RESEARCH ARTICLE

Is Liquid Democracy Compatible with Representative Democracy? Insights from the Experience of the Pirate Party Germany

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ABSTRACT: Although political scientists and political theorists rarely recognize liquid democracy (LD) as a distinct model of democracy, LD has its own history, theoretical underpinnings and practical applications. The article fills this gap by conceptualizing LD as an original decision-making procedure and a mode of political representation based on mechanisms of authorization and accountability that are fundamentally different from parliamentary representation. Yet the first practical applications of LD have occurred within representative institutions such as the German Federal Parliament and political organizations such as the Pirate Party Germany. These have experimented with two different LD software, Adhocracy and Liquidfeedback, whose design enables two variants of LD, the former aimed at assessing the quality of opinions and the latter aimed at transforming experts into decision-makers. After examining the impact of the adoption of Liquidfeedback on the internal organization of the Pirate Party, the article identifies two challenges that have emerged through the use of LD software: the conflict between the participants' right to privacy and the transparency of delegated decisions; and the concentration of power in the hands of few delegates. The article concludes by noting that only the variant of LD oriented toward assessing the quality of opinions is fully compatible with representative democracy.

KEYWORDS: Keywords: liquid democracy; Pirate Party Germany; proxy voting; Adhocracy; Liquidfeedback.

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1. Introduction

Over the past two decades, the expression liquid democracy (from now on, LD) has entered the political lexicon with a variety of meanings. Frequently associated to forms of political participation enabled by digital media, or more generically, to the liquid, software-based modernity theorized by Zygmunt Bauman (2000), LD is rarely recognized by political theorists and political scientists as a model of democracy in its own right. Such lack of attention can be attributed to four primary reasons. First, although the concept has a deeper history, the term liquid democracy appeared in the public domain only in the early 2000s. Second, LD was initially developed in a variety of Internet forums, mostly frequented by technologists and information scientists, which were by and large invisible to political scientists. Third, LD remained a speculative concept until 2010, when the simultaneous release of two liquid democracy software (from now on, LDS) enabled the first LD practical applications. And fourth, the early adopters of LDS were mainly small, Internet-centric parties, which means that LD has been enjoying a low level of institutionalization and visibility in the political arena.

In this respect, LD can hardly be compared to established models of democracy such as liberal democracy or deliberative democracy. At the same time, LD sits rather uneasily with democratic innovations such as citizens' assemblies and participatory budgeting processes (Smith 2009; Elstub and Escobar 2019). Whereas those institutions are designed to increase participation *within* the framework of representative democracy, LD is both an alternative model of political representation and an original decision-making procedure.

At the very core of LD sits the delegation. By leveraging the affordances of specially designed software, voters can transfer delegations—or proxy votes—to other voters, who can in turn retransfer them, enabling the emergence of *chains of trust*. Through this transitive delegation or metadelegation mechanism, voters do not need to entrust a bloc of representatives with the task of representing them in toto. Instead, they can distribute their preferences among a variable number of delegates, choosing the ones they deem more apt to represent them on specific issues. Furthermore, delegations differ from electoral votes in that they are subject to instant recall. Thus, delegations set in motion a different mechanism of authorization and accountability vis-à-vis the electoral mandate based on fixed-term appointments and the autonomy of elected representatives from the electorate (Valsangiacomo 2021).

For all these reasons, LD is not a simple extension or corrective to representative democracy. Rather, as Hélène Landemore (2020) notes, LD is an emerging model of political representation that must be conceptualized on its own ground. Similar to the draw by lot, which was used in ancient Athens to mitigate the influence of the aristocracy in politics (Hansen 1991; Manin 1997), liquid representation blurs the boundaries between the represented and the representatives, ordinary citizens and politicians. In this respect, LD is a direct form of representation (Coleman and Blumler 2009), which presupposes an ongoing dialogue between delegates and delegators as well as an alternation in positions of leadership. From this angle, liquid representation could provide a response, if not a solution, to the much-debated crisis of political representation (Dalton 2004; Hay 2007; Rosanvallon 2008; Tormey 2015). At the same time, LD seems to provide a response to a key objection to the viability of direct democracy in modern societies—namely, the impossibility of scaling the agora, the Assembly based on the voluntary participation of all qualified citizens, beyond the size of a town hall meeting. By leveraging the cost-reducing affordances of digital media, LD decouples participation from physical co-presence, affording a complex decision-making process based on *scalability through specialization*. As we will see, this is possible because transferable delegations enable an advanced division of political labor, which does not require centralized coordination and management.

In summary, from a normative standpoint, LD seems to overcome several limitations of representative democracy and direct democracy. By allowing citizens to appoint multiple delegates with whom they share different affinities, LD fosters strong proportionality improving on the descriptive dimension of political representation (Pitkin 1967). The higher granularity of delegated voting strengthens in turn mutual trust between delegator and delegate, whose political objectives are more likely to be aligned vis-à-vis the goals of citizens and representatives elected via the traditional party system (Valsangiacomo 2021). Indeed, as we will see, one of the main purposes of LD is to remove the intermediation of centralized party bureaucracies

from the selection of policy area experts. From this perspective, LD also presents an epistemic advantage when compared to representative democracy for its capacity to mobilize "policy area representation," that is to say, for allowing experts to shape policy directly rather than indirectly as consultants of the political class (Blum and Zuber 2016: 168). In this respect, LD could also perform an important educational function insofar as the activation of competences within the body politic is essential to its own functioning. Finally, as noted, LD claims to overcome the limited territorial scope of direct democracy based on the assembly meeting through the adoption of software tools that afford the participation of citizens well beyond the local level.

