Digitalization and political conflict: parties, voters, and electoral alignment (DIGIPOL)

1. Summary

What are the socio-political consequences of the digital revolution? As digitalization has profoundly impacted society, this study asks how this is reflected in public opinion, political behavior and partisan politics. The differential effects of the digital revolution – from which some individuals benefit, while others do not, aligning with or even amplifying existing inequalities – are expected to result in an emerging structural conflict between "winners and "losers" of digitalization. This study advances a theoretical contribution regarding the potential emergence of a new cleavage caused by the digital revolution. Traditionally, party systems have changed due to large processes, such as the industrial revolution or, more recently, globalization. We argue that digitalization constitutes a similarly profound technological change, affecting society and, consequentially, politics. Technological change induced by digitalization has already led to myriad regulations, legal frameworks and jurisprudence in just about every corner of the world and transnationally. Novel challenges and opportunities of digitalization increasingly enter the political arena. To what extent can the politicization of the digital revolution lead to the emergence of a new cleavage?

Empirically, this project provides new insights into the socio-political consequences of digitalization. It analyses to what extent we can observe a conflict in society between the winners and losers of digitalization, juxtaposing objective and subjective attitudes and conditions. Furthermore, the project investigates to what extent this potential conflict materializes politically. These two examples display the salience of digitalization issues among the public: some citizens' and groups' strong reactions to 5G enrolment (e.g. by attacking masts), and to the tools applied in the Covid-19 crisis (e.g. refusal to make use of Corona apps). However, it is unknown how citizens' attitudes on such issues are structured. Can we observe the alignment of citizens' positions on digitalization issues along a new line of conflict between the "winners" and "losers" of digitalization? In the political arena, the increase of issues regarding the digital society on the political agenda have already created unexpected political alliances. How do political actors deal with these issues? Political parties are expected not to currently align along this new line of conflict, and to be internally divided over issues regarding digitalization, leaving room for parties to cater to the emerging divide. To investigate these expectations, this project implements a mixed-method empirical strategy in the Swiss context, conducting focus groups, designing and implementing an original 2-wave survey with an experimental component using a voting advice application, and quantitative analysis of parliamentary proceedings, roll-call votes, and political party manifestos. The study ultimately leads to answering to what extent we can speak of an emerging socio-political conflict, and whether it has the potential to develop into a new cleavage.

The contribution of the study lies in the careful theorization of digital technology-induced political conflict through the lens of cleavage theory, as well as its empirical manifestations. Not only will this research help to better identify the societal challenges posed by continued digitalization, but also to provide new insights regarding citizens' attitudes towards digitalization issues. Finally, it will attempt to answer the questions of how political actors and parties deal with such issues, and how voters react to the political offer regarding the latter. The proposed study therefore strives to break new ground both in terms of theory and empirics, regarding pressing questions of political and social relevance.

2. Research plan

2.1 *Current state of research in the field*

The digital revolution has caused myriad advances in our societies, fostering high levels of social and economic change that have impacted the lives of all citizens. While for some the digital revolution has been a positive force of change, others see life – or at least aspects of the latter – as they know it being threatened by these developments. Moreover, the digital society requires citizens to adapt and the necessary skills and attitudes to do so are not distributed equally across all strata of society. This study investigates firstly to what extent we can observe a potential new conflict, caused by the digital revolution, between two opposing groups: the "winners" and "losers" of digitalization, and, secondly, to what extent this has materialized politically so far, and what further potential it constitutes to do so. The outcomes will provide an answer to the question whether we can speak of a new socio-political conflict or even a cleavage. The study is situated at the intersection of political behaviour and political sociology. This section discusses the state of the art in these respective fields relevant to the endeavours of this project and identifies the questions and gaps that this study addresses.

Digital transformation and governing the digital society

The developments in recent decades in terms of digital and technological change have been so vast that they have been considered to constitute a new industrial revolution. While the first industrial revolution mechanized production powered by water and steam, the second created mass production using electric power. The third industrial revolution used electronics and information technology for automation, also called the digital revolution. We are now witnessing the "Fourth Industrial Revolution" that builds on the third one, which is characterized by a fusion of several new technologies, blurring the line between the physical, digital and biological, with consequences for all citizens and industries worldwide (Schwab 2017).

The possibilities offered by digital developments have altered many facets of society, with large economic consequences. The sharing economy has been on the rise in recent years and impacts the way consumers travel, shop, and commute (Koopman *et al.* 2014, Erickson and Sørensen 2016). The advancements put forward by these developments provide challenges and opportunities for both sides of the economy. While these transformations provide opportunities for raising global income levels, at the same time they foster greater inequality, thus creating economic winners and losers, a process accompanied by increased divergencies between lower and higher skilled workers. Technological change has impacted the labor market by fostering a decline in middle-skilled occupations, leading to patterns of job polarization (Peugny 2019). These developments most positively impact those already relatively better off: non-routine, high-skilled workers with cognitively demanding jobs, benefit most from workplace digitalization (Kurer and Gallego 2019). Similar divides are observed among businesses who embrace new technology, seek novel business opportunities in the digital world and the

sharing economy, versus those who hold on to traditional business models (Brynjolfsson and McAfee 2011).

