative dominance of the imperative of acceleration is decreased vis-à- vis the imperatives of digitalizing and using data *ethically* and *responsibly* both in companies and in public authorities. At the level of concrete initiatives, a council of data ethics was founded and the level of public trust in authorities' use of data is to be measured and a specific target of an increased level of trust is set: "[b]y 2024, 90 pct. of citizens should trust public sector data processing" (Government, 2019: 9). The right to privacy is also increasingly emphasized. Public authorities are to increase efforts to protect personal data and data usage must be *transparent* for the citizens. It is directly pointed out that public authorities must abide by the law and "at all times comply with the regulation on how and when data may be collected and used" (Government, 2019: 14). The latter is an interesting detail as abiding by the law for public authorities arguably should be expected as a matter of course with no need of emphasis. The timing of this shift suggests that a motivation could be the erupting public debate on data protection and misuse in the spring of 2018. In the spring of 2018, the so-called Facebook–Cambridge Analytica scandal drew international attention, and in Denmark a heated debate erupted in connection with the implementation of the European Union's General Data Protection Regulation. There is a direct reference to the latter: "The debate on the Data Protection Act in the spring 2018 has shown that not knowing what information and data authorities share and for which purpose can create insecurity. This is a very legitimate concern that must be taken seriously. Public use of data must always respect due process and individual privacy" (Government, 2019: 14).

2.9. 2018–2020: Influencing the Development

In the last phase, a novel imperative of *influencing* the development emerges and supplants the earlier imperative of *adaptation* to the development:

> "The changes will happen quickly, but we must never have technology only in sight. It is not about what we can, but about what we want. We must use digitalization to create the society we want" (LGD, 2019: 6).

The shift also reflects in the vision of Denmark as a digital frontrunner by adding an ethical dimension and emphasizing responsibility, data protection, and the right to privacy as well as civic values. In *the Strategy for Artificial Intelligence* (Government, 2019: 8), it reads that "Europe and Denmark should not copy the US or China. Both countries are investing heavily in artificial intelligence, but with little regard for responsibility, ethical principles and privacy." The revised vision reads, "Denmark is to be a front-runner in responsible development and use of artificial intelligence," the use of which is to be centered on "*our shared values* of freedom, liberty, security and equality" (Government, 2019: 7, emphasis in original). Instead of adapting to the development and being first in order to gain competitive advantages, the aim has thus shifted to influencing the development with civic values and ethical principles – securing "respect for individuals and their rights, and for democracy" (Government, 2019: 8) – by being a digital frontrunner. However, the economic ideals, especially the competitiveness of Denmark and Danish companies, are still prominent. Being a frontrunner in developing artificial intelligence ethically "will give businesses a competitive edge" (Government, 2019: 26). Even when notions of trust, data protection, ethical data usage, and responsibility play significantly more prominent roles after mid-2018, there is still a tendency to motivate their importance partly in terms of competitiveness and as being instrumental to successfully continuing the digital transformation at high speed.

The analysis has identified two imaginaries of accelerating development: a corporate data imaginary and the imaginary of the Fourth Industrial Revolution, including the notion of exponential technological development.

2.10. The Data Imaginary

The nexus identified in the empirical material of accelerating technological development, the imperative of speeding up to stay competitive, and the identification of data as means to accelerate is equal to what Beer (2018) has named *the data imaginary* promoted by private companies in the data analytics industry. According to the scholar, the visions and promises inherent in the data imagination are performative in diffusing data-led processes,

increasing *datafication* – the translation of the social world into quantified data (van Dijck, 2014) – and thus advancing the *data frontier* into uncharted territories of the social world and organizations. Key in the imaginary is the emphasis on "a need for speed" and acceleration (Beer, 2018: 15). Increased data usage is presented as a tool to accelerate processes and decision-making in organizations and companies, which are promised to become more agile and competitive as a result. A dominant trope is that in order, "to thrive or even survive, the imperative is to be fast and to utilise data […] To win is to be fast, to lose is to be slow" (Beer, 2018: 2). The imperative of speed is embedded in narratives of an already accelerating world, where social reality, organizational processes, technological development, and competitors in the marketplace are speeding up, and visions of an even faster future of continued acceleration. Increased usage of data, and hence the products and services the companies offer, is presented as tools necessary for accelerating up to the pace of an accelerating world, thus staying competitive. Data is promised to reduce time spent and counter slowness, which is identified with waste connected to inefficiency and loss of competitiveness. Thus, increased data usage equals speed, speed equals agility, agility equals competitiveness, and competitiveness equals future prosperity in an already accelerating world. This data imaginary is pervasively running through the policy papers.

2.11. The Fourth Industrial Revolution

The idea of the Fourth Industrial Revolution, referred directly to in this article's empirical material and critically addressed by Schiølin (2019), is that fusions of different cutting-edge and maturing technologies – for instance, big data, artificial intelligence, robotics, Internet of Things, nano- and biotechnology – will be profoundly and unprecedentedly disruptive and cause drastic, indeed revolutionary, societal changes. According to founder and executive chairman of the World Economic Forum, Klaus Schwab, "technology and digitization will revolutionize everything" (2016: 13), and the revolution will entail, "social and cultural changes of such phenomenal properties that they are almost impossible to envisage" (2016: 31), and "affect us all in ways we cannot even begin to imagine" (2015). A similar claim was found in the empirical material stating that digital development "will be so fast, profound and unpredictable that it will challenge and change society in ways we cannot even begin to imagine." (Government et al., 2016: 4). Central in the notion is speed and the claim that technological development and innovation is now progressing "at a much faster pace than