Whereas LD carries many promises, pioneering implementations of LD have met several challenges and limitations. The scholarship on this subject, however, has not reflected upon whether such challenges are to be attributed to the theory itself, its technological translation into LDS, the sociopolitical contexts that have experimented with LDS, or a mix of the above. The aim of this article is to fill this gap. By focusing on Germany, the country in which the technology and practice of LD have been most developed, I show how the normative claims outlined above have been put to test by two major challenges: 1) The difficulty of adapting liquid delegation to representative institutions such as the Pirate Party Germany and the German Parliament; and 2) the unintended consequences of specific design choices for LD-based participation. More specifically, the main argument of this article will be that LD cannot be easily adapted to representative institutions insofar as it is based on an authorization mechanism that competes with and is alternative to electoral representation. As we will see, the experience of the Piratenpartei demonstrates that the coexistence of two parallel legitimation mechanisms—electoral representation and liquid representation—within the same political organization did not lead to a productive cooperation between elected party leaders and liquid delegates. This does not mean that electoral representation and liquid representation are necessarily incompatible. However, I will argue that the two can be integrated only if LD is primarily understood as a "weak" authorization procedure for crowdsourcing expertise and not as a "strong" authorization procedure for the exercise of sovereign power.

2. Selection of case study, research problem, and method

The article focuses on the case of the Piratenpartei because this is the largest political organization to have ever experimented with LD. Whereas a number of local administrations and political parties, mostly belonging in the Pirate Party family, have adopted LDS internationally, the Piratenpartei is the only organization to have reached a critical mass of few thousand software users. This has been a determining factor for the selection of the case study insofar as one of the key advantages of LDS is to scale direct democracy through an advanced division of political labor. This means that LD cannot show its full potential within a small-sized polity, where participants tend to know each other and can thus divide up tasks and allocate responsibilities directly, with no need of recurring to metadelegations, which become necessary only in a relatively large polity.

In order to understand how the Piratenpartei had used Liquidfeedback in the early 2010s, in 2016-17, I conducted a total of twelve online and in-person interviews with Liquidfeedback software developers, elected representatives and liquid delegates of the Piratenpartei. In this article, I cite four interviews conducted with a former Political Director of the Piratenpartei, two state representatives elected in Berlin, and a national "superdelegate" in the federal Liquidfeedback.[1] The interviews lasted between two and four hours each and were initially structured around two broad research questions. My first aim was to understand how Liquidfeedback translated and materialized the theory of LD in its very design. Second, I was interested in understanding how the software had been used and why, after a promising start in 2010-11, the Pirates had failed to agree on using it as the equivalent of a party convention for the approval of binding resolutions. The

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[1] All informants have agreed to use their names for the interviews due to their representative function and/or public role within the party.

interviews revealed that two major factors had stymied the use of Liquidfeedback. First, the introduction of the software had caused a generalized *crisis of trust* between advocates and detractors of LD as well as between members of different party branches. Second, a significant political resistance coming from within the party elite—namely, the party Board—blocked the proposal to use Liquidfeedback as the equivalent of a permanent convention.

These findings prompted me to consider the relationship between representative democracy and LD as a central dimension of the project. To complicate things further, there seemed to be different interpretations of LD, and different encodings of such interpretations into different LDS. Remarkably, the theoretical debate around LD had led to the parallel development of two distinct LDS, Adhocracy and Liquidfeedback, which were both released in Berlin in the late 2000s. It became therefore important to reconstruct the technopolitical milieu from which these interpretations and encodings had emerged. I was able to do this by triangulating the qualitative interviews with the translation of portions of German scholarly works such as Anja Adler's *Liquid Democracy in Deutschland* and Sebastian Jabbusch's master thesis *Liquid Democracy in der Piratenpartei*. Whereas the former is useful to understand the main ideas that inspired the development of Adhocracy, the latter provides a wealth of data about the use of Liquidfeedback in the Piratenpartei. Such data helped me contextualize a series of controversies that emerged from the introduction and through the use of Liquidfeedback. As we will see, these debates are important for two reasons. First, they show that the technological codification of LD into LDS implies design choices that have political consequences. Second, they show how sociopolitical factors that are specific to the German context affect the practical uses of the software.

Thus, the article moves from an exposition of the theory of LD to a discussion of the two interpretations which came to form the conceptual basis for the design of Adhocracy and Liquidfeedback to an analysis of the actual uses of the software. After outlining, in section 3, the defining properties of liquid delegation, in section 4, I trace a genealogy of a strong conception and a weak conception of LD to public choice theory and theories on the emergent properties of computer networks, respectively. In section 5, I show how these two readings of LD were translated and incorporated into two different LDS, Liquidfeedback and Adhocracy. Section 6 considers the actual uses of Adhocracy and Liquidfeedback. Whereas Adhocracy was adopted by a Committee of the Bundestag, which was unable, however, to activate its LD functionalities, delegations were widely used within the Liquidfeedback. Because of this reason the use of Adhocracy is not discussed, and sections 7 and 8 focus on two controversies that emerged from the use of Liquidfeedack: the transparency versus data protection debate; and the diatribe over the concentration of power in the hands of few delegates. In the conclusion, I return to the question of the compatibility between liquid representation and electoral representation to argue that the former is compatible with the latter only at the cost of reducing its scope to a system for assessing the quality of policy recommendations.

