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Disrupting Politics and Governance:
Why Transformation needs Political Innovation

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Abstract

Public trust in actors and institutions of liberal-representative democracy is constantly decaying in the 21st century. This contribution identifies digital transformation and the neoliberal marketization of all spheres of public life as core challenges undermining democratic institutions and creating public demands liberal-representative democracies have not adapted to yet next to its inherent deficiencies. Aiming at initiating a discourse on upgrading liberal-representative democracy to 21st century, based on a scoping analysis of popular and academic sources, 89 political innovations not only improving the means for political participation (input and throughput legitimacy) but also the effectiveness of the political system (output legitimacy) are typologized with seven areas of impingement on institutions identified in a second step: An increase of efficiency and innovativeness of government, the introduction of preference intensity to voting systems, randomness as a principle in decision-making and selection of executives, participatory democracy mainly based on deliberation, a decentralization of economy and politics driven by libertarianism, and an alignment of the neoliberal economy to liberal-representative democracy. Given the mostly theoretical state of innovations, this contribution is a starting point for initiating a public and academic practical-oriented discourse on political innovations by various means (database, public and academic conferences, podcasts, further academic contributions), and demands for experimentation with political innovations.

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1 Introduction

In industrial societies, liberal representative democracy is the dominating type of political system because it promises to guarantee both, individual liberties, and wealth at the same time. Following the Böckenförde dilemma (1976, p. 60) democracy "lives by prerequisites which it cannot guarantee itself". It is dependent on the internalization of democratic ethos by its citizens which requires their acceptance of democracy as the best regime type for making collectively binding decisions. That is why democracy constantly needs to prove its suitability in governing social interactions justly and efficiently. To put it more scientifically, democracy needs to prove its input legitimacy (responsiveness to citizens), throughput legitimacy (efficacy, accountability, transparency, inclusiveness of the people), and output legitimacy, its effectiveness in decision-making (Scharpf, 2003; Schmidt, 2013).

However, democracy is constantly under pressure: Already Winston Churchill (1947) labeled democracy as "the worst form of government except for all those other forms that have been tried from time to time". Recently, this legitimacy is decreasing in liberal-representative democracies. Although the regime type is still considered as most suitable by citizens, its actors and institutions lose acceptance (Alonso et al., 2011; Edelman, 2021; European Social Survey, 2011). The reasons for the loss of legitimacy are widely discussed in scientific and public discourses and the contributions share a common diagnosis: democracy has not yet adapted towards the economic, technological, and political realities of the new millennium (Crouch, 2004; Hay, 2013; Mounk, 2018a; van Reybrouck, 2016).

Democratic legitimacy needs to be re-established holistically to guarantee the prerequisites democracies are dependent on by countering and preventing democratic erosion (Böckenförde, 1976). Thus, a discourse on how democracy is adaptable to its disruptions and its loss of effectiveness is required. Surprisingly, there does not exist a literature review from academia on how to reform democracy integrating all three dimensions of legitimacy yet. Only in political science, one research strand offers a comprehensive overview on innovations for

deliberative decision-making targeted on strengthening input and throughput legitimacy (Elstub & Escobar, 2017). However, political innovations aspiring to improve the effectiveness of democratic political systems have not been compiled yet. Consequently, due to the lack of academic confrontation, political innovation is also not a salient topic in society and public discourse although it could be the starting point for curing public distrust in the political system.

An overview of the broad range of proposed political innovations integrating improvements on all three legitimacy dimensions is a central stepstone to accelerate the public, political and academic discourse on making democratic systems future-proof for the 21st century. This contribution fills the research gap by following the research question: In which ways are liberal representative democracies challenged in the 21st century and which innovations for democratic political systems to counter these challenges have been proposed yet?

Considering the increasing importance of output legitimacy in public perception (Hofmann, 2019) and the threat of the exogenous disruptions on the effectiveness of democratic decision-making and even on the liberal core values of individual liberties and prosperity, in this typology innovations restoring legitimacy do not only accentuate more means of political participation (input and throughput legitimacy) but also concentrate on an improved effectivity of democracies – a higher output legitimacy. Thus, political innovations are conceptualized as innovations of (elements of) the political subsystem and its interfaces to other subsystems of the society of liberal-representative democracy (Luhmann, 1987) which aim at increasing the input, throughput, and/or output legitimacy of the political system with the ultimate goal of securing individual liberties and prosperity. By taking an interdisciplinary perspective, the typology presented in this contribution integrates proposals from civil society with academic proposals and delivers a holistic overview.

From a theoretical standpoint, this contribution deepens our knowledge of how democracies are challenged in the 21st century and how they can adapt to changing realities in the new

millennium. From a practical standpoint, the productive connection of challenges pressing on liberal-representative democracies with its cure - political innovations - serves as a comprehensive starting point for a long-needed discourse on the advancement of liberal-representative democracies and its restoration of legitimacy. It is designed as a handbook for politicians, researchers, and the general public guiding through the discourse on political innovations.

This contribution starts with building the case for liberal-representative democracy to allow for the subsequent guided discussion of the challenges impinging on liberal-representative democracies in the early phase of the 21st century encapsulating the technological, economical, societal, and political dimensions. What follows is a description of trust levels in democracy highlighting the trust disparity between the democratic regime on the one hand, and its actors and its institutions on the other hand. This regime-institution trust gap accentuates the need for political innovations of democratic institutions to restore the legitimacy of democracy and serves as a reconciliation to the typology of political innovations.

The methodological section includes the justification for the choice of the scoping analysis as a methodology for the literature review on political innovations (Levac et al., 2010) whose results are translated into the subsequently described typology of political innovations. This typology structures the political innovations by the area of impingement regarding which pillars of liberal-representative democracy are affected by political innovations. The scoping analysis does not contain a rating on the feasibility or desirability of certain innovations as this contribution serves as the starting point for a public discourse on political innovations which is the more suitable arena for evaluating proposals. Due to these practically oriented aspirations of the research project, conclusions and future steps for research and practice are accentuated in the discussion section next to the description of limitations and an evaluation of the combinability of political innovations ere the conclusion completes this contribution with a trenchant summary of the results.

2 The case for liberal representative democracy

Liberal representative democracy as a distinct type of democracy valuing individual liberties and prosperity is the dominant regime type in the industrialized world at the latest since 1945. Prosperity and freedom are the core values of its liberal pillar (Fischer & Huhnholz, 2019). The Kantian Golden Rule ("treat others as you would like others to treat you") translated into the Kantian categorical imperative ("Act only according to that maxim whereby you can, at the same time, will that it should become a universal law") (Kant, 2010, p. 421) operationalizes the core value of freedom into a liberal societal order structured by the rule of law. It stipulates a division in citizenry and state where politics is only conducted by the state and where only its actors need political virtues. This enables that theoretically also a "people of devils" could build a state (Kant, 1795, p. 366) and it liberates individuals from the duty of political participation. This dealignment of the political sphere from the public sphere allows for the full blooming of civic liberties. However, to prevent its suppression by the state, the latter needs to be held accountable.

Liberalism is thus dependent on a democratic order because democracy is the only political regime that is not fundamentally opposing but rather organizing individual freedom. Democracy is government by the people on collective goods and translates the will of the people who form a society into collectively binding decisions. That means, citizens have a say in collectively binding decisions and are not suppressed by a political authority. Theoretically, the means for organizing democratic regimes are diverse, but in industrialized nation-based societies, liberal-representative democracy has been established as the dominating regime type (Fischer & Huhnholz, 2019). Since the late 18th century, a representative system seemed to be the only feasible mode of organizing a democracy in a territorially widely dispersed large-scale community with representatives as central actors in decision-making bodies representing the preferences of citizens from districts (Alonso et al., 2011).

In this regime of government “of the people, by the people, for the people” (Abraham Lincoln) representatives are held accountable with elections following the principle of majority. In this principal-agent relation, in theory, they need to show responsiveness to the preferences of the citizens to secure reelection. Suppression of individual freedom by the majority principle - a „tyranny of the majority“ (Mill, 1859) - is prevented by checks and balances and a separation of powers (Montesquieu, 1976). Put together, representative democracy is based “on three core elements: the open public expression of social needs and interests; the appointment of representatives through free and fair election; and the temporary granting of powers by the represented to representatives who make laws within the framework of a written constitution” (Alonso et al., 2011, p. 5). Thus, representative democracy allows for individualistic and pluralistic societies to emerge, it breaks with the idea of the general will, and it “is the only type of government that gives open expression to the diversity that it makes possible in the first place” (Alonso et al., 2011, p. 5).

However, the primacy of individual liberties creates a dilemma for liberal-representative democracy: It cannot ensure support and obedience of its citizens by coercive means because this would restrict individual liberties. To ensure stability and its survival, liberal-representative democracy is dependent on preconditions it cannot ensure (Böckenförde, 1976, p. 60): It needs to be accepted by its citizens.

This acceptance is rooted in the legitimacy of a political system which contains three dimensions (Schmidt, 2013): First, input legitimacy meaning legitimacy through participation asking *who* is the central actor in decision-making (Scharpf, 2003). Legitimacy in this sense is enhanced by participation and representation of all relevant actors of a democratic society in the decision-making process who are affected by a decision. In a representative democracy, input legitimacy is predominantly created through a free and fair election regime and high accountability and responsiveness of representative actors. The second legitimacy dimension is

output legitimacy meaning legitimacy through performance and asking *what* is the product of decision-making (Scharpf, 2003). Output legitimacy is predominantly created through effective and just policies and regulations that meet up with democratic norms and satisfy the needs of stakeholders – the citizens. The process of how such a decision is produced is not captured by output legitimacy but by throughput legitimacy as the third legitimacy dimension. It captures "legitimacy through the process" and targets the *how* of decision-making (Schmidt, 2013). Throughput legitimacy is predominantly created through norm-based procedures in decision-making irrelevant of the effectiveness of its outcome. Legitimacy criteria in this sense are accountability, appropriateness of procedures, neutrality, transparency, and clear rules for decision-making (Scharpf, 2003).

In contrast to other political systems that limit or avoid the political participation of citizens like autocracies, democracy does not only need to prove its legitimacy regarding its effective outcomes (output legitimacy) but also concerning its translation of preferences of citizens into effective outcomes – input and throughput legitimacy (Schmidt, 2013). To make it simple: Democratic representatives need to be responsive and accountable to their electors, and the democratic political system needs to ensure individual liberties and prosperity for citizens.

Especially in the first three decades after World War II, liberal-representative democracy has proven robust and performing better than alternative regime types in delivering freedom and prosperity for a society of individuals with equal rights (Congleton, 2010). At the end of the 20th century, on a global level, the liberal international order consisting of liberal-representative democracies was hegemonic, no wars between democracies occurred, the gross domestic product (GDP) of democracies was significantly higher compared to autocracies and the highest levels of well-being were measured in liberal-representative democracy (Fukuyama, 1992; Mearsheimer, 2019; Owen, 1994). The dominance of liberal representative democracy in the industrialized world has even seduced observers after having identified a "third wave of

democratization" since the 1970s (Huntington, 1991) to diagnose "the end of history" in the late 20th century with the teleological global dominance of liberal democracy due to its allegedly inherent advantages over all other forms of political regimes (Fukuyama, 1992).

3 Challenges on liberal representative democracy in 21st century

At the latest since the turn of the millennium this "end of history" seems to be a misperception: The third wave of democratization is countered by divergent trends undermining liberal representative democracy in the 21st century (Soborski, 2020): an "authoritarian wave" (Lührmann & Lindberg, 2019) which includes the hollowing of some young democracies into "illiberal democracies" (e.g. Hungary and Poland), a populist turn in almost every liberal representative democracy increasing polarization and division within society – (Mudde, 2010; Mudde & Kaltwasser, 2012) – most prominently in the US under the presidency of Donald Trump (Graham & Svolik, 2020) - the erosion of the liberal international order and an increasing bi-polarization between the US and China (Ikenberry, 2018; Mearsheimer, 2019), an apparent loss of effectivity advantages against autocratic systems seemingly becoming obvious during the Covid-19 pandemic (Greer et al., 2020; Kavanagh & Singh, 2020), and a significant loss of public trust in institutions and actors (Edelman, 2021; European Social Survey, 2011). These symptoms of democratic discontent require an analysis of the causes for it – the disruptions of the 21st century challenging the legitimacy of liberal-representative democracy which have been raised in the literature: Digital transformation, and the marketization of society and democracy next to the inherent deficiencies of liberal-representative democracy.

3.1 Digital transformation

Many observers consider the 21st century as a point in time, where a new wave of technological disruption transforms society, politics, and the economy holistically: The digital transformation is characterized as the core of the "Fourth Industrial Revolution" (Schwab & Davis, 2019) or even as the central stepstone for the emergence of an "Information Society" (Davidson & Rees-Mogg, 1997). All these analyses have in common that they identify an

economic disruption of business models by new digitalized technologies (see Figure 1) leading to an economic transformation which is followed by a societal transformation due to changed consumer behavior. The transformations of economy and society require adaptions of politics as well.

Insert Figure 1 about here

The disruptive impact of digital transformation could be categorized into six trends (Diamandis & Kotler, 2020): First, digitalization offers based on Moore's law exponential growth opportunities for businesses built on data exploitation. However, second, a phase of deception – long adoption rates of these new opportunities due to an initial stage of distrust based on the disruptive impact of digitalization – delays transformation initially ere, third, disruption of the economy (products, services, and markets) finally occurs if the cost reduction potentials are inevitable for rational business making. This leads, fourth, to a demonetization of products meaning a massive cost reduction for digital technologies (e.g. computers) which allow societal penetration. This is fueled, fifth, by dematerialization – the digital replacement of historically analogous products (e.g. Wikipedia replaced book encyclopedias). This results, sixth, in the major trend of democratization of property on products through cost reduction which transmissions the digital disruption of the economy into society. The technological means enabled by digital transformation are now accessible to the broad public.

Whereas some of the new products offered to consumers have minor societal and almost no impact on democracy (e.g. 3D Printing), many other disruptive technologies and business models built on them do not only impinge on society but also on politics. This is specifically true for Social Networks, Artificial Intelligence, and Blockchain technologies (BCT) which have a disruptive impact on the political system (Diamandis & Kotler, 2020). However, already

the general digital disruption creates overcomplexity and a data paradigm which is not exploited by liberal-representative democracies so far.

3.1.1 Overcomplexity and data paradigm not tackled by government

Data as the "oil of the 21st century" is already the most important resource in modern economies. The Four Vs of Big Data (volume, velocity, veracity, variety) create the requirement and the demand for fast actions and reactions by every actor to succeed in the data society. The penetration of data and its exploitation is significantly higher in the economy than in the political system (Helbing et al., 2019). An outdated (IT) infrastructure and a bureaucratic overhead complicate fast and reactive decision-making and policy-making, which is further slowed down by democratic rules and procedures which are based on checks and balances (Hofmann et al., 2019). Slow democratic institutions contradict in this way the digitally accelerated "high-speed societies" (Saward, 2017). It is evident that for many governments the outdated IT-infrastructure and the lack of IT knowledge within government organization does not allow to build citizen-centered e-government services which meet up with the quality of customer-centered IT services from the business world (Carter & Bélanger, 2005; Dahiya & Mathew, 2018). This aggravates the impression, that government is outdated and has not adapted towards digital transformation yet. It is a potential source for decreasing output legitimacy.

Additionally, complexity is significantly increased by digitalization (Popkova & Sergi, 2020). Political decision-makers normally often lack sufficient IT or interdisciplinary competencies which would empower them for evidence-based decision-making in an increasingly interconnected, overcomplex, and digitalized world (Hurka & Haag, 2020; Love & Stockdale-Otárola, 2017).

This increases the influence of private interests on policy-making (Stürmer et al., 2020): Politicians are often not able to make effective decisions on increasingly interconnected topics on their own. They are dependent on expert knowledge which is offered by well-organized

interest groups from civil society and economy in more or less formalized consultation processes for policy-making (Klüver, 2011). Consequently, private actors with partial interests have an overarching influence on policy-making in many policy areas without being accountable or responsive to citizens (Vibert, 2007). This aggravates an elite-electorate gap and opens opportunities to attack institutions of representative decision-making as corrupted and illegitimate targeted on defects in throughput and input legitimacy.

Additionally, the quality of regulation could decrease due to overcomplexity, and the interrelated increasing influence of private actors as exemplified by the governance of digital platforms. Regarding digital ecosystems, governments were not able to act as rule setters in digital governance from scratch due to a lack of knowledge (Flyverbom et al., 2019). The mostly ungoverned globally dispersed digital ecosystems having emerged require now costly and inefficient ex-post interventions across various jurisdictions into an already created market (van Dijck, 2020) as exemplified by the attempts of splitting up digital platforms by the EU, and the Biden administration in the US. This demonstrated inability in tackling market failures is a potential source for decreasing output legitimacy.

3.1.2 Web 2.0: Emancipation and fragmentation of politics, public and society

Next to these direct effects of overcomplexity and data orientation accelerated by digital transformation on the legitimacy of democratic political systems, there are also indirect effects transmissioned by specific disruptive technologies (Vayenas, 2017). Most widely discussed is the influence of social media on democracy. Social media is the most prominent exhibit of Web 2.0 which is a Janus-faced digital technology that offers potentials for both, democratizing and *de*-democratizing political systems by the democratization of information dissemination (J. A. Tucker et al., 2017).

Web 2.0 impinges predominantly on public discourse as a core pillar of democracy: A shared public discourse of a national *demos* is another precondition a democracy cannot

guarantee but is dependent on. The public discourse integrates the political core functions of preference articulation, formation, and aggregation, of control of political actors, and it integrates society into “imagined communities” (B. R. O. Anderson, 1983) by offering “generalizable reference points” (Ingold, 2017, p. 524) for social interaction. For actors and institutions of the political system, a public discourse functions as an “opinion barometer” and allows to exert influence on public discourse which encapsulates a broad range reaching from reactions on citizens’ needs up to manipulation of public opinion.

Traditionally, public discourse was organized in a centralized top-down manner with professional journalism taking a gatekeeper function in information dissemination (Jenkins, 2006). This has changed with the establishment of Web 2.0. It technologically enables the virtual democratization of information production, dissemination, and consumption over own personalized channels challenging the “topdown tyranny of the media” (Gross, 2009, p. 67): Every “produser” (Jenkins, 2006) could write articles in the Wikipedia, every user could publish own thoughts or those of others (individuals, politicians, media) over own channels like web pages, blogs, vlogs or social media. The latter has become the dominant digital discourse forum in representative-liberal democracy at least among the under 65 years old with a certain level of digital literacy (Braun & Gillespie, 2011).

Research indicates that the democratization of information dissemination by social media could have both, an emancipatory (demand for more participation) as well as a hegemonic (stronger influence on citizens) impact on the relation of societal actors to political actors (Miranda et al., 2016) which is complemented by a fragmentation of public discourse and the demand for increased responsiveness of politicians fueled by social media.

Considering the emancipatory aspect, the democratization of information dissemination reduces the potential of manipulation of public discourse by political actors and by media, and increases the means for organizing large crowds by virtual means. This has become evident

especially with protest movements against (quasi)-autocratic regimes in Arab Spring in 2011 (Howard et al., 2011; Wolfsfeld et al., 2013), in Turkey with the Taksim Place and Gezi Park protests in 2013 (Smith et al., 2015), or most recently in Russia with the anti-Putin campaign by Alexey Navalny. Also in democratic regimes, top-down opinion building or even manipulation is complicated by the democratization into a multitude of information disseminators. The emancipatory notion of social media lays specifically in the deterritorialization of the political public which has transitioned into a theoretically global border-less discourse forum on which a nation-state does not have the monopoly of the use of force anymore (Ritzi, 2019). Additionally, the communicative self-understanding of citizens as "produsers" increases individual sovereignty facing the state and other authorities (Könneker, 2017).

However, this democratization also creates a fragmented public which has the potential to destabilize public discourse in liberal-representative democracy (Ritzi, 2019). The radical replacement of professional journalism as gatekeepers for public discourse by "produsers" creates opportunity structures for actors who aim at destabilizing public discourse: Just by exploiting the emancipatory notion of Web 2.0, its de-professionalization of information dissemination, the technological aspects of user recommender algorithms built into social media as most sophisticated Web 2.0 services, and the psychological constant of confirmation biases those actors could polarize and undermine a shared public discourse significantly: Echo chambers (Barberá et al., 2015), closed counter publics (Kavada & Poell, 2020), fake news (Celliers & Hattingh, 2020), conspiracy theories (Connolly et al., 2019) and online firestorms (Rost et al., 2016) are the symptoms of this fragmentation and polarization of public discourse amplified by Web 2.0 as a disruptive technology.

The most prominent example of such an exploitation of social media to target public discourse is the presidency of Donald Trump (Allcott & Gentzkow, 2017). It ended with the "Storm on the Capitol" on January 21st where some of his fanatic followers occupied the most

important institution of US-American democracy for several hours after Trump mobilized them via social media and in a live-streamed speech. This unprecedented scandal illustrates the danger of a destabilization of public discourse for democracy by social media (Fuchs, 2020; Munn, 2021): If citizens of a liberal-representative democracy lack a most common denominator in public discourse – the aforementioned "generalizable reference points" (Ingold, 2017, p. 524) for social interaction – societal division is likely to occur and if actors exploit social media to mobilize against democracy for own political goals, the Böckenförde dilemma (1976, p. 60)learns us, that democracy is threatened in its existence because it cannot guarantee its prerequisites.

Taking an opposite standpoint, Trump's "Twitter politics" (Ott, 2017) illustrates a potentially positive influence of Web 2.0 which however creates demands on the political system: Political actors could increase responsiveness to citizens by taking an active role as "produsers" (Kalsnes et al., 2017; Stier et al., 2018). Most governments, politicians, parties, and public administration nowadays use especially social media to create a direct link to citizens, to communicate directly over text posts, videos, or even podcasts. However, Web 2.0 is not restricted to be exploited as a means for a more direct top-down communication excluding professional journalism as a gatekeeper. It is also a means for interaction, for the bottom-up raising of preferences, or even as a participatory tool for decision-making (Effing et al., 2011). These technological means create demands in the public (Vayenas, 2017). However, they are incorporated in many liberal-representative democracies only very fragmented (Boulianne, 2015) – for example by the party family of the Pirates in an attempt to introduce participatory liquid democracy (Blum & Zuber, 2016). This adoption-possibility gap regarding technological means for increased responsiveness could decrease input and throughput legitimacy of liberal-representative democracy even though social media in specific and Web 2.0, in general, already has

become an arena of political competition with politicians interacting with citizens (Petrova et al., 2020).

In many liberal-representative democracies, social media is already a battleground. That is to be understood literally: A digitalized public built on Web 2.0 technology includes on its hegemonic downside the potential of control and hidden influence by political actors on citizens. Micro-targeting has been applied in various election campaigns (e.g. US Presidential elections 2016, Brexit referendum 2016) to influence the voting behavior of citizens (Prummer, 2020). It includes the unconscious manipulation of political opinions to influence voting decisions and does not only polarize discourse, but rather the whole political landscape as it is especially applied by political outsiders who have no legal means to gain political power (Prummer, 2020). It is a massive threat to representative democracy as it undermines its most crucial institution: free, fair, secret, equal, and direct elections. That is why micro-targeting is forbidden by law, especially in Europe. However, evading the regulation remains possible in the digital sphere (Dobber et al., 2019).

Additionally, Web 2.0 as a political battleground is also played on in information warfare (Guadagno & Guttieri, 2021) especially by autocracies against democratic regimes to change the geopolitical balance of power to their advantage (Whyte et al., 2021). Especially Russia is highly engaged in subverting political competition utilizing hacker armies, bot networks supporting anti-democratic political actors like radical right parties, and the launching of disinformation campaigns, fake news, and counter-publics in European democracies and the US (Akimenko & Giles, 2020).