ever before" (Schwab, 2016: 37). In addition, technological development will continue to accelerate in the future, as the fourth revolution is "evolving at an exponential rather than a linear pace" (Schwab, 2016: 8). When something is developing or growing at an exponential rate, the rate of growth is proportional to the total quantity of what is growing. A cardinal example of this is *Moore's Law*, which predicts that the processing power of microchips doubles every 18 months, resulting in explosive accelerating growth in computational powers – the larger the quantity growing, the faster and more explosive the growth. If technology is developing exponentially, it entails that the rate of change accelerates more and more drastically. This radical transformation is presented as inevitable by Schwab, claiming that "major technological innovations are on the brink of fueling momentous change throughout the world – inevitably so" (2016: 14). According to Schwab (2016: 68), this drastic technological acceleration, and its disruptive force, challenges governments "to an unprecedented degree," and demands the ability "to operate with speed and agility" (2016: 52). Speeding up and becoming more agile are means for adapting to the development, which is declared necessary not just for prospering, but for survival in the increasingly fast future: "Ultimately, it is the ability of governments to adapt that will determine their survival" (2016: 67).

3. Criticism and Discussion

The article now turns to criticisms of accelerationism and of the inevitabilism inherent in the accelerationist imaginaries. In the following final part, it discusses technological determinism in light of a nuanced sociotechnical selectionist theory and applies this theory to the empirical material and the turn found in mid-2018.

3.1. Democracy's Speed Limits

According to Rosa (2010, 2013), the ongoing acceleration of societal processes, which he argues characterizes both today's high-speed societies, has reached a point where it poses a threat to (deliberative) democracy. Rosa argues, from an implicit position of consensus seeking deliberative democracy, that inclusive democratic procedure and deliberation has speed limits: Democracy takes time. It "simply takes time to organize a public, to identify the relevant social groups, to formulate and weigh arguments, and to reach a consensus and

cast deliberate decisions. And it also takes time to implement those decisions, particularly so in non-totalitarian societies under the rule of law" (Rosa: 2010: 71). However, due to the acceleration, ever less time is available for time-consuming democratic procedures and deliberation. The technical-economic acceleration creates a *desynchronization* between democratic policymaking and the economic and technological developments constantly gaining in speed, resulting in democratic policymaking lagging behind.

3.2 Narratives of No Alternative

Besides the problem of time-consuming processes vis-à-vis an accelerating world demanding increasingly rapid reactions and decisions, Rosa critically addresses political narratives advocating for *necessary* adaptations to the accelerating development and global competition. Narratives warning of risks of lagging behind in the technological race and competition are according to Rosa, deployed as part of a political strategy for justifying deregulatory political reforms and policymaking as necessary. Rosa (2013: 81–82) diagnoses that currently "it is almost the sole goal of political shaping to keep or make societies competitive, to sustain their accelerating capacities. Hence, reforms are justified as 'necessary adaptions' to structural requirements. Political change is advocated by the threat that otherwise – *if we do not lower taxes or allow genetic engineering* – we will fall back and then we will be left behind, thrown back into a state of utter poverty and scarcity." Such narratives of necessity and adaptation are democratic problematic, according to Rosa, because they imply abandoning the ideal of collective political self-determination, which Rosa identifies with democratic societies where "politics regulates the frames and broad directions within which science, technology and the economy operate" (Rosa, 2010: 71). In contrast, narratives of necessity entail policy-making as defensively reacting and adapting to the development rather than acting *on* and aiming at *influencing* it according to ideals for the good, desirable society.

3.3. The Perils of Inevitabilism

The political necessity of adapting to the accelerating development inherent in the narratives described by Rosa is motivated by the threat of lagging behind in the global race and competition and thus suffering the negative consequences of lost investments, jobs, and future prosperity. Such narratives converge with what Schiølin (2019: 551) denotes as

discourses of *inevitability*, "laying out plans that must be followed to save the future and make it desirable," which contribute to what he names *future essentialism*. Future essentialism is defined by Schiølin (2019: 545) as "discourses, narratives or visions that … produce and promote an imaginary of a fixed and scripted, indeed inevitable, future, and that can be desirable if harnessed in an appropriate and timely fashion, but is likewise dangerous if humanity fails to grasp its dynamics." Thus, both Rosa's implicit and Schiølin's explicit notion of inevitability, implying the inability of influencing the development and changing the projected future, entails a hypothetical imperative of speedy adaptation to the accelerating development: *Speed up and adapt, or suffer the undesirable consequences…*

Like Rosa, Schiølin (2019) argues that, from a democratic point of view, future essentialism is problematic because it narrows down future opportunities, thus excluding alternative courses of action and providing an authoritative normative framework for how to live in order to remain fit for the future (inevitable) to come. A criticism along the same lines has been raised by Zuboff (2019), arguing that inevitabilism "carries a weaponized virus of moral nihilism programmed to target human agency and delete resistance and creativity" and "render us helpless and passive in the face of implacable forces that are and must always be indifferent to the merely human" (2019: 225). On a less poetic and more empirical note, Markham (2020) has studied the connection between resignation and inevitabilism by empirically inquiring into participant's views on digital technologies and the future. Technological inevitability was a common assumption, and the majority of participants did not consider it possible for individuals to change the course of the future. If alternatives to the current situation and its future trajectory were imagined, there was a tendency to dismiss them as unrealistic, expressing assumptions like "[t]here is not much we can do about it" (Markham 2020: 10). The default position according to Markham (2020: 12) was "helpless accommodation to the technology." Markham uses the concept of *discursive closure* to describe the effect of implicit assumptions of inevitabilism as discouraging change by discursively closing down alternatives, naturalizing and neutralizing what is considered problematic as "just the way things are" (2020: 11). This suggests that telling each other and ourselves that we have no control limits thinking in possible alternatives, fuels resignation, and undermines resistance as being futile anyway, potentially turning assumptions of inevitabilism into self-fulfilling prophecies: If the technological development is naturalized as necessary, it is also neutralized politically. If the future is inevitable, resistance is futile.