Digitalization fosters vast changes that call for regulation, but the technological advancements often develop faster than the governance of the latter. A case in point are two of the largest players in the sharing economy, Uber and AirBnB, that have largely impacted their sectors and proved a challenge for (domestic) regulations (Geist and Tremblay-Huet 2018). Other issues regarding the digital society that currently rank high on the political agenda are, for example, the implementation of 5G infrastructure, telecom market regulations, e-health, e-gambling, the governance of the platform economy, privacy, data protection, and so on. The call for regulation in this field has been challenging for law- and policymakers around the globe. Recently, Switzerland has stopped the further rollout of 5G technology in response to health concerns (Jones 2020). Issues regarding the digital society are not only high on the federal government's agenda, but also on the side of the public. Some of these issues foster strong reactions from citizens and are at the basis of conspiracy theories (Uscinski 2020). For example, such theories have recently linked Covid-19 to 5G without any evidence, but nevertheless, people have acted upon this misinformation by attacking mobile phone masts, most notably in the UK, The Netherlands, and other European countries (Di Stefano *et al.* 2020, Quinn 2020). Parts of the wider public are also reluctant to make use of digital technologies to help reducing the spread of Covid-19. Importantly, in Switzerland the number of popular initiatives proposed around the topic of digitalization[1] demonstrates the salience of governance of the digital society. The issues related to the digitalization of society are, however, not only limited to national governments. Also at the sub-national level, and in the Swiss context at the cantonal and communal level, legislation, regulation and the general politics of digitalization become ever more visible.

Public opinion regarding these issues is, for the time being, under-researched. A small, but emerging scholarship in political economy has investigated the political consequences of workplace digitalization. Workers in sectors vulnerable to automation are more in favour of redistribution (Thewissen and Rueda 2019). Moreover, in the US the threat of replacement by robots led to higher support for Donald Trump (Frey *et al.* 2018), while in Western Europe the "losers of automation" are more inclined to vote for the radical right (Im *et al.* 2019), but also for the mainstream left (Gingrich 2019). On the other hand, high-skilled workers who experience exposure to digitalization in the workplace show increased turnout levels, and higher support for the conservatives and incumbents (Gallego *et al.* 2018). However, there is a clear scarcity of studies that have investigated citizens' attitudes regarding specific issues that entail the digital society as such. A reason for this lack of knowledge may be the fact that for the moment, issues regarding digitalization have been of low salience in electoral contexts (König and Wenzelburger 2019). However, it is sound to assume that its salience is likely to increase in the near future, as a consequence of further digitalization processes.

[1] The Federal Chancellery currently lists two popular initiatives about 5G, and one about e-voting, in the stage of collecting signatures (https://www.bk.admin.ch/ch/d/pore/vi/vis_1_3_1_1.html

The same goes to a large extent for the political offer, and in particular in partisan terms. It is largely unknown how political parties deal with issues regarding the digital society, and which strategies they have used to position themselves on these issues. At the same time, governments have been confronted with the need to develop policies regarding these issues. One study to date has investigated political parties' inclusion of digitalization in their manifestos in eight Western European countries, excluding Switzerland. The findings show that especially parties with governing experience put a larger emphasis on digital policy in their programs (König and Wenzelburger 2019). However, regarding the *position-taking* on these issues, it is still unknown how political parties navigate this new policy and issue area. A relative exception is the Pirate Party movement, that is politically active in eleven European countries. The Pirate Party has put issues regarding the information society on the political agenda, mainly regarding digital and intellectual property rights, freedom of expression and information, and privacy (Jääsaari and Hildén 2015, Zulianello 2018). The electoral success of the party in German subnational elections has led to their competitors to also position themselves on these issues (Siewert and König 2019). Voters' motivations to support these parties are mainly political distrust and concerns over privacy (Otjes 2020). Also in Switzerland, the Pirate Party has been active since 2009, but has not obtained national representation – as in most countries where such parties are active, except for Luxembourg, Iceland, and the Czech Republic (Otjes 2020). However, the issues these parties raise do not cover many of the challenges regarding the governance of the digital society, as their goals mainly cover *individual* rights and freedom in the digital age – that have expanded to broader notions of culture, participation, and self-expression (Jääsaari and Hildén 2015).

Over the whole political party landscape, what can be observed, albeit in a still tentative way, is that attitudes towards the regulation of further digitalization do not follow traditional partisan divides. To the contrary, these issues *divide political parties within their organisations*. For instance, youth party organisations often take a stance on digitalization that is different from the positions taken by their mother parties. In some cases, this can lead to unexpected, "unholy" partisan alliances. The legislation on e-gambling, for example, voted upon by the Swiss electorate in June 2018, strongly divided political parties. The referendum committee opposing the law feared a limitation of online services and was composed of members of just about all parties, in particular the youth sections of parties, together covering the entire political spectrum (Fenazzi 2018). It is most likely that public opinion is equally scattered across traditional political divisions when it comes to regulation of online services, platforms and infrastructure. However, such divisions are very much under-researched, even though they have a strong likelihood of becoming ever more salient. Moreover, such political divisions may well be linked to existing gaps in "digital affectedness" among the electorate.

Digital inequality and the digital divide

The opportunities and challenges posed by digital transformation importantly depend on individuals' skills to navigate these new digital avenues, often referred to as digital skills. Digital skills and

competence refer to what individuals can actively do using new technologies, mainly but not exclusively the Internet (Hargittai 2010, Seufert 2017). The conceptualization of knowledge, competence, and skills regarding digital technologies is multidimensional (Helsper and Van Deursen 2015). Digital skills are conceptualized as a succession of operational skills (the ability to use hardware and software), information skills (formal and substantial), strategic skills (computer/network usage for a specific goal) (Van Dijk 2009), and creative and social skills (Van Deursen *et al.* 2016). While many empirical studies operationalize digital skills with measures of operational skills and usage access (usage time, type of application, and diversity of use), information skills and literacy, technical competencies, and strategic skills are crucial for individuals' adequate use of modern technology (Mossberger *et al.* 2003, Van Dijk 2009, pp. 294–295).