3. The Four Defining Features of LD

LD is a variant of direct democracy. Throughout modernity direct democracy has been either associated to specific institutes such as the popular referendum and the citizens' initiative or to anarchist, communist and socialist conceptions of democracy. Within the latter tradition, delegates are typically subject to instant recall by workers' councils, communes and other types of collective bodies (Held 1996: 120). By contrast, LD empowers each and every *individual* to participate in the political process either directly or through a delegate of her choice. For this reason, LD has been described as "a direct / proxy voting system," where the slash denotes the always available alternative between direct participation and delegation (Green-Armytage 2015). Such choice is premised on the notion that in societies characterized by an advanced division of labor and specialization of knowledge voters are unlikely to be capable (or to be willing) of making informed decisions about each and every issue. This does not mean, however, that voters should not be given "the widest possible *direct* choice of representatives" (Ford 2002). Thus, in contrast to parliamentary systems, LD does not rely on a fixed set of representatives, but opens up representation to a pool of representatives that is

potentially as wide as the political community itself. It follows that participants do not compete for a limited number of seats. Rather a member of the political community can occupy the position of delegator (principal) or that of delegate (agent) depending on the subject at hand.

Second, in an LD system, delegations are subject to *instant recall*. This means that the duration of a delegate's mandate is not fixed in advance but entirely determined by the delegator. Thus, whereas the direct / proxy alternative opens up representative power to the many, the instant recall mechanism is meant to prevent the formation of a political elite that holds the "monopoly of representation" (Bourdieu 1991). This wide distribution of representative capacities calls into being a complex division of political labor, raising the question of how tasks are to be divided and decisions to be made. Because those who receive proxies may in turn know members of the community they deem more competent than themselves on specific issues or policy initiatives, LD allows proxy holders to either exercise their voting power—a voting power that is proportional to the number of delegations received—or to transfer their proxies and their own vote to other participants. Thus, the transitive property of delegations, also known as *metadelegation*, is the third defining feature of liquid representation. Finally, and this is the fourth defining property of LD, participants can transfer *different classes of proxy votes*, ranging from proxies for a single policy initiative to proxies for a subject area to less specialized types of proxies.

These four defining features of LD—direct-proxy alternative, instant recall, metadelegation, and granular delegation—constitute the building blocks of the liquid model of representation and decision-making. Such model came to fruition through the historical convergence of different knowledge domains with the emergence of computer networks. In particular digital networks have allowed computer scientists to build reputational models based on a variable distribution of individual preferences and imagine voting systems based on the fluctuations of reputational power. In the next two sections, we consider how liquid representation and liquid decision-making inspired two different interpretations of LD, which inspired in turn two different LDS, Adhocracy and LiquidFeedback.

4. Two Interpretations of LD: public choice and knowledge sorting

The four defining features of LD outlined above did not emerge simultaneously but came to fruition at different historical times, through the contribution of a variety of social thinkers, economists, mathematicians, technologists, and software engineers. A detailed historical account of how LD acquired its current form exceeds the scope of this article. Furthermore, various authors have already undertaken this task (see Behrens 2017; Green-Armytage 2015; and Jabbusch 2011). Hence, here I limit myself to isolate two moments in the history of LD that are significant for the broader argument of this article: 1) the importance that public choice theory has had in defining the concept of direct representation or delegation by proxy voting; and 2) the recent understanding of LD as a system for crowdsourcing expertise and assessing the quality of policy recommendations.

As a market-based theory of politics, public choice focuses on the political behavior of voters, bureaucrats and politicians as self-interested agents and utility-maximizing individuals (Buchanan and Tullock 1962). For this reason, public choice theorists tend to privilege proportional representation for its capacity to reflect individual preferences with a higher level of accuracy than other electoral systems. Indeed, because public choice understands the public interest as the result of the aggregate choice of self-interested individuals, the more a political system reflects and represents individual preferences the more it will tend to perfection. Thus, in *The Mathematics of Politics*, Gordon Tullock (1967: 144–157) envisions a political system wherein each voter can either represent herself through direct participation or vote for a representative who would have a voting weight exactly proportional to the number of votes received. Two years later, James C. Miller III, adds two specifications that would later become stable features of liquid representation: the permanent recall of delegates and the issue-based delegation (Miller 1969). Thus, by the late 1960s, public choice had already envisioned three of the four defining features of liquid representation. However, in the writings of public choice theorists, the decision-making process that is to be based on such system remains largely

unspecified. In particular, it is unclear how participants, be they single voters or delegates holding proxies, can propose legislation, set the agenda, deliberate, and come to a shared decision. Further, public choice did not give much thought about how to ensure that members of a political community could be remotely verified—that is, how to establish the electronic boundaries of a polity—and how to ensure the privacy and trustworthiness of voting procedures over computer networks. (As we will see, far from being merely technical, issues of authentication and trust have clear political implications and several unintended consequences for LD-based systems).

After the invention and popularization of the Internet, various authors continued to debate the specifics of a direct / proxy voting system, focusing on aspects that had been neglected by their predecessors. In particular, Bryan Ford (2002, 2014), argues that individuals must be capable of choosing whether to participate in the political process privately as voters or publicly as delegates. Ford is also the first to introduce the metadelegation feature. Being a computer scientist and expert in decentralized and distributed systems, Ford is concerned with designing an ideal-type organization which may be capable of valorizing expertise in specific policy areas without relying on a centralized bureaucracy. Thus, because party elites have historically controlled the intra-party division of political labor through the distribution of incentives and rewards to loyal cadres (Michels 1915; Panebianco 1988), Ford introduces the metadelegation mechanism to allow for a bottom-up division of political labor, which is predicated on the self-organizing and emergent properties of digital networks.