This line of criticism may be applied to the first phase of the Danish policy papers from 2015 to mid-2018, where narratives of necessary adaptations to the inevitable development are prominent. But the introduction of the aim of *influencing* the development according to civic values of participation, freedom, and equality in the second phase draws another picture, suggesting the ideal, advocated by Rosa and implied by Schiølin (2019), of collective democratic self-determination may have (re)entered the stage. This, however, raises the question of whether the goal of influencing the development is realistic or rather to be considered an unrealistic figment of the imagination. For technological determinists, the latter is the case.

3.4. Technological Determinism

Inevitabilism and the futility of goals of influencing the development are entailed and underpinned by positions of hard technological determinism according to which technological development follows unchangeable *laws* of history. This sort of determinism is alluded to by Zuboff (2019: 223) when she addresses inevitabilism as part of the ideology of surveillance capitalism, mentioning references to Moore's Law and "predictions of exponential growth" in information technologies as rhetorical tools signaling an underlining "iron law of necessity." A prominent example of this is the notion of exponential technological development popularized by Ray Kurzweil and institutionalized in Singularity University (Boenig-Liptsin and Hurlbut, 2016) and his so-called *Law of Accelerating Returns*. According to this approach, inevitabilism is neither reducible to ideological tools as Zuboff holds nor to an element in sociotechnical imaginaries, but the necessary implication of a realist theory of a universal law of evolution, history, and technological development determining the future.

According to Kurzweil (2006: 35–36), "[t]he ongoing acceleration of technology is the implication and *inevitable* result of […] the law of accelerating returns, which describes the acceleration of the pace of and the exponential growth of the products of an evolutionary process" (my emphasis). Technological development is "an outgrowth of – and a continuation of – biological evolution" (2004: 383) and both are results of the general and universal law of accelerating returns, which is supposed to describe the whole history of evolution since the beginning of life, the technological development as continuation of evolution in human hands, and predicting the future of this development. When

accelerating technological development is understood as resulting from of a universal law of evolution, as unbreakable and unchangeable as a law of nature, this leaves no room for human agency, or polities, to influence the development and change the projected future. This position elevates the development, and history as such, above the actions and agency of humans and history will necessarily follow its trajectory no matter what anybody does or says: It is futile to criticize and try to change the necessary results of unchangeable laws.

The approach of Kurzweil and likeminded stands in direct opposition to the constructivist approach of STS, in which the notion of sociotechnical imaginaries is embedded. STS is highly critical toward technological determinism in general and according to Jasanoff (2015: 3) technology does not determine the social reality and our values "unidirectionally." As implied in the concept of *co-production*, featured in the tradition of STS, the relation is symmetrical: Technology both embeds the social and is embedded in the social world of practices, institutions, norms, values, etc. This entails that technological development is contingent on human decisions and could be otherwise if the human agents designing, investing in, and using it decided so. Thus, according to the framework of STS, technology is, at least to some extent, socially constructed and its development depends on values and visions of how society, life, and the future ought, and ought not, to be. Thus, technological development is not only possible to influence, but is already always influenced by values, social relations, human goals, and imaginaries of the future. Thus, according to this approach, Denmark's political goal of influencing the development may potentially successfully be realized.

3.5. Sociotechnical Selectionism

Dafoe (2015) has contributed to the discussion by nuancing the notion of technological determinism. He considers the question of technological determinism as one of degrees, suggesting a scale between, on one end, hard technological determinism, ascribing extensive autonomy, an internal logic of development, and strong transformative forces to technology. On the other end is what he denotes as radical social constructivism, ascribing extensive agency and freedom of choice to human actors and allows for socially controlling technological development. None of the extremes are conducive for political action according to Dafoe. Hard technological determinism "discourages political action by claiming that technological change is inevitable," but radical social constructivism

"handicaps political action by ignoring the powerful competitive forces shaping history" (2015: 1069).

Besides this practically motivated criticism of radical social constructivism as impairing political action, the predictive success of Moore's Law poses arguably a theoretical philosophical problem for constructivists of how to explain this success. Echoing, in the context of philosophy of technology, Putnam's (1975: 73) classical argument for realism, how are radical social constructivists, assuming far reaching human agency in developing technologies, able to explain the success of Moore's Law as anything else than a "miracle?"

Dafoe also points out that whether a theory of technology should be accepted should not be decided on the practical ground of how much agency it allows to humans but according to its explanatory power. Dafoe (2015) suggests a socio-technical selectionist theory of military-economic competition, which allows for human agency in different degrees and at the same time providing a *mechanism* able to explain why macro-technological trends – with Moore's Law as a cardinal example – exhibit a law-like pattern or an internal logic without being elevated to unchangeable laws of history, or nature. Dafoe applies an evolutionary framework of selective pressures and adaptation to technological development, explaining technological trends as emerging from military-economic competition. In situations of severe military-economic competition, and where certain technologies and developments provide competitive advantages, the only choice is to "adapt or be dominated" (Dafoe 2015: 1066). Those not adapting perish – either due to military destruction on the battlefield or by being outcompeted in the marketplace. The more fit remaining victors drive the technological development onward, and has thus been evolutionarily selected. According to this approach, technological trends are results of competitive environments selecting over time for a trait, such as processor speed or explosive power. The harder the competition and the selection pressures for adaptation are, the more deterministic and predictable is the technological trend resulting from the competition. However, there is a difference between military and economic competition. Military competition is more dependent on nature and natural laws as the unbendable laws of physics and not so much on human laws and rules (even with conventions, rules of engagement, etc.). Economic competition, on the other hand, is governed by market regulations, laws, and norms created and changeable by humans as well as by the changing desires and preferences of consumers. This makes the outcome of military competition