While the term 'digital divide' was initially coined to distinguish the 'haves' from the 'have-nots' regarding Internet access (Norris 2001), the second-level digital divide refers to differences in Internet use and gaps in digital skills (Hargittai 2002, Van Deursen and Van Dijk 2011). More recently, the third-level digital divide describes differences in the benefits that people obtain from Internet usage (Scheerder *et al.* 2017). The latter two are most relevant in the current digital age, as the access divide has greatly diminished in most advanced democracies. The digital skills divide is not simply a generational divide: also older adults show variation in digital skills (Hargittai and Dobransky 2017, Hofer *et al.* 2019) – just like 'digital natives' (Hargittai 2010, Correa 2016), who are also found to lack sufficient skills, even in a country with a strong educational system as Switzerland (Seufert 2017).

Digital skills are an important source of human capital, which provides viable labour market skills, and allows increased access to e-government information and services, and political information (Mossberger *et al.* 2003, Hargittai and Shafer 2006, European Commission 2019). Pre-existing inequalities by level of education, income, and gender are found to align with digital skills inequalities (Robinson *et al.* 2015, Seufert 2017, OECD 2018). As such, a vicious circle is created, in which existing offline inequalities are amplified by technology, and marginalized groups become further marginalized (Kvasny 2006, Van Deursen *et al.* 2017). The consequences of digital inequality thus impact citizens' position in society, as digital skills ultimately provide resources in terms of human, social, and cultural capital (Dimaggio *et al.* 2004, Van Dijk 2005, Helsper and Van Deursen 2015).

In the political context, digital skills inequalities are also found to align with, or even enhance gaps in political knowledge and online political participation. A multitude of studies have investigated the potential of the Internet and new digital technologies to (re)mobilize – particularly younger – voters into becoming (more) politically engaged, (Scheufele and Nisbet 2002, Quintelier and Vissers 2008, Bakker and de Vreese 2011, Bennett *et al.* 2011, Hargittai and Shaw 2013). While access to the Internet can bridge existing inequalities by socio-economic status (SES) (Morris and Morris 2013), most common conclusions are that online politics replicate existing offline participation and engagement patterns (Gibson and Cantijoch 2013). Therefore, the Internet has been identified as *"a weapon of the*

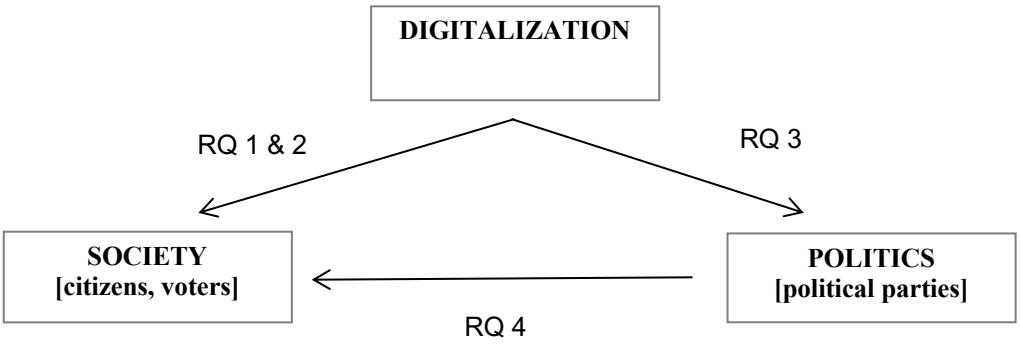
strong", as political inequality is replicated if not reinforced in the online context (Schlozman *et al.* 2010).

The current state of the art regarding digital skills and the digital divide has uncovered that this is an important source of inequality, that coincides with or even amplifies existing inequalities. However, what is currently unknown is whether we can speak of a salient division in society between individuals on either side of the digital divide. That implies that these groups do not only share the extent to which they are affected by digitalization, but also identify with their peers on the same side of the digital divide. This divide refers not only to the division between digitally skilled and digitally unskilled, but to more encompassing categories of digital affectedness, comprised of both subjective and objective conditions, skills, and attitudes. As such, the proposed project provides a theoretical typology of "winners" and "losers" of digitalization, and tests it empirically with a fine-grained sociological assessment of these two groups, and everyone in between. This is the first step in the contributions of this study, which are further outlined below.

Contributions of the proposed study

The vast changes in the last decades induced by digital transformation call for a systematic investigation of its social and political consequences. Can we observe a new line of conflict in society and politics between the winners and losers of digitalization? This study will firstly advance a theoretical framework rooted in cleavage theory, regarding the political relevance of this potential new conflict, which is then assessed empirically. It is argued that we may be witnessing the emergence of a new cleavage, for which some of the necessary conditions are present at both a conceptual and empirical level.

Figure 1. Core theoretical framework



It is currently largely unknown what the political implications of digitalization look like, including citizens' attitudes on such issues and how political actors deal with them, while they are increasingly put on the political agenda. Therefore, this study investigates both the demand- and supply-side of politics of this question, and the interaction between the two, after analysing to what extent a structural division in society can be observed. *Figure 1* summarizes the relation between the three core components of our theoretical framework, with its corresponding research questions:

RQ 1. To what extent does the objective and subjective impact of digitalization on citizens materialize into a structural divide between winners and losers of digitalization?
RQ 2. How does the potential new divide structure citizens' political attitudes, particularly attitudes on digitalization issues?
RQ 3. To what extent is the potential new divide articulated in partisan terms?
RQ 4. How does the political offer regarding digitalization affect the political behavior of citizens?

The answers to these questions will serve to determine to what extent we can speak of an emerging socio-political conflict, and whether it has the potential to develop into a new cleavage, with corresponding potential for party system change. In the detailed research plan (section 2.3), the theoretical expectations are developed further and more precisely.