System-supportive actors and institutions in liberal-representative democracies seldomly find effective (counter-)strategies to exploit the advantages for democracy offered by Web 2.0 against its illiberal enemies yet. Currently, the digital public is predominantly a playing field for destructive political actors (J. A. Tucker et al., 2017). Web 2.0 technology thus

threatens the legitimacy of democratic actors and institutions because anti-democratic actors have a disproportionate influence on digital public discourse compared to their formal political resources and because democratic actors and institutions have not proven that they can govern the downsides of Web 2.0 technology efficiently.

To make it simple: They did not act as rule setters for Web 2.0 applications but rather as those being pressured by its ungoverned outcomes. The rule setters for Web 2.0 applications are instead the operators of Web 2.0 services – the digital platforms. Paradoxically, although Web 2.0 stimulates democratization, even Web 2.0 systems are still controlled by centralized entities – and these are not even accountable or responsive to the public (Bloch-Wehba, 2019): Digital platform providers have overtaken governance authority for democracy-crucial areas like the governance of public discourse (e.g. hate speech). This results not only in overarching absolute power but also in high relative power compared to political actors and institutions.

Digital platforms nowadays are the biggest companies in the global economy, forming monopolies built on network effects (Ducci, 2020; C. Tucker, 2019a) and already seem too big to be governed efficiently as they provide critical digital infrastructure (Bohn et al., 2020). Democratic governments around the world are struggling to regulate digital platforms that evade taxation and government oversight with opaque company constructs (Bourreau et al., 2018; Lundqvist, 2021). Their virtually borderless nature complicates regulation even further which needs to be conducted on the global level (Flew et al., 2019). However, global governance is hardly realistic with national politics.

This contradiction of global economy and digital society vs. national politics “makes the political system ineffective, because it has no control over the forces that shape our life” (Harari, 2017) – digital platforms as centralized institutions with overarching power. This lack of effectiveness and the replacement of state governance by private governance by hardly controllable digital platforms potentially impinges on the output legitimacy of democratic systems.

3.1.3 AI: Benevolent authoritarianism and centralization of control

Web 2.0 with its democratization of information dissemination by the primacy of user-generated content is increasingly complemented with services and products which are driven by Artificial Intelligence (AI): the performance of tasks by computer systems that normally require human intelligence. The digitalization in the first two decades of the new millennium created the breeding ground for profound dissemination of AI services and products as they require market-driven enterprises, mobile internet use, innovative super-apps, a cheap labor force, mobile payment, and a digitalized societal culture (Li, 2018). The quality of AI services and products depends even more on data than traditional Web 2.0 products. Machine learning as the central AI technology requires a vast amount of data stored in central databases for training algorithms to mimic human intelligence efficiently.

Like Web 2.0 also AI is a double-edged sword (König & Wenzelburger, 2020). On the one hand, AI services built on centralized data storage offer significant potentials to improve and personalize services that assist humans and serve their needs – e.g. with digital agents or chatbots. This is also a highly promising area to improve government services (Margetts & Dorobantu, 2019). However, until now AI-driven government services are hardly existent which contradicts the accelerating penetration of society by AI-driven services from the business world (Agarwal, 2018). This aggravates the technology gap of modern democracy to the economy as a potential source for decreasing output legitimacy.

On the other hand, centralized data storage causes privacy and security concerns and gives disproportionate power to those holding the data (C. Tucker, 2019b). Currently, those are predominantly digital platforms and increasingly also democratic actors like the EU who try to build a centralized database for AI-enhanced government services (Larsson, 2021; Misuraca et al., 2020). Considering the latter, AI built on centralized storage bears the threat to be exploited by (benevolent) institutions and actors who behave authoritarian in influencing and controlling citizens with AI-enhanced methods complemented with behavioral incentivization like nudging

(Feldstein, 2019a; Helbing, 2019). This becomes most prominently evident with the citizen surveillance system in China which complements AI surveillance with nudging and public exposure in case of delinquency from the norm regime in its social credit system (Croston, 2020). It is by far not impossible that the opportunities of control and unnoticed influence on people enabled by AI are only exploited in authoritarian regimes. On the contrary, "even governments in democracies with strong traditions of rule of law find themselves tempted to abuse these new abilities" (Feldstein, 2019b) as exemplified by the use of face recognition in the US and Germany which has caused public outcry. This is a threat to open societies and has the potential to decrease the trust in a political system that proclaims to protect liberal ideals (Helbing et al., 2019).

Taking a positive stance, AI is a means to improve the quality of decision-making by enlarging the evidence base and countering the lack of knowledge of politicians (Helbing et al., 2017a). Again, China serves as an example. The autocratic regime complemented its surveillance system with AI-enhanced predictive systems to contain Covid-19 and managed to counter the pandemic more effectively than democratic regimes (B. Chen et al., 2020). The complementation of more widespread use of AI technology with a centralized "techno-authoritarian" regime and a collectivist society has proven more effective to counter the crisis in comparison to liberal-representative democracies with lower means of AI technology and individualized societies which were additionally "fenced in by democratic institutions and rule of law" – its constraints to protect the liberal pillars (C. B. Frey et al., 2020; Greitens, 2020). For liberal-representative democracy in specific, the Covid-19 pandemic will likely lead to a spread of illiberal means in liberal-representative democracies to tackle crises more effectively (Greitens, 2020). In general, the pandemic has unveiled the current low penetration levels of AI technology for evidence-based decision-making and policy-making in democracies.

From a societal perspective, AI could even counter the emancipation of individuals from coercion which was initiated by Web 2.0 technologies by algorithmic decision-making where "authority is shifting away from humans to algorithms" (Harari, 2017). This could result in externally induced self-determination and the loss of self-esteem of individuals which could be further aggravated by economic shifts.

Considering the economic subsystem of society (Luhmann, 1987), AI is going to disrupt the labor workforce holistically with not only blue-collar jobs but also white-collar jobs becoming automized (Acemoglu & Restrepo, 2019). This will create wealth in absolute terms but it will also increase inequality in relative terms as unemployment levels will increase (Korinek & Stiglitz, 2019). It is foreseen that the "winner-takes-all principle" prone to digital platforms is even aggravated in an AI economy "with a tiny elite reaping all the benefits, taking all the fruits, and the masses of the population finding themselves worse than they were before, certainly much worse than this tiny elite" (Harari, 2017). Countermeasures like a universal basic income are already discussed (Li, 2018). In the near future, when the disruptive influence of AI becomes more tangible, this will increase demands for the political system to tackle the disruption of the workforce and inequality effectively and justly.

3.1.4 Web 3.0: Blockchain-enabled disintermediation and societal emancipation

Whereas the current discourse on social media as exhibits of Web 2.0 and on Artificial Intelligence is increasingly problem-oriented and aims especially on governing its negative outcomes and the power of its economic carriers, the discourse on Web 3.0 mainly driven by technological evangelists and libertarians (Atzori, 2017) is more solution-oriented and identifies Blockchain technologies (BCT) as a means to overcome dysfunctionalities of the current economic, social and political system in liberal-representative democracy.

BCT is a "decentralized database that stores a registry of assets and transactions across a peer-to-peer network" relying heavily on cryptography to link and secure blocks (Warburg,

2016). “This creates an immutable, unforgeable record of all of the transactions across this network” which is replicated on every computer using the network (Warburg, 2016). In comparison to centralized Web 2.0 systems, decentralized BCT-enabled Web 3.0 systems are more resilient, more fault-tolerant, and more attack-resistant but also less performative, slower, and less usable (Gilder, 2018).

BCTs are predominantly a tool for decentralization and thus significant disruptive potential in liberal-representative democracy in the 21st century where an individualistic society faces both, a centralized platform economy and a highly centralized political system. The prevalence of Peer-to-Peer (P2P) networks enables reaching consensus and coordination in a system of “trustless trust” where the cryptographic interlink of the nodes in a Blockchain following mathematical laws replaces the requirement of trust in people or institutions (Atzori, 2017). This makes intermediaries as trusted third entities obsolete. BCT enables the holistic disintermediation and the dissolution of trusted third parties in all spheres of digitizable life. This, again, is a double-edged sword.

Especially libertarians actively push for a radical decentralization of economy and democracy – even for the dissolution of the state based on open blockchains – to hold pace with the trend of individualization in society (Atzori, 2017; Ferris & Srinivasan, 2021). If these demands gain popularity, liberal-representative democracy is threatened in its existence. Even libertarians acknowledge that a transition period towards radically decentralized political systems would include violence and threats of civil war (Davidson & Rees-Mogg, 1997; Svanholm, 2020). More neutral research even warns of a pre-politicization in BCT-based decentralized democracy with humans living under pre-sovereignty conditions without rule-making authorities, a high likelihood of conflicts, and the loss of solidarity and community (Atzori, 2017)

On the other hand, Web 3.0 – just as Web 2.0 and AI – offers opportunities of innovation and adaption for liberal-representative democracy. Incremental decentralization and an increase in competition between political systems could strengthen its legitimacy. Especially for bureaucracy, closed Blockchains (e.g. HyperLedger, Corda) could be - and are already applied in Estonia (Piperal, 2019) - as a means for decentralized storage of citizen data by the government to dissolve privacy issues of centralized storage (Ølnes et al., 2017). They could further improve legitimacy if governments now proactively exploit the advantages of BCT in its set-up state and govern its societal implementation at a stage where even economic structures are still emerging.

However, until now the penetration of BCT in political systems is low and already lagging behind the economy (Swan, 2015). If democracies repeat the same mistake of sleeping through the disruption by Web 3.0 as they did with the disruption by Web 2.0 this could, again, have negative impacts specifically on output legitimacy.

Similar to Web 2.0 and AI, BCT-based Web 3.0 products, services, and innovations will disrupt the economic subsystem of society. Bitcoin as a cryptocurrency is the most prominent exhibit of BCT. For BCT-based cryptocurrencies, the value of assets is cryptographically verified over the Blockchain, based on a mutually shared consensus protocol governing network interaction (Voshmgir, 2017). The amount of Bitcoins to circulate is fixed which theoretically prevents the occurrence of inflation (Svanholm, 2019). Bitcoin already attempts to decentralize currency systems by replacing fiat currency systems with national banks as trusted third parties. This is a threat to the political system as it loses oversight over the currency system if the fiat currency system is replaced by cryptocurrencies. This complicates regulation of market (participants) by financial and legal means, and it threatens to close the by far most important revenue stream of governments: taxes which could not be collected anymore if disintermediation excludes governments from its oversight on the financial system (Yalaman & Yıldırım, 2019).

Additionally, the BCT-enabled disintermediation does not democratize a cryptocurrency system automatically. Regarding Bitcoin, producers (miners, validators, block producers) have intangible power as they control what is validated in the blockchain (Voshmgir, 2019). The integrity of the chain depends on the integrity of these producers. This bears a high level of randomness and the potential threat of a dysfunctional dominant currency system if Bitcoin becomes the new standard and if its producers exploit their position. Liberal-representative democracy needs to find its role in governing this cryptocurrency disruption and governments already apply divergent approaches to cryptocurrency governance ranging from supporting cryptocurrency to blocking its emergence (Novak, 2020). This disruption – irrespective of whether it is replacing or complementing fiat currency is a further source impinging specifically on the output legitimacy of political systems – its effectiveness in governing cryptocurrency to the benefits of citizens.

Put together, digital transformation as a Manichean phenomenon affects the legitimacy of liberal-representative democracy holistically but also offers potentials which have not been exploited yet systematically for political innovations.

3.2 The marketization of society and democracy

Sidelining the digital transformation an increasing marketization of society and politics disrupts and impinges on the relation of economy, society, and democracy (Piketty & Goldhammer, 2014). It was initiated by the Reagan government in the US and the Thatcher administration in the UK in the 1980s ca. 20 years earlier than the digital disruption with the turn towards Chicago school-based neoliberalism as the economic paradigm. The paradigmatic shift was driven by globalization and the failure of Keynesianism to tackle inflation (Harvey, 2011). Marketization does not only transform politics directly, but also indirectly by impinging on the interaction of the societal subsystems (Luhmann, 1987) of economy, society, and politics. It includes the deregulation and neoliberalisation of market capitalism into free-market

capitalism with the paradigm of small government. Its consequences were the holistic reach of markets and market values into spheres of life (e.g. science, education, health care, military, and security) which were traditionally governed by non-market norms (Piketty & Goldhammer, 2014).

In some cases, this has proven as inefficient and ineffective as in the case of health care where the marketization and orientation on economized service targets have reduced the quality of health care services and the attractiveness of this occupational field significantly (Krachler et al., 2021). In other cases, marketization has had its positive effects on the effectiveness of service provision – for example considering the liberalization of monopolistic infrastructure services like railways or postal delivery in Germany (Fichtner, 2021).

For public services which have been one of the sectors which have been marketized most severely, the evidence is ambiguous (Eikenberry & Kluver, 2004). The marketization of this pillar of the democratic political system under the paradigm of New Public Management (NPM) included the strengthening of market mechanisms in the public sector and modernization of public administration (Lane, 2000). Although the logic of public services and administrations – the allocation and management of scarce public goods - is different from services and administrations of private suppliers allocating and managing private goods, both families are evaluated since the NPM reforms with similar metrics and KPIs. This has increased the accountability of public administration, and the modernization of bureaucracy which affected the throughput legitimacy of liberal-representative democracy positively (Andrews & van de Walle, 2013). However, besides these direct consequences, marketization has a severe indirect influence on society. It has increased socioeconomic inequality significantly because holding money increasingly equals means for exerting influence. The dictate of money corrupts values and moral arguments in social interaction (Piketty & Goldhammer, 2014). Many observers thus diagnose a drift from a market economy to a market society caused by marketization, and

demand for a public debate to clear out which subsystems of society markets belong to and to which not (Fichtner, 2021; Piketty & Goldhammer, 2014).

This demand voiced in academia and the public points to the need for liberal-representative democracy to find an answer on governing marketization efficiently. This is of specific importance as liberal-representative democracy erodes through neoliberalisation (Merkel, 2014).

3.2.1 Erosion of liberal-representative democracy through the neoliberal paradigm

Neoliberalism as the economic paradigm driving marketization values capitalist self-regulation of market failures and demands the privatization and deregulation of the economy (M. Friedman, 1962). This coincides with the demand for limitation of state interference into the economy, decreasing taxation which limits the welfare state while propagating the paradigm of self-determined drive for achievement. This has resulted in significantly increased levels of socioeconomic inequality in liberal-representative democracies since the 1980s (Lazzarato, 2009; Navarro, 2020).

Following the argumentation of Merkel (2014), this inequality is the starting point for an erosion of liberal-representative democracy suppressed by neoliberalism: Socioeconomic inequality is translated in the political system into asymmetric political participation (Merkel, 2014, p. 119). Those, who are socioeconomically disadvantaged tend to absent from voting. This equals a self-exclusion of the lower third of society from political participation (Huijsmans et al., 2020). This undermines the democratic core principle of equality and leads to a lack of articulation of the preferences of the lower third in democratic decision-making.

Interrelated, elections are increasingly unable to halt growing socioeconomic inequalities (Merkel, 2014, p. 121): redistributing preferences are not represented because representatives do not have an incentive to position for redistribution if the lower third that would benefit from it stays at home in elections. Additionally, even left-oriented parties who once followed

redistributive policy-goals are constrained by interest groups and capital owners in positioning on policy issues. Every political actor is threatened in a globalized world by the withdrawal of capital and investment from the national context on which policymakers are dependent when they aim at implementing costly redistributive policies. Consequently, no political party striving for government office has an incentive to voice redistributive preferences (Merkel, 2014). This gets evident in the shift of party positioning on issues towards the middle on redistributive issues in many liberal-representative democracies (Carroll et al., 2019; Prasad, 2006).

Regarding the relation to the financial system, due to the occupation of a core position by financial markets in the market economy as "system-relevant" resulting in a "bottom-to-top-redistribution, both in times of success and crisis" (Merkel, 2014, p. 122) democracy has become more vulnerable: Due to the lack of redistributive preferences in representative democracy, democratic government has lost its rule as rule-maker in the Keynesian welfare state. It is only a policy taker which is constantly assessed by rating agencies due to government debt and overspending.

Additionally, economic and political globalization has increasingly moved political decision-making from parliament to the executive (Merkel, 2014, p. 123): Volatility caused by neoliberalism requires decision-making under time pressure. This favors executive dominance in decision-making over parliaments - the real legitimizing venue for representative democracy which allows holding political actors responsive and accountable. This is not only evident for supranational bodies like the EU (Curtin, 2014) but increasingly also for national democracies like Germany not only due to Covid-19 (Griglio, 2020; Linden, 2021).

Put together, the neoliberal influence on liberal-representative democracy profoundly decreases its quality and legitimacy over all three dimensions. It does not only lock in inequality and the alienation of deprivileged citizens from the political system by discouraging political actors to represent redistributive preferences decreasing input and throughput legitimacy. It also

suppresses the discretion of democratic institutions who lose regulating power vis-à-vis markets and whose decision-making power is shifted from parliaments towards the executive, unaccountable supranational governance structures and guardian institutions decreasing output legitimacy. Consequently, "if these challenges are not met with democratic and economic reforms, democracy may slowly transform into an oligarchy, formally legitimized by general elections. It is not the crisis of capitalism that challenges democracy, but its neoliberal triumph" (Merkel, 2014, p. 126).

Additional to these direct effects on democracy, neoliberalism also creates the breeding ground for the suppression of individuals in the digital platform economy. As aforementioned, digital platforms profit from the loss of power of democratic institutions and actors in governing markets. Currently, some platforms have already reached a tipping point where network effects and economies of scale and scope will accelerate the occurrence of system-relevant digital monopolies (Bohn et al., 2020). Together, with the neoliberal dominance of shareholder value encapsulating the alignment of businesses towards the interest of owners instead of the workers, some observers warn now of the emergence of surveillance capitalism as the dominating mode of the economy in the 21st century (Zuboff, 2019): It problematizes the business models of platform economies which provide democratized information to users (which are not the customers!) based on recommender systems and exploit users` data with surveillance techniques like Big Data Analytics (BDA) and user modeling systems. The real product ("shadow text") is developed from processing this information and is sold to the real customers which often remain hidden and which can control and nudge human behavior based on the human data (Zuboff, 2019).

This business model contains a dehumanizing treatment of humans, a type of "instrumentarianism" (Zuboff, 2019) where humans are only considered by digital platforms as objects for value creation and maximization. Human behavior is instrumentalized for modification,

prediction, monetization, and control using techniques of radical behaviorism to seize data on human behavior. The treatment of humans as objects for maximal value exploitation also includes other negative implications for social interaction like the stimulation of social pressure for comparison on social platforms like Instagram stimulating behavioral contagion, or automatic enforcement procedures based on smart contracts ("uncontracts") which break trust through a disempowerment of judiciary as a trusted third entity (Zuboff, 2019). Zuboff warns consequently, of a dehumanized society where individual liberties are suppressed and exploited by surveillance capitalism. For liberal-representative democracy which is dependent on a free and active society to mature ungoverned surveillance capitalism thus bears the peril that one precondition democracy cannot guarantee by itself (Böckenförde, 1976) is not in place anymore. Consequently, political systems need to find means to govern the platform economy in the sense that it supports open and free societies instead of threatening them.

3.3 Inherent deficiencies of liberal-representative democracy

The aforementioned disruptions challenging liberal-representative democracy are predominantly exogenous. Those exogenous challenges also include globalization, delegation of decision-making competences to supranational bodies, intercultural migration and cohabitation undermining territorial integrity, demographic trends of an aging society with low birthrates, low economic growth rates with high unemployment and inequality, the uncontrollable diffusion of technologies across borders, a loss of state capacity, the societal trend of individuation with fragmented conceptions of self-interest and collectivism, mediatization including the information consumption from profit-oriented media outlets, and an increased societal perception of insecurity and vulnerability from external and internal sources (Schmitter, 2011)

However, also endogenous inherent deficiencies of actors and institutions in liberal-representative democracy are observable. It could erode in two ways: becoming illiberal when individual liberties are restricted, or becoming undemocratic if the preferences of citizens are

not driving politics anymore because the political elite has detached from citizens even if elections are still held (Mounk, 2018b). Representative democracy shows signs of a slow turn towards undemocratic liberalism which capture different areas but which all decrease accountability and representativeness of political actors: the specialization in policy-making decreasing the influence of directly elected representatives by multi-level governance, horizontal delegation to guardian institutions, and the paradigm of good governance, convergence in policy supply, an elite-electorate gap, and executive dominance. All areas deserve particular attention.

3.3.1 Decreasing influence of representatives

The last decades have seen a significant shift of political power from the national level to other governance levels weakening the representative pillar of democracy. Schmitter (2011) identifies three streams of revolutionization: First, increasing horizontal delegation and pooling: To face overcomplexity, decision-making power is increasingly shifted towards (international) specialized and technocratic institutions like central banks (Hooghe & Marks, 2015). Those guardian institutions are not held accountable, and they are not responsive to representatives, not to mention to citizens. This unconstrained principal-agent relation allows the agent – the guardian institutions – to legislate and executive decisions on their own without having to fear interference by democratic actors. Thus, "contemporary democracies have been increasingly deprived of discretionary action over issues that have a major impact upon their citizens" (Schmitter, 2011, p. 195).

Second, globalization which has strengthened interdependencies on a global level makes unilateral decision-making by nation-states on issues causing international externalities (e.g. ecologic policies) unfeasible (Urpelainen, 2010). This has led to the rise of multi-level government where rules and memorandums are set on a global level negotiated in international governance bodies like the EU, the UN, the World Climate Summit, or the WTO which need to be implemented on a national level but also by sub-national institutions following the principle of

subsidiarity. Thus, international governance bodies increase their decision-making power and competencies on the cost of national representative bodies (Papadopoulos, 2007; Papadopoulos & Benz, 2006). The newly required multi-level coordination is only possible with continuous negotiations among the different governance levels which makes effective representation holding all relevant actors in decision-making equally accountable and responsive almost impossible (Schmitter, 2011).

The third creeping erosion of accountability is the paradigm of good governance which is slightly undermining decision-making in representative bodies. Due to the increasing overcomplexity and interrelation of policy issues and the lack of knowledge of politicians on those issues, good governance as a model of private-public governance becomes increasingly dominant (Parkhurst, 2017). Organized stakeholders like businesses, lobby groups, and NGOs, or those concretely affected by a policy replace citizens and parties as those who bargain with the government in policy-making. Consensus formation as the new paradigm replaces voting on policy proposals with executives gaining power by hosting the arrangements and proposing bills with less parliamentary oversight. The distinction between the private sphere and the public sphere as the main achievement of Kantian liberalism is blurring in this vein with elections losing impact significantly (Poluha & Rosendahl, 2002). The paradigm of consensus formation is only able to create – if at all - output legitimacy with input and output legitimacy significantly decreasing.

The disempowerment of national legislative and its replacement by guardian institutions, international organizations, and private actors bears the problems of a dissolution of the representative core principles of accountability and responsiveness (Olsen, 2017). In these new principal-agent relations, the newly empowered actors are hardly controllable by the public and by democratic checks and balances. This makes agent shrinkage and agent lurking likely which ultimately would also threaten the effectiveness of representative democracies. The creeping

disempowerment of elected representatives and thus also indirectly of citizens does not only reduce input legitimacy and throughput legitimacy of representative democracies directly but also potentially impinges on its output legitimacy.

Interrelated, the increasing executive dominance in decision-making suppresses the legislative discretion of elected representatives (Curtin, 2014). Governments are those actors who bargain on the supranational level about international policies and they are those actors who implement these policies on a national level. This decreases parliamentarian oversight and discretion. Parliaments act merely as rule takers than as rule setters although their formal authority of initiation of legislation is not restricted. It is only informally suppressed by the dominance of multi-level governance.