more deterministic and predictable than the outcome of economic competition. It also opens for human agency in influencing a technological trajectory seemingly deterministic and predictable. If technological development showing law-like patterns is not considered necessary results of what amounts to an iron law of nature (as for Kurzweil and likeminded), but instead as the emergent result of economic-military competition (suggested by Dafoe), then the rules of the competitive game – *the fitness landscape* – may be changed. When "the rules governing economic competition are socially controlled, then so can be the processes of economic adaptation taking place beneath them" (Dafoe, 2015: 1066– 1067). The possibility of changing the rules, laws, and norms governing economic competition opens the possibility for influencing technological development, which even when following law-like patterns is thus not inevitable in the strong sense. This entails that resistance is not necessarily futile.

3.6. The 2018 Turn Revisited

The theory of sociotechnical selectionism offers a potential explanation for the shift found in Danish policy papers around mid-2018. After mid-2018, the empirical material showed increased prominence of non-economic civic values vis-à-vis economic values such as efficiency and growth, and significantly more emphasis on notions of privacy protection, transparency, and data ethics. Those values were at the same time framed economically as means of providing competitive advantages. According to sociotechnical selectionism, this shift may be explained as adaptation to a changed fitness landscape. The rules governing competition and the preferences of consumers are the changeable factors in the fitness landscape of economic competition. The shift occurred in the wake of the implementation of GDPR, legally requiring extended privacy protection and transparency – thus changing the rules governing competition. It also happened in the wake of the Facebook–Cambridge Analytica scandal and public debates potentially influencing the preferences of consumers toward privacy protection and responsible usage of data. Successfully competing economically in such an environment – as a business or a (competition) state – depends on designing and integrating socio-technical traits according to those requirements and values. Thus, they become parameters of economic competition. If a technological trait, privacy protection for instance, is turned into a parameter of competition, and is over time selected for, then the "evolution of sociotechnical systems will exhibit a trend in that trait" (Dafoe,

2015: 1063). Thus, if data protection or civic values become parameters of economic competition that are necessary to integrate in order to profit, then according to the selectionist theory over time this would steer technological development and sociotechnical evolution in the direction of traits that comply with those principles and values.

However, the theory also suggests what potentially undermines the aim of Denmark and the EU of influencing the development in a data ethical and democratic direction. First, the fitness landscape is globalized and not restricted to the European Union, its consumers, and market regulation. If consumers of the global fitness landscape do not select for privacy protection or civic traits and the regulation legally requiring them is not globalized, Denmark and the EU over time risk becoming unfit in the global fitness landscape and being economically dominated by other global actors like the USA or China.[71] Second, if global competition is increasingly militarized, it follows from the selectionist theory that the ability to influence the development vis-à-vis an internal logic or a law-like development decreases. In a situation of severe military competition, to develop the most powerful and effective weapons and defense systems fastest is potentially a matter of survival. Slowing down or hindering development of the most effective technologies of war with requirements of, for instance, privacy protection or transparency could in case of an intense arms race or military conflict be self-destructive and thus inconsequential for technological development at the macro level in the long run.[72]

4. Conclusion

This article has explored whether – and to what extent – notions of inevitably accelerating technological development can be identified in official Danish digitalization policy papers from 2015 to 2020. The analysis traced tropes and assumptions holding both present and future technological acceleration as matters of fact. The presumed acceleration is framed as opportunities for fast societal transformations yielding benefits for companies, citizens,

[71] Thus, according to the selectionist theory, the hypothetical imperative at play in inevitabilism – *adapt, speed up or suffer the consequences* … – is not imaginary but a real choice facing businesses and polities in a globalized world of economic competition.

[72] In the *specific* historical circumstances of severe *military* competition, in which the choice is narrowed down to *adapt fastest* or *perish*, the selectionist theory overlaps with Paul Virilio's claim that "to be quick means to stay alive" (2006: 70) entailing at the macro level that "history progresses at the speed of its weapons systems" (2006: 90).

public authorities, and Denmark as a whole. The accelerating development is also presented as challenging Denmark's ability to keep up with the pace of technological development and global competition. This challenge is consistently coupled with the challenge of staying competitive as a nation vis-à-vis other nations, embedding the temporally construed notion of digitalization as a race at accelerating pace in a logic of the *competition state* (Genschel and Seelkopf, 2015), according to which being in front is necessary in order to stay competitive as nation. This nexus of digitalization as a race, assumptions of technological acceleration, and the coupling with future competitiveness is the main motivation for what I have called an *imperative of speed* advocating accelerating the digitalization of Denmark. In addition, increased data usage – increased *datafication* – is motivated as a means to speed up and save time. This rhetorical nexus and the message it tells is equivalent to the *data imaginary* promoted by the data analytics industry identified by Beer (2018). In addition, the imaginary of the Fourth Industrial Revolution was identified as being both directly referred to and reflected in tropes of unprecedented, unpredictable, and unimaginable societal changes resulting from exponential technological growth. Assumptions of the inevitability of (accelerating) technological development were also identified, often coupled with notions of necessary adaptation. The empirical analysis thus found support the hypothesis that imaginaries of inevitable accelerating technological, and digital, development have been integrated in official Danish policy papers concerning digitalization from 2015 to 2020. However, after mid-2018, the prominence of tropes of inevitabilism decreases and a novel aim of *influencing* the development ethically and according to civic values by leading the race, not adapting to it, is introduced.