2.2 Current state of own research

The applicant, Prof. Dr. Alexander H. Trechsel, currently holder of the chair in Political Science and Communication at the University of Lucerne, has a long-standing track record in political behavior and public opinion research, the field in which this project is mainly situated. Over the past 20 years, he has published extensively in this field, including the subfields of electronic democracy, Internet voting, and e-governance. As such, the applicant has extensive academic research and publishing experience in the subfields that this study brings together. Recent contributions involve the co-editorship of two volumes regarding political behavior and the Internet, the *Oxford Handbook of Electoral Persuasion* (Suhay *et al.* 2020) and *The Internet and Democracy in Global Perspective: Voters, Candidates, Parties, and Social Movements* (Grofman *et al.* 2014). As an expert of Swiss politics, Trechsel has authored and co-authored several monographs on direct democracy (Trechsel and Serdült 1999, Trechsel 2000) and the Swiss political system (Kriesi and Trechsel 2008), as well as book chapters and peer-reviewed journal articles in this field (Sciarini and Trechsel 1996, Trechsel and Kriesi 1996, Trechsel and Sciarini 1998, Barankay *et al.* 2003). In this context, he also published on political cleavages, which is directly relevant to the current project (Trechsel 1995, Hug and Trechsel 2002).

The applicant has been successful in raising funds to conduct a number of empirical research projects, collecting large-n survey data regarding public opinion, political behavior, and Internet voting in the cantons of Geneva (Auer and Trechsel 2004) and Zurich (Serdült and Trechsel 2006), as well as Estonia (Breuer and Trechsel 2006, Trechsel *et al.* 2007, Alvarez *et al.* 2009). Trechsel has also successfully coordinated several international research projects, most notably the EU Profiler project, a pan-European Voting Advice Application (VAA) for the European Parliamentary Elections of 2009, which has won the 2009 World E-Democracy Forum Award, and its sequels, euandi 2014 and euandi 2019. Each one of the three projects involved the collaboration of over one hundred researchers, from all over Europe, and its output has led to several peer reviewed journal articles (Alvarez *et al.* 2014,

Bright *et al.* 2016, Garzia, Trechsel, and De Angelis 2017, Garzia, Trechsel, and De Sio 2017, Pianzola *et al.* 2019). This project benefits of the applicant's experience with VAA development including the large-scale coding of political party manifestos, that are also implemented in the proposed design.

Currently, the applicant is conducting an SNSF-funded project entitled 'Media, Information consumptions, and politics' (MICaP, 2018-2021), which is still ongoing, and its results are expected to be published in 2021, after the data collection and analyses have been finalized. The project differs from the currently proposed study in various ways, including the subfields in which the two respective studies are situated. While MICaP is firmly rooted in political communication and political psychology, the proposed study departs from political sociology, and, more in particular, cleavage theory. While MICaP mainly studies the consequences of the changed media environment (media segregation) on voters' media consumption in relation to their attitude formation and political behavior, the proposed study investigates the consequences of digitalization from both the political supply- (political parties) and demand-side (citizens). As such, the media environment and citizens' media consumption are not part of the proposed study, while they are central to MICaP. The knowledge gained from the MICaP study are relevant and informative to the proposed project, which will lead to cross-fertilization between the two projects on a higher level of abstraction: both projects deal with different dimensions of the nexus between digitalization and politics. Next to MICaP, a short project is funded by the SNSF Spark scheme, entitled 'Algorithmic News Feed and Democracy', which investigates the impact of algorithmic personalized news feeds on democratic outcomes with a series of randomized controlled trials in the context of referendums. The project is situated in the same subfields as MICaP and starts in November 2020 and runs until October 2021.

The proposed study forms a synthesis of different parts of the applicant's contribution to the current state of research in the field, connecting the impact of technological advances – particularly digitalization – to cleavage theory and the study of public opinion and political behavior.

2.3 Detailed research plan

This research studies the socio-political consequences of digitalization, focusing on the political supply- and demand-side. While it is clear that digital skills are increasingly important to navigate numerous avenues in society and coincide with existing inequalities, it is currently unknown whether the digital divide has the potential to materialize in a socio-political structural conflict between winners and losers of digitalization. Moreover, a systematic analysis of how political parties and their MPs deal with issues regarding digitalization and the governance of the digital society, is also missing from the state of the art. However, since these issues are increasingly put on the political agenda, it is important to investigate whether and to what extent contemporary partisan politics are prepared for the likely increase, both in numbers and salience, of such issues. In case the potential for a conflict between winners and losers of digitalization is indeed identified among the electorate, this leaves room for mobilization and

representation by (new) parties along this new dividing line. Traditional partisan alignments, on the other hand, are likely to cut across this new divide.

This study takes a mixed methods approach, applying qualitative and quantitative methods to study both voters and political actors. To study the political demand-side, focus groups and an original survey, including an experimental design are conducted. Parliamentary proceedings, roll-call votes and political party manifestos are analysed to investigate the political supply-side. This mixed-method strategy answers the call of recent contributions for the application of such designs in order to allow for better inferences to address controversies in the current state of the art (Garzia, Trechsel, and De Angelis 2017, Cantijoch and Gibson 2019).