The formal authority of representatives is even more under pressure by the informal political strategy of "There Is No Alternative" which is increasingly applied by government actors (Séville, 2017). This strategy constructs a narrative of factual constraints to legitimize government-initiated legislation, suppresses parliamentary discussion about the wide array of policy alternatives just at the beginning, and immunizes against criticism by political competitors. It has been exploited to its widest extent by German Chancellor Angela Merkel in the Euro crisis, the shift in energy policy towards renewables, the migration crisis, and the containment of the Covid 19 pandemic. However, it is a widespread phenomenon in liberal-representative democracy and manifests itself in similar narratives like emergency politics (White, 2020) or in technocratic government (August, 2021).

The effects of these "Politics Of No Alternative" are again a disempowerment of parliaments and representatives and a restriction on a narrow policy set that allegedly ignores aspects that could have been brought up if discussed more deliberately. Thus, not only input and throughput legitimacy of liberal-representative democracy but also output legitimacy is under pressure by executive dominance.

3.3.2 Cartel parties creating convergence in policy supply

However, not only governments are responsible for decreasing accountability and representativeness in liberal-representative democracy but also the representatives and parties themselves. Parties have undergone major transformations since they exist but their latest transformation has led to an alienation from the electorate according to the cartel party thesis (Katz & Mair, 2009): Responding to an increasing individualization of society (Bauman, 2013; Halman, 1996), the erosion of traditional voter milieus bound to social cleavages (Elff, 2007), and higher electoral volatility (Pedersen, 1979) political parties have professionalized and centralized with party office exerting control over the party member base. Because party office is staffed with professional politicians who earn their living with politics they have an interest in securing success. However, calculating electoral success had become increasingly difficult due to the aforementioned trends (Katz & Mair, 2009).

Thus, political parties have developed from vote seekers with a true interest in representing preferences of citizens into rent-seekers who compete in elections as a means to the end of securing state resources like state subventions and government office to secure their own survival (Katz & Mair, 2009). Incumbent parties try to monopolize access to state resources by limiting political competition. They are rather cooperating and colluding than competing in policy-making which leads to a convergence in policy supply. Political competition is not about different policy propositions anymore but it is rather a competition about spectacle, image, and theater in election campaigns (Manin, 1997) which gain importance as they are the critical moment for parties where their survival is at risk. This has increased the trend towards “parties without partisans” - an alienation of politics from society resulting in the loss of party members and loyal voters (Dalton & Wattenberg, 2002).

The cartel party thesis proves robust in practice: a convergence in policy supply (Knill, 2005), entry barriers for challenger parties like extensive election campaign costs (Prato & Wolton, 2019), centralization of intra-party power on party office (Cross & Katz, 2013; Loxbo,

2013), and the phenomenon of "audience democracy" (Beus, 2011) – mediatized competition based on attention economy - is empirically proven. These trends directly impinge on the input and output legitimacy of liberal-representative democracies because party politics does not meet up with democratic participatory norms anymore, and it also indirectly affects output legitimacy if the range of policy alternatives is restricted by a convergence of parties in policy supply. The consequence is that parties have lost their identity as popular movements already (Katz & Mair, 2009).

3.3.3 Elite-electorate gap, misrepresentation, and electoral flaws

The cartelization of parties accelerates and aggravates a gap between the political elite and the electorate which further destabilizes liberal-representative democracy. A steady alienation of representatives from their constituencies is observable which has manyfold reasons and consequences.

A meritocratisation of society in general and of politics in specific is identified as one major factor (Sandel, 2020): Wealth, position, and influence are only granted to the most talented and the most capable in representative democracies. However, equality of opportunities is not emured and upward mobility is almost impossible due to the socioeconomic rifts and the primacy of education at universities - "temples of meritocracy" – reinforcing upper-class privileges, especially in the Anglo-Saxonian context (Sandel, 2020). Politicians nowadays have academic backgrounds – especially in legal studies – and they have typically followed a target-oriented career to achieve executive positions for years (Deutscher Bundestag, 2021). Their experienced lifeworld fundamentally differs from that lifeworld large parts of the electorate are experiencing. This is problematic in a system where the political participation of citizens is restricted to electing representatives. That citizen preferences are represented authentically by politicians who do not have anything in common with them is highly contestable. This reciprocal alienation standalone already impinges on input and throughput legitimacy. If policies taken

do not meet the demands raised by society alienation could also on output legitimacy. To make it simple: “Democracy is not government by the best in our society, because such a thing is called aristocracy” (van Reybrouck, 2016, p. 152)

Even if one ignores the meritocratic aspect, representation in current democracy is in effect misrepresentation: It is simply not possible to represent the diversity of an individualized society in a body which does not consist of the whole population. Representative democracy always is a shortcut as it translates horizontal societal diversity into a vertical power-based hierarchy. However, it is disputable whether representation as a model developed in the 18th century to allow for political participation of immobilized society still fits modern, mobilized society considering the new (digital) means for political participation (van Reybrouck, 2016). The vertical principal-agent mechanism created over elections could create an oligarchic representative caste as it gets evident with cartel parties. Restricting political participation to elections leads to permanent campaigning and short-term orientation of politicians to secure reelection: “The inability to address structural problems is accompanied by the overexposure of the trivial, fueled by our insane media that, true to the market logic, have come to regard the exaggeration of futile conflicts as more important than any attempt to offer insight into real problems” (van Reybrouck, 2016). This impinges both, on the quality and effectiveness of decision-making. Put together, many observers problematize an “aristocratisation” of the representative pillar of liberal-representative democracy (Leib, 2004; Sandel, 2020; van Reybrouck, 2016).

The main symptom of these inherent deficiencies of liberal-representative democracy in the 21st century is a populist turn fueled by social media (Eatwell & Goodwin, 2018). In almost any liberal-representative democracy, (radical) actors using populist rhetoric gain popularity by presenting themselves as the “true representatives” of the electorate against the “establishment” - the political, economic, and societal elite (Barr, 2009). Populists compete politically with the promise to reestablish input and throughput legitimacy by radically

democratizing the political system and abolishing representation regardless of its important functions to protect individual liberties and prosperity. Thus, populism is the "illiberal democratic response to undemocratic liberalism" (Mudde, 2010).

3.4 Public trust in liberal representative democracy

Populism is the aching thorn in the flesh of the body of liberal-representative democracy. It is an indicator that liberal-representative democracy has overslept the first steps of erosions which are caused by inherent weaknesses and which are aggravated by exogenous disruptions. Populist actors predominantly exploit public distrust in liberal-representative democracy. This distrust in liberal-representative democracy has increased since the neoliberal shift in the 1980s, especially accelerated after the financial crisis in 2008 in those countries which were hit hardest (Edelman, 2021; European Social Survey, 2011; van der Meer, 2017).

Already for years, trust in business is higher than global trust in government which is considered both, incompetent and unethical (Edelman, 2021). This indicates that not only throughput legitimacy, but also output legitimacy of democratic core institutions is low (Edelman, 2021). Also parliaments as another core institution of representative democracy lack public trust. On average they are distrusted rather than trusted in established democracies as well as in new democracies (Holmberg et al., 2017). Generally, there exists a trust gap between the informed public and the mass public where the latter holds a higher level of distrust (Edelman, 2021). This supports the argument that the elite-electorate gap based on meritocratisation impinges holistically on the legitimacy of democracy.

According to Rosanvallon and Goldhammer (2008), current democracy is prayed by a shift from trust to distrust in the relation of electors and electees: The "voter citizen" is replaced by the "vigilant citizen" (2008, p. 41) who is a "naysayer" (2008, p. 123), This would include increased suspicious monitoring of actions of political institutions and institutions by society always on the look for scandalization (Hofmann, 2019). This seems to shift demands for the

legitimation of liberal-representative democracy into a “post-representative dimension” in political opinion formation (Hofmann, 2019) and to the rising importance of output legitimacy. Or to put it simply: Even regarding the societal evaluation of liberal-representative democracy, the representative pillar seems to lose acceptance – at least regarding its core institutions and actors.

However, although trust levels in democratic core institutions are low, satisfaction with democracy is high (Daoust & Nadeau, 2020). It is considered in all liberal-representative democracies by far as the best form of government (Hay, 2013). The general societal conviction is that democracy is the best political system to protect individual liberties and prosperity (European Social Survey, 2011). This indicates, the legitimacy of current liberal-representative democracy is stuck in a regime-institution gap where the democratic regime still is accepted but its operationalization over the representative pillar is under pressure (Hay, 2013).

3.5 The need for political innovations for liberal representative democracy

The regime-institution gap regarding public trust is good and bad news for liberal-representative democracy at the same time. The bad news is that the trust in institutions and actors as core pillars of liberal-representative democracy is that low that it even destabilizes the legitimacy of the regime. Following the Böckenförde dilemma (Böckenförde, 1976), trust as a central precondition for democracies to mature is currently eroding. However, the good news is, that another precondition is still ensured: democracy is still considered as the most legitimate regime type. This indicates, even if it is true that autocracies yield more effective outputs in certain policy areas (e.g. pandemic prevention), society in democracy values its idealized liberal core– freedom and prosperity – higher. This includes, legitimacy in the perception of citizens is not restricted to output legitimacy, it still includes input and throughput legitimacy (Schmidt, 2013). Democracy’s core task is still to ensure justness and effectiveness in protecting individual liberties and prosperity.

What does that mean for the future of democracy? Liberal-representative democracy needs to catch up by curing its inherent deficiencies and by adapting to the disruptions of the 21st century. These disruptions as Manichean phenomena – most prominently the digital transformation – may not be feared anymore by democratic actors but need to be exploited proactively. Effective political innovations of (pillars of) liberal representative democracy are required to restore legitimacy in its actors and institutions, and to stabilize the regime type.

Surprisingly, political innovations have not been investigated systematically by research yet. Only a research strand on participatory and deliberative democracy from Political Science concentrated merely on innovations to improve input and throughput legitimacy (Elstub & Escobar, 2017). Innovations of democracy by these means are relevant and suitable. However, there is a lack of systematic investigations on political innovations improving the output legitimacy of liberal-representative democracy as well and on innovations which exploit the potentials of ICTs for democratic upgrade.

Considering the increasing importance of this legitimacy dimension in public perception (Hofmann, 2019) and the threat of the aforementioned exogenous disruptions on the effectiveness of democratic decision-making and even on the liberal core values of individual liberties and prosperity, this contribution fills this research gap by developing a holistic typology on political innovations for liberal-representative democracies. In the typology, innovations restoring legitimacy do not only accentuate more means of political participation but also an improved effectivity of democracies – a higher output legitimacy. Additionally, a focus is set on innovations which exploit the potentials of ICTs for upgrading democracy.

4 Research Design

If democracy should be preserved, the (technological) disruptions need not only be governed but also exploited for reforms of the political system. The severe challenges pressing on liberal-representative democracies and the lack of discourse on political innovation presuppose

a wide definition of political innovations to prevent a restriction of the desired discourse on a narrow set of options.

Thus, political innovations are conceptualized as innovations of (elements of) the political subsystem and its interfaces to other subsystems of the society of liberal-representative democracy (Luhmann, 1987) which aim at increasing the input, throughput, and/or output legitimacy of the political system with the ultimate goal of securing individual liberties and prosperity. This broad definition also integrates for example innovations in the subsystem of the economy which have a positive effect on the legitimacy of the subsystem of the political system.

The term "innovation" in this regard means a proposed improvement of the status quo and captures innovations that have been raised in the 21st century because also the aforementioned challenges are pressing on liberal representative democracy since the turn of the millennium. New Public Management innovations are thus excluded, also because they have been researched extensively already (McLaughlin et al., 2002).

The explorative and conceptual aspirations of this contribution translate into the choice of a systematic scoping analysis (Levac et al., 2010) as a research approach to capture political innovations from a wide variety of scientific and public sources. A scoping analysis bears advantages for emerging fields of research with practical goals of initiating discourse as it is a suitable tool for "mapping the field" in new research areas (Arksey & O'Malley, 2005): A scoping analysis explicitly has a practical orientation. It aims at "contextualizing knowledge in terms of identifying the current state of understanding; identifying the sorts of things we know and do not know; and then setting this within policy and practice contexts" (S. Anderson et al., 2008). The study selection involves post hoc inclusion and exclusion criteria (Arksey & O'Malley, 2005) which is of central importance for such a broad field of research to include divergent research strands on innovations dynamically. And, lastly, it includes the analysis of a vast amount of sources allowing the "syntheses of findings from different types of study" (S.

Anderson et al., 2008) without requiring the researcher to "assess the quality of included studies" (Levac et al., 2010, p. 1), to exclude those sources which do not meet up standards of excellent scientific work. This enables the inclusion of sources like tweets or blog posts into the analysis which are the central communication tools for many proponents of political innovations – most prominently from civil society.

The scoping analysis was based on systematic searches of two databases (EbscoHost and Google Scholar) to capture innovations raised in academic literature and of a classic Google search to capture political innovations raised in popular sources. Google Scholar is the most comprehensive academic search engine with the highest amount of records whereas EbscoHost has high plausibility in the fit of queries to research interests (Gusenbauer, 2019). Sidelined with a classic Google search this matches the research interest of conflating the broadest possible set of political innovations.

For all three systematic queries the same pre-specified inclusion criteria were applied (i.e.: key search terms: variations of polit* innova*; no date limit; range of search filters: title, abstract, topic, content). The shortlist of publications that met these criteria was 348. Those sources have been analyzed for political innovations being raised. Many sources did not include political innovations and were excluded. For those which raised innovations, the hermeneutic approach proceeded with the post hoc evaluation (Levac et al., 2010) including forward, and backward search on those political innovations and their most prolific proponents and research hubs. Certain areas of political innovations like E-Government (Borucki & Schünemann, 2019; Schünemann & Kneuer, 2019) or Open Government (Noveck, 2009; Safarov et al., 2017) have been researched extensively with respective databases already existing (Open Government Partnership, 2021; Scholl, 2020). They were excluded in the post hoc evaluation due to the explorative interest of this contribution aiming at typologizing new innovations which have not

been collected in other sources. This led to a reduction of the innovations which were typologized.

In total, 89 new political innovations have been identified with the scoping study – 56 from academic sources and 33 from public sources. They serve for this contribution as the core set to discuss a set of political innovations regarding its impact on democratic institutions and legitimacy, and which challenges they aspire to tackle. For the online database on political innovations with a broad range of classification criteria (e.g. radicality, aims, degree of implementation, application area) which was established during the process of analysis they are a starting set. The online database is accessible under this link.

The political innovations in this contribution are not exhaustive, also because many innovations raised in the public are hardly scrapable by search engines. However, the innovations which have been included int this analysis cover all relevant actors, institutions, and processes of liberal representative democracy for whom political innovations have been proposed. Consequently, they are a vital starting point for initiating a discourse on adapting liberal-representative democracy to the 21st century. Given the normative interest of initiating this discourse, this contribution also restrained from evaluating or even ranking the political innovations on subjective or normative criteria like desirability. Public discourse is the more suitable forum for evaluating advantages, disadvantages, potentials and threats of the political innovations which have been collected with the scoping analysis.

5 Typology of political innovations for liberal-representative democracy

For this contribution, the proposed innovations have been typologized by the area of impingement of innovations on institutions of the political subsystem of society (Luhmann, 1987). Other modes of typologization are possible and could be customized in the online database on political innovations which is accessible here. However, to present an overview about political innovations having been raised and how they relate to the inherent defects of liberal-representative democracy and the challenges inhibiting on it (see Figure 2), the sorting by

impingement on institutions allows to discuss differences and similarities between the innovations more comprehensibly in this contribution.

Insert Figure 2 about here

In this vein, seven areas of innovations are identifiable: a) an increase of efficiency of government, b) an increase of innovativeness of government, c) the introduction of preference intensity to voting systems, d) randomness as a principle in decision-making and the selection of executives, e) participatory democracy mainly based on deliberation, f) a decentralization of economy and politics driven by libertarianism, and g) an alignment of the neoliberal economy to liberal-representative democracy.

5.1 Government

The reasons of distrust in government are mainly identified in its inability to tackle overcomplexity caused by digitalization, the crisis of multilateralism, globalization, climate change, the need for pandemic prevention unveiled by the Covid-19 pandemic, and the demographic change (Heilmann & Schön, 2020). The lack of knowledge and resources to govern this overcomplexity results in slow bureaucracy complicating fast reactions which already decreases the efficiency and effectiveness of government outcomes. In the future, governments are predicted to come even more under pressure. Government debt is already at unknown highs and the technological disruption – most prominently caused by AI – will likely lead to reduced tax income in the future (Noveck, 2018).

Thus, the government needs to become lean on the one hand while also managing the technological disruption on the other hand. In this vein two innovation streams of government are identifiable, one aiming at increasing the efficiency of governments whereas the other aims at modifying the role of government in accelerating innovation.

5.1.1 Efficient government

The stream on efficient government splits into three strands, incremental procedural proposals from academic researchers that have been partly implemented into practice after these researchers were appointed to public service positions, the strand on E-Government, and a technology-driven strand built on modern ICTs. Whereas the latter two strands both apply digital means to improve the efficiency of government, they differ in their destination route. The E-Government strand mainly applies Web 2.0 technologies and aims at digitalizing government services from a government-centered viewpoint without focusing on the needs of citizens whereas the technology-driven strand builds on Web 3.0 technologies and aims at satisfying citizen needs by personalizing government services following a user-centered viewpoint. The E-Government strand is already heavily researched upon with comprehensive literature reviews (Schünemann & Kneuer, 2019). It is thus excluded from the presentation of innovations on efficient governments in the following as the focus of this contribution is mapping political innovations which have not been collected comprehensively yet. Thus, the Web 3.0 innovations are presented after focusing on the procedural proposals.

The first Obama Administration in the US (2009-2013) had set a focus on increasing the quality of government services and appointed scholars who had researched upon that topic into positions where they were capable to implement them. The legal scholar Cass Sunstein was appointed as head of the *White House Office of Information and Regulatory Affairs (OIRA)* and implemented the paradigm of user-friendly government (*Smart Government)* to tackle the issues of overcomplexity, overregulation, random decision-making, and low responsiveness of government services towards citizens. The accessibility to government services was simplified by the use of plain language, nudging was applied as a form of soft paternalism to influence citizen behavior in interaction with government as a simple and low-cost approach while preserving individual freedom, retrospective analyses were introduced to monitor the effectiveness of bills, cost-benefit evaluations of government activity replaced the precautionary principle to

strengthen evidence-based decision-making and more room for citizen discretion and government experimentation was given (Sunstein, 2013).

The paradigm of user-friendly government was sidelined in the first Obama administration by the *Open Government Initiative* led by Beth Noveck, a professor in Technology, Culture, and Society, which aimed to increase the transparency of government action by giving holistic access for the public to government data. These attempts in the US led to widespread penetration of Open Government programs in many democracies in the 2010s (Safarov et al., 2017). This new data source is mainly applied by the private sector as a data source for innovation – especially for AI – for data analytics, decision-making, and to counter decision-making, but also in attempts to build smart cities, and by research (Safarov et al., 2017). However, it is seldomly used by the broad public (Nam, 2015).

Consequently, after having left her job in the US administration and gaining experiences in other jurisdictions, Noveck considers open government in younger contributions as one element out of five to build an *Agile, Data-driven, and Participatory government* which really promises to restore the legitimacy of democratic governments holistically (Noveck, 2017). The other elements next to open government are a primacy of data-driven decision-making to increase the understanding about the performance of policies and services, the principle of responsible data use where access to government data is given for research to counter issues of biases against "digital invisibles" (people not represented in government data), an increase of citizen engagement with online tools to strengthen the quality, trust and acceptance of governments, and an incentivization of government and public for participatory governance and more collaboration in policy-making and evaluation.

In a similar vein, politicians in the German discourse demand a turn towards agile and *KPI-driven Governance* to overcome the lack of measurement of the effectiveness of policies (Heilmann & Schön, 2020). Therefore, the authors propose a measurement of policies with key

performance indicators, which are assessed by a neutral control entity after two years concerning its effectiveness which has the power to change or eliminate ineffective policies. This incentivizes governments to create effective policies as it introduces an accountability mechanism for governments to not only be responsive to citizens in making policies ("do the things right") but also to make these policies effective ("do the right things"). This requires evidence-based decision-making, development charts to streamline the implementation of policies, the paradigm of "digital-first" in decision-making operationalized by a digital check whether bills are also effective in governing digital ecosystems, and it could also include the automation of decision-making. In the end, governments need to present themselves as a "One-Stop-Shop" towards citizens (Heilmann & Schön, 2020).

Those who identify slow and unmodern bureaucracy as a major factor for decreasing legitimacy of democratic government demand an *Acceleration of Bureaucracy* to strengthen its integrity (Heilmann & Schön, 2020): The starting point is a digitalization of government infrastructure which, in a second step, requires an increase of digital literacy in public administration: IT competence as a duty for senior positions and higher relative wages for IT workers are suitable means. Additionally, the agility of the workforce could be improved by increasing the interconnectivity to the private sector as a source for short-term labor, by abandoning internal job postings, by creating a competence pool for applicants and more competitive application processes, and by introducing job rotation and project orientation to enlarge the set of experiences and competences of public administration workers.

Whereas these innovations of government proposed by politicians and researchers predominantly include procedural and incremental changes driven by demands for improving the legitimacy of government, the other strand of innovations proposed by technological experts mainly applies a need-driven and user-centric approach of applying technological means in public administration to improve its effectiveness.

An example of that is an ecosystem of *Government Bots*: Joshua Browder, a young British-American tech entrepreneur, has issued the platform *DoNotPay* which operates with chatbots built on AI and Big Data Analytics (BDA) and assists citizens in legal disputes by modeling and communicating information and rules about legal issues to the user. The legal chatbots democratize access to legal advice and help in this vein to strengthen the integrity and acceptance of the judicial system as users of the legal chatbot could comprehend the rules and procedures which guide the legal processes they are exposed to (Hale, 2017). Browder is currently building an eco-system of chatbots functioning similarly to the legal chatbot for all government services built on Open Government Data and other publicly accessible data sources (Citron & Browder, 2017). This promises to simplify and democratize access to government services as it is easier to communicate bi-directionally with a bot than to file incomprehensible forms without the possibility to clear out questions. Additionally, government bots could be a means to automate and streamline certain government services and they are thus a vital element for faster and more responsive government.

The ineffectiveness of government services is mainly rooted in the dilemma, that consequences of decisions could only hardly be assessed. In liberal-representative democracy, this is further complicated as social experimentation with humans as a means to calculated outcomes of decisions contravene the liberal ideals of individual self-determination and personal liberties. *Jurisdictional Digital Twins* can remedy this (Moore, 2019): Digital twins are "clones" of material or immaterial objects or processes from the real world in the analogous world. They are traditionally used as a means to optimize analytics and automation, e.g. in an industrial environment. However, they are also applicable in the political system as clones of an entire jurisdiction to overcome the issue of social experimentation. Digital twins as a single interface for awareness and operational control enable scenario planning of policy and legislation. Additionally, governments could apply digital twins for automated command-and-control operations to

respond to incidents with reduced staff. Thus, just like government bots, digital twins are a tool for a leaner bureaucracy.

Digital twins are already applied in a few jurisdictions like Estonia who do not only innovate on specific elements of government services but who have conducted a holistic transformation towards *Government 3.0* – the holistic application of Information Communication Technology (ICT) for data-driven and evidence-based decision-making and governance.