These emergent properties also play a significant role in the original formulation of liquid democracy, which is attributed to John Washington Donoso (2003). Posting in a Wiki under the pseudonym Sayke, Donoso envisions LD as a knowledge sorting system which can determine the best answer to a common problem based on the shared knowledge of a community.[2] Thus, in its original formulation, LD describes a procedure for putting specialized knowledge in the service of the common management of public resources—such as a civil infrastructure or a public health system—and not a new model of democratic representation. Donoso himself notes that whereas answer recommendation is "a mechanism through which we *are informed by others*, vote proxying (and traditional democratic representation) acts as a mechanism through which we *cede power to others*."[3] In sum, Donoso's concept of LD differs from proxy-voting in that it does not designate an authorization procedure but a knowledge sorting system aimed at valorizing the expertise that may exist within a networked demos.

The question of whether transitive delegations actually allow a networked community to identify the best opinion and solution to a shared problem is hotly debated in a number of research articles on LD, which rely on game theory, social choice theory and voting theory (see Becker et al. 2021; Khang et al. 2021; Caragiannis and Micha 2019). But regardless of whether LD is actually a superior choice model vis-à-vis a classic electoral model based on restricted preferences, it is worth noting that as a knowledge sorting system, LD is not necessarily incompatible with parliamentary representation. Indeed, under Donoso's system, policymakers can mobilize experts through LDS without having to redistribute any of their power to other representatives or ordinary citizens. In this respect, the direct / proxy literature outlines a conception of LD that is significantly stronger than the knowledge sorting literature. As we have seen, the direct / proxy alternative literature describes an authorization procedure which is clearly *alternative to electoral representation* insofar as LD delegates are independent of party affiliations, constantly vary in numbers, are not appointed for a fixed term, are subject to instant recall, can retransfer their delegations to other delegates, and make decisions that directly affect policy outcomes. On the other hand, the conception of LD as a system for assessing the quality of policy recommendations is substantively weaker in that *it frames experts' opinions as opinions and not as decisions*. In the next section, we consider how these two different conceptions of LD were incorporated in the architecture of the first two LDS to be ever released, Liquidfeedback and Adhocracy.

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[2] No longer online, the forum has been archived by the Wayback Machine at the Internet Archive. Python Wiki, LD, version 1 August 2003, http://goo.gl/V7SvN.

[3] John Washington Donoso (aka Sayke) Liquid Democracy in Context, or, an Infrastructuralist Manifesto. Undated. http://seed.sourceforge.net/ld_k5_article_004.html.

5. Two Encodings of LD: Adhocracy and Liquidfeedback

Both Adhocracy and Liquidfeedback were released in 2009 in Berlin, Germany, where a lively debate around LD had been developing since 2007 (Adler 2018). In this milieu, it became immediately clear that LD was not intended to transform parliamentary institutions and political parties, as Tullock, Miller, Ford, and others had speculated. On the contrary, LDS was adopted *by* political organizations and representative institutions such as the Piratenpartei, the German Bundestag, and a number of local administrations which have to abide by German constitutional law. Purged of its utopian elements, LD had now to meet certain institutional requirements and to be adapted to preexisting political conventions.

Before considering how these requirements and conventions affect software use, it must be noted that the design of Adhocracy and Liquidfeedback reflected two different understandings of LD. The first version of Adhocracy (A1) implemented a variant of LD called "direct parliamentarism" (*direkter parlamentarismus*), a concept first introduced by Martin Häcker and Daniel Reichert in a lecture delivered at the Chaos Computer Club, the largest European association of computer hackers, in 2009.[4] The design of Liquidfeedback is more strictly inspired by the direct / proxy, metadelegation model outlined by Miller, Ford and others. To be sure, each software implements transitive delegations. However, in the case of the first version of Adhocracy (from now on, A1) transitive delegations were *added* to a decision-making process which was primarily inspired by Habermas' discourse theory of deliberative democracy (Habermas 1996). In the case of Liquidfeedback (from now on, LQFB), transitive delegations sit at the center of the entire system and play a prominent role in the entire decision-making process.

A1's decision-making process is made of three primary components: 1) discourse alliances; 2) policy field parliaments; and 3) transitive delegations. First, citizens participate directly in parliamentary activities by joining issue-based *discourse alliances*. Structured around proposals, which correspond to political goals, alliances are comparable to political action groups or political factions even though individuals join alliances without being formally affiliated to a party or a party faction. Second, alliances that overlap thematically constitute a *policy field parliament*. Each parliament provides a structured discursive context for changing existing norms. Within each parliament, participants can upload three types of procedural texts: proposals, comments, and evaluations. Further, participants can revise preexisting laws which may be affected by the introduction of a new policy. Because writing and revising laws requires specialized knowledge, A1 supports the possibility for participants to transitively delegate other participants to contribute to policy field parliaments they are not specialized or invested in. Thus, the third building block of A1 is the *transitive delegation*. Due to the primarily discursive nature of direct parlamentarism, delegations in A1 function as permissions that participants give each other to amend and revise the original proposals as well as to make evaluations of proposed changes. This means that participants present a proposal to legislators, together with the evaluated changes, in the form of *voting recommendations*. It follows that in A1 transitive delegations are not authorizations to vote alternative proposals but only to participate in the deliberative process leading up to the final decision, which rests with elected representatives.

In contrast, in LQFB transitive delegations have the primary function of ensuring that voters are represented, either directly or via a proxy, through the entire decision-making process. The centrality of the transitive delegation to LQFB is evident from the fact that users are immediately invited to allocate delegations to other users. In procedural terms, the delegation is conceptualized as a copy of another person's voting decision. Those who receive delegations can transitively transfer their own vote and the received proxies (or copies) to other voters. Transitive delegations in LQFB have four distinctive properties. First, they are *unrestricted*, that is, the voter cannot set a limit to the number of times a proxy can be passed on.