Theoretical framework

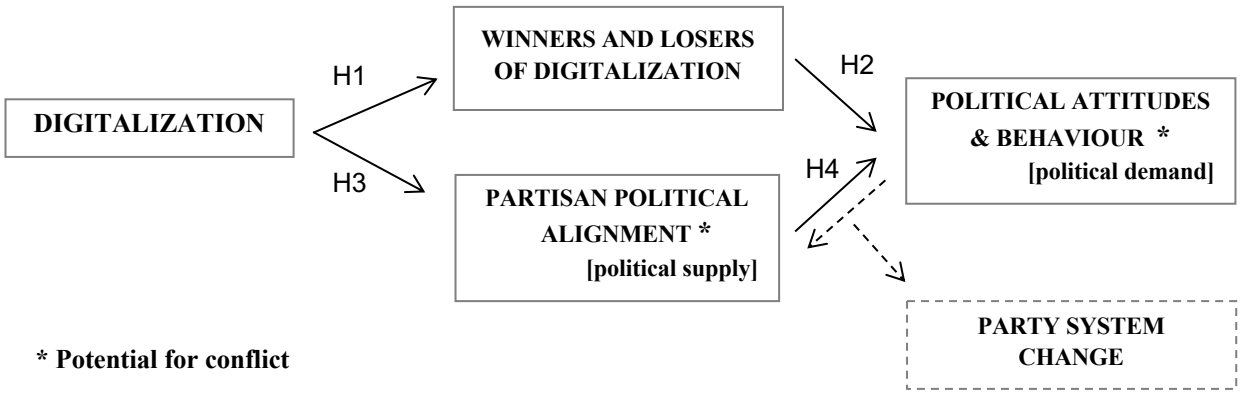
This study investigates the socio-political consequences of digitalization. The starting point of this study is that while digitalization profoundly impacts society – including the labour market, organizational structures and institutions, and individuals' lives – and it is clear that there are large differences in how people respond to and are affected by digitalization, little is known about its socio-political consequences, both in terms of the political demand and supply side. The impact of digitalization on society, however, affects individuals in their social and economic realities. The literature previously discussed has shown that the digital divide coincides with, if not amplifies, existing inequalities in society, and that while digitalization impacts both sides of the economy, not all sectors and professions are equally impacted. While some benefit from digitalization, others are threatened by it. As such, this study departs from the premise that the differential impact of digitalization on different groups in society provides potential for conflict. This conflict potential, if fully materialising, could imply a disruption of democracy and party systems as we know them, through new partisan alignments and corresponding patterns of public opinion.

This study advances a novel theoretical contribution regarding a new political conflict between winners and losers of digitalization, with the potential to develop into a cleavage, and the potential to invoke party system change. Empirically, it investigates at the micro level to what extent we can observe a divide between the so-called winners and losers of digitalization, constituted by two dimensions, respectively referring to the objective and subjective impact of digitalization, related to the digital skills gap and a set of objective and subjective conditions, skills and attitudes (RQ1). This part of the study provides a fine-grained sociological assessment of the potential winners and losers of globalization, resulting in a typology with these two groups at the extremes. Then, we ask how this potential conflict is politically relevant, by studying the potential for political conflict between these two groups in society (RQ2); and to what extent the potential new divide is articulated in partisan terms (RQ3). Lastly, we investigate how citizens react to the political offer regarding digitalization (RQ4). These insights will help us understand to what extent a new socio-political conflict caused by the digital revolution is emerging, in terms of political attitudes and behaviour, leading to altered patterns of electoral alignment

on new policy issues along this new dividing line. Also, we strive for a better understanding of whether and how political parties cater to these developments, and how the electorate responds to it. Ultimately, this allows us to assess whether and to what extent these developments may lead to party system change.

In doing so, the study contributes not only to a strengthened grasp of the digital divide in society, but links this to a deeper understanding of potential socio-political structural consequences of the digital revolution and digital inequality. The theoretical model upon which the study is based with corresponding hypotheses, is depicted in *Figure 2*. In the remainder of this section, the theoretical foundations and corresponding hypotheses are elaborated. At the end of the section, *Figure 3* summarizes the hypotheses and relevant concepts.

Figure 2. Theoretical model



The theoretical foundation of the study is rooted in the concept of "winners" and "losers" of digitalization, that provides the basis for the development of a cleavage theory regarding the potential conflict between these two groups. When a structural conflict is identified between groups in society, this materializes in a political conflict where political parties and their electorates align along these lines. In their seminal work, Lipset and Rokkan (1967) demonstrate how different revolutions over the course of time have resulted in several structural cleavages. We argue that the digital revolution has the potential to result in a structural cleavage between winners and losers of digitalization, but that we are not yet at the stage of a conceptually delineated cleavage. However, the division line between the digital have- and have-nots becomes ever more visible in modern, liberal societies. For the time being, individuals belonging to either group are still scattered across society in an unstructured way. The same goes for digitalization pushers and those holding back within political parties. At the moment, we may already observe the potential of a political conflict materializing in processes of democratic decision-making and at the polls, where groups of voters and/or factions within parties clash with each other.

Recently, a new structural conflict has been identified between the winners and losers of globalization (Kriesi *et al.* 2008). Although the digital revolution has consequences for globalization and vice versa, we argue that the process of digitalization can be conceptually distinguished from globalization. For instance, international trade in vehicles, raw materials, energy, Europeanization, and

dismantling of trade barriers are among the many examples of globalization not caused by digitalization. Political conflicts closely related to the digital revolution have already occurred, regarding the regulation of intermediaries or platforms such as Uber, AirBnB, Facebook, Google Streetview, 4G and 5G infrastructure, to name a few. The need for regulation is only increasing, and these issues blur traditional lines of political conflict. Voting in parliaments on these issues is often unpredictable as winners and losers of digitalization are present within all parties – and their respective electorates.