The notion of sociotechnical imaginaries is demanding, and the question is whether the imaginaries identified are sufficiently institutionalized, collectively held by sufficient political actors, and thus stabilized sufficiently in Danish politics and policymaking to qualify. The last phase of the 2018–2020 period, and the increased focus on non-economic values and increased prominence of reservations and risks pertaining to digitalization, suggests that the accelerationism and inevitabilism could be only short-lived phenomena, potentially not qualifying as sociotechnical imaginaries in Jasanoff's (2015) sense. To decide on this, however, demands analyzing future digitalization policy papers and examining whether and to what degree those imaginaries are still to be traced and what discursive role they play. This is a task for future research.

The article related the empirical findings to Hartmut Rosa's normative critique of the imperative of speed as potentially undermining democracy due to desynchronization of the accelerating techno-economic domain and the political system. In addition, inevitabilism was criticized for having an effect of resignation and of closing down discourses and imaginaries of alternative futures.

Finally, taking a step back from the constructivist approach of STS, the article raised the question of whether the goal of influencing the development may be considered achievable in light of technological determinism and the approach of STS. A theory of sociotechnical selectionism was introduced that would both allow for human agency to influence the development by changing the rules, and at the same time provide a mechanism for explaining why and how technological development exhibits trends that follow law-like and thus predictable patterns. This approach opens the door for political action potentially changing the development, while not disregarding the competitive forces at work, and could pave the way for resistance and criticism that is not only not futile, but also informed about what could and should be addressed if the development is to be influenced and changed.

Conclusion

The objective of this PhD thesis has been to examine specific threats posed to democracy by digitalization. The potential threats investigated concern two connected, but different, domains. On the one hand, the domain of *digital politics*, and the novel conditions for communication and interaction between political actors and citizens, as well as commercial actors, different media actors and, importantly, digital disinformation and misinformation operators. On the other, the domain of *policy-making pertaining to digitalization* and potential democratically problematic assumptions and narratives inherent in official policy papers. In the domain of digital politics, the thesis has explored the threat to democracy posed by new technological affordances and economic incentives for spreading digital misinformation (article 1 and 2). In the domain of digital *policy-making*, the thesis has explored the case of Denmark and empirically investigated official Danish policy papers concerning digitalization 2015 – 2020, and discussed the potential threat to democracy posed by narratives of necessity, and by assumptions of the inevitability of an accelerating digital development inherent in the analyzed policy papers (article 3).

Article 1 has addressed the potential threat to democracy posed by high levels of circulated and consumed digital misinformation and disinformation as well as disregard for facts and evidence, both of which – according to the article – characterize post-factual conditions. The notion of post-factual democracy was defined in terms of (*replacement* and *disregard*) inspired by attention economics. In turn, the phenomenon of post-factuality was connected to the attention economy of the media and the economic incentives it creates, as well as to the novel technological affordances of new media as social media platforms for diffusing and spreading disinformation and misinformation. The article then addresses a connection between the novel media environment and the recent rise of political populism. It points out that the divisive populist narratives employing a Manichaean distinction between the (good) *us* versus the (malignant) *other* are well-suited to induce anger and fear, which are determined as *activity mobilizing emotions*. This, in turn, makes the divisive narratives, inducing anger and fear, well-suited for high levels of social transmission, for *going viral*, and thus for attracting vast amounts of attention – also when factually misleading. In the context of the relation between populism and misinformation, it is noted

that populism and its divisiveness, may contribute to increased receptivity to misinformation and post-factual disregard for facts and scientific evidence. When the anti-elitism inherent in populism entails branding experts and professional journalists of established media as part of the *elite* standing over and against the *people* – as part of the malignant *others* – it may create distrust to experts and journalists that potentially undermines their credibility and may facilitate disregard for the facts and evidence they provide. It is suggested that populist communication employing divisive Manichaean narratives may be considered as an instance of political *phishing for phools* (Akerlof and Shiller, 2015) exploiting psychological mechanisms and emotions in selling people NO-ONE-COULD-POSSIBLE-WANTs such as *bad government*, with the latter being exemplified by the (bad) handling and mitigation of the Covid-19 crisis by countries with populist leaders. The article continues to address how misinformation may undermine democracy according to specific conceptions of democracy. Noting that a misinformed electorate poses a more profound challenge to democracy than an uninformed one, the article highlights how misinformation and disinformation may undermine democratic legitimacy according to specific a notion of deliberative democracy. A minimalist definition of democracy, identifying it with competitive elections of the political leaders, is then critically addressed and an implicit *epistemic requirement* is identified. This requirement is that the voters have to believe in the fairness of the election procedures and truthfulness of the reported results of the election. Thus, at least some forms of misinformation – those pertaining to the election procedures themselves and their results – may be considered as challenging and potentially undermining democratic rule (also) according to a minimalist theory of democracy when its implicit epistemic requirement is taken into account. Finally, the article suggests and describes a notion and ideal of factual democracy, which is characterized by being political equality, opposed to technocracy or epistocracy, but which also relies heavily on expertise and expert policy advice, opposed to post-factual disregard for scientific evidence and expertise. In factual democracy, a division of labor between experts and expert advisers on the one hand and the citizens and their political representatives on the other, is to be in place to ensure that the citizens have the political authority and on the basis of their values deciding on the aims of society, and the experts have the epistemic authority and are to provide the knowledge of the means for achieving the aims set by the citizens.