This also includes Blockchain Technologies (BCTs). As aforementioned the most prominent exhibits of Blockchains – Bitcoin and Ethereum – are predominantly a tool for decentralization as they operate on open blockchains and make central authorities obsolete by building on cryptographically verified tokens stored in P2P networks. However, there also exist closed blockchains that are significantly more suitable for applications in government areas as they are deployed by a central authority allowing for standardization and offering higher capacity and faster throughput than open blockchains (Ølnes et al., 2017). Closed blockchains also build on P2P networks and the cryptographic verification of tokens. Thus, BCT applications could be used for the storage of transactions and records in P2P networks secured by cryptographic encryptions, for the storage of digital identities and signatures, for public funding, and even for self-sovereign identity verification (Alexopoulos et al., 2018; Lausevic, 2019). This promises higher integrity of data storage by governments, it enables the personalization and proactivation of government services and it could improve quality and quantity of government services through simplification by seamless information sharing at higher transparency levels, higher data safety and reliability levels, and reduced costs (Alexopoulos et al., 2018; Ølnes et al., 2017). However, to exploit these potentials, a needs-centered and citizen-centered approach in creating an ICT- and BCT- based Government 3.0-ecosystem is required to improve legitimacy.

Estonia – a forerunner in digitalizing government – has implemented a Government 3.0 initiative under the vision to regain citizen trust by “creating an efficient, user-centric service

delivery system which actively responds on citizens' needs out of the slow and unresponsive analogous bureaucracy" to become open and transparent by redesigning government rules and procedures to get rid of unnecessary data collection and task duplication.

The vision was translated into a digital government service ecosystem for interactions with citizens which is built on the four pillars of the "once only" principle, personal data authority, digital identity, and the data embassy. The personal data authority is ensured by the data infrastructure of Estonian government services which is built on *X-Road*, a BCT-based data exchange platform that connects public sector databases (Robles et al., 2019). It was already implemented in 2007 and ensures that citizens have authority over the storage of their data and its access by the government. A citizen can only access his personal data with his private key which is encrypted cryptographically. Each request on citizen data by a government authority is automatically stored in log files in the P2P network which ensures transparency toward citizens and disincentivizes for abuse of personal data by government entities decreasing the threat of random state coercion.

This is even further mediated by the "once-only principle" which sets the rule that the state cannot request the same data more than once. Additionally, the principle demands that data may not be stored more than once which is technically most easily possible in the P2P-based network. This avoids centralization of data, duplication of data, bad data quality, and the problem of "Single Point of Failure" which is prone to centralized databases (Atzori, 2017).

The digital identity serves as a basis for access to personal data. It is coupled with a legally binding digital signature – a combination of the private key and transaction's data - which is required to complete a safe transaction – e.g. access to personal data - together with the public key (Alexopoulos et al., 2018). Additionally, the digital identity allows Estonian citizens to conduct legally binding transactions digitally without the need for paperwork.

However, these benefits of the Estonian digital BCT-based ecosystem are only accessible if the integrity of the digital infrastructure against attacks is ensured (PricewaterhouseCoopers, 2019).

That is why the data embassy introduces cybersecurity measures. The most critical digital assets of Estonia are mirrored on server resources outside of its territorial boundaries in Luxemburg since 2017 to ensure digital continuity of operations in case of physical attacks on the country aiming to destroy the P2P networks.

Although Estonia has demonstrated the advantages of BCT-based Government 3.0 initiatives in practice (PricewaterhouseCoopers, 2019), the penetration of BCT in democratic governments remains in its initial stage. Challenges in blockchain adaption from a technological side root in security, scalability, and flexibility, and from the political side in the need of new governance models, and the resistance of many national governments in accepting BCTs as they fear a disempowerment by decentralization (Batubara et al., 2018).

Thus, BCT-enabled government services are often deployed on lower governance levels (Batubara et al., 2018). The city of Miami in the US for example experiments with Bitcoin as a BCT-based cryptocurrency and identifies the fixed money supply as a *Bitcoin-enabled incentivization mechanism* to tackle government overspending. As one of a few cities in the US, Miami officially accepts Bitcoin as a means of payment and aims at becoming a crypto-hub. Mayor Francis Suarez identifies in the possible replacement of fiat currency with cryptocurrency and the subsequent establishment of a decentralized money system untethered from a central bank the need for a shift towards small government generating government surplus (Shin & Suarez, 2021): With governments losing the means for adjusting money supply in a crypto-based currency system, they are incentivized to eliminate deficit spending as they need to adapt to the currency and not vice versa. Governments in this sense would act as “normal” market participants who need to borrow money to the same terms as any other market participants. Thus, only lean and profitable governments would survive in the market.

5.1.2 Innovative Government

Next to the demand for increased efficiencies tackled by the aforementioned innovations also the demand for innovative governments becomes louder on a global scale. The founder and leader of the World Economic Forum in Davos, Klaus Schwab, identifies the need for government action to adapt towards the digital revolution as the "Fourth Industrial Revolution" (Schwab & Davis, 2019). Governments need to manage a shift in the economic system towards a circular economy and to ensure freedom of thought in digital societal ecosystems. Therefore, Schwab demands a more active, agile, fluid, flexible, and adaptable government taking an active role in managing the digital transformation of the economy, society, nature, and politics in a way that allows humanity to still determine its fate. Accordingly, the stream of innovative government is dominated by entrepreneurs and actors from the private sector who demand more support from the government, although also voices from academics are raised.

An example of that is Mariana Mazzucato (2013, 2018) with her call for an *Entrepreneurial State* acting as an innovator and benevolent capitalist. From her perspective, a neoliberal-libertarian narrative strayed by Venture Capitalists where entrepreneurs are celebrated as wealth creators, and where the government is discredited as a wealth extractor coupled with the self-perception of public policy-makers and civil servants as market fixers and not as market creators would have led to a reduction in public spending at latest since the turn of the new millennium. This created an innovation gap for many liberal-representative democracies in countering the crises of the 21st century and the digital transformation (Mazzucato, 2018). To respond to these challenges, government needs to (re-)claim its Keynesian roles as an investor, risk-taker, and innovator (Mazzucato, 2013).

It needs to strengthen public investment as a key driver for economic growth based on four pillars (Mazzucato, 2013): First, governments need to define a vision for technological change with interrelated investments aligned to it. In opposite to private investors, public funding provides patience and long-term strategy and is a neuralgic source of capital for research

on base technologies. As an example, it was only possible to develop the internet through funding by the US-American *Defense Advanced Research Projects Agency* (DARPA). Second, to allow for patience and long-term strategy, the short-sighted evaluation of government spending needs to be replaced by a measurement of the courage of public funding in pushing markets into new areas, and in supporting research on base technologies. Third, public organizations need to be allowed to experiment and fail, because acting in future-oriented environments could not be free of faults if one does not want to betray the ideal of innovating.

Fourth, Mazzucato demands innovative solutions which allow governments to reap some of the upside rewards of technological change which was initiated by public funding instead of only trying to de-risk and to regulate the downside as becoming evident in the governance of digital platforms – the richest companies nowadays. Therefore, she proposes the creation of *National Innovation Funds* where returns on public investments in general-purpose technologies (GPTs) are socialized, the introduction of *Income-contingent Loans* for companies similar to student loans where government profits from company's success, and the introduction of a *State Investment Bank* (Mazzucato, 2018). Public funding following this role model allows for public-private co-creation, experimentation, exploration, and a trial-and-error mentality which is key for inventions and innovations (Mazzucato, 2013).

Although Mazzucato's proposals are most sophisticated, her demand of strengthening the role of the state as an innovator is raised only strayed in a few jurisdictions. In Germany, the demand for the state to take over the role as a *Benevolent Capitalist* is raised. It demands increased discretion for governments in making investment decisions, setting investment incentives, and strengthening investments in benefits (Wildemann, 2021). Additionally, building on Mazzucato's demand for reaping also benefits of public funding, the German proposals demand to reapply the socialized benefits for state investments in a sustainable economy in the lights of multiple tipping points having been crossed regarding the climate crisis (Wildemann, 2021).

Problematizing the innovation-blindness of governments, *Business-like Governance* is another prominent innovation proposed by Mazzucato – this time on the local and regional level and not on the national level (2018): To become innovative, it proposes jurisdictions to be governed following a CEO model. The already existing role models are small countries that had to do more "convincing than coercing" to sustain survival like Estonia, Dubai, or Singapore. These countries apply qualities of tech companies like rapid prototyping, experimentalism, or design thinking for political governance to strengthen innovativeness. It is a suitable mode of governance for cities and communities with a mid-scale public administration.

Whereas the innovations on innovative government proposed so far include a changed role and self-perception of government driving innovation, a significant stream of innovations identifies the tax system as a means for citizens to influence governmental funding, to hold governments more accountable to the demands of citizens, and to increase citizen-driven innovativeness.

Quadratic Finance is an archetypic operationalization of both goals. Problematizing the ignorance of citizens by governments where taxes are invested into leading to a preference-implementation gap, quadratic finance aspires to match citizen's funding preferences with funding needs identified by governments in a three-step process (Buterin et al., 2018). First, a public authority issues a list of investment projects. Second, citizens invest money that they have initially paid as taxes in projects of their choice following a Quadratic Voting mechanism (more about *Quadratic Voting* later). The square root of each citizen's investments per project is summed up and squared by the authority which then invests that amount in addition to the investments of the citizens into the investment project in the third step. This promises an optimal alignment of citizens' preferences with the provision of (public) goods, and it solves the information problem for governments about how much provision of a public good is desired by citizens. The application areas of Quadratic Finance are not restricted only to public funding

but could also include infrastructure investments, campaign financing, news media financing, or open-source software development – in fact, any process where authority is investing on behalf of a group that aims at profiting from these investments (Prewitt & Healy, 2018).

Tailored Taxation is a proposal which targets predominantly the low responsiveness of governments in spending taxes of citizens and proposes that citizens decide with filing their tax-return in which public policy area 30% of their taxes should be invested whereas the other 70% are still deployed centrally by treasury (Vesnic-Alujevic et al., 2019). The higher indirect discretion of citizens in shaping public investments and expenditures incentivized government departments to be more transparent and communicative to citizens about their actions and measures to ensure sufficient budgeting, and it could also be a source of information for the government regarding public finance which investment area is considered as specifically important by citizens.

Considering the disruptive impact of AI on tax systems (Noveck, 2018), a few proponents demand to adapt taxation towards AI. Predicting an accumulation of capital and wealth by companies, the US-American AI entrepreneur Samuel Altman proposes to tax companies predominantly on equity and to redistribute the taxes to citizens to cushion the disruptive impacts of AI on the workforce (Altman, 2021). Considering the increased overall wealth with increasing relative inequality at the same time caused by AI accelerated by a power shift from labor to capital also due to inefficiencies in taxing income and the impossibility to govern capital income effectively, *Equity Funds* could function as an instrument of redistribution (Altman, 2020). This *Equity Fund* should distribute wealth more effectively by taxing assets creating capital wealth (land, companies) instead of taxing income. Such a capital taxation system should serve to directly distribute ownership and wealth before it is "stored" in capital income. This is Altman's proposal to tax capital income which is sidelined by his proposal to introduce a Universal Basic Income (UBI) to relax income inequality. In his eyes, the UBI is financeable,

as AI would lead to “Moore’s law for everything” significantly reducing the price for assets (Altman, 2020).

Brought together, whereas the proposals for efficient government are already in a stage of implementation in a wide variety of jurisdictions, the call for innovative government remained largely unheard yet although it promises to increase output legitimacy of liberal-representative democracy significantly.

5.2 Preference intensity, randomness, and competitiveness in voting systems

The introduction of preference intensity to voting systems to increase the input legitimacy of liberal-representative democracy is also hardly conducted yet although different voting systems are intensely researched upon in Political Science with a dedicated research strand on voting systems existing. This research strand mostly analyzes the outcomes of various voting systems in terms of translation of votes into seats and only vastly potential alternatives to the dominating majoritarian, proportional and mixed voting systems (Norris, 1997).

However, there exists a rather interdisciplinary research strand which actively evaluates how voting is not restricted for citizens to just decide binarily for one alternative (candidate, position in referendum) and against another, but rather to allow for the ordinal ranking of alternatives – to introduce preference intensity into the voting system (Casella & Sanchez, 2019; Hortala-Vallve & Llorente-Saguer, 2010; Lalley & Weyl, 2016). Introducing preference intensity could be conducted by various means.

Vote Trading is a very simple implementation as it allows voters to trade votes among each other in advance of a voting decision (Casella et al., 2014). This bears the advantage that voters have more influence on decisions that affect them if they find a trading partner. However, it is problematic that those who are disadvantaged by a collective decision based on the voting mechanism are not compensated.

This also holds for *Storable Voting* which follows a similar logic. Voters could store their votes if an issue is not of interest to them and they can conversely allocative multiple votes to highly important issues for them (Casella, 2005). Thus, they are not dependent on trading partners for votes. However, a fixed agenda of ballots is required to allow voters to decide how many votes they want to invest per ballot.

Qualitative Voting is a generalization of Storable Voting as it means that voters could reflect relative preference intensities for every ballot taking place (Hortala-Vallve, 2012). A fixed budget of votes which could be issued by a voter across all decisions taking place demands from the voter to allocate the relative voting weights according to the own preferences across all decisions. *Qualitative voting* in this vein even promises to reflect the preference intensity of voters most directly. However, also in this voting system, those disadvantaged by a collective decision as a consequence of the ballot are not compensated.

Quadratic Voting (QV) promises to secure both, the reflection of citizens' preference intensity in the voting process, and the compensation of those disadvantaged by a collective decision (Posner & Weyl, 2019): Every voter receives an equal amount of vote credits per period. These vote credits could be used to "buy" multiple votes to influence a single decision. Every vote costs vote² vote credits (e.g. 2 votes cost 4 credits, 5 votes cost 25 credits) meaning that the marginal cost of "buying" votes grows exponentially. In this vein, voters need to manage their vote credits according to preference intensity. The credit budget for a voting period and the exponential growth of marginal costs of vote "buying" ensures that those who are outvoted in a ballot are not disadvantaged by the collective decision as they have in relative terms more voting power in upcoming ballots relative to those who have invested more credits to influence the past ballot (Posner & Weyl, 2014).

In laboratory experiments, *Quadratic Voting* has proven Pareto-efficient and superior over majority voting (Posner & Weyl, 2019): The preferences of voters with low to moderate

preferences across a wide array of ballots and the preferences of voters with high preferences in a narrow set of ballots are better reflected in the collective decision being taken than in traditional one-man-one-vote systems. The voting system could radically cure current deficiencies in election campaigning as it incentivizes political parties to predominantly target partisan voters hoping to increase their preference intensity instead of ignoring them as in current voting systems where predominantly swing votes are targeted. The latter will only have low preference intensity and will thus not invest a high amount of votes in an election as partisan voters (Posner & Stephanopoulos, 2017). Consequently, they are a less attractive target in elections. This promises that election campaigners do not customize their election campaigns on swing voters and do policies for their partisan voters when they are in office anymore. To put it simply: The incentivization for misrepresentation of preferences could be reduced by QV. Additionally, QV could be a tool for countering polarization and fragmentation by penalizing the expression of extreme views as they are highly costly in terms of vote credits encouraging. This could encourage temperance and compromise in party competition (Posner & Weyl, 2014). Additionally, more conscious voting is likely as voters need to evaluate the importance of decisions and their disposal of vote credits accordingly. This could increase political literacy and trust in the political system.

However, QV is a complication of the voting process and demands more effort by citizens which could even lead to more unconscious voting by lazy voters who do not care about their credits. Additionally, the danger of manipulation of the voting agenda and the credit system by a central authority or hostile actors is pressing. Not to mention the danger of a "tyranny of the minority" if a passionate and highly organized small group applies strategic voting by investing all vote credits in a ballot. Low preferences of a lot – the general public – could be beaten under QV with high preferences of a few. However, the last point of criticism equals a general distrust in the introduction of preference intensity into the voting process: If preferences

should be reflected most directly in political outcomes, preferential voting mechanisms are indeed the most suitable means (Goeree & Zhang, 2017). However, the discussion of the potential threats indicates, that a legal regime, effective social norms, a precise fixing of the vote credit amount per voting term, and transparent communication of the voting agenda for a voting period are required (Posner & Stephanopoulos, 2017). BCT-based verification and securitization of QV voting agendas and credits could be in this vein suitable, as BCT-supported elections are already widely discussed due to their advantages in securing transparency and integrity of elections (Yu et al., 2018).

Like the other innovations on voting systems discussed so far, QV could not only be applied for classic elections of representatives on all levels for representative bodies – also for international governance – but also in referenda on policy issues (Posner & Stephanopoulos, 2017). As aforementioned it could also be applied as a funding mechanism for Quadratic Finance.

Besides the introduction of preference intensity, also the introduction of randomness promises to increase the input legitimacy of liberal-representative democracy over reforming the voting system. A research strand focusing on randomness as a principle for making collective decisions promises to counter the problem that those in the minority in a vote are disadvantaged by a collective decision. It relaxes these disadvantages with random selection in a probability voting system or a sequential voting system (B. S. Frey, 2017; Mueller, 1978).

Probability Voting promises to overcome the constant discrimination of significant minorities with diverging preferences and the winner-takes-all principle of current voting systems by coupling traditional proportionality voting with random selection (B. S. Frey, 2017): The voting results from proportionality voting are translated in weights for a lottery and the winner of the collective decisions is drawn from this lottery. Consequently, the chance for the most

popular alternative to being selected in the lottery remains the highest, but now, also the choice of the preference of the minority is possible.

Sequential Voting promises to cure the currently observable phenomenon in politics that very polarizing actors and issues have good perspectives to succeed in ballots although they are fundamentally countering the preferences of many voters (e.g. election of Trump, Brexit decision). *Sequential Voting* turns the logic of voting into *ex negative* by introducing an elimination system built on veto voting on a list of alternatives (Mueller, 1978) coupled with random selection (B. S. Frey, 2017): A lottery decides which voter can veto an alternative from the list. This vetoed alternative is subsequently eliminated from the list. This process repeats for every voter and in the end the alternative which is not vetoed/which has the lowest amount of vetoes) is chosen as the collectively binding decision.

To increase the accountability of representatives in the principal-agent relation to voters, an increase of competitiveness of elections could be a suitable solution besides the introduction of randomness or preference intensity to voting systems (Schmitter, 2011): *Shared Mandates* where each party nominates two candidates per mandate - one senior representative and one deputy - could increase responsiveness by ensuring that at least one of both is constantly present in the district. *Variable Election Thresholds* could complicate re-election disincentivizing representatives from preferring short-term solutions over sustainable but less popular long-term measures. Introducing a *Voucher System for Party Financing* which is issued based on the electoral performance of parties could be another means to increase the competitiveness in elections.

All these proposals for innovating voting systems promise to cure some of the current deficiencies of our voting systems. However, only the innovations introducing preference intensity are tested in a few jurisdictions on the local level.

5.3 Randomness for decision-making and for selecting politicians

Whereas the innovations having been described so far do not change the logic of liberal-representative democracy but solely aim at curing the functioning of voting systems and government (services), we now turn towards more radical innovations of democratic political systems which aim at upgrading the role of citizens in democratic decision-making. A small research strand mostly centered at ETH Zurich focuses on applying the randomness (aleatoric) principle to politics. Aleatoric democracy promises to cure some deficiencies of processes in representative systems if both systems are complemented as it could allow for an increase of impartiality and a decrease of public alienation from politics (Sintomer, 2011).

Considering public distrust in politics due to bribery, corruption, and the patronage of office, the monopolization of recruitment of decision-making and decision-making in general by parties, and the orientation towards partiality instead of the common good in representative systems, sortition could be applied as a means for decision-making (The Alternative, 2019), as a mechanism to appoint officials and politicians by and from the mass public (Osterloh & Frey, 2019), and to ensure recruitment of "ordinary citizens" into deliberative bodies (Sintomer, 2018) among possible other operationalizations.

It could enable a precise representation and a fair selection process of the underlying population and gives outsiders and unusual ideas a chance to influence politics. Principal-agent conflicts are eliminated under sortition because executives are not mandated by citizens. Additionally, the aleatoric procedures enable stability and continuity between competing groups, because each group has an equal chance to come to power. This also promises to overcome deficiencies of liberal-representative democracy when properties and views are overlooked or considered unimportant at the time of selection of decisions. Under aleatoric democracy, the complete set of alternatives is always represented in the lottery according to the share in the population. This decouples the chances of alternatives or persons being elected from error- and manipulation-prone human interference (Osterloh & Frey, 2019).

The potential operationalizations of the randomness principle in politics are multi-faceted and range from applying it as a mode in decision-making to selecting politicians. Problematizing closed circles in executive positions in politics ("old white men"), hubris of government politicians (Berger, Osterloh, Rost, & Ehrmann, 2020), an underrepresentation of significant groups of society in government position based on the discouragement of aspiring for executive positions due to the closed circles resulting in low diversity (Berger, Osterloh, & Rost, 2020), and the short-term orientation of political executives to secure reelection, a focal aleatoric procedure is proposed to cure these deficiencies (Berger, Osterloh, & Rost, 2020). It stipulates the *Selection of Government Executives by Lot* from a pool of diverse candidates who are equally qualified. These executives serve for one fixed period and are replaced afterward with a new set of allotted executives. The consequences which have already been validated in laboratory experiments indicate that allotted executives act more cooperative, more open to advise, and more humble than their elected counterparts (B. S. Frey et al., 2020). Additionally, the aleatoric procedure improves satisfaction with government selection as it does not allow for scapegoating, and it reduces hybric behavior (Berger, Osterloh, Rost, & Ehrmann, 2020). The obligation to leave office after one legislative period also promises to disincentivize short-term orientation in government and electoral campaigning, although this has not been tested upon yet. This is also the case because the random selection of government officials has not been tested yet in real political systems.

A more radical proposition is the replacement of democratic government by a randomly selected *Random Dictator* (Elster, 1989): Problematizing the incentivization for politicians to misrepresent their preferences in electoral campaigns aggravating an elite-electorate gap under representative democracy, a *Random Dictator* could be determined out of the total electorate for one term and a specified legislative period. Such a dictator would have no incentive and not even a possibility to misrepresent his preferences during campaigning due to the sheer lack of

electoral campaigns and the incalculability of receiving office positions (Elster, 1989). However, it creates issues of unaccountability, potential lack of missing expertise, the impossibility to learn from experience while being in office, and it always creates the danger of random decision-making contravening liberal ideals if the role of the dictator would not be integrated into a system of checks and balances.

Thus, a suitable modification would be that a dictator is not chosen from the total electorate but rather from a pool of qualified politicians, representatives, or experts (Stutzer & Frey, 2006). In this sense, the institution of the *Random Dictator* would rather be an instrument to form governments and to circumvent the deficiencies of electoral campaigning where the issue of preference misrepresentation is most pressing and to disincentivize the short-term orientation of governments as a reappointment is not calculable. If government officials are allotted from parliaments replacing the logic of coalition-building in parliamentary systems and of direct elections of government in presidential systems provided a minimal qualification of parliamentarians, a proportionate composition of government over time to the composition of parliament would be ensured (Osterloh & Frey, 2019). This would allow for a better indirect representation of citizen preferences.

5.4 Participatory democracy in decision-making

Most of the applications of aleatoric democracy go hand in hand with the strengthening of deliberation complementing or even replacing the representative system. Deliberative democracy is a subtype of participatory democracy which consists of two major research strands: a political-theory-motivated strand and a technology-motivated strand.

Building on the American philosopher John Dewey, the former follows a holistic understanding of democracy as a spirit rather than as a pure instrument of choosing and electing the political and administrative elite in a society:

"In the first place, democracy is much broader than a special political form, a method of conducting government, of making laws and carrying on governmental administration by means of popular suffrage and elected officers. It is that, of course. But it is something broader and deeper than that. The political and governmental phase of democracy is a means, the best means so far found, for realizing ends that lie in the wide domain of human relationships and the development of human personality. It is, as we often say, though perhaps without appreciating all that is involved in the saying, a way of life, social and individual. The keynote of democracy as a way of life may be expressed, it seems to me, as the necessity for the participation of every mature human being in formation of the values that regulate the living of men together: which is necessary from the standpoint of both the general social welfare and the full development of human beings as individuals. Universal suffrage, recurring elections, responsibility of those who are in political power to the voters, and the other factors of democratic government are means that have been found expedient for realizing democracy as the truly human way of living" (Dewey, 1937).