It might be simply a question of time until such a conflict becomes politically structured. We argue that the level of digital skills an individual possesses is a co-determinant of their belonging to the potential "losers" or "winners" of digitalization. It is sound to assume that individuals surfing the digital wave more elegantly are also those profiting from the wave in the first place. Likewise, a loser of digitalization is also less likely to dispose of highly developed digital skills. In the current Covid-19 crisis, such lines of conflict become highly visible, with digitally skilled individuals being more likely than their counterparts to manage the constraints of the lock-down in terms of, for instance, working from home through digital tools. The losers of digitalization are particularly vulnerable to such a massive exogenous shock to society – but they are also more vulnerable to societal developments towards higher levels of digitalization, *tout court*. The resulting typology of the two opposing extremes that constitute the societal base of the cleavage, is identified by a set of three objective conditions: 1) the extent to which one benefits respectively loses from digitalization, in terms of economic and/or labour market position; 2) level of digital skills; and 3) attitudes towards digitalization.

One can only speak of a cleavage in case three conditions are fulfilled: a pattern of social-structural differences between the opposing groups, the respective identification with these groups by its members, and an organizational or political expression and mobilization of this conflict (Bartolini and Mair 1990). Regarding the demand-side, this implies that the respective winners and losers of digitalization also need to identify as such, adding a *subjective* manifestation of the conflict to the previously identified objective conditions and attitudes of what constitutes belonging to either sides of the digital divide. In other words, in order for this to develop into a cleavage, individuals need to *identify* with being on one or the other side of the digital divide, next to the objective conditions specified earlier. Taken together, we expect that *the objective and subjective dimensions of the consequences of digitalization importantly overlap, constituting a mutually reinforcing structural divide between winners and losers of digitalization* (H1), that provides fertile breeding ground for a nascent political conflict.

Social divisions are shaped by their political articulation (Kriesi 2010), and without organization of the respective group interests and the subsequent mobilization by political actors along the line of division, one cannot speak of a cleavage (Bartolini and Mair 1990). With regard to digitalization, it becomes ever clearer that attempts regulating the latter do, indeed, politically divide the electorate. However, a collective identity formation process among both losers and winners of digitalization is, at best, in its very early stages. Therefore, the partisan mobilization of these groups is

not yet systematic. Arguably, however, citizens' political attitudes towards digitalization issues differ, do become visible and thus constitute a first building block towards the development of a cleavage. Building further on the hypothesized structural divide between the winners and losers of digitalization, we therefore hypothesize that *we can clearly distinguish a measurable line of conflict between winners and losers of digitalization within the electorate, when it comes to alignments of their attitudes on policy issues regarding the digital society* (H2).

The potential new conflict between these two opposing groups can be expected to be articulated by a new dimension in the political sphere, that is different from existing dimensions. Currently, Western European party systems are mainly structured by a socioeconomic dimension, articulating the socio-economic class cleavage in society; and a socio-cultural dimension, articulating the more recent cleavage between the winners and losers of globalization (Kriesi *et al.* 2006, Van der Brug and Van Spanje 2009). As of now, national-level election campaigns have been shaped by political issues that relate to either of these two dimensions, such as economic redistribution, immigration and integration, EU relations, and environmental policy. Issues regarding digitalization and the governance of the digital society thus do not constitute the main locus of political conflict. However, policy makers and governments are increasingly confronted with the need to design policies and regulation in this domain. The pressure on political parties to take a position on digitalization issues has also increased in recent years Therefore, this study asks how political actors have dealt with these issues. To what extent is the potential new divide between winners and losers of digitalization articulated in partisan terms? (RQ3)

As these issues find their way more and more frequently onto the political agenda, parties and other political actors may have become more systematic in their dealing with these issues We expect that digitalization challenges traditional partisan positions both within, and between parties. First, regarding *inter*-party divisions, it is expected that for now, defenders of the winners respectively the losers of digitalization are found across the whole political spectrum, from the (socio-economic and socio-cultural) left to the right, because digitalization issues do not align with the existing dimensions of political conflict. As such, *contemporary relevant political dimensions are not expected to structure the party competition regarding digitalization issues* (H3a). Second, we also expect issues regarding the digital society to have started to divide parties internally. As discussed previously, youth organizations of Swiss political parties have taken different positions than their mother parties (Fenazzi 2018), indicating how digitalization issues can lead to internal divisions. The same is true for MPs of the same party. In fact, one could argue that this leads to a generally heightened unpredictability of positions taken within political parties. This is expected to occur more generally, as many parties struggle to take positions in this policy domain, and some of them are internally challenged to the point to even refraining from taking a unified stance (König and Wenzelburger 2019). Therefore, *intra-party divisions are expected to be even more prominent than inter-party divisions regarding digitalization issues* (H3b). However, if and when structural realignment at the partisan level will start to occur, there may be potential for party system change.

These expectations regarding the political supply-side (political parties), have implications for the political demand-side (voters). Voters react to the political offer of political parties and make their choice in elections and popular votes accordingly. For sure, the inverse does occur, too, with parties aligning their platforms to shifts in public opinion. Even if, as expected in H2, the potential conflict between winners and losers of digitalization is found to be politically relevant among voters, this is for the moment not politicized by political parties. However, once parties start to take clearer positions on digitalization issues, voters can be generally expected to take note of this altered offer – provided that these issues are considered relevant for their political choice. Following this reasoning, it is expected that *increased visibility of political party positions on digitalization issues leads to voters' realignment of partisan preferences along the new line of conflict between winners and losers of digitalization* (H4).

Figure 3. Overview of hypotheses and relevant concepts

H1. The objective and subjective dimensions of the consequences of digitalization constitute a structural divide between winners and losers of digitalization.

H2. Winners and losers of digitalization show corresponding alignment of attitudes on digitalization issues.

H3a. Current dimensions of political conflict do not structure party competition regarding digitalization issues.
H3b. Intra-party divisions are more relevant than inter-party divisions regarding digitalization issues.

H4. Increased visibility of political parties' positions on digitalization issues leads to voter realignment of partisan preferences along the new line of conflict.