Article 2 employed an attention economic approach for exploring the informational environment of political communication as well as implications of the digitalization of the media landscape for this environment and the conditions of political communication and debate, including novel affordances and enhanced incentives for diffusion of misinformation. The article suggested that bubbles of attention may emerge in the attention economy of political communication to the effect that vast amounts of limited attention is allocated to content of low quality, such as digital misinformation, not sufficiently representative of reality nor contributing in shedding light on real-world problems that matter in societal perspective. Such attention bubbles may work as distractions derailing political debate and communication. In turn, such distracting attention bubbles may impair the ability to effectively collectively address and mitigate the problems and challenges societies and the world are facing. The first part of the article presented the attention economic framework of Georg Franck according to which attention works as both currency and capital and the media play the role the financial sector plays in the money economy – providing credits and investing in promising assets. Even if Franck's framework and his structural analogy between finance and communication is considered as pioneering in the emerging field of attention economics (Krieken, 2019, 2020; Citton 2017), the article pointed out that it has a blind spot pertaining to the implications of the digitalization of the informational environment and the attention economy of political communication. It was argued that it does not sufficiently take into account the implications of data extraction and analyses, the emergence of social media platforms and the introduction of algorithms in the media landscape. However, it was also pointed out that this missing component did not undermine Franck's fundamental claim that media content is produced and distributed according to the demand of the consumers, according to their preparedness to pay attention. Rather, when the novel affordances of the digitalized informational environment are integrated and Franck's blind spot has thus been filled, it underpins and strengthens his diagnosis. The second main part of the article addressed the tradition of agenda-setting studies pointing to shared assumptions with attention economic approaches and offers theoretical resources for extending Franck's framework to include not only attention seeking actors, but also the informational content produced and circulated by the actors, as assets of investment, and speculation, in the attention economy of political communication. The third main part of the article surveyed changes of the political attention economy

pertaining to markets, assets and currency from the era of mass media to the current digital era. The fourth main part of the article suggested and defined notions of bubbles of attention in the domain of news and politics – news bubbles and political bubbles – on the basis of the foregoing description and analysis of the digitally transformed attention economy of political communication. The attention bubbles were defined by translating notions from financial economics applied to financial markets to the attention economy, and thus added a new element to Franck's structural analogy. This translation included an analysis of the notion of fundamental value of assets elevating it to the generic level as a reflection of the acclaimed purpose of the institutional setting and context of the asset in society as a whole. Surveying changes in both financial markets and markets of attention resulting from the introduction of data and algorithms in both domains, it was suggested that those changes may increase speculation and potentially also the inflation of bubbles. The implication of this – it was pointed out – is that both finance, journalism and politics may detach from their societal purpose to the effect that news do not enlighten about real-world problems and politics do not effectively solve or mitigate problems and challenges society and the world is facing.

Article 3 addressed digital threats to democracy in another, but related, domain than the two previous articles: policy-making and policy papers concerning digitalization. It explored potential democratically problematic assumptions and narratives inherent in policy papers concerning digitalization in specific the context of Denmark. Specifically, it employs qualitative content analysis for examining empirically whether and to what extent assumptions, imaginaries and narratives about the digital development as being inevitable and accelerating are to be identified in official Danish policy papers concerning digitalization in the period 2015 – 2020. The empirical investigation found that such inevitabilist and accelerationist assumptions and narratives indeed were to be identified in the material, and thus also the core elements of a data imaginary and an imaginary about the fourth industrial revolution. However, it also found that this tendency was most prominent in one part of the material, the part that was published before mid-2018, where a shift, a turn, happens in the policy papers. The earlier inevitabilism, prescribing fast adaption to the development, is to a large extent supplanted with a novel aim of influencing the development after mid-2018. The imperatives of speed and acceleration especially characterizing the pre-2018 period are still present in the post-mid-2018 period, but they are motivated by the aim of influencing

the development *by* being fast and ahead of the digitalization race. Before mid-2018, those imperatives of speed were to a large degree motivated by the competitive advantages expected to result from fast adaptation to the development. Imperatives of accelerating the digital transformation of Denmark, motivated by concerns for future competitiveness, were still found to be present in the post-2018-period. But instead of securing future competitiveness by speedy *adaptation* to the development, future competitiveness is to be secured by *influencing* the development by being a frontrunner. In the post-2018 period, the development is to be influenced by Denmark according to what is presented as "Danish" values such as democracy, equality, protection of privacy and ethical and responsible use of data. Another shift was identified in the material around mid-2018 pertaining to the main ideal and values promoted. Before the turn of 2018, economic values such as efficiency, competitiveness and growth were relatively dominant, whereas after the turn non-economic values such as participation, justice, due process, trust, privacy protection and transparency gained significantly more prominence. The article then turned to criticisms of accelerationism and of political narratives of necessity. Hartmut Rosa's critical diagnosis of the acceleration society, and of political aims of further acceleration for the sake of competitiveness, was applied to the empirical findings and found valid for the pre-2018 period, but less so for the post-2018 period. It was noted that democracy takes time – at least as understood by Rosa, who is referring to participatory and deliberative aspects of democracy – and that its time-consuming collective decision procedures thus may be challenged by continued technological acceleration. The article argued, drawing on Zuboff (2019) and empirical research on discursive closure, that inevitabilism may induce political apathy, which may be considered democratically problematic. Finally, the article discussed the empirical findings in light of technological determinism, constructivism and a theory of sociotechnical selectionism. It argued that if the aim of influencing the technological development is to be a realistic aim, it requires global cooperation on regulation and peaceful co-existence.