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[4] Martin Häcker and Daniel Reichert, Direkter Parlamentarismus – gemeinsam verbindlich entscheiden [Direct Parliamentarism – making binding decisions together], Datengarten 32, Chaos Computer Club, Berlin, 3 September 2009.

Second, they are subject to permanent and *instant recall*. Third, they are applied to *all phases* of the decision-making process. And fourth, they have different levels of *granularity*. Specifically, the system supports three types of delegations: global delegations (for all issues); subject-area delegations (*e.g.*, delegations for health care matters); and single-issue delegations. Delegations that are more fine-grained overrule those that are more general. This means that initiative-based delegations take priority over the subject-area delegations. Finally, a voter who decides to take part in any phase of the process overrides automatically all delegations that may be relevant for the initiative (Behrens et al. 2014: 22-28).

As noted, unless they are revoked, transitive delegations in LQFB are applied to the entire decision-making process. This is structured in four different phases: admission, discussion, verification, and voting. During the admission phase, any eligible voter can submit an initiative (a policy proposal, an intra-party organizational matter, a proposal for a party platform, and so on). Initiators must seek the support of other voters—and in particular of those with a high voting weight—to pass an initial quorum and move the initiative to the discussion phase. The discussion phase is not meant to replicate an online forum—that is, contrary to A1, comments and normative assessments are left out of the system—but is designed to verify whether initiators are willing to modify the initiative by adopting amendment suggestions. This means that participants who make amendment suggestions can condition their support to an initiator's choice to implement them. Once the discussion phase has ended, the initiative moves to the verification phase. At this stage, initiatives can no longer be edited. Supporters verify that initiators have not made last-minute changes and decide whether to retain their support or withdraw it. Potential supporters who are dissatisfied with the initiative—*e.g.*, because their amendment suggestions have been rejected—can introduce a competing initiative, which may consist in an amended copy of the original initiative. In order to prevent a tactical use of this feature, all initiatives must pass a second quorum at the end of the verification phase. Finally, the voting phase employs different voting systems, depending on the type of initiative. Crucially, in order to ensure the verifiability of the vote, *LQFB is designed to make all decisions,* including the allocation of delegations, *transparent and visible to all participants*. (As we will see in the next section, this feature raised significant privacy concerns within the Piratenpartei).

In sum, A1 and LQFB implement two versions of LD, which emphasize different aspects of liquid representation. In the case of A1, the decision-making process is set in motion by discourse alliances, which bring together citizens who are interested in introducing policy proposals. A1 also allows participants to compare different versions of the same text, revise preexisting norms, and provide policymakers with recommendations based on weighted opinions. In this respect, the use of transitive delegations in A1 is closer to Donoso's conception of LD as an answer recommendation system than to a proxy / voting system. This is because participants do not entrust other participants to make decisions on their behalf but only to submit proposals and normative considerations to lawmakers. In this respect, LQFB empowers participants to a higher degree than A1 insofar as transitive delegations in LQFB apply to the whole decision-making process, from the introduction of an initiative to its final approval. Similar to A1, LQFB initiators draft the initial proposal, seek the support of other participants, and revise it as needed. But unlike A1, which privileges collective discourse alliances, LQFB initiators retain absolute control over the initiative from beginning to end. In this respect, the design of LQFB reflects more closely public choice theory's understanding of the democratic process as an ongoing deal-making activity whereby individuals achieve mutual gains by trading preferences of different intensities over different issues (Thrasher and Gaus 2017).

6. The use of LDS within the German Political Context

Notwithstanding these differences at the design level, LDS's political function ultimately depends upon its societal and institutional adoption. In this section, we consider how the adoption of Adhocracy and Liquidfeedback encountered two types of challenges. The first challenge concerned the authentication of software users, that is, the organizational and institutional recognition of the identity of the participating subjects. As we will see, verifying the digital identity of a participant in an institutional process raises in turn

the question of whether such participant should have, similar to a voter, a right to privacy; or whether, similar to an elected representative, she should be held accountable for her decisions. The second challenge concerned the distribution of power via the transitive delegation system. In particular, as the PiratenPartei begun to adopt LQFB, anxieties emerged over the possible concentration of power in the hands of few "superdelegates." We should now briefly consider the political context within which these challenges emerged.

In 2010, shortly after its release, Adhocracy was adopted by the Committee of Inquiry *Internet und Digitale Gesellschaft* (short, EIDG, trans., Internet and Digital Society) of the German Federal Parliament. Composed of seventeenth members, the EIDG was tasked to research the impact of the Internet on various aspects of German society and make policy recommendations to Parliament. After meeting for a few months, the MPs decided to add the public as the "18th expert" on the Committee and to make it interact with other members via a digital platform running on Adhocracy. However, since platform registration was based on an open system, it was procedurally impossible to prevent users from registering multiple accounts to collect delegations. Thus, in order to avoid this possibility, A1 administrators disabled the transitive delegation feature. Such action did not alter the core functionalities of the platform, which, as we have seen, was mainly designed to facilitate debate and deliberation. In the end, members of the public were able to contribute to the EIDG report by posting unranked proposals, comments, and evaluations. From the perspective of LD, however, it is significant that Adhocracy users never activated transitive delegations, even in subsequent releases of the software.