CONCEPTS H1

Objective	Subjective
Economic position	Perceived threat of digitalization
Digital skills	Insecurities digital skills
Willingness to adapt	Fears digital society
Attitudes digitalization	Collective identities

Research Design

Next to advancing a novel theoretical contribution to cleavage theory, this project provides a possibility to collect high quality data that is currently missing from the state of the art. The data will stem exclusively from the Swiss case. There are several, both substantive and practical reasons for this choice. Substantively, Switzerland offers one of the most advanced contexts in terms of digitalization. Regulating digital innovations, but also privacy, data protection and digital security have a longstanding tradition. Also, direct democratic votes at all levels of the federal state offer, on a continuous basis, loci for measuring the coming together of party positions, public opinion and political behaviour. Also, the relatively high number of effective political parties, the numerous cleavages cross-cutting Swiss society, that, together with federalism lead to high fractionalization provide a most fertile ground for detecting initial germs of the theorized developments. In this sense, Switzerland offers a perfect context to conduct this both theoretically and empirically novel, and with respect to different dimensions exploratory and theory-building study. Practically, our privileged access to high-quality data and our

broad experience with the Swiss context will be most welcome, and even indispensable for navigating these uncharted waters at the intersection of digitalization and politics. Going comparative would, of course, be a most welcome next step – but at this stage of developments we prefer to remain focused on a single case (with variation at the subnational level, however). Our empirical strategy is therefore rather conservative, in order to as finely as possible operationalize and measure the concepts we propose. This approach will lead we hope, to internally most valid results, at the expense of suffering from external validity beyond Switzerland. However, the theoretical innovations can be easily adapted to a comparative strategy and will thus contribute to extending our empirical framework in the future to arguably harder cases.

The project relies on a mixed-method strategy that involves the collection of original two-wave survey data (including an experimental component with a voting advice application), conducting focus groups, and analysing cantonal and federal parliamentary proceedings, roll-call votes, and political party programs. For the demand-side of the project, the population of the citizens under study is formed by Swiss citizens aged 18 and over (eligible to vote). The different components of the research design are summarized in *Table 1* and outlined in more detail in the remainder of this section.

Table 1. Summary of research design

	Analytic strategy/main variables	*Hypothesis*	*Political side*
Focus groups	Preferences, experiences, and attitudes about digital transformation, digital skills requirements, and their relation to political attitudes and behaviour.	H1	Demand
Original survey	Subjective and objective dimensions of consequences of digitalization, in relation to political attitudes and stances on digitalization issues [wave 1]	H1,2	Demand
Survey experiment (VAA)	Voting behavior in relation to increased visibility of digitalization issues [wave 2]	H4	Demand
Party manifestos	Political parties' emphasis and positions on digitalization issues.	H3a	Supply
Parliamentary proceedings and roll call votes	Political actors' (by political party) stances on and voting behavior regarding digitalization issues.	H3b	Supply

Focus groups

Four focus groups (comprised of eight to ten individuals) are held with individuals of different gender and age groups, before the implementation of the survey. Two focus groups are held in an urban area, and two in a rural area. The main goal of the focus groups is to obtain more in-depth insights regarding citizens' experiences with digital transformation, attitudes towards digital skills requirements, and their relation to political attitudes and behavior. The purpose is to inform the data collection of the survey, as the outcomes of the focus group discussion can help to inform the design of the survey and further

specify the hypotheses. Participants are recruited through a research company and are compensated for their time. The interaction between participants is particularly interesting regarding their attitudes on digital skills requirements by different levels of self-perceived digital skills, and their political attitudes. The proceedings of the focus groups are audio-recorded and transcribed by research assistants.

Original 2-wave survey with an embedded VAA experiment

In order to test the hypotheses regarding voters, original survey data is collected among Swiss citizens. A Lucerne-based research company (see attached quote) will conduct the sampling and administer the survey. The random sampling strategy relies on the usage of the Federal Statistics Office's sampling frame that includes data from cantonal and municipal population registers.[2] Respondents are invited to participate in the survey with a letter through postal mail. The first survey wave includes questions regarding the following topics and concepts (next to a battery of socio-demographics): occupation and sector of employment, party preferences, political ideology, and positions on traditional and digitalization policy issues. Moreover, indicators included in the survey referring to the objective and subjective dimensions of the consequences of digitalization are the following: digital skills, attitudes towards digitalization, willingness to adapt; respectively fears/insecurities towards digital society, perceived threats of digitalization, identification with either side of the digital divide. Digital skills are measured using a well-established battery of survey questions (Hargittai 2005), complemented with measures from a recent proposal for a unified framework of digital literacy in political science (Guess and Munger 2020). The data collected in the first wave allows to test hypotheses 1 and 2, regarding the identification of a structural divide between winners and losers of digitalization, and alignment of citizen's attitudes on digitalization issues along this divide.

Moreover, a survey experiment is included in the design to test H4, regarding the effect of increased visibility of parties' offer regarding digitalization on the realignment of party preferences. The Swiss federal elections held in October 2023 will serve as a case in point to investigate this expectation. We expect that winners respectively losers of digitalization react to the partisan offer and cast their vote accordingly. In order to test this expectation, we experimentally increase the visibility of digitalization issues by asking respondents to make use of a voting advice application (VAA) that is designed for the purpose of this study. VAAs are online tools that help users to cast their vote by comparing their preferences on policy issues with political parties' stances on these issues. Respondents fill in their positions on a range of policy statements, after which the user's profile is compared with that of the political parties, resulting in the "voting advice" – showing the user which parties overlap most with their policy preferences (Garzia, Trechsel, and De Angelis 2017). These tools have become increasingly popular in the past decade (Garzia and Marschall 2019, Trechsel and Garzia 2020),

[2] The BSF needs to approve the usage of this sampling framework (SRPH), which is available for academic research purposes. In case this approval is not obtained, we rely on the AZ Direct address base. In the first wave, 10.000 addresses are sampled with the goal of reaching a total n of 2000 for the second wave of the survey.

including the Swiss VAA Smartvote (Ladner 2016). The VAA designed for the purpose of this study follows the same technique applied in previous VAA-projects the applicant was involved in (Reiljan *et al.* 2020). As such, the party positions implemented in the VAA are derived from the coding of party manifestos (see next section for the coding procedure), parties' self-placement (parties are invited to position themselves on the selected policy statements), and media coverage during the election campaign (Trechsel and Mair 2011).