This broader understanding of democracy directly creates the demand for broader participation of democratic citizens in democratic processes which go beyond "popular suffrage". There exists a broad research strand in Political Science which more or less directly justifies proposed innovations strengthening the role of citizens in decision-making with Deweyian references (Fishkin, 2011; Habermas, 1992a, 1992b). Higher participation of citizens in democratic processes is considered in this vein as a means to improve the input and throughput legitimacy of liberal-representative democracy by complementing and curing the representative pillar of democracy. The proposals are widespread over elements of the political system

reaching from reforming parties, to introducing (randomly allotted) deliberative chambers up to a complete replacement of the representative pillar by deliberative elements.

This research strand has a common perspective on the structure of democracy as a system of popular sovereignty with guarantees basic rights where checks and balances prevent a „tyranny of the majority“ (Kundnani, 2020). Those researchers also share the sense for a crisis of representative democracy but they do not agree on the concrete causes. The diagnoses include a problematization of democratic deconsolidation when living in a democracy is not valued anymore by citizens (Mounk, 2018a), a democratic hollowing into a post-democracy, where democracy as the expression of the will of the people becomes increasingly empty (Crouch, 2004), an elite-electorate gap aggravated by cartelization of parties (Katz & Mair, 2009) and the meritocratisation in achieving executive positions (Sandel, 2020), an "overconsensualization" of democracy with more fragmented party systems necessitating multi-party coalition and thus compromises (Kundnani, 2020), and a criticism of the expansion of depoliticized decision-making by delegating decision-making power to specialized and supranational institutions (Schmitter, 2011).

What all observers share again is the identification of populism as the symptom of "undemocratic liberalism" (Mounk, 2018a), and the perception, that democracy has always renewed itself and needs now to find an answer on populism which should not lay in democratic limitation but rather in democratization of liberal-representative democracy (Kundnani, 2020). This normative claim follows the conviction that liberal democracy is compatible with alternatives or complements to representative democracy and that deepening democracy is possible by upholding democracy. This research strand identifies deliberation in tradition to Habermas (1992a, 1992b) and Fishkin (2011) on all governance levels and the strengthening of direct democracy as suitable elements to complement or replace, the existing system of representative democracy or to be integrated into it.

Social Movement-driven Participatory Democracy (Della Porta, 2019; Della Porta & Felicetti, 2017, 2019; Della Porta & Reiter, 2020) is a minor exemption regarding deliberative innovations as it sets a specific focus on the influence of social movements whereas the other innovations more holistically include the whole civil society in decision-making. Interrelated, Della Porta also identifies the deficiency of representative decision-making differently in an "econocracy" where political decision-making only pretends to be political but rather follows economic rationales and where low levels of state intervention and high levels of lobbying and unaccountable influence on decision-making occurs. That is why Della Porta demands the institutionalization of social movement (SMO) participation in deliberative decision-making and strengthening referenda from below. In such a system, SMOs overtake the functions to articulate public distrust and democratic malaise, to serve as an experimentation field for political innovation, to revitalize solidarity in society in participatory and deliberative spheres, and to serve together with the judiciary system as an instrument of external control and permanent contestation of the executive.

Put together, social movements can set a democratic innovation agenda by demanding new modes of political participation (input legitimacy), they contribute to framing governance innovation in democratic terms (throughput legitimacy), and they provide practical support for the implementation of democratic innovation (output legitimacy). This would increase democratic quality by creating the "possibility to elaborate ideas within discursive, open and public arenas, where citizens play an active role in identifying problems, but also in creating solutions" (Della Porta, 2019, p. 611). However, Della Porta remains unclear how concretely SMOs could participate in deliberative institutions, she merely justifies an agenda for integrating SMOs in institutionalized decision-making to increase predominantly input and throughput legitimacy.

5.4.1 Deliberative democracy

More concretely, but diverging from the classical rationale of deliberative innovations and applying it rather as a means for opinion building than as a forum for decision-making is the proposal of *Massive Open Online Deliberation* (MOODs) from a small research strand on digitalized democracy (Helbing & Klauser, 2019): Problematizing the misfit of an individualized society and a centralized top-down administration based on coercion, centrifugal tendencies in society and politics (e.g. populism, hate speech), a discriminatory majority rule suppressing minority preferences and restricting participation, and the destruction of a shared public as the fundament for deliberative democracy (Habermas, 1992b) by misinformation, counter publics and echo chambers, a paradigmatic shift in government based on power towards government based on empowerment is demanded. MOODs are introduced as the central component to the stage of problem and solution identification in decision-making which should allow for a qualitative and multi-faceted preference articulation of citizens instead of the classical binary decision in elections or referenda (Helbing & Klauser, 2019). MOODs build on open government data and are productive decentralized platforms ensuring transparency to reduce manipulation and censorship in opinion building. They are moderated by elected humans to ensure fair and constructive decisions and abnormal discussions driven by destructive chatbots and ghostwriters are tackled by AI governance means. Additionally, good deliberative behavior is rewarded in a reputation system based on a transparent and fair qualification mechanism which also allows determining the roles of individuals in the deliberation process. Although the proposal is comparatively granular, MOODs have not been operationalized into practice or have been subject to experimentation yet.

This does not hold for *Liquid Democracy*: the combination of direct democratic participation with flexible models of representation. It is one of the most prominent examples of participatory democracy due to its high penetration in European party systems. However, *Liquid Democracy in Decision-making* is more general: In its essence, it stipulates that citizens

have the right to choose to either vote on policy issues or to delegate their voters area-specific to issue-competent representatives who by themselves could delegate to representatives as well (meta delegation) where each delegation is instantly revokable (Blum & Zuber, 2016). The distinct combination of direct democracy with deliberative democracy is a means to organize representative democracy with advantages in the dynamic attribution of representation capitalizing on crowd intelligence (Bennett et al., 2018).

However, especially the central element of delegation of votes to representatives in *Liquid Democracy* creates again a principal-agent relation even if the delegation is instantly revokable which is especially problematic if *Liquid democracy* is applied in party systems and not only in parties replacing the representative system (Blum & Zuber, 2016). Delegation of votes requires citizens to choose the best representatives according to their preferences. However, it remains unclear how they are informed about which representative will represent which preferences. Additionally, especially meta-delegation creates the problem of unequal voting power when a representative has significantly more influence on a decision compared to an ordinary citizen (Blum & Zuber, 2016). This recreates the elite-electorate gap from representative democracy. Additionally, with the absence of a centralized coordinating decision-making body, a contradiction of policies across policy areas is likely because possible interdependencies are not overlooked sufficiently.

Thus, *Revised Liquid Democracy for Decision-making* promises to cure these deficiencies by combining the basic model with three components (Blum & Zuber, 2016): First, citizens can delegate their votes to trustees instead of representatives. In this case, the trustee has complete independence and is not bound to the will of the citizen who has delegated his vote. Thus, the problem of a potentially deficient principal-agent relation is resolved by its abandonment. The complete independence for trustees allows for more open participation in deliberative forums and the possibility that the trustee is convinced by better arguments which would

operationalize the core elements of deliberation - argumentation and persuasion (Habermas, 1992b). On top of that, voters still have the instrument of instant recall of their votes if they are not satisfied with how trustees decide.

Second, and interrelated, the voting imbalance between ordinary citizens and trustees is cured by the introduction of common deliberative forums for opinion-building where trustees are obliged to participate in. Due to the abandonment of the principal-agent relation, also citizens have the possibility in these domination-free discursive forums to persuade trustees with good arguments. Additionally, deliberation offers a means to tackle contradicting decisions across policy areas.

The third element is an elected executive with oversight which reviews the feasibility of policies having been deliberated by citizens and trustees and by moderating package dals across policy areas additionally to its core task of implementing policies. This executive does not have the power to veto laws due to substantial or ideological reasons, but only if it is not feasible from a resource perspective. Brought together, this revised form strictly restricts the role of liquid democracy on legislative decision-making but also increases its sovereignty as the central decision-making institution (Blum & Zuber, 2016).

Whereas the holistic application of Liquid Democracy complementing the representative system as a distinct branch of democracy has not been implemented yet, *Liquid Democracy for Intra-party Decision-making* is already widely applied in political practice as exemplified by the party family of *Private Parties* in Europe or the Italian populist *Movimento 5 Stelle* (Deseriis, 2020). The latter uses the online platform *Rousseau* as a forum for deliberation of party members and interested citizens and as a tool for voting on proposals resulting from the deliberative processes which are subsequently translated by the party leaders into policies (Deseriis, 2020). This ensures a very direct principal-agent relation where the party leaders act as “fulfillment agents” for the citizens registered on *Rousseau*.

Regarding the evolution of political parties, the penetration of *Liquid Democracy* will likely lead to the emergence of non-ideological connective parties which are highly dependent on their supporter base, They need to balance movement demands for direct democracy with centralized leadership by applying ICT-enabled distributed democracy (Bennett et al., 2018).

Although those parties promise to increase input and throughput legitimacy of democratic systems through a more direct impact of citizens on decision-making, two challenges occur: Internally, parties need to deploy and secure the technological infrastructure for *Liquid Democracy* which needs to be combined with more traditional, analogous means for participation in a fluid party structure. Externally, the share of authority between party supporters and party office needs to be balanced stably to secure legitimacy and acceptance in elections as *Liquid Democracy* does not aim to replace the representative system. Thus, until now, it is hardly calculable whether parties applying it will pray future party systems.

5.4.2 Aleatoric deliberative democracy

One of the biggest innovation streams in participatory democracy is aleatoric deliberative democracy – the combination of deliberative forums with the randomness principle as an instrument for recruiting citizens. Its type of recruiting decision-makers which is not based on principal-agent relations in opposite to the mode in representative systems promises to prevent undue influences on public decisions like lobbying or unaccountable private interest influence, that creative outsiders have easier access to influential positions with lotteries as a "search engine" for new ideas and talents, and that political literacy in the citizenry is increased. They could even stabilize the political system because deliberative forums are a channel to articulate and relax distrust with government about divisive issues (Osterloh & Frey, 2019). However, it is not ensured that the randomly allotted citizens are sufficiently qualified for participating in deliberative forums and that they want to invest their time in deliberation, although the latter

could be mitigated with financial compensation, or incentivization mechanisms (Osterloh & Frey, 2019).

The innovation stream proposes multi-faceted innovations which diverge in terms of decision-making level and in terms of whether they aspire to complement or replace representative decision-making bodies and direct democratic elements.

On the local level, deliberative forums with random selection mechanisms have already proven feasible in practice. *Citizen Forums* function as committees where half of the members are allotted from the citizenry, and the other half are local politicians who discuss jointly political issues (Osterloh & Frey, 2019). Politicians include the input from these discussions into legislation in classic representative bodies afterward. In the Dutch city of Groningen, next to allotted ordinary citizens and elected politicians the *Cooperative Council* also includes appointed neighborhood ambassadors – people who are trusted by the local community. These forums ensure that a variety of people and their views are represented in decision-making. A collective rise in trust, higher voter turnout, and higher cohesion in the community was measured in Groningen as a consequence of the introduction of the *Cooperative Council* (Innovation in Politics, 2019).

Most proposed innovations target decision-making on the national level. Ethan Leib is proposing a replacement of direct democracy by deliberative democracy with the introduction of *Random Assemblies as a Popular Branch* complementing and curing defects of the representative system. He problematizes an "aristocratic nature of electoral representation" (Leib, 2004, p. 60) but criticizes at the same time uninformed and binary decision-making in direct democracy which often follows only an acclamatory logic. Valuing the prevention of a „tyranny of the majority" by checks and balances by the representative system, he considers sidelining representative democracy by deliberative democracy as more suitable for ensuring input and throughput legitimacy without limiting the output legitimacy of democracy.

The Popular Branch Leib is introducing consists of a randomly allotted national assembly of 525 members who are debating in groups of 15 in small civic jury meetings in plenary sessions (Leib, 2004). They discuss proposals after ten percent of the voting population agreed to put them on the deliberative agenda. Next to citizens, also the representative decision-making bodies could send policies to the random assembly with a supermajority in one chamber along with a simple majority in another house. This allows avoiding gridlock in the traditional legislative bodies. After deliberation in the civic jury meetings, policy proposals are voted upon in the random assembly and if they are accepted and signed by the national president, they come into practice. However, a double supermajority in both legislative houses could block the implementation of the policy proposal, and it could be challenged by the judicial branch.

The random assembly should be introduced on the national level first according to Leib. Afterward, it could also be implemented on different governance levels. As such, the popular branch is integrated into the existing institutional structure of liberal-representative democracy as a third decision-making chamber without disrupting representative institutions by just replacing the initiative and the referendum and by upgrading the role of citizens in decision-making (Leib, 2004, p. 18).

The proposal of Leib was modified by expanding the number of assemblies based on stages of decision-making: John Gastil – the most prolific author on deliberative innovations – co-authored by Robert Richards (2013) also proposes to couple aleatoric deliberative forums with representative institutions, and in opposite to Leib also with direct democratic elements instead of replacing them. The authors problematize the lack of direct participation in representative democracy and the lack of deliberation and sufficient information for decision-making of citizens in direct democracy and introduce random assemblies as the connective element to cure these deficits.

The *Five Types of Random Assemblies* should be applied to the five stages of policy-making (Gastil & Richards, 2013): A Priority Conference at the stage of issue identification identifies policy areas requiring government action and gauges the seriousness of a political problem. In Design Panels at the stage of policy evaluation, proposed ballots are evaluated and potentially revised before they are voted on. In Citizens' Assemblies at the stage of policy recommendation, the members of the assembly forward recommendations for legislature to the electorate to empower them for initiating a referendum. For the concrete vote on a referendum, the Citizens' Initiate Review (CIR) develops one-page voters' guides which are handed out to citizens to inform them about the consequences of the various decision alternatives. Policy uries as the fifth type of assemblies are a forum for citizen deliberation about pieces of legislation with concrete law-making power which are reviewed by the judicial branch.

Whereas these proposals do not impinge on the institutional structure of the representative system, another stream of innovations on aleatoric deliberation aims at modifying it. Yves Sintomer proposes the introduction of an *Aleatoric Third Chamber*, without questioning but rather strengthening direct democratic elements. Problematizing the exclusion of citizenry from decision-making resulting in public distrust materializing in (violent) social movements (e.g. Gilets Jaunes in France, PEGIDA in Germany), and the deadlock in decision-making if the first and second chamber have divisive majorities – as it has been often the case in the US in the near past – a jury allotted out of a new third chamber with 6.000 citizens which conversely is allotted randomly from the citizenry for at least a year should study and take decisions on extremely divisive issues which are gridlocked in bicameralism (Sintomer, 2018; The Alternative, 2019).

The advantages are that decisions are made by "ordinary people" who are less powerful than the legislators in the first two chambers considering the gap in political literacy between the mass public and the informed public. In this vein, citizens have a feeling to get heard in

politics, and gridlock as a major source of public distrust is eliminated. Interrelated, the logic of faction discipline prone to representative government is not translated to the third chamber which thus serves as a corrective for representative decision-making. Additionally, the influence of lobbying on the decision-makers is more difficult, as it is significantly more difficult for private actors to identify those members of the third chamber who will decide in the jury due to the lottery principle.

Kevin O'Leary (2006) is also proposing an *Aleatoric Third Chamber for the US*. However, his proposal includes more decision-making power for this sortition chamber, a rejection of the mass plebiscite of direct democracy fearing a „tyranny of the majority", and it is tailored to the political system of the US: Criticizing the high levels of corruption and polarization, the low responsiveness and accountability of representatives due to the size of districts, and gridlock in the Congress in case of divisive majorities, he identifies the need for "democracy's third transformation" to counter the growing gap separating political elites from the public and degeneration of the political system into a "democracy without citizens" (O'Leary, 2006). His proposals stipulate the introduction of one Local Assembly per district randomly allotted with 100 citizens, and the introduction of a People's House where each of the 435 districts is represented by one randomly allotted delegate per local assembly.

In the first stage of assembly reform, both bodies should function as discussion forums without holding formal power resources and acting strictly advisory by discussing major domestic and international issues (O'Leary, 2006). In the second stage, the People's House holds formal veto power to vote on, and to initiate major legislation in Congress. In this second stage, the People's House discusses a few bills which are prepared in the Congress in each session, and it could reject legislation from Congress by majority vote which could be overridden by three-fifths vote both, in the House of Representatives and the Senate. Additionally, it has the authority to initiate a limited amount of bills in both other houses to function as a gate-opener

assisting to break legislative gridlock. The People's House is governed by a steering committee that prepares and leads the sessions. It consists of 50 delegates who are selected out of the pool of delegates in a secret ballot.

The Local Assemblies serve as deliberation forums that discuss political issues and function as an information source for public officials about citizen preferences which are incorporated in legislation (O'Leary, 2006). Members serve for two years in an assembly, receive financial compensation, and gain expertise through training – similar to judicial jury members.

O'Leary identifies the advantages of his deliberative innovation in the creation of opportunities for intelligent participation of the public in a deliberative and thoughtful manner instead of impulsive or emotional participation as in direct democracy, or by SMOs. The influence of consultant-dominated politics and special interests pressing on US democracy nowadays would be countered by forming broad-based civic majorities in the Third Chamber based on its veto right. Additionally, the initiation right promises to serve as a gate opener in dissolving deadlock on popular bills in other chambers. This reduces also the importance of the presidency and the interrelated power to rule by decree which bears problems of accountability. Thus, such a random third chamber promises to cure pressing deficiencies of US American democracy without radically disrupting its representative institutional architecture (O'Leary, 2006).

The latter does not hold for the proposals to replace representative second chamber in political systems with a sortition chamber. The proposition of a *House of Lots* instead of a House of Lords which is rather a first thought than a concrete innovation aims at introducing a sortition chamber with veto powers to block legislation of the first chamber (Osterloh & Frey, 2019).

John Gastil and Erik Wright (2018) have proposed a more detailed innovation: A *National Bicameral Legislative Body* consisting of an Election Chamber operationalizing the

principle of "government by the people", and a Sortition Chamber operationalizing the principle "government of the people" which are both equally powerful in policy initiation and policy review of bills passed by the other chamber. The proponents problematize the agent shrinkage of politicians in the principal-agent relation to citizens becoming evident in a self-serving attitude, corruption and lobbyism, and a general disconnect from electorates as well as systemic discrimination of certain groups in the population in election campaigning. Regarding representatives, the "ideological precommitments required for effective party membership simultaneously limit candidates' creativity in generating novel solutions" on policy issues (Gastil & Wright, 2018, p. 306). The Sortition Chamber would relax these deficiencies of the Election Chamber through its diverging logic in decision-making and member selection. Its members are allotted from the citizenry, they are financially compensated, and they serve for one period where a cohort of the chamber is replaced each year.

For Gastil and Wright (2018), the complementation of the functional logic of both chambers would improve democratic quality, not only regarding participation but also regarding its effectiveness in legislation: The Sortition Chamber would enable political influence which is not dependent on resources (money, political connections, etc.) and which would allow also the articulation and integration of preferences of unorganized (group of) individuals in decision-making. More creative decision-making is possible as faction discipline does not constrain positioning and cognitive biases are reduced as the higher diversity of sortition members compared to representatives allows integrating multiple perspectives in positioning in decision-making. This also increases the chances for fairer outcomes of decisions. Put together, the Sortition Chamber has advantages in ensuring political equality, in tackling the influence of private interests, in offering higher deliberative quality and impartiality whereas it has weaknesses regarding accountability and competence.

Accountability is ensured in such a bicameral system by the election of representatives to the Election Chamber. Representatives also have higher competence because the Election Chamber offers the opportunity to pursue a career as a professional politician. Additionally, organized adversarial politics over parties integrate functions into the political system which are crucial for democracy like preference articulation, aggregation, and channeling. Political parties offer popular classes a means to organize their interests. Many social conflicts are only resolvable through party politics due to societal divisions as random chambers are not designed for protecting the interests of societal groups in decision-making. However, the proponents demand the introduction of preference intensity to the voting process of representatives and identify a preferential proportional voting system based on large multimember districts as most suitable (Gastil & Wright, 2018).

Combined in a bicameral system, such a national legislative body complementing representative democracy with deliberative democracy promises to improve especially the input and throughput legitimacy of liberal-representative democracy. However, this proposition has not been translated into practice, maybe also because the bicameral system could cannibalize itself due to tensions between both chambers (Vandamme et al., 2019): The introduction of the sortition chamber could lead to a loss of legitimacy of elections. Elected representatives likely attack sortition representatives as lacking experience and accountability if the legislation in both chambers contradicts each other. Additionally, the balance of power between both chambers could produce the same situation of gridlock which is already apparent between two representative chambers (e.g. US).

Thus, some innovations even go further and do not integrate deliberative forums into the representative system but rather replace it completely. The most sophisticated proposal in this vein stems from Dieter van Reybrouck who criticizes the representative pillar of liberal democracy in his book “Against Elections” (2016) as completely dysfunctional and even

undermining democracy. He proposes to replace the complete representative decision-making system with a *Multi-body Sortition System* consisting of several allotted bodies for all stages in decision-making.

In the first stage of policy-making, an Agenda Council consisting of 150-400 financially compensated volunteers chosen by lot sets the policy-making agenda . Interest Panels subsequently discuss and propose policy alternatives fitting to the issues from the policy agenda. They consist of twelve volunteering and self-selected citizens per panel with an unlimited amount of panels. Review Panels overtake in the following step the compilation of policy proposals and ideas. They compile legislation according to the input of Interest Panels and with the input of policy-area-specific experts. A Review Panel consists of 150 citizens who are allotted to separate sub-panels that are empowered for a specific domain. The Policy Jury has the decision-making power and votes secretly on the legislation compiled by the Review Panels. The Jury consists of 400 allotted citizens from the basic population who are obliged to participate and who are exchanged after every plenary session.

The Rules Council deciding on rules and procedures of legislative work consists of 50 citizens chosen by lot from volunteers and is interconnected with the Oversight Council which implements the rules set by The Rules Council. The Oversight Council regulates the legislative process and deals with complaints and consists of 20 volunteers chosen by lot.

Van Reybrouck's proposal has not been tested in practice yet and he has also been vague about the implications of his proposal for democracy and its underlying liberal ideals. It sets high trust in the virtue of citizens to participate politically and does not include any alternative if the required level of citizen participation is not fulfilled.

5.4.3 Technology-driven deliberative democracy

A more out-of-the-box innovation is the *Democracy Machine* which does not rely on (mandatory) random selection but on incentivization to secure political participation in

deliberative forums (Gastil, 2016). Considering the lack of feedback loops in current civic paces and low participation rates in online deliberation tools, the *Democracy Machine* promises to build a digital ecosystem for deliberation which incentivizes citizens for political participation by the use of gamification and nudging (Gastil, 2016).

Participation is possible on nine levels. Citizens can level up by investing credits that were issued by the Machine if they have participated widely on the level they were "playing". At every level, the demands on citizens to participate, but also their decision-making power and the number of credits issued increase. The forms of political participation include problem identification, crowdsourced brainstorming, deliberative decision-making, and public funding.

The major innovation of the *Democracy Machine* is the introduction of feedback loops (Gastil & Richards, 2017). As an example, if a citizen has contributed to generating an idea that is subsequently translated into law in traditional legislative bodies, the citizen is informed about the further processing of the law, its implementation, and its evaluation when put into practice. This promises to increase citizen engagement as citizens get a feeling that their participation is valued and has an outcome. Additionally, by also rewarding public agencies with credits if they give issue this feedback to citizens, the responsiveness of political actors is increased through incentivization. The *Democracy Machine* could also be instrumentalized as a tool for the selection of political and societal leaders through the mechanism of leveling up and increases the political literacy of citizens if they participate as every successful cycle (policy) increases the capacity and the skills of players (citizens and agencies).