Thus, Liquidfeedback is the only software that has been consistently used to enable LD and liquid representation. Developed by four system developers based in Berlin, the software was released in late 2009 and quickly adopted by the Piratenpartei. The Piratenpartei had been founded in 2006 as a single-issue party devoted to Internet freedom, understood both as free access to information and privacy protection from government surveillance (Löblich and Wendelin 2012; Koschmieder 2015). Due to its small size, during its first three years of life, the party adopted a radically democratic organizational structure that endowed, for example, all members with voting power at party conventions. In 2009, however, the party saw a tenfold increase in its membership as a result of a successful campaign against Internet censorship (Koschmieder 2015; Deseriis 2020). In 2011-12, the Pirates were able to win enough shares of the vote to gain representation in four state parliaments (Berlin, North-Rhine Wesphalia, Saarland, and Schleswig-Holstein) and the European Parliament while members grew to over 30,000. This sudden expansion raised the problem of how to manage party conventions with thousands of participants, all of whom had equal power to make policy proposals and vote them on, and thus how to scale participation without depriving members of their decision-making capacities.

LQFB seemed to perfectly serve this purpose. After the Berlin Pirates and other state branches of the party adopted it, the software was introduced at the federal party level so as to avoid the proliferation of incompatible instances of the software. Initially, the motions presented at party conventions via LQFB were non-binding, that is, the voting phase had no effect on the final approval or rejection of an initiative. However, the Berlin branch and other LD advocates proposed to replace the federal party convention with a *ständige Mitgliederversammlung* (SMV), a standing general meeting to be permanently held online via a LQFB-powered platform. The proposal met the opposition of the party Board, whose majority of members refused to make use of the software (Jabbusch 2011: 119). It also met the opposition of the Bavarian branch of the party, which feared that the Berlin Pirates could seize control of the party because of their advanced knowledge of the software. The conflict between the Berlin and the Bavarian Pirates became public at the Neumarkt convention in May 2013, when the Bavarian Pirates blocked the attempt of the Berlin Pirates to change the party statute and introduce the SMV. Here the so-called "liquid wars" reached a point of non-return. Personal animosity among various party leaders sealed the destiny of the party, which failed to enter the Bundestag in the general election of 2013, and faded out of the German political landscape as quickly as it had appeared. Due to textual constraints, here I limit myself to examine two highly contentious issues that emerged through the liquid wars: the data protection versus transparency debate; and the diatribe over the concentration of power in the hands of few delegates.

7. The Question of Digital Authentication and the Privacy vs. Transparency Debate

Similar to A1, the first issue faced by LQFB administrators and proponents concerned the authentication and digital identity of the platform users. As the software was being introduced in Berlin, it became immediately clear that many party members intended to participate anonymously (Jabbusch 2011). As noted, all decisions in LQFB—from the allocation of delegations to final votes—are visible to all users so as to ensure a verifiable vote (Berhrens et al., 2014: 39-57). This design choice had a significant unintended consequence. Many members expressed concerns about the creation of a database of political opinions, which could have been exploited by party leaders—or even governmental agencies—to profile members politically. At the same time, anonymous participation in LQFB would have made it very difficult, if not impossible, for participants to transfer delegations to members whose identity was unknown. As a compromise, the members who expressed privacy concerns accepted to participate by using a user name, or alias, which would *not* be linked to the email account stored in the party register. Members used the email stored in the register only initially to receive an invitation code (also known as a token) and to sign up on LQFB, where they were free to register a different email and choose any username. "After a complete login the unique token that was used was then blocked, making it impossible to create a second account using the same token" (Jabbusch 2011: 54).

The token-based authentication system was certainly more reliable than the open system adopted by the EIDG. Nonetheless, protecting the privacy of members did not solve the question of how to ensure that members who received proxies could be held accountable for their decisions. In particular, LD advocates argued that because LQFB puts all members in the condition of acting both as delegators and delegates, notions of privacy and accountability based on electoral representation cannot be applied ipso facto to liquid representation. Marina Weisband, who was Political Director of the Piratenpartei in 2011-12, describes the conflict between the privacy argument and the transparency argument as a dilemma which is intrinsic to the political ontology of LD:

> Am I a politician, so I have to be transparent in my decisions or am I just a civilian who needs to be protected? The funny thing about Liquidfeedback is the liquid part, where you are actually both, in a state in between. As said, this conflict is actually a severe one, it hasn't been decided (Weisband, Personal communication 2017).

Martin Haase, a professor of linguistics at the University of Bamberg and the member of the Pirate Party who held the highest number of delegations at the federal level, makes a similar observation:

> The question is what do you do when an average citizen can be a member of parliament at the same time. Sometimes he is a member of parliament and sometimes he is not. Because members of parliament have to act in the open, there has to be records of what they did. On the other hand, the individual citizen has a right to privacy (Haase, Personal communication 2016).

If Weisband and Haase's insights suggest that LD is an original mode of representation which *competes* with electoral representation, others have suggested that parliamentary representation and liquid representation are not necessarily incompatible. For example, the LQFB developers have pointed out that their software is meant to function as "an additional communication channel between citizens and their administration" and not as a substitute for electoral mandates (Nitsche 2014). And the elected representatives of the Piratenpartei at the Berlin state parliament seemed to take this point literally when they devised a non-binding version of LQFB to consult with all constituents, which was distinct from the version used within the Piratenpartei (Reinhart, Personal communication 2017). Such distinction was necessary because, like the vast majority of

liberal constitutions, the German constitution protects the liberty of representatives to respond only to their consciousness. Certainly, in theory, LDS can be used bindingly at the intra-party level—for example, to draft and vote on the party program—and non-bindingly for institutional consultations. But in practice this harmonization is difficult because political parties and representative institutions tend not to recognize legitimation procedures that are alternative to electoral representation. As Andreas Popp, a member of the Party Board, noted: "If people [party members] trust the delegation recipients so much, I don't know why these people [delegation recipients] are not sitting on the board. It doesn't add up." (Jabbusch, 2011: 119). To complicate things further, as soon as LQFB was adopted at the federal party level, some patterns emerged in the distribution of power which also lent themselves to criticism.