This final section on broader perspectives and tasks for future research starts from where we left summarizing the results of the thesis. Article 3 suggested that the turn of mid-2018 may be understood as a reaction on part of policy-makers to the events in the spring of 2018. During that spring, the Facebook-Cambridge Analytica scandal broke and attracted attention internationally as well as in Denmark and public debate on data usage and privacy

erupted in Denmark related to the concurrent implementation of the European Union's General Data Protection Regulation. The year 2018 has also been associated with the so-called *techlash.* The word was shortlisted as a potential *word of the year* 2018 by Oxford Languages and refers to a "strong and widespread negative reaction to the growing power and influence of large technology companies, particularly those based in Silicon Valley" erupting in 2018 (Oxford Languages, 2018). The Facebook-Cambridge Analytica scandal and the eruption of heated public debate and widespread concerns about privacy and data protection (which in Denmark was connected to the implementation of the GDPR as noted in the article and directly referred to in the analyzed material) are central elements in the techlash (Ibid.). The article suggested that those events – core elements in the techlash – could contribute in explaining the turn of 2018. In light of the theory of sociotechnical selectionism, the turn of 2018 may be understood as an adaptation to changes in the fitness landscape pertaining to regulation and changes in consumer demand. An interesting and important question to address in this context is whether, how and to what extent the drastic and disruptive event of the Covid-19 pandemic has affected and will affect the digital transformation and (near) future policy-making, including assumptions about and imperatives pertaining to digitalization inherent in relevant policy papers. It has been observed that the Covid-19 crises has accelerated the pace of the digital transformation of businesses significantly (LaBerge et al., 2020) as well as the pace of digitalization of governmental institutions and public services and administration (Sullivan et al., 2021). This accelerated digitalization due to the Covid-19 crises has given rise to concerns and criticisms from prominent scholars and commentators. In an interview (Skelton, 2020), Zuboff has raised worries as to whether the Covid-19 crises has created a state of exceptionalism, enhancing surveillance and empowering surveillance capitalists even more than before, and weakening democracy and undermining citizen's rights in the process. In a popular piece, Klein (2020) claims and worries that the state of shock caused by the pandemic is being exploited to push and fast track an agenda of increased digitization of public services, especially education, and (smart) city planning entailing increased data driven surveillance. She fears that the widespread criticism and democratic engagement vis-a-vis the tech business – the *techlash* – has been put to a halt, and claims that, "in the midst of the carnage of this ongoing pandemic, and the fear and uncertainty about the future it has brought, these [tech] companies clearly see their moment to sweep out all that democratic

engagement". According to Klein, "[t]he question is: will that technology be subject to the disciplines of democracy and public oversight, or will it be rolled out in state-of-exception frenzy, without asking critical questions that will shape our lives for decades to come?". Such a question may motivate further and future research as well as give rise to research questions, which of course are to be phrased in less general and value-laden terms and narrowed down to specific contexts facilitating empirical studies able to provide empirically based answers. In the context of Danish digitalization policy-making and related to the article's empirical findings, such research questions could be: Will assumptions of inevitabilism and accelerationism, as well as the closely related prescriptions of fast adaptation to the accelerating development, gain in relative prominence and make a return in Danish policy papers concerning digitalization as core characteristics of the dominant narratives and imaginaries about the digital development as it was the case 2015 – mid-2018? Will the increased emphasis on protection of privacy, ethical and responsible usage of data, and on civic and democratic values continue in the post-2020/post-Covid-19 digitalization strategies and related policy papers? Answering such questions requires empirical studies of the policy papers to come in the near future, and such studies must, of course, wait until publication of the relevant policy papers. Denmark's next major *Digitalization Strategy* jointly published and signed by the Government, the Regions and Local Government Denmark, which from 2020 were to replace the one analyzed in the article pertaining to 2016 – 2020 (Government et al., 2016), has been delayed and postponed to 2022 due to the Covid crises (Hansen, 2020). Studying this coming digitalization strategy as well as related policy papers and comparing the results with findings pertaining to the period 2018 – 2020 could contribute in providing answers.

In relation to article 1 and 2 and the common theme of the implications of the novel digitalized media environment, and its affordances and incentives for digital misinformation, the Covid-19 crises has also highlighted the importance of an informational, as well as political, environment conducive and responsive to facts, scientific evidence and expertise. The outbreak of the pandemic was followed by an "infodemic" according to WHO referring to an explosion of produced, diffused and circulated information about the coronavirus, including vast amounts of rumors, unreliable information and misinformation making it challenging to sort and sort out information according to its reliability and trustworthiness (Zarocostas, 2020). The information, and the citizen's trust in the information, provided by

health authorities and experts is of vast importance in successfully mitigating such a crisis. Especially, because the behavior of the citizens and the public reactions to the information provided by the health authorities and experts is decisive for breaking the chains of contagion and controlling the spread – or at least the pace of the spread (van Bavel et al. 2020). In such a situation, misleading information and trust eroding conspiracy theories flooding social media platforms may have severe consequences. In addition, how prominent political actors react to expertise and incoming scientific evidence has also shown itself to be make a significant difference for the severeness of the crises. As noted in article 1, populist leaders, employing divisive narratives and fueling and feeding from distrust to media and experts, do not fare well in migrating the crises (Leonhardt and Leatherby, 2020; Bayerlein et al., 2021). Thus, the Covid-19 crises has provided an example of how post-factual tendencies of high levels of circulated and consumed misinformation and disregard for scientific evidence and expert advice, also characteristic for political populism, may pose threats to our collective ability to migrate or solve real-world problems. The spectacular events January the 6th, 2021 in Washington D. C., also known as the *Storm on the Congress* (Briefly touched upon in article 1), may offer an example of how certain forms on misinformation and disinformation concerning the democratically processes themselves, may threaten democracy itself – even if democracy is understood and justified (minimalistic) as competitive elections of the political leaders ensuring peaceful transferal of power.