All these deliberative innovations raised by Political Theorists have in common that they predominantly aim at increasing input and throughput legitimacy of democracy. Another research strand pushes for similar innovations which are motivated rather by digital transformation than a philosophic Deweyian understanding of democracy. Acknowledging the increased complexity in decision-making and the gain of individual sovereignty and

independence facing central authorities due to digitally enabled disintermediation, these proponents identify higher participation of citizens as the only means for democracies to sustain under conditions of a digitalized society.

According to this research strand, the "technology" of representative democracy – citizens electing professional representatives who are deciding on political issues on behalf of citizens in parliaments – was suitable when liberal-representative democracy manifested itself from the 18th to mid-20th century where citizens could not gather physically, not to mention virtually for decision-making (Rashbrooke, 2019). However, this has changed with the digital transformation making participative technology (Web 3.0) available creating the public demand for participation which has not been reacted upon yet by democracy. Public distrust and the currently undergoing populist-authoritarian wave are in this vein the indicators that democracy has not upgraded its "technology" to the 21st century (Rashbrooke, 2019). Consequently, innovations proposed by this research strand rely more heavily on digital technology as a means to operationalize the often less concrete proposals of the research strand from Political Theory in concrete institutions and processes and are predominantly raised by politically interested tech experts or politicians.

Examples of that are *Online Consensus Formation* tools which allow for the discussion of issues by citizens brought up by themselves (Rashbrooke, 2019). After deliberating about proposals on these issues and after meeting high approval thresholds, the citizenry issues policy recommendations to representative legislation bodies who could vote on them. Taiwan – another forerunner in applying political innovations next to Estonia - is already applying such a collective intelligence system under the name *vTaiwan* as an online space for free crowd brainstorming (Tang, 2020): Citizens can pitch ideas for policies online in the deliberation ecosystem (built on the technology of *Polis, crowd.law* and *Slido)* which are deliberated upon subsequently by citizens. The six most prominent ideas are featured (by the government) on the landing page

of the platform and they are open for voting for citizens. The result of the vote does not require the government to implement the decision. The platform serves more as a tool for government and decision-makers to collect information about citizen needs and it serves as a medium for citizens to mandate governments to take responsive decisions reflecting the preferences citizens have agreed upon (Tang, 2020). This deliberative element thus promises to counter polarization and fragmentation of public discourse by a solution-oriented discourse on issues of high relevance for citizens.

Beth Noveck, the aforementioned proponent of agile and open government, has also proposed the mode of *Collaborative Democracy* (Noveck, 2009) which is operationalized by *Crowdlaw* (Noveck, 2018). *Collaborative Democracy* actively aims at increasing output legitimacy, the effectiveness of democracy (Noveck, 2018) instead of only targeting input and throughput legitimacy as many innovations from the political-theorist proposals on deliberative democracy. Acknowledging the elite-electorate gap, the pressing overcomplexity on decision-making, and the discouragement of citizens to overtake expert functions in the current representative system, Noveck proposes collaboration as a distinct form of participatory democracy: The spurred notion of institutionalized expertise is replaced in this sense with technology-supported collaborative gathering and evaluation of information among citizens who have self-selected themselves as experts for a certain domain to produce knowledge. In a second step, online communication tools enable visual deliberation about concrete policy proposals which are then translated into policies. Noveck distinguishes *Collaborative Democracy* from participatory democracy by claiming that the former empowers individuals to take a collaborative role in shaping decision-making whereas she denounces a more passive, acclamatory role for citizens regarding decision-making in traditional participatory democracy.

Crowdlaw operationalizes *Collaborative Democracy* into practice: City councils on a local level and parliaments on regional or national level apply technology via institutionalized

processes to engage and to collaborate with citizens at every stage in law and policy-making aiming at mobilizing collective intelligence (Noveck, 2018): At each of the five stages of policy-making (see Figure 3) diverging needs would require the involvement of divergent (citizen) actors empowered with the means to satisfy these needs.

Insert Figure 3 about here

The first stage of problem identification would demand diverse and lived experience necessitating input from those with experience, situational awareness for issues, and credentialed expertise with a specific focus on consulting those who are disadvantaged in a current situation. The second stage of solution identification would demand professional know-how responsive to the public interest which could be assured by credentialed experts from diverse sources (e.g. academia, industry, business) based on a value judgment by citizens. The drafting stage of bills should be conducted by people with writing skills, and the ability and interest for policy-making which requires a high level of commitment and greater knowledge of the subject matter. The implementation at the fourth stage should still be conducted by government agencies. However, citizens should participate in Policy Labs to implement bills into practice by identifying problems and potentially better approaches before an idea is finally deployed. The fifth phase of conduction includes the continuous evaluation of bills by ICT-driven consultation of citizens about the suitability of measures including participatory "social audits" to ensure more iterative regulation and legislation. This fifth stage is considered as most necessary for *Crowdlaw* as it increases the quality of lawmaking and subsequently of output legitimacy (Alsina & Martí, 2018). Diverse initiatives are already institutionalized in various jurisdictions (e.g. Iceland, Finland, Columbia), however, *Crowdlaw* - similar to other deliberative innovations - is not widely dispersed in practice yet.

The comparatively high variety of proposed innovations in participatory democracy is increasingly recognized in politics and goes beyond the simple application of *Liquid Democracy*. As an example, liberal German politicians demand participatory decision-making with four claims: Decentralized, agile, and interconnected government, systematic inclusion of (inter-)disciplinary experts in decision-making, the creation of citizen councils on the communal level as deliberative elements which are created and mandated by national legislators, and an "eBay for participation", an online platform listing the opportunities for citizen participation (Ostermann et al., 2021).

However, besides the application of *Citizen Councils* in a few cities on the local level, especially the proposals for aleatoric deliberative democracy remain mostly theoretical and have not proven feasible in practice yet. An explanation could lay in the fact that all innovations aiming at participatory democracy build on one highly disputable premise: Proponents of participatory democracy frame the current low level of political participation as a *symptom* of the prevalence of representative democracy suppressing means for the political participation of citizens. They trust that citizens will participate if they are empowered or incentivized to do so. Problematic in this vein is the lack of research on the robustness of this premise. If the premise does not hold, if citizens would also restrain from participation when they are empowered, participatory democracy would be dysfunctional from the first day of its establishment.

5.5 Automated democracy

A significantly smaller innovation stream draws an opposite conclusion from the currently low levels of political participation. It argues that especially the less informed mass public with low political literacy does not have an intrinsic interest and motivation in participating politically (Kersting, 2019). To put it bluntly: Citizens are lazy regarding politics, electing representatives is already enough duty for many citizens. Thus, this research strand identifies the

solution not in more, but less political participation. Innovations in this vein mainly build on technological means to automize democratic processes.

Real Time Smart Government (Kersting, 2019) is a relatively moderate innovation. Problematizing the low speed and efficiency in decision-making and governance next to the lack of public interest in political participation, interaction between citizens and the democratic system is replaced by interaction over sensors, Internet of Things (IoT) -applications, and smart objects making analogous feedback loops for policy-making over citizens superfluous. However, it remains unclear how the digitalization of feedback loops should be conducted in practice.

More concise and more radical is the proposal of *Augmented Democracy* (Hidalgo, 2018, 2021): It includes the replacement of politicians by digital agents. Problematizing the public alienation from politics, representation as a "critical bottleneck" of democracies prone to manipulation and corruption, the non-feasibility of direct democracy due to "lazy citizens" and the sheer amount of legislation, and the non-evolutiveness of Liquid Democracy as it does not solve the problem of cognitive bandwidth, of uninformed citizens (Hidalgo, 2018), the holistic application of AI to automate democratic processes is proposed.

A combination of direct democracy with software agents – digital twins of citizens – replaces the complete representative legislative body. The digital agent is an AI algorithm overtaking the decision-making abilities of citizens. Therefore, a citizen uses personal data after choosing a training algorithm from a marketplace of algorithms to train the agent in predicting how the citizen would vote based on the data provided. The data is stored in an own data bot and the agents are not built on the platform paradigm as it bears the dangers of manipulation and highjack due to information centralization and monopolization. As proposed by Hidalgo (2021) they rather rely on protocol-based systems similar to the earliest version of the internet to allow for decentralization. Maybe BCT-based data storage could be a means as well.

The predictive algorithm is combined with an execution algorithm – a bot – which operates in the political system on behalf of the citizen. The citizen can audit the system, can set the agent on autopilot, but can also choose to pause the digital agent in case the citizen wants to decide personally on a specific issue.

Conducting political decision-making with digital twins makes representative systems obsolete as the digital agent allows automating law-making without requiring human interference who can still follow their professional jobs and enjoy their spare time. Preferences of individuals are not required to be aggregated on the district level represented by a politician but are rather directly mirrored in the digital agent. This allows having a senate with as many digital senators as citizens in a jurisdiction which enables truly representative decision-making. If coupled with other AI- and BDA-based systems, this allows for more evidence-based decision-making or even for algorithmic lawmaking. This dissolves the principal-agent issues from representative systems, operationalizes evidence-based decision-making based on the preferences of citizens, it allows to dissolve the expensive legislative body, and to increase responsive decision-making (Hidalgo, 2018, 2021).

However, this idea has not been implemented in practice yet – also because it is not thought upon in every detail. As an example, the abandonment of the representative system would mean an abandonment of the system of checks and balances which prevents a „tyranny of the majority“. As for every political innovation featured in this contribution, this accentuates the need for more experimentation and discussion.

This also holds for the operationalization of the principle of *Advocatus Diaboli* into practice by technological means: Problematizing the political style of “Politics Of No Alternative” exercised by many democratic regimes (Séville, 2017), the restriction in policy-making to a narrow set of political alternatives due to constraining factors like fraction discipline reducing creativity, and the lack of evidence in decision-making, the introduction of one person

to every decision-making body which actively thinks outside of the box and against the solutions on the table could be a viable means to allow for a more diverse and faceted set of alternatives in decision-making promising to improve the effectiveness of policies (B. S. Frey, 2017; Helbing et al., 2017a). The *Advocatus Diaboli* should not be restricted in the thought process by legal obligations, path dependencies, technological borders, or political correctness (B. S. Frey, 2017). Ensuring that is hardly possible when humans overtake this role.

However, the *Mayor Bot* could function as a technological operationalization of the *Advocatus Diaboli*. Initially, the *Mayor Bot* was only proposed as a BDA- and open-data-supported digital agent built on AI that supports evidence-based decision-making by visualizing data to decision-makers and citizens (Vesnic-Alujevic et al., 2019). The bot informs about possible alternatives and empowers citizens to participate. As such, the *Mayor Bot* could be easily turned into a *Digital Advocatus Diaboli* if it not only informs about possible alternatives but also creates alternative scenarios based on the data stock it is operating on. Thus, it would be superior to human scenario planning due to its AI capabilities.

Another automation of processes in political systems is already applied broadly in some jurisdictions (e.g. Estonia): Automatic law enforcement by BCT-based *Smart Contracts*. To tackle high transaction and bureaucratic costs for issuing and enforcing contracts, BCT enables the decentralized verification of contract details and its enforcement based on immutable rules secured by cryptographic means which also serve to ensure confidentiality and security of the contracts (Voshmgir, 2017).

This promises to reduce bureaucracy through lower transaction costs, to accelerate law enforcement, and it potentially disrupts the judiciary system, especially regarding private contract enforcement as its system of trustless trust makes judicial review obsolete. However, some challenges exist: A highly sophisticated communication, decentralized information, and transparency ecosystem is a prerequisite, expert knowledge is still neuralgic in law enforcement

making certain degrees of centralization necessary (Voshmgir, 2017), and especially the relentless automatic reinforcement of social interactions could have significant undesired societal implications (Zuboff, 2019).

5.6 Libertarian decentralization of economy and democracy

Whereas the innovations discussed so far do not target the exclusiveness and monopoly of one jurisdiction on a territory, a significant innovation stream with libertarian ideological foundations demands a radical decentralization of democracy, and a change of the functional logic of governance.

These demands are more or less directly related to the book "The Sovereign Individuals" by James Dale Davidson and William Rees-Mogg (1997) which serves as a source for inspiration for the libertarian movement. Its rationale is decisive to understand the motivation for innovations proposed by this stream. The basic theoretical underpinning is that societies are prayed by a logic of using violence by centralized authorities to exploit citizens limiting their freedom. Each technological disruption changes this logic of using violence and decreases the inequality in the use of violence. Already in 1997 when the book was written the authors identified a transitional phase where the nation-based Industrial Society based on the monopoly of force is replaced by an unstoppable transition towards an Information Society of "Sovereign Individuals".

Whereas the logic of Industrial Society was the exploitation and control of citizens through fiat currency, taxation, and the monopole in use of force which locked citizens into nation-states, the Information Society promises to realize a new form of freedom with the emergence of Sovereign Individuals free from coercion due to the complete liberation of productivity, the abandonment of nation-state and the replacement of representative democracy by a cybermarketplace.

The book has high popularity in the libertarian community as it has predicted several transitional trends which indeed took place until 2020. This strengthened the trust in the core message of the complete liberation of individuals from coercion. For Davidson and Rees-Mogg these trends are driven by digital disruption as the technological revolution changing the logic of the use of violence. This ICT-driven change accelerates the disintermediation of coercive institutions, the emancipation of individuals from authorities, and the decentralization of centralized institutions. The authors predicted that digital disruption will virtualize many social interactions which have taken place in the real world in the 20th century: Individuals could connect across geographical borders through virtual communication, possibilities to emigrate to less exploitative nations are eased by globalization, and the need for intermediaries controlled by the state through regulation or taxation is eliminated by computer networks.

Taking a more granular and sequential view, the transition towards Industrial Society presupposes the emergence of a cyber economy that evolves through three stages (Davidson & Rees-Mogg, 1997): After initial primitive exploitation of cyberspace as an information medium to facilitate industrial-era transactions, it is applied in the intermediate stage as a medium for internet commerce with long-distance transactions although still functioning in the old institutional framework with national currencies submitted to jurisdiction and taxation of nation-states. In a third stage, true cybereconomy would occur where transactions are conducted virtually outside of national jurisdictions with cybercurrencies replacing fiat currencies as the dominating modes of exchange as they are cheaper, safer, anonymous, and coercion-free due to the lack of an extraterritorial regulatory power.

The occurrence of the cybereconomy is predicted the most far-reaching economic transformation ever. ICTs would enable cheaper and more effective protection for financial assets than the state could ever achieve. Cryptocurrencies would promise the end of inflation and a deleveraging of the financial system. This reduces profits for central banks - the monopolistic

issuers of fiat currency - which decreases the power of governments. Additionally, the taxing capacity of nation-states will erode when the internet becomes the normal route for transactions as cheap encryption and coded credit transfer could remove transactions outside of governmental jurisdiction. Coercive taxation becomes uncompetitive due to the lack of barriers in a global marketplace. Thus, cybermoney and cybereconomy are denationalized and control shifts from central banks to a decentralized global marketplace. This would reduce power asymmetries between the state and individuals at the expense of the state due to lower tax burdens which is the primary equity source for states (Davidson & Rees-Mogg, 1997).

Davidson and Rees-Mogg predict that governments try to counter their loss of power by attempting to control their revenue streams in taxing also the cybereconomy. As this is not feasible due to the deterritorialization of cybereconomy, governments would try to stop the transition by attacking the technological base of cybereconomy. However, due to the technological enablement of market individualism, disintermediation, and technological decentralization, this would not be feasible as well. Additionally, the loss of income resources would make welfare state capacity unfinanceable after 2010. The authors predict that it will become apparent around 2025 that superstates cannot organize societies after nation-states will have collapsed in fiscal crises. Then, the Industrial Society with “Sovereign Individuals” operating on cyber marketplaces would finally emerge.

States are predicted to survive only as voluntary associations of “Sovereign Individuals” at a smaller scale and with different governance modes (Davidson & Rees-Mogg, 1997). The global network of alliances and economic and political confederations based on globalization and cybereconomy would make protectionism unviable. The globalization, decentralization, and harmonization of differences among those new jurisdictions due to ICTs would reduce exit and switching costs for citizens if they are not happy with the government in a jurisdiction. This

dissolution of “tyranny of place” prone to nation-states based on their monopolization of citizenship issuance enables the dispersion and mobility of citizens.

Thus, decentralization and disintermediation would fuel the downsizing of social structures and the competitiveness between jurisdictions. Big nation-states are expected to be replaced by fragmented and overlapping sovereignties with states looking for more stable models of government and social structure (Davidson & Rees-Mogg, 1997). A flourishing of city-states and metropolitan areas and cantonal agreements in rural areas is expected based on the high sovereignty of individuals relative to the state, low taxation, the prevalence of independence and neutrality, and efficient low-cost government due to high competition among jurisdictions. Individuals have relatively more power compared to authorities as they can vote by foot, by changing jurisdictions if they are unhappy with the government in a certain jurisdiction. Consequently, in the Information Society, the identity of individuals changes from citizens to denationalized customers.

Political entities thus act more as clubs/affiliation groups than as nation-states in a highly fragmented system with entrepreneurial governance replacing representative democracy as the most suitable governance mode (Davidson & Rees-Mogg, 1997): The commercialization of sovereignty is considered as the most logical solution for the Information Society because the individualization of society and economy would be answered by the individualization of politics based on the sovereignty of citizens acting as customers in choosing jurisdictions. Governments are in this vein controlled by their customers: they have an incentive to provide good and cheap governance. In the downscaled jurisdictions reciprocal government-citizen interaction is expected to replace the coercive top-down government by nation-states from Industrial Society. The higher individual sovereignty is also reflected in a reduction of coercion in lawmaking and a reduction of tax burdens setting a higher focus on self-responsibility and self-determination for citizens. Policy-making is expected to reflect the desires of customers because legislation

needs to be responsive to stay competitive. Consequently, governments are likely to be run entrepreneurially converted to „competitive territorial clubs“ (Davidson & Rees-Mogg, 1997).

Davidson and Rees-Mogg's predictions resemble a libertarian utopia with the reduction of state interference in private matters, reduced taxation, and the liberalization of mobility. However, parts of predicted transitional trends are currently observable. After Web 2.0 has already disintermediated government and media in public discourse since the 2000s, the occurrence of Web 3.0 since the 2010s with Bitcoin as an increasingly accepted cryptocurrency and the virtualization of the economy is considered by libertarians as the BCT-enabled shift towards cybereconomy as a precondition for the transition towards Information Society. Together with the divergent crises in the last decade (financial crisis, Euro crisis, migration crisis, Covid-19 crisis) leading to exploding government debt levels and the attempts of various governments to clamp down on Blockchain (Novak, 2020), libertarian evangelists already consider society to be in the decisive transitional stage towards Information Society and therefore intensively push the discourse on possible forms of organization of a social community in line with Davidson and Rees-Mogg's "Sovereign Individual".

Consequently, there exist interconnected libertarian innovation streams on cryptocurrency-driven decentralizations of the economic system, (BCT-driven) decentralization of democratic nation-states, and competitive jurisdictions.

5.6.1 Decentralized economic system

Whereas many blockchain evangelists identify BCT as a means for decentralization, a more radical stream aiming at the complete abandonment of centralized democracy identifies in tradition to "The Sovereign Individual" (Davidson & Rees-Mogg, 1997) *Decentralization of the Economic System by Cryptocurrency* – most prominently Bitcoin – as the most promising innovation for individual emancipation from coercion.

The rationales for these innovations are radical and share the perception that centralized institutions are hostile towards individual self-determination and not organizations to ensure it. These Bitcoin evangelists denounce that religion and power always have been linked with religion as a tool to ensure obedience with the powerful (Svanholm, 2021). After the secularization in the 19th century, religion as a belief system would have been replaced by fiat currency as a mode of control of citizens by the nation-state and as a means to secure financial resources for the monopoly in the use of force.

Fiat currency would aggravate the coercive notion of nation-states suppressing individual liberties (Svanholm, 2020): The incentives for enrichment for the nation-state by manipulating the money supply over central banks would be too seductive to resist. Thus, traditional money is a bad store of value as it is subject to depreciation by inflation. However, it needs to be a good store of value, a reward, and a good substitute for the time and effort a person is investing (Svanholm, 2019).

Additionally, states would interfere too much in free markets with a random regulation of free trade without being able to govern inequality (Breedlow, 2021). This would coincide with a current Keynesian economic system in the economic system – an exclusive perception by these Bitcoin evangelists – which would include a slow private sector additional to an always slow public sector where capitalists are villainized and unsustainable short-term investments are preferred over long-term investments (McCormack, 2021). The private sector would always tend to become bigger. Interrelated, collective centralized organizations would always be prone to totalitarian measures suppressing freedom as obedience is required in collectivist societies (Svanholm, 2020). For libertarians, the ends of ensuring the liberal ideals of democracy should thus never justify the means how they are operationalized – by representative democracy.

To allow for a true secularization and emancipation of individuals from this collective organization and its underlying belief system which creates coercive power and limits freedom,

separation of money and state is demanded (Svanholm, 2021). Bitcoin would promise exactly that: To overcome centralized violence and authority allowing individuals to shape their destiny by replacing fiat currency with Bitcoin. Bitcoin introduces the concept of absolute scarcity due to its fixed money supply and overcomes barriers to free trade as its cryptographic verification in P2P systems would restrict state interference (Svanholm, 2019). This would create a sound money system where you need wealth to invest instead of profiting from unsustainable short-term incentives as in Keynesian systems.

The individual would be put in the center as the smallest minority to ensure individual liberties. In this vein, providers of public goods need to become "slaves of customer's needs" (McCormack, 2021). This would not be possible with a centralized government. Consequently, borders, nation-states, and currencies as man-made institutions are perceived as disturbing and obsolete. A libertarian *Crypto-Anarchic Global System* with "Sovereign Individuals" in the center would be the final evolutive step of such a transformation (Svanholm, 2019) – just as it was predicted by Rees-Mogg and Davidson (1997). Although, Svanholm is very radical in his propositions he remains unclear how his utopian goals should be implemented concretely.

Robert Breedlow is in this regard slightly more concrete and less radical. He demands the introduction of a *Bitcoin Economy* (Breedlow, 2021) which resembles the cybereconomy of Rees-Mogg and Davidson (1997). He demands an open-source digital organization for de-centralizing power away from top-down control in a system of *Digital Money Sovereignism* based on Bitcoin as a new mode of non-nation-state human organization. Bitcoin replaces gold as the base layer of the monetary operating system which is not controlled by central instances and allows the first self-sovereign digital organization to replace top-down control with a bot-tom-up sovereignty system. Such a system would be more adaptive, fluid, and volitional for allocating socioeconomic resources. It is based on absolute agnosticism to man-made systems of law and order and capitalizes on the multi-signature capabilities of Bitcoin to enable the

facilitation of private contract governance independent from state courts (Breedlow, 2021). As crypto money cannot be stolen or censored this offers the potential to decentralize and downscale the justice system.

Breedlow expects that this form of sovereignism will outcompete statism in all forms with more competitive jurisdictions evolving reducing bureaucratic inefficiencies. Jurisdictions would need to earn the loyalty of their citizens by offering good services (marketization of politics) requiring them to become agile, innovative, and fragmentary. Only the most productive and accountable government functions remain also because the tax capacities of governments are collapsing through the abandonment of fiat currency. Thus, barriers to market entry, participation, and exit fall through lower state coercion (Breedlow, 2021). However, in this truly capital system the Darwinian digital paradigm (winner-takes-all) would be prevalent where the lack of government welfare programs requires more self-responsible citizens. This would lead to a higher symmetry of violence between citizens and authorities and a total change of the socio-economic system based on the prevalence of money as a governing principle (property rights, rule of law, etc.).