8. The 'Excessive' Power of Superdelegates

One of the most consistent and recurring criticisms of the use of LQFB in the Piratenpartei was that some delegates concentrated an excessive amount of power into their own hands. These criticisms are supported by data, which show that the top five delegates in the federal LQFB cast approximately a third of the votes in 2010 (Jabbusch 2011: 110). Further, as time went by, direct participation in the system declined, increasing the relative voting weight of superdelegates, which were able to cast up to 50% of the total votes in 2011. These data are hardly surprising considering that Internet research has consistently shown that. conversation in online communities is usually dominated by few contributors (Barabasi 2001; Shirky 2008; Johnson, Faraj & Kudaravalli, 2014). Whereas the theory of LD is not formally concerned with such imbalances as delegates can always be recalled, it is worth recalling that delegations in LQFB apply to the entire decision-making process. Thus, not only had superdelegates the ability to heavily affect the vote outcome on competing initiatives, but their support was critical for initiatives to pass the initial admission quorum. To be sure, the federal party convention retained the power to approve or reject any initiative. Nonetheless, superdelegates significantly influenced the party agenda as many motions presented at the convention had been previously introduced, selected, and amended through LQFB.

To analyze this influence, let us consider the case of Martin Haase, the top delegate in the federal LQFB. The linguistics professor held approximately 150 delegations, some of which were "global" (that is, assigned to him for every initiative) and some of which were limited to specific topic areas. This was a considerable number given that out of the 3,600 members who were registered in the system in 2010-11, only 673 delegated at least once to another member (Jabbusch 2011, 105). Thus, Haase could successfully introduce and support dozens of party initiatives. These were first drafted and amended in Liquidfeedback and then approved at party conventions, sometimes against the opinion of the party Chairman or the party Board. As Haase recalled in an interview held in his studio in Berlin his power was "informal," it was a "factual influence" that he had built by promoting "certain issues, which received massive support in Liquidfeedback" (Haase, Personal communication, 2016). In spite of this informal authority, Haase never held office within the party, insisting that the Pirates had adopted an LD-based process precisely for the purpose of de-professionalizing politics:

> I became active in the Pirate Party because it promised that you could do things without engaging that much. To be one of the party leaders is a full-time job. I love my job, I want to be a professor of linguistics, and be able to participate in the political process from my computer at home, but not full time (Haase, Personal communication, 2016).

Thus, on the one hand, the superdelegates exerted an influence that competed with—and in some cases openly challenged—the authority of formally appointed party leaders. On the other hand, initiatives based in LQFB were often approved at party conventions because they had been collaboratively drafted, that is, they were the expression of a collective effort. Indeed, my informants agree that the average quality of the LQFB-

based motions presented at party conventions was significantly higher than the motions which had not been previously drafted in LQFB. Furthermore, superdelegates frequently redistributed delegations to other participants by issue or subject area, and their power was subject to instant checks. Haase himself notes that in at least two different circumstances he lost a significant number of delegations due to unpopular decisions he had made (Becker 2012; Haase, Personal communication, 2016). In other words, the power of superdelegates was highly variable—that is, liquid—as intended by the software engineers.

And yet, although this variability was meant to prevent the formation of power cliques, ironically, LQFB advocates were perceived to form a consistent power block. Martin Delius, an elected state representative in the Berlin state parliament, who coordinated the implementation of LQFB at the federal level, argues that within the context of an anti-establishment party such as the Piratenpartei, LQFB advocates such as Haase and himself

> were perceived to be a shadow cabinet in spite of the fact that I was never part of the Board and so was Martin Haase. But we advertised the system and that made us a thing. "Against the establishment" was the only strong argument necessary to get elected on every level [in the Pirate Party] (Delius, Personal communication, 2016).

Thus, capitalizing on this anti-establishment sentiment, some party leaders and the Bavarian branch of the Piratenpartei were able to block the Berlin Pirates' proposal to reform the party statute and replace the biannual party convention with an online convention based on LQFB. Perhaps it was the lack of an authoritative federal leadership that made it difficult to mediate between two party branches that were very distant apart both geographically and politically. At the same time, this lack of leadership was not accidental for a party whose young members had a marked anti-elitist attitude not only towards career politicians but also towards "any of their competent members who would get to a certain high position" (Weisband, Personal communication, 2017). By investing any formal or informal authority, this anti-political attitude had the effect of undermining the liquid model of representation and ultimately the party itself. Such outcome is certainly paradoxical if one considers that LD had been introduced in the Piratenpartei precisely to prevent the formation of power cliques. But perhaps it was not entirely accidental that the adoption of a system designed to increase the control of principals over the agents of representation went hand in hand with a diffused anti-elitism. More surprisingly, the crisis of trust that invested the Piratenpartei concerned not only formal authorities, such as the party Board, but also the informal networks of LD advocates that had emerged organically to promote the use of LQFB. In the conclusion, I develop a few reflections on the root causes of the liquid wars and on the lessons that the case studies analyzed in this article can offer about the relationship between liquid and electoral representation.

9. Conclusion

The case of the Piratenpartei is significant because it provided a first empirical test for LD—understood both as a decision-making procedure and an emerging model of political representation. Although some LD advocates stress that LD is complementary to electoral representation and can improve on the quality of intra-party democracy, the case studies examined in this article suggest that such complementarity needs to be carefully examined and qualified.