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Appendix 1

List of the policy papers analyzed as empirical material

1. *Lokal og digital - et sammenhængende Danmark. Fælleskommunal digitaliseringsstrategi 2016-2020* (Local Government Denmark, 2015);
Available at and downloaded from Local Government Denmark:[73]
https://www.kl.dk/media/10582/lokal-og-digital-et-sammenhaengende-danmark.pdf

2. A Stronger and More Secure Digital Denmark – Digital Strategy 2016 – 2020 (Government et al. 2016);
Available at and downloaded from Agency of Digitization:
https://en.digst.dk/media/14143/ds_singlepage_uk_web.pdf

3. *Strategy 2020* (Agency for Data Supply and Efficiency, 2016);
Available at and downloaded from Agency for Data Supply and Efficiency:
https://eng.sdfe.dk/media/2917126/strategy2020.pdf

4. *National strategi for personlig medicin* (Government and the Regions, 2017);
Available at and downloaded from the Regions: https://www.regioner.dk/media/4352/national-strategi-for-personlig-medicin.pdf

5. *Strategi for vækst gennem deleøkonomi* (Government, 2017);
Available at and downloaded from the Government:
https://www.regeringen.dk/media/4151/strategi-for-vaekst-gennem-deleoekonomi.pdf

6. *Strategy for Denmark's Digital Growth* (Government, 2018);
Available at and downloaded from the Government, Ministry of Industry, Business and Financial Affairs: https://eng.em.dk/media/10566/digital-growth-strategy-report_uk_web-2.pdf

7. *World-class Digital Service* (Government, 2018b);
Available at and downloaded from Agency of Digitization https://en.digst.dk/media/18772/world-class-digital-service.pdf

8. *Danish Cyber and Information Security Strategy* (Government, 2018a); Available at and downloaded from Agency of Digitization:
https://en.digst.dk/media/17189/danish_cyber_and_information_security_strategy_pdf.pdf

9. *A Coherent and Trustworthy Health Network for All – Digital Health Strategy 2018 - 2022* (Government, LGD, and The Regions, 2018);
Available at and downloaded from The Danish Health Data Authority:
https://sundhedsdatastyrelsen.dk/da/english/digital_health_solutions/digital_health_strategy

10. *National Strategy for Artificial Intelligence* (Government, 2019);
Available at and downloaded from Agency of Digitization:
https://en.digst.dk/media/19337/305755_gb_version_final-a.pdf

[73] All of the links to the materials have been verified 10-22-2021.

11. *På forkant med fremtidens velfærd* (Local Government Denmark, 2019);
Available at and downloaded from Local Government Denmark:
https://www.kl.dk/media/19309/paa-forkant-med-fremtidens-velfaerd.pdf

12. *A Coherent Data Foundation for a Digital Denmark* (Agency for Data Supply and Efficiency, 2020).
Available at and downloaded from Agency for Data Supply and Efficiency:
https://eng.sdfe.dk/media/10457/a-coherent-data-foundation-for-a-digital-denmark-sdfe-strategy.pdf

Appendix 2

Examples of codes, categories and subcategories:

Text	Code	Category	Subcategory	Translation when relevant
"In common with the rest of the world, technological development in Denmark is currently accelerating"	The development is currently accelerating	Assumptions about the digital development	Description of current development	
"the rate and evolutionary power of technological developments will accelerate in the years to come"	The development will accelerate in the future	Assumptions about the digital development	Prediction of future development	
"digitalization is to a far extent about technology and data, but it is about much more than that. It is about fundamental changes in our society".	The digital development is profoundly transformative	Assumptions about the digital development	Description of current development	
"Denmark must adapt to the fast digital transformation in society"	Denmark must adapt to the development	Denmark vis-à-vis the digital development	Assumed inevitabilism	
"Enhanced research efforts will also help ensure that Denmark can influence the development of artificial intelligence in the long term so that it is shaped according to Danish values"	Denmark should influence the development	Denmark vis-à-vis the digital development	Not assumed inevitabilism	
"The Government's vision is for Denmark to be a digital frontrunner"	Denmark should stay ahead of other countries	Imperatives for Denmark	Denmark's relative position	
"the public sector is too slow to incorporate emerging technologies and digital welfare solutions"	Denmark should accelerate digitalization	Imperatives for Denmark	Public sector digitalization	
"In order to keep up with the fast development the	Data accelerates	Assumptions about data	Benefits of increased data usage	

usage of data will be increased"				
"Data from the authorities can also help businesses improve efficiency and adapt their production"	Data improves efficiency	Assumptions about data	Benefits of increased data usage	
"There is a great untapped potential in the using data as a driver to improve the efficiency of workflows and procedures in the sector"	Efficiency gains	Benefits	Economic value	
"Increased use of digital technology and development of new business models will strengthen the competitiveness of companies"	Competitive advantages	Benefits	Economic value	
"vi understøtter nærheden til borgerne gennem decentral løsning af opgaverne"	Proximity to citizens	Benefits	Non-economic value	*"we underpin the proximity to the citizens through decentralized solutions of the tasks"*
"Public use of data must always respect individual privacy"	Data usage must respect privacy	Reservations	Constrains for increased data usage	
"while ensuring that the overall purpose of the law and protective considerations are maintained"	Legal protection to be upheld	Reservations	Constrains for agile regulation	
"not knowing what information and data authorities share and for which purpose can create insecurity"	Increased data usage may undermine trust	Challenges	Challenges caused by digitalization	
"The existing commercial regulations are not always designed to accommodate the way in which new digital technologies and business models can create new value for individual companies and society"	Regulation outdated	Challenges	Challenges for digitalization	

"The government will create a data ethics council which, among other things, will make recommendations for, and contribute to, continuous and informed public debate on issues and dilemmas regarding data ethics"	Creation of data ethics counsel	Concrete policy initiatives	Migration of risks	
"Establish a coordinated scheme, SME:Digital, to help small and medium-sized enterprises up the digital ladder"	Creation of SME:Digital	Concrete policy initiatives	Accelerating the digital development	