5.6.2 Decentralized political systems

Other libertarians aim at decentralizing the political system directly without transforming the economy beforehand. The libertarian rationale for decentralized political systems problematizes agent shirking of representatives in centralized political systems, the danger of benevolent governments falling into totalitarian tendencies (Kling, 2018), the constant liberal orientation towards minorities suppressing majority preferences, and the interrelated danger in large-scale democracies that militant minorities impose their partial preferences on society (Taleb, 2018) Decentralized political systems promise to cure these limit and deficiencies. Within these small and homogenous political entities, collective decision-making reflects the preferences of all its citizens. According to its proponents, this will likely benefit both, the

majority and minorities because those being disadvantaged by a collective decision have easier means in a decentralized system to switch jurisdictions due to low exit costs. This incentivizes governments to follow the common good and avoids current governmental risk-taking with the socialization of potential costs (Taleb, 2018).

Open blockchain allows for disintermediation and decentralization based on P2P systems ensuring auditability, anonymity, persistency, and transparency due to cryptography. For many innovations, an open blockchain system is the central element of decentralization (Atzori, 2017): It could lead to a *Decentralized Society*, where BCT prevents the monopolization of power by actors like digital platforms whereas the state still prevails authority. This does not hold for *Decentralized Autonomous Societies* which includes the final demise of the state based on a new social contract where centralized and coercive institutions are replaced by a more transparent, autonomous, and innovative global society based on a decentralized system of algorithmocracy under the free-market rule which is considered as more just. In those systems state will disappear because society is transformed into a blockchain-based, self-sustainable system.

Franchulates instead are an innovation where private corporations replace the state in all its functions, competing with each other to provide goods and services without the existence of a constitution, or guaranteed rights for people. This combination of "franchise" and "consulate" under free-market conditions even abandons the liberal fundament of democracy. This includes the total primacy of individual self-determination abandoning any type of governance as it is desired by many blockchain evangelists (Atzori, 2017). Thus, even *BCT anarchy* is proposed where authority is floating freely based on societal maturity.

Decentralized Autonomous Organizations (DAOs) are an operationalization of *Decentralized Autonomous Societies*. They build on a class of smart contracts based on open blockchains (e.g. Ethereum) which allow standardizing contracts and the automated execution of

decision-making and government functions making them obsolete (Voshmgir, 2019). Contract deployment into the Blockchain dynamizes democratic participation if maintaining the blockchain is rewarded with tokens. Tokens could also be applied to incentivize the contribution of individual behavior towards a common goal while abandoning any form of hierarchical structure. Only the blockchain protocols citizens are mutually agreeing upon function as a structuring element comparable to the constitution and governing laws with tokenized networks that self-enforce the contract consent. Thus, autonomous actors in networks are subject to governance based on blockchain protocols which resemble a network constitution (Bent, 2021).

A less disruptive proposition that preserves democracy is *Decentralized Blockchain Democracy* (Voshmgir, 2017). To counter the defects of representative democracy of irrational or ill-informed voters, principle-agent problems, centrifugal polarization like populism, and post-democratic tendencies like an increasing elite-electorate gap, a BCT-based democracy built on smart contracts could reduce transaction costs, eliminates principal-agency problems, and offers possibilities to introduce decentralized, virtual borderless nations.

BitNation proposes this notion where government services are provided through BCTs and where laws, rules, and regulations are embedded in smart contracts. *BitNation* considers citizens as consumers of government services for which citizens pay with taxes. It proposes to provide the same services decentralized and voluntary without being bound to borders. Therefore, a DIY governance client built on an open Ethereum blockchain allows any citizen to operationalize an own virtual nation on a smart contract-powered, peer-to-peer, and end-to-end encrypted platform where public services could be used based on smart contracts. Their auto-enforcement mechanism ensures that participants comply with pre-defined rules in a smart contract: A transaction is only enforced if compliance is ensured, and it is rejected if not. However, the open blockchain with its immutability bears a lack of flexibility to accommodate unforeseen eventualities.

A very concrete operationalization of decentralized political systems is the *Innovation Zone* (IZ) in Nevada. The Democratic senator of the US state, Steve Soslak, acknowledged the lack of an innovation hub that is competitive with Silicon Valley (Tran, 2021). Cooperating with the Blockchain innovator Jeffrey Berns, they developed the IZ as a means to attract entrepreneurs dealing with disruptive technologies and drafted a bill authorizing the creation of IZs in Nevada in February 2021 (Hirschbrich, 2021; Innovation Zone Facts, 2021): Entrepreneurs need to invest more than USD 1.25 billion for 200 km² but they receive the right to establish own jurisdiction in the IZ where IZ authority supersedes county authority. This should allow for experimentation and business-aligned governance within the innovation zone. The IZ remains in the judicial district of a Nevada county which receives a low property tax. A to-be introduced Board of Supervisors as the governance body consisting of the IZ investors could decide which government functions should be overtaken from the county. As such, the Board of Supervisors resembles a local government potentially providing an array of government services. The IZ is in this vein a blueprint for decentralized and innovative jurisdictions which are open to being run by entrepreneurial governance mode and which allow for experimentation with disruptive technologies.

Next to Berns who aims at creating a BCT- and cryptocurrency-based smart city (Bliss, 2021) and was thus dependent on the introduction of the IZ as a special government entity with own authority to implement his blockchain-driven vision, the entrepreneur Tim Draper also committed to investing in an own IZ at the end of February 2021. The IZ seems to gain popularity and it is a very interesting field for research how libertarian political innovations prove in practice.

5.6.3 Competitive jurisdictions

The libertarian rationale for competitive jurisdictions does not only include the promise of higher quality in government services fitting the needs of citizens but also the promise of a

reduction of coercion prone to representative democracy which needs to rely on (a threat of) it to those disadvantaged in elections in this system of "51% government" (Ferris & Srinivasan, 2021). Under competitive governments, coercion is minimized as those unsatisfied with a collective decision can "vote with their feet" by changing to a jurisdiction that is fitting their needs better. This type of "100% government" operationalizes the ideal of consensus democracy when switching costs of jurisdictions are abandoned and it allows for the occurrence of a system of (Hanseatic) city-states run like start-ups (Ferris & Srinivasan, 2021).

A very utopian innovation that was however already experimented with in practice (The Seasteading Institute, 2021) is *Seasteading*. It is driven by the *Seasteading Institute* co-founded by Silicon Valley entrepreneurs like Peter Thiel – founder of PayPal – and Patri Friedman – son of neoliberal luminary Milton Friedman. Problematizing the low effectiveness of governments who act like monopolies and who are not incentivized for serving the common good, libertarians propose to create permanent, autonomous dwellings at sea outside of governmental territory and interference (P. Friedman & Taylor, 2012). Each dwelling has an own jurisdiction where switching costs between dwellings are eliminated. This enables consumers to switch governance providers, increase competition, and improve allocative efficiency in the supply of common goods in the governance market (P. Friedman & Taylor, 2012). The long-term goal is achieving de jure sovereignty as engineering challenges of creating seasteads are mostly solved (Taylor, 2010). However, in the medium-term de-jure sovereignty is hardly feasible because traditional states have no incentive to recognize seasteads, their new competitors, as sovereign. Thus, the medium-term goal is de facto autonomy vis-à-vis the international community.

The idea specifically targets profit-seeking entrepreneurs and people desiring social change as Seasteads should function as innovation zones. Its possible implementations are widespread and reach from single buildings over clusters of ships to offshore micro-nations and permanent ocean cities (see Figure 4).

Insert Figure 4 about here

The institute has developed three scenarios of *Seasteading*, each targeting one stage of development (Taylor, 2010): The first short-term scenario considers single ships as most viable. The alternatives are an *Entrepreneurial Shipstead* and a *Condo Association*. The former means that a single company owns a ship and leases space to businesses. The threat of exit of residents incentivizes the owners to act in mutual trust with residents. This requires an entrepreneurial governance mode. On a condo, an entrepreneur sells off sections of a ship aligned with a set of rules and a share of common areas. The ship is governed by a *Condo Association* where each condo owner has voting rights for the collective governance body proportionate to the relative value of the owned property. The Institute recommends the *Entrepreneurial Shipstead* as its funding via leasing is more viable.

If this first scenario succeeds, a clustering of shipsteads with low exit and switching cost between ships in the cluster is expected in the mid-term capitalizing on economies of scale and agglomeration. A cluster of 30 ships with a total population of around 10.000 people is expected in this regard. Two governance modes are likely: *Anarcho-Capitalism* and *Federal Consensus Democracy* (Taylor, 2010). Whereas the first introduces a holistic abandonment of governance where dispute resolution and law enforcement across ships is ensured on a contractual basis by profit-oriented firms and where some goods are provided and funded centrally with an opt-out mechanism, the latter introduces an overarching governance system within the cluster to counter externalities. It resembles ship-based federalism with high autonomy for each ship which designates one permanently recallable representative. This representative is voting on cluster-wide matters in periodical intervals. Decisions are made unanimously which requires bargaining between the representatives from the ships. The resulting polity would resemble a civil law system.

In the long-term, the third scenario predicts the occurrence of open-ocean breakwater seasteads – offshore city-states where the residence is more tied into place and where cross-breakwater competition is unlikely due to geographical distance between them. The alternatives in this scenario are a *Breakwater Subdivision* and an *Entrepreneurial Breakwater* (Taylor, 2010). In the former, offshore "land" (property) is sold by square foot from entrepreneurs to investors. A democratic body controlled by residents built on representative and direct democracy governs the breakwater. It consists of two legislative houses which must agree by plurality to rule changes, and of citizen referenda where citizens need to approve the decision made in the representative body with a threshold of 5.000 voters. Additionally, a Harberger tax system prices externalities of decisions meaning that citizens pay a cost that is associated with the cost your vote imposes on others. The *Entrepreneurial Breakwater* introduces a common space that is owned by a proprietor who receives funds from residents owning private vessels. This proprietor needs to pay exit costs for dissatisfied tenants which incentivize high-quality governance built on a decentralized, entrepreneurial governance mode.

Although experimentations have already been conducted with seasteads (The Seasteading Institute, 2021), the idea remains more utopian. The libertarian entrepreneur Tim Draper has introduced more directly feasible innovations to decentralize government. An example for that is his demand for *Fractionalized Taxes* which mean that citizens pay taxes to jurisdictions based on how much time they reside in a jurisdiction. This would incentivize jurisdictions for more effective governance as they would only receive taxes if they attract citizens. It thus operationalizes the libertarian demand for "voting by feet" and would directly incentivize increased government competition (Draper, 2018).

This proposal is embedded in Draper's general agenda to introduce competitive jurisdictions. He problematizes bad governmental provision of services (school, health care, infrastructure, etc.) at high prices – taxes – out of the governmental monopolist position, and the

convergence in governance across jurisdictions that each have a monopoly on their territory (InnMind, 2020). To improve the quality of government services and to reduce the prices for it – the taxation – Draper identifies an increase of competitiveness as a means to marketize government. Virtual cross-border competition between governments would increase the competition for great minds, capital, entrepreneurs, citizens, and businesses, and it would incentivize governments to automize certain government services like insurances by technological means like smart contracts (InnMind, 2020). He tried to implement this innovation into practice two-time by proposing to separate California into smaller states. *Six Californias*, his first proposition, demanded to split the US state into six states equally to medium-sized US states. However, this proposition failed to pass the signature threshold for becoming part of a referendum. *Cal3*, his second proposition demanding a split of California into three states, met the threshold and became part of the referendum agenda for 2018 but was ruled out by the Californian Supreme Court as a proposition for the referendum.

Put together, the libertarian aim of decentralizing government remains mostly a theoretical aspiration although sophisticated innovations have been proposed. However, the libertarian proposals to decentralize and disintermediate third entities gain traction in the neoliberal prayed economies of liberal-representative democracies nowadays.

5.7 Align economy to democracy

Whereas liberal evangelists aim at aligning democracy to a free-market economy, another innovation stream aims at aligning free market economy to democracy in tradition to the research strand which has identified the neoliberalization as the biggest challenge to democracy (Merkel, 2014)

An exhibit in this vein is the demand for a *Democratic Economy* (Beckett, 2019): Problematizing the dominance of neoliberalism over liberal democracy with increasing economic and social inequality and the rise of widespread anti-democratic sentiments and movements in

the public destabilizing democracy, a consumer- and employee-driven transformation of capitalism in all areas of society is demanded. It should be only partially initiated and overseen by the state without controlling it.

The goal is a redistribution of economic power in all societal subsystems (Beckett, 2019). On a company level, the introduction of inclusive ownership funds should introduce the possibility for employees to take ownership of parts of every company diversifying and democratizing shareholder structures of companies which ensures the representation and the influence of employees on the company's future. On a local level, protectionism driven by local authorities favoring local, ethical and sustainable businesses over MNEs aims at strengthening geographic economic inequalities in the distribution of wealth and income within a jurisdiction. On a national level, a national economic realignment where cooperatives are established as the capitalist norm initiates a sustainable transformation of the economy aligned with democracy. The desired consequences are a reduction of public disappointment with the political system when citizens are also included in economic decisions affecting their lives and not only in political decision-making restricted to elections as it is currently the case (Beckett, 2019).

The approach of Rebecca Henderson – a Harvard professor in economics – follows similar aspirations of *Reinventing Capitalism* by overcoming the shareholder approach and strengthening the role of the government against the neoliberal desire to weaken it (Henderson, 2020b). She problematizes systematic market failure with symptoms of inequality, a trend towards monopolization of market share and capital as exemplified by the platform economy or financial investors like Blackrock, and unsustainable energy production and consumption. From her perspective, this is rooted in three factors (Henderson, 2020a): First, a lack of properly priced externalities, second a lack of skills of many people in an overcomplex economy which are necessary for capitalizing on genuine freedom of opportunity, and third, the increasing market power of businesses which are increasingly able to shape rules to their favor. This coincides

with the current neoliberal dominance where the economic elite monopolizes an economic activity, and where the downsizing of the state leads to systematic underinvestment in public goods.

Henderson aims at overcoming this highly problematic lack of control on free markets fivefold: First, she propagates the popular paradigm of Created Shared Value developed by business luminary Michael Porter and co-author Mark Kramer (2011) where the purpose of business is not exclusively about generating money but to increase prosperity and freedom for a livable planet and a healthy society. This holistic sustainability approach is coupled second with a paradigm of purpose meaning the creation of purpose-driven organizations. A prerequisite is third, a rewiring of finance, a new ecosystem for investment by creating auditable and replicable accounting metrics capturing costs and benefits of addressing environmental and social problems (ESG metrics) to tackle the lack of information on "soft" factors and to set them on a level with economic metrics. Thus, investors understand the importance of shared value. Additionally, the influence of investors should be reduced by changing corporate governance with the introduction of a benefit corporation creating public and private returns, or of employee-owned firms similar to the proposal of *Democratic Economy*. This needs to be coupled fourth, with the creation of a cooperative economic eco-system building on efficient self-regulation (e.g. code of conducts, build sustainable supply, investors as enforcers) to tackle free-riding in the provision and consumption of public goods by private companies.

Fifth, - and most important – all the four aforementioned factors will only prove effective if institutions having been eroded under neoliberalism are rebuilt and governments are fixed (Henderson, 2020a, 2020b): This roots in the perception that only government can tackle the negative externalities of free markets like environmental degradation, inequality, monopolization, uncontrolled globalization, or a decline of labor. Therefore, free politics and free markets need to be considered as complements being dependent on each other: both need to be inclusive

instead of extractive. Inclusive political institutions enable political participation and monitoring of government. Governments need to be open, democratic, and accountable regimes based on the rule of law, on democratic and transparent government, on an open and inclusive society, and free media. An inclusive economy ensures the effective functioning of a free market based on the shared value paradigm. In this vein, business needs to become a partner in building and maintaining institutions, a "lobby for democracy" (Henderson, 2020b). Consequently, Henderson demands to rebuild institutions that have been tightened under the small government paradigm.

A slightly different take on the problems of capitalism with divergent consequences is taken by the proponents of *Conscious Capitalism* (Mackey & Sisodia, 2013) who demand more purpose-driven capitalism but who still criticize overexpansion of government and regulation. From their perspective, the Smithsonian narrative about the core of capitalism is under attack. This narrative says that capitalism is good because it creates value, that it is ethical because it allows for voluntary exchange, that it is noble because it elevates personal existence, and that it is heroic because it lifts people out of poverty by prosperity.

This narrative would have come under attack fourfold (Mackey & Sisodia, 2013): First, the narrative about the ethical basis of free-enterprise capitalism would have been hijacked by Marxist academics who would have narrowed it on a self-serving and inaccurate identity devoid of its ethical justification of delivering wealth for the masses. Second, companies would have operated unconsciously regarding the impact and purpose of their business on the world resulting in many harmful consequences. Third, the narrative rooted in neoliberal academia and propagated by many business leaders that the sole goal of business is to maximize company profits based on the shareholder value would have robbed the ability for many businesses to connect with society. Fourth, the overexpansion of government and regulation created the conditions

for the current spread of “crony capitalism” where competition is restricted in favor of politically well-connected businesses which bears dangers for democracy and societal well-being.

To reinforce and defend free-enterprise capitalism based on the Smithsonian narrative, Mackey and Sisodia (2013) propose to introduce *Conscious Capitalism* as the new economic paradigm built on four tenets: Its core lays in a stronger orientation on purpose and core values going beyond the shareholder value and reflecting upon reasons why a company exists. This would catalyze creativity and innovation while satisfying stakeholders. The other three tenets build on this purpose orientation. A stakeholder integration would be necessary to create win-win scenarios for businesses in societies to counter trade-offs and negative externalities in business operations. Conscious leadership is a prerequisite to ensure the Smithsonian ideals by orienting the firm’s services primarily on its higher purpose and the stakeholder value. This needs to reflect in conscious management evolving from a company’s commitment to its purpose which is build on shared values, and a conscious company culture based on decentralization, empowerment, and collaboration. Those conscious companies would perform better on the stock market.

These economic innovations described so far – from *Democratic Economy* over *Reimaniging Capitalism* to *Conscious Capitalism* – are sorted ascendingly in valuing free-market structures as a means to counter the dealignment of the neoliberal economy from democracy. Somewhat paradoxically the proponents of Radical Markets radicalize free-market structures even further by demanding a complete marketization of property to overcome the problems of marketized democracy and to increase societal equality (Posner & Weyl, 2019).

Eric Posner and Glen Weyl identify social inequality based on disproportionate capital income as a root cause for democratic discontent as it is the “most significant problem of our time” (2019, p. 4). Together with stagnating economic growth in economic countries “typical citizens in wealthy countries are no longer living much better than their parents did” (Posner &

Weyl, 2019, p. 11). This “stagnequality” has caused discontent in the public which was projected on the political system which has proven unable to govern stagnequality and is now destabilized by political actors like populists who instrumentalize discontent as a political combatting instrument. “Stagnequality” thus is a symptom of a dysfunctional economy that only labels itself “free-market economy”. In its essence, it is “plagued by monopolized and missing markets” as becoming evident in the platform economy (Posner & Weyl, 2019, p. 28). Consequently, Posner and Weyl propose a truly radical expansion of free markets based on two instruments which resemble socialization and liberalization of property at the same time to overcome “stagnequality”: *Partial Common Ownership* (PCO) and a *Commonly Self-Assessed Tax* (COST) on PCO.

PCO is a single property regime between common ownership and traditional private property and is based on the idea that every asset is set for auction, and cannot be „protected“ as property. Its Texas shootout auction mechanism foresees that each person submits a bid for the value of an asset and the higher bid wins. The winner gets ownership on the asset but must buy out the share of the other bidder at the average of the two prices. The consequence is, that a bidder has no incentive to raise prices artificially because the price raiser would need to pay a higher price. Thus, the PCO ensures that an asset is held by those who need it balancing the demands of investment efficiency and allocative efficiency.

PCO is coupled with the COST which privatizes fiscal authority for an increased allocative and investment efficiency by the introduction of a personally-set tax on assets that are currently being held: The current owner of an asset sets a price for it which serves as the initial price in the Texas shootout auction. He needs to pay a tax proportionate to the value he set for the asset. The mechanisms of free markets now ensure a perfect allocative and investment efficiency: An artificially low price to avoid a high tax burden would make a loss of ownership on the asset likely. Conversely, a high value set for an asset to exclude it from the market is

penalized with a high COST. Thus, the COST on assets is the cost for holding assets when trying to keep them out of the market.

The combination of PCO and COST has several consequences besides higher investment efficiency and allocative efficiency. It transfers and marketizes the right to use and the right to exclude to the public. The right to exclude people's access to property is undermined if every good can be acquired by auction. Also, the right to use property is changed as it is determined by the value of an asset set by the current owner who has to pay for it with the COST. This modifies traditional private property towards a model of shared ownership between society and possessor where the current possessor leases an asset from a society. The volatility in possessing assets undermines the regime of capital income and thus promises to eliminate the biggest source of inequality in current democracies. Additionally, it mitigates monopolization and increases the means for redistribution for governments (Posner & Weyl, 2019). The authors aim at implementing their theoretically-proven propositions into practice. However, they did not find jurisdictional partners serving as a practical experimentation field for the PCO and COST.

Whereas the economic innovations proposed so far are mainly driven by economists, a small innovation stream proposes non-libertarian Web 3.0-driven transformations of the economy: An ecosystem built on *Multidimensional Currencies* could create a democratized digital ecosystem (Kleineberg & Helbing, 2016): Problematizing the non-suitability of top-down control to govern hyperconnected digital platform, and the monopolization tendencies in digital platform economy suppressing freedom and wealth, and emphasizing the misfit of a centralized top-down monetary system exclusively relying on increasing the money supply of central banks with an increasingly self-organized financial system and economy, a replacement of the centralized top-down fiat money system with a model of decentralized bottom-up value creation based on multidimensional currencies is proposed.

It is not relying on the primitive replacement of fiat currency by a one-dimensional cryptocurrency but rather promises to introduce a multidimensional cryptocurrency ecosystem with decentralized bottom-up creation of value unleashing creative potential and innovations. In its center is the introduction of qualified money which is not a one-dimensional scalar quantity like the Euro but rather has multiple dimensions where one dimension could allow for investment whereas another could allow for exchange whereas another could enable earning own reputation (Kleineberg & Helbing, 2016).

As an example, *Social Bitcoin* could be one dimension of qualified money aiming at generating Digital Social Capital (Kleineberg & Helbing, 2016): Individuals who perform search and navigation tasks in social networks and digital infrastructures where they are routing messages and information could be rewarded with *Social Bitcoins*. Due to the possibility of exchanging *Social Bitcoins* in other dimensions of the currencies, users are incentivized to route information among several networks. In this vein engaging in less active information networks could be rewarded with more *Social Bitcoins*. With this incentivization structure, users could replace centralized institutions from the platform economy. It is a tool to democratize the digital ecosystem by incentivizing user engagement and for creating a lively digital democratic information space that breaks the power of monopolists and which is free from central monopolies in control of information (social networks, traditional media). The innovation remains theoretical, and it does not describe other possible dimensions of money with implications for the interrelation of economy and democracy but it still illustrates how cryptocurrencies could be applied to cure defects concerning the interrelation of economy and democracy.

SEEDS aims in a similar vein on incentivizing sustainability in the economy by introducing a green cryptocurrency. It aims to counter centralization and monopolization of power from nation-states, banks, and tech companies, and to counter their lack of action concerning the climate crisis (Lausevic, 2020). SEEDS build a regenerative financial system that

incentivizes ecological projects based on the paradigms of co-creation and circular economy and aims at enabling the introduction of a basic income. Holding SEEDS makes you a SEEDS citizen integrated into a co-op eco-system which conducts sustainable projects. A tiny portion of the value of SEEDS is invested in these projects so each transaction with SEEDS has a sustainable impact. As such, SEEDS also promises to mitigate the negative ecological impacts of trading other cryptocurrencies like Bitcoin whose mining is highly energy-intense and mainly relies on fossil energy sources.