To begin with, the use cases of Adhocracy in the Bundestag and Liquidfeedback in the Piratenpartei show that lack of digital authentication negatively affects the political efficacy and substantive impact of LDS. As we have seen, in the "direct parliamentarism" variant of LD embedded in Adhocracy, delegations were deactivated because participants could not be properly authenticated. Even though A1 did not incorporate decision-making functionalities, the German MPs did not accept a distributed ranking of expert opinion because the system was exposed to manipulation and fraud. This is unsurprising given that elected representatives base their authority on the reliability of the electoral system. Indeed, the authoritativeness of a digital participation system largely depends on its *perceived trustworthiness* (Peixoto and Steinberg, 2019:

53). But with few exceptions, early theorists of LD had assumed that power could be delegated online without considering the risks associated to digital manipulation. The designers of LQFB addressed this problem by implementing a fully transparent and traceable system. Whereas such system guarantees verifiability, it does not protect the right to privacy of delegators, who are comparable to voters in the act of choosing a delegate.

The advocates of LQFB tried to settle the privacy versus transparency debate by arguing that LD calls for a redrawing of the boundaries between the anonymous and private expression of political preferences and public responsibility. Because LD turns every citizen into a *potential* representative, citizens should accept that some of their political decisions—especially those that are made in the name of others—may remain in the public record. But should decisions concerning the allocation of delegations be equally transparent? Here, parliamentary voting procedures may serve as a term of comparison. As is known, in modern democratic parliaments most policy votes are publicly recorded so as to ensure the verifiability of the representatives' voting record. However, ballots devoted to internal appointments (House and Senate speakers, Committee chairs, and so on) are typically secret so as to protect representatives from intimidation, blackmailing, and vote buying. By rendering visible each and every decision to all participants, LQFB effaces this distinction. For this reason, having considered that secret ballots are an essential security mechanism to ensure free elections, the LQFB designers recommended the use of their software for consulting citizens and party members, but not as an alternative electoral mechanism.

As we have seen, however, those who held a high number of delegations acquired a significant "factual influence" within the party. This set the stage for a clash between formal authorities (legitimated via internal elections) and informal authorities (legitimated via LQFB), which eventually led to the decommissioning of LQFB. Ultimately, the coexistence of two parallel legitimation mechanisms did not result in a productive hybridization of the two. There are many additional factors which may explain this lack of cooperation, including different levels of socialization of the theory and practice of LD within different party branches; the political and geographical distance between the Bavarian branch and the Berlin branch; and the anti-political attitude of many party members. If some of these factors—such as the federal structure of German parties—appear to be contingent upon the German political culture, others are intrinsic to the LD ontology. As we have seen, the anti-political attitude of many Pirates was rooted in a diffused skepticism toward any form of authority and association which did not emerge from the network itself. This type of skepticism resonates with LD's foundational mission of separating expertise from the centralized control of political elites. It also resonates with a fundamental assumption of social choice and public choice theory, namely the notion that the truth—that is, the common good—must emerge organically from the choices of individual participants. To be sure, many initiatives submitted via LQFB were collectively drafted. But while many Pirates trusted (the technology of) LD as a possible solution to the low quality of internal democracy in most German parties, they did not place the same trust in the individuals who were in charge of implementing such technology.

Perhaps, then, the most significant lesson to be learned from the Piratenpartei experience is that a complex and longstanding historical problem such as the crisis of political representation cannot be simply *fixed* by introducing a new technologically-aided model of democracy. For every technology that promises to cure a disease is a *pharmakon* which may produce unpredictable side effects (Derrida 1981). In this case, the main side effect of the introduction of LQFB was a crisis of trust within the Piratenpartei. Although several variables concurred to produce such a crisis, perhaps the most significant one was that the socialization of LQFB had been significantly more advanced in Berlin than in the rest of the country. Thus, many Pirates perceived the technology as a tool which could be leveraged by one party branch to seize control of the party, that is, as an instrument of power rather than a tool for democratization. Furthermore, only 10% of party members decided to create an account on LQFB and even less to use it. In spite of several efforts and initiatives undertaken at both the state level and the federal party level to promote the use of the software, the socialization of LQFB occurred unevenly across the party. In part, this was due to the aforementioned skepticism toward LQFB. In part, however, my informants acknowledged that allocating and monitoring delegations is a complex task, which places a significant burden on software users. This also suggests that

the learning curve for LD systems may be too steep for many citizens, and especially so for those who lack the political motivation, education and time to engage in such a complex process (Deseriis 2021).

It follows that LD may be a system that is compatible with representative democracy only under specific conditions and circumstances. First, because LDS users must have a non-trivial understanding of the transitive delegation system, LD advocates must undertake a significant effort at educating citizens to the inner functioning of LD systems. In the absence of such effort, LD is likely to introduce deep inequalities between skilled LDS users and the rest of the citizenry. Second, the question of how to authenticate users has serious political implications. If the LDS system is deemed unreliable, representative institutions will not adopt LD-based initiatives, as the use case of Adhocracy demonstrates. Third, the scope of LD initiatives must be clearly defined in advance. The experience of the Piratenpartei shows that in doing so, political organizations and representative institutions face a dilemma. If LD delegates are empowered to *make decisions* on legislative bills, such power is likely to produce tensions with party leaders and elected representatives, putting at risk the internal stability of the organization. If LD delegates act as *experts*, their consultative role is likely to have a negative impact on the perceived importance of the initiative, causing a decline in participation (Mendoza 2015).[5] Such dilemma can only be addressed through a sovereign decision. Either a polity decides to model itself entirely on LD principles, moving beyond electoral representation, or, if a polity is already structured through electoral representation, it will not be capable of escaping this dilemma, which ultimately derives from the competing character of two alternative authorization procedures.

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5 Data also show that the decline in participation in LQFB was correlated to the Piratenpartei's choice of not making a binding use of the software at the federal party level (Jabbusch 2011).

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