Next to those holistic transformations of the economy, other proposals target innovations of specific elements of the economic system to initiate incremental changes towards more sustainable and human-oriented economic change. An example of that is the launch of the *Long Term Stock Exchange* (LTSE) in the US in September 2020 as a stock market for social justice. Problematizing the decoupling of traditional stock markets from economic realities, short-term thinking of business executives, and the exclusive shareholder orientation of companies listed on stock markets, Eric Ries developed a social stock market which only lists firms committing to taking a long-term value creation perspective and a sustainable stakeholder approach among other requirements for responsible business execution (Zomorodi & Ries, 2020). The LTSE owners act as a certification authority protecting the long-term values based on the idea to incentivize businesses to sacrifice short-term benefits for long-term success. Such an incentivization structure for responsible business-making ineeds to be combined with other innovations to make societies future-proof and sustainable (Zomorodi & Ries, 2020).

From a societal perspective, introducing the *Primacy of Consumption Tax* could be a fitting element. Problematizing the impossibility of social advancement in Germany and many other liberal-representative democracies, unfavorable regulatory frameworks to build own assets, and high tax burdens on income, taxing consumption instead of property and assets is proposed (Mazzucato, 2018). It promises to reduce capital and labor income inequality as it

gives a higher tax burden on those holding wealth. However, it could also misincentivize to hold wealth rather than to invest it which would contravene the initial aims of this proposition. This once again raises awareness for the need to dare experimentation, and for the need of a public discourse about political innovations integrating a broad range of societal stakeholders.

5.8 Innovations of institutions related to liberal-representative democracy

This is also required for innovations that do not directly target core institutions of liberal-representative democracy or directly connected societal subsystems in Luhmannian perspective (1987) and are consequently not evaluated in this contribution in depth.

This includes innovations on current governance paradigms on an international level like the introduction of *Participatory Global Governance* (Stutzer & Frey, 2006) or *Functional, Overlapping, Competing Jurisdictions* (FOCJ) to organize international politics (B. S. Frey, 2011), or the system of *Guardians Watching Guardians* where independent experts report to citizen panels and the parliament about the actions of specialized guardian institutions to whom representative institutions have delegated authority to (e.g. central banks) which could dissolve the potential issues of agent shrinkage and agent lurking of specialized institutions (Schmitter, 2011). This also includes social media governance with innovations like *Humor Over Humor* where a misinformation campaign in social media is immediately answered by governmental comedians who are ridiculing it with memes and inform about the fact base as it is applied in Taiwan (Tang, 2020).

Of specific importance are also innovations and discourses about how to strengthen accountability and responsiveness in emerging governance paradigms like good governance or global governance. They require further attention in future dedicated contributions on these specific areas for political innovations.

6 Discussion

The developed typology based on the scoping analysis indicates that there exist already a wide array of political innovations targeting many institutions of liberal-representative

democracy varying in their degree of implementation. Many innovations on specific elements of the political system like introducing preference intensity to voting systems or increasing the efficiency and innovativeness of government only require gradual changes with foreseeable consequences and real promises to improve input, output, and throughput legitimacy to the better of democracy. Conversely, the consequences for society of more holistic innovations like the libertarian decentralization of democracy, its automation, or the transformation of the economy are less calculable. It remains worth discussing whether potential legitimacy-enhancing consequences of these innovations outgrow potential chaos, anarchy, and deprivation caused by them.

The challenges inhibiting on liberal-representative democracy next to its inherent defects and the lack of upgrade of the democratic "technology" – of the representative system - to the 21st century (Rashbrooke, 2019) require courage and creativity in adapting political systems to changing realities. This should attain significantly more attention in academia and the public because the symptoms of post-democracy (Crouch, 2004), democratic deconsolidation (Mounk, 2018a), and a populist-authoritarian wave in many democracies (Eatwell & Goodwin, 2018) threaten liberal core values of personal freedom and the democratic ideal of translating the will of the people into collectively-binding decisions.

The analysis of the challenges indicates that especially the representative system which should ensure the avoidance of a „tyranny of the majority" and which should operationalize the translation of citizen preferences into politics while preserving personal freedoms bears problems of manipulation, inefficiency, overcomplexity, exclusion of citizen participation, undue influences, problems of unaccountability and lack of responsiveness in the principal-agent relation between citizens and representatives fueled by globalization, a marketization of society, and digital transformation. Thus, it is little surprising that the majority of the political innovations typologized in this contribution – most prominently those on participatory democracy –

operationalize the demand for an "evolution of democracy across the wider canvas of democratic representation" (Saward, 2010, p. 224).

Especially the digital transformation is Manichean in its relation to liberal-representative democracy: At the same time, it is a means for democratic destabilization from below by hate speech, fake news, or misinformation in social networks, for democratic stabilization from below by providing a borderless digital public discourse in social networks, for democratic top-down destabilization by governmental and private surveillance of citizens by AI, for democratic top-down stabilization by increased effectiveness and evidence-orientation in governance by AI, for democratic destabilization by the dissolution of governance based on BCTs, and also for democratic stabilization by an increase of efficiency and disintermediation based on BCTs. The same holds partly for the marketization of politics which stabilized democracy regarding output legitimacy by higher efficiency but which also destabilizes it at the same time by aggravating inequality, by enabling unaccountable influence on representatives, and by depriving financial resources for welfare state provision from the state based on the paradigm of small government which decreases the legitimacy of liberal-representative democracy holistically (Merkel, 2014).

6.1 Theoretical contributions and combinability of innovations

Exploiting the potentials of these Manichean phenomena for strengthening the liberal core of democracy and for upgrading its "technology" to the 21st century while mitigating its negative externalities thus requires a guided academic and public discourse on avenues for political innovations based on an overview of the current state of political innovations raised in academia but also in the general public. This overview was given with this contribution based on a systematic discussion of the challenges impinging on liberal-representative democracy.

The latter centralizes the strayed evidence on causes for decaying legitimacy of liberal-representative democracies and thus improves our understandings on reasons for post-

democratic tendencies. Especially the discussion of the Manichean impact of ICTs on democracy closes a research gap in this vein. The productive connection of challenges pressing on liberal-representative democracies with its cure - political innovations – in one contribution accelerates the scientific understanding how democracy could be upgraded. The typology systematizes the innovations and indicates which problems are cured by them and which legitimacy dimensions are targeted. By paying attention to the rationales for the proposed innovations, ideological foundations are clarified to guide researchers and those interested through underlying motivations for concrete proposals. Thus, this contribution is a handbook of political innovations for liberal-representative democracy which deepens our theoretical understanding.

The developed typology also serves as a starting point for combining innovations from divergent innovation streams. An example for that is the call for decentralized participatory and innovative democracy to react on digital transformation which connects technology-driven innovations with deliberative aspects (B. S. Frey, 2017): It demands the implementation of the subsidiary principle for liberal-representative democracy by spatial, functional and political decentralization: The spatial dimension includes a lively federalism with high autonomy for states and communities in taxation. The functional decentralization asks for an organization of core state powers following the concept of functional, overlapping and competing jurisdictions to improve quality and effectiveness of government services at lower cost, and the political dimension includes a deepening the democratic separation of powers, the introduction of science as a democratic power next to executive, legislative, jurisdiction, and public media to increase evidence orientation in decision-making coupled with a strengthening of deliberative democracy on local level to profit from participatory democracy. Such a combination promises not only to increase input and throughput legitimacy by participatory means, but also output legitimacy through decentralization, and increase governmental efficiency by competition.

In this contribution, the Mayor Bot (Vesnic-Alujevic et al., 2019) is proposed as a technological operationalization of the Advocatus Diaboli (Helbing et al., 2017b) ensuring impartiality in evidence-provision and in taking alternative positions. Another example is participatory budgeting where the public decides about the application of a portion of the government budget in bottom-up discussion in deliberative forums on the local level (Rashbrooke, 2019). It is already implemented into practice in Brazil in the city of Porto Alegre (Rashbrooke, 2019). This innovation improves input and throughput legitimacy through citizen participation, and it promises to increase output legitimacy by more effective and efficient budgeting of government services fitting to citizen's needs.

Those types of holistic innovations combining different innovation streams are most promising as their combination eliminates potential deficits if these innovations would be introduced standalone. Therefore, the overview based on the typology provided in this contribution is a prerequisite as it structures our knowledge on political innovations and allows for experimenting with its combinations.

6.2 Limitations and future research

Given the limited frame, this contribution is not free from limitations. It does not claim to typologize all innovations on (institutions of) liberal-representative democracy exhaustively. First, this cannot be ensured because many innovations, especially those raised in public, are rarely accessible even by search engines. Second, due to the exploratory orientation of the typology some innovations streams which have already been excessively studied and which do not directly aim at improving the legitimacy of liberal-representative democracy like E-Government (Schünemann & Kneuer, 2019) were excluded as this study because it aspired to generate knowledge and structure on innovations rather than replicating it.

What is included conversely is a wide range of innovations stemming from public sources which normally do not meet scientific requirements like tweets or blogs. However, for

this contribution, the ends of capturing the widest possible range of innovations justify the means of potentially poor source quality. That those innovations have not been discussed by academia yet, is rather a sign of the blatant research gap on political innovations across scientific disciplines which is partly filled with this contribution.

Interrelated, this contribution also restrained from evaluating or even ranking the political innovations on subjective or normative criteria like desirability. In the current state where political innovations of liberal-representative democracy are a niche topic, this would be an artificial restriction to which research is not entitled. Evaluating political innovations and testing how they fit core values of liberal-representative democracy which are also always subject to societal interaction is a task for a discourse. It needs to integrate the widest possible array of stakeholders ranging from citizens over researchers to politicians and civil servants.

Before an evidence-based evaluation of political innovations is even possible, research needs to do its homework: To connect the challenges impinging on liberal-representative democracy becoming evident in decreased public trust which is a prerequisite for its stability (Böckenförde, 1976), more research is required on legitimacy dimensions, and on the concrete perception of institutions of liberal-representative democracy by citizens. Existing surveys only ask for the overall trust of citizens in a democracy or its most important institutions. However, to ensure that political innovations fit the needs of citizens and increase the legitimacy of liberal-representative democracy, more detailed surveys are required. An avenue could be to integrate those surveys in censuses of citizens, also because democracy could demonstrate its responsiveness if it transparently answers the survey results with fitting political innovations.

The lack of robustness of the legitimacy dimensions also led to the decision to typologize the innovations by the degree of impingement on institutions of liberal-representative democracy ascendingly. Although this typology has proven fitting and robust in sorting the innovations, it is only one out of many options. Typologies are always widespread, seldomly

exhaustive, and always a shortcut in reducing complexity excluding information that would be included if another logic for typologization would be chosen (McKinney, 1966). However, to overcome these problems, ICTs enables the introduction of multi-dimensional typologizations which also allow for more multimedia presentation of information in comparison to the solely-text-based typology in this contribution: The wiki-driven publicly accessible online database on political innovations based on a variety of filters allowing for customizing the typology could overcome these aforementioned problems and it could capitalize on crowd intelligence to expand the knowledge on political innovations tackling the non-exhaustiveness of the typology presented in this contribution. It is already accessible under the following link.

Given the low level of implementation of the political innovations having been raised in the typology, and the general lack of innovations in liberal-representative democracy so far, the chances for creating and shaping an ecosystem for political innovations are high and not constrained so far. However, the decisive step will be to ensure experimentation with political innovations: Digital twins of jurisdictions (Moore, 2019) are a means to experiment with some kind of innovations, but many of them require tests in real human interaction. Developing an ecosystem for social experimentation with political innovations where potentially negative consequences are mitigated is a prerequisite to sustain citizen trust, and to cushion negative consequences on social interaction when adapting liberal-representative democracy to the 21st century.

6.3 Practical contributions for the *#polivation* initiative

The creation of the wiki-driven publicly accessible and editable online database on political innovations is one of many concrete practical outcomes of this contribution. Since spring 2021, the initiative *#polivation* at TU Munich actively initiates a discourse on political innovations in Germany capitalizing on the typology and the challenges pressing on democracy having been identified with this contribution.

Next to the online database, a conference will be held in July 2021 to accelerate academic discourse on political innovations and to connect researchers from divergent innovation streams. This is sidelined by a series of podcasts beginning in Summer 2021 where innovations are presented, challenges are discussed, and practical applications of innovations are analyzed in an entertaining and casual atmosphere to accelerate public discourse on political innovations. *#polivation* operationalizes the normative aspiration to initiate a public discourse next to the academic one on political innovations. The integration of citizens in adapting liberal-representative democracy to the 21st century is a prerequisite in free and open societies, and it is a vital stepstone to ensure acceptance and a fit of innovations to citizen needs.

#polivation thus drives the central pillar of initiating a public and academic discourse next to the pillar of creating an experimentation eco-system for political innovations to implement the normative aspiration of adapting liberal-representative democracy to the 21st century.

7 Conclusion

The analysis indicates that digital transformation and the neoliberal marketization of society, economy, and politics have holistically undermined interdependencies of other societal subsystems to the political system, and functions of the democratic system: digital transformation has caused overcomplexity in decision-making, the danger of benevolent authoritarianism enacted by democratic government, and disintermediation leading to an emancipation of individuals from state coercion where individuals have a desire for better representation. Additionally, it unveiled the inefficiency of government services and its slowness in becoming digital itself. The marketization of society unveiled the inability of democratic governments to counter increasing economic and social inequality aggravated by demographic change, and the overarching influence of business interests on decision-making in stark contrast to the discouragement of citizen participation. It fueled the convergence of parties in policy-making, the dissolution of ideological voter alignment to parties, and polarization in political discourse. Brought together with inherent deficiencies of the representative pillar of democracy -

increasing unaccountability and unresponsiveness to citizens due to delegation of decision-making power, meritocratisation, and executive dominance - these disruptions explain the low levels of public trust in democratic institutions and actors whereas trust in the regime type of democracy is remaining high.

The institution-regime trust gap makes political innovations of (elements of) liberal-representative democracy the most viable alternative to ensure the overarching goals of individual liberties and prosperity by restoring trust and legitimacy in democratic actors and institutions. The typology of political innovations by the degree of impingement on democratic institutions based on the scoping analysis identifies multiple areas of political innovations: An increase of efficiency and innovativeness of government, the introduction of preference intensity to voting systems, randomness as a principle in decision-making and the selection of executives, participatory democracy mainly based on deliberation, a decentralization of economy and politics driven by libertarianism, and an alignment of the neoliberal economy to liberal-representative democracy.

The evaluation of the political innovations indicates the requirement for further research on legitimacy sources of liberal-representative democracy, on the combination of political innovations to cure potential disadvantages of an innovation standalone, on the practical need for creating an ecosystem for experimentation, and especially on the need for accelerating a discourse on political innovations integrating a wide array of stakeholders.

Capitalizing on this contribution, the initiative *#polivation* accelerates this discourse by providing a publicly accessible wiki database on political innovations coupled with academic conferences and podcasts to integrate civil society next to academia into innovation discourses. *#polivation* openly propagates the underlying normative claim of this contribution: Upgrading liberal-representative democracy to the 21st century is desired and possible, but it must start now!

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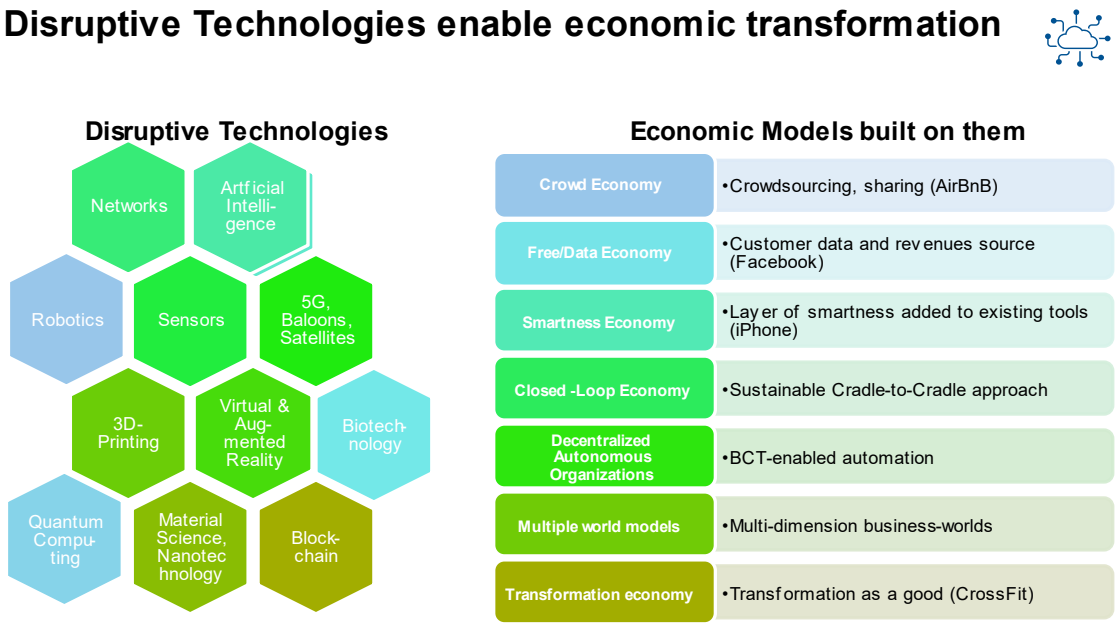

Figure 1: Disruptive Digital Technologies and Transformative Economic Models
Source: Own illustration based on Diamandis & Kotler (2020)

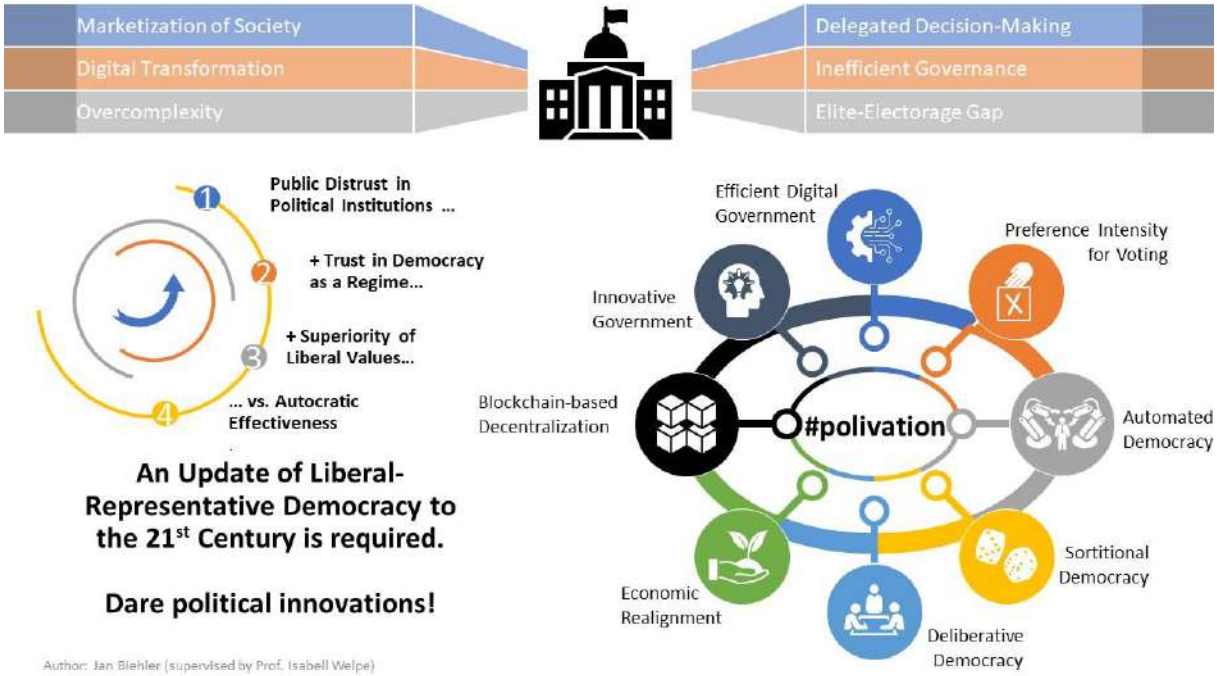

Figure 2: Reasons and paths for political innovations in liberal-representative democracy
Source: Own Illustration

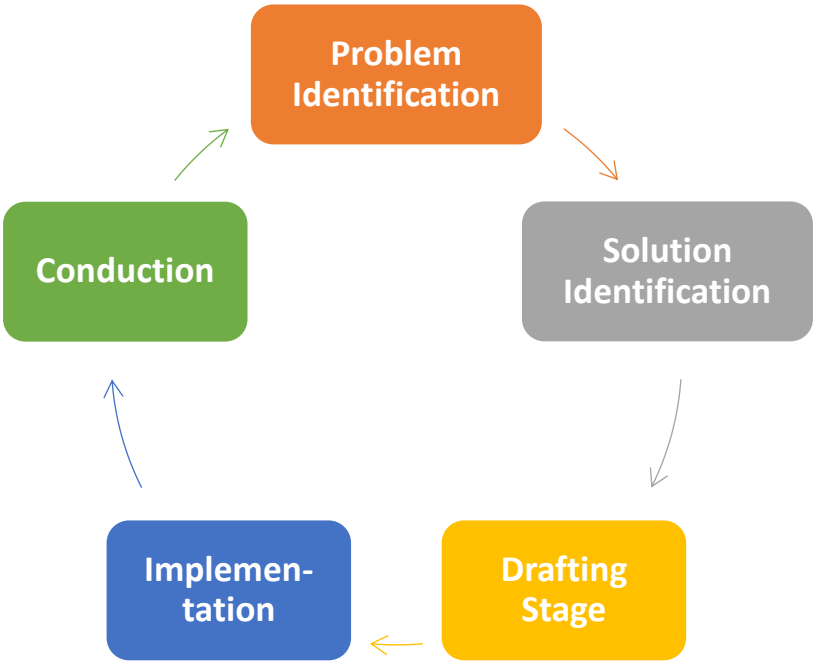

Figure 3: Stages of policy-making
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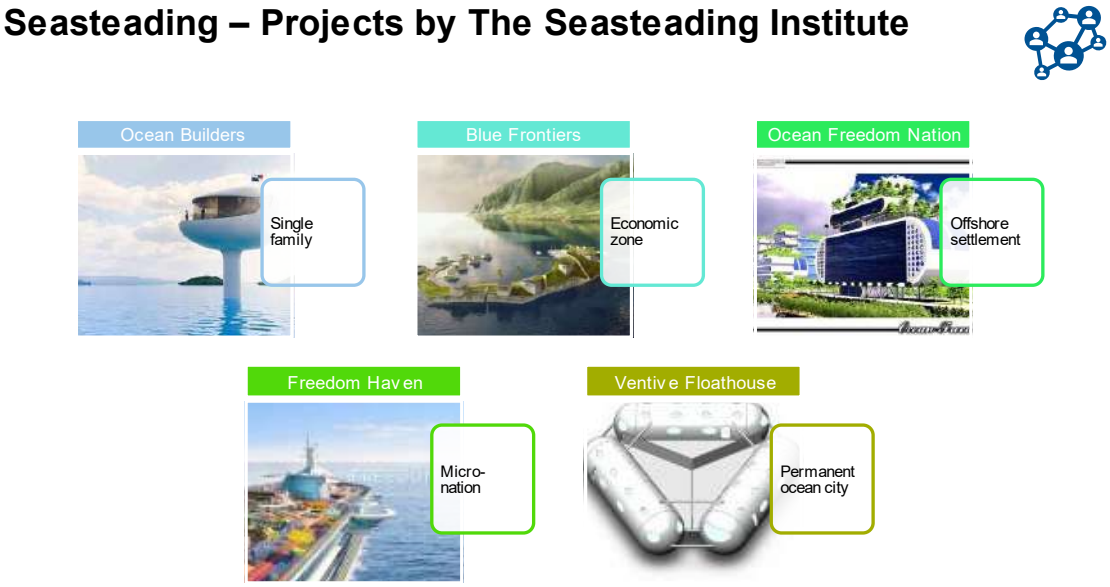

Figure 4: Seasteading Projects
Source: Own Illustration based on the projects featured by The Seasteading Institute (2021)