To a large extent, the administration of the VAA in the survey experiment will follow the logic of the survey experiment led by Pianzola et al. (2019), using the following procedure. Respondents are randomly distributed over four different groups. The control group does not receive an invitation to the completion of the VAA, while three treatment groups receive respective different versions of the VAA. 1) Respondents are asked their position on a battery of salient policy issues, regarding the socio-economic and socio-cultural dimension in politics, after which the overlap with political parties is shown (treatment group 1 "regular VAA"). 2) The second version of the VAA includes a battery of digitalization issues is included next to the "traditional" issues (treatment group 2 "regular + digitalization VAA"). 3) The third version of the VAA consist only of the latter battery of digitalization issues (treatment group 3 "digitalization VAA"). The issue positions that respondents provide by taking the VAA are included in the survey dataset. Respondents are asked their propensities to vote (PTVs) for each of the political parties competing in the election in both waves of the survey.

The first survey wave is fielded before the 2023 Swiss federal elections. The second survey wave is fielded shortly after the elections, which asks respondents about their turnout and vote choice, as well as their PTVs, again. The analysis of the experimental survey data is a direct test of H4. As we expect political realignment to occur as a consequence of an increased visibility of parties' positions on digitalization issues, for treatment group 2 and particularly treatment group 3 we expect their pre-treatment PTVs (wave 1) to be less in line with their vote choice in the election and their post-election PTVs (wave 2), due to the exposure to parties' positions on digitalization. In these two treatment groups we expect more coherence between their digitalization issue attitudes and party choice and PTVs than for the other groups. Respondents who find out that their initially preferred party is not in line with their preferences and interests regarding digitalization, may switch to a different party, or display altered PTVs respectively, as a consequence of exposure to the party's positions on digitalization.

The VAA will need to be programmed for the purpose of the study and will only be available to the treated individuals in order to avoid potential contamination beyond the treatment groups. For this, we rely on the freely available code of "societly", a fully-fledged, multi-lingual voting advice application which was recently adapted to the European Parliament Elections of 2019 by a team of researchers co-led by the applicant. The same will be done for the 2023 Swiss federal elections survey experiment proposed in this study.

Analysis of political party manifestos, parliamentary proceedings and roll-call votes

Political party manifestos for the 2015, 2019, and 2023 Swiss federal elections are coded to map parties' stances and position-taking on issues related to digitalization. This analysis complements previous comparative work regarding the question which political parties place emphasis on digitization issues by taking it up in their manifestos (König and Wenzelburger 2019), and goes beyond that by mapping not only which parties emphasize it, but also the positions they take in this debate – and on the potential new line of conflict. The coding is performed by trained research assistants, by making use of core sentence analysis (Kleinnijenhuis and Pennings 2001), previously used in studies of political conflict in Europe (Kriesi *et al.* 2008, 2012). This inductive coding procedure is particularly suited in this case due to the study of an emerging field of political policy and political positioning. Rather than making use of a predefined list of issues on which parties' stances are coded, new issues can be added during the coding procedure. The outcome of the coding procedure is a quantitative dataset containing all issues regarding digitalization put forward in Swiss party manifestos since 2015, and political parties' position-taking on these issues. The outcomes of the analysis of this dataset will provide insights regarding the emphasis that parties place on digitalization issues, the position they take on these issues, and how this has evolved over three election years. It will provide a direct test of H3a to map parties' position-taking on these issues across the political spectrum. Moreover, the outcomes of this data collection and analysis serve as the input for the VAAs used as the treatment in the survey experiment.

To test H3b, information is needed regarding political actors' positioning on and dealing with digitalization issues, to identify differences therein *within* political parties. To this end, databases of discourses in cantonal and federal parliaments are analyzed (from 2010 onwards), and roll-call votes in the Lower Chamber of the Federal Parliament (National Council). Parlament.ch and Curiavista provide databases of all roll-call votes from the National Council, and all parliamentary proceedings on the federal level, indexed by topics and keywords. A collaboration with Polsan AG (a policy analysis and consultancy agency), co-developer of the POLITmonitor, allows the project team to analyse this database regarding all relevant bills and motions in cantonal parliaments (see attached letter of intent). In a first step, all relevant issues and database entries are identified by making use of the databases' topics and keywords, complemented with a list of relevant keywords that the project team will develop. After identification of all relevant issues and keywords, the final text corpus is obtained. It is analyzed by making use of the most recent developments in quantitative text analysis in political science over the last years (Wilkerson and Casas 2017). The main goal is to analyze the proceedings, bills, motions, parliamentary questions and roll-call votes, by categorizing the relevant actors *within* political parties by their position regarding digitalization, either pro or con, to provide a test of H3b. Moreover, it will provide insights regarding the development of the political debate regarding digitalization.

2.4 Schedule and milestones

The applicant (principal investigator, PI) leads the project and develops the main theoretical foundations, while two experienced post-doctoral researchers will assist the PI in the implementation of the data collection and analysis and co-author the journal articles. Post-doc 1 is the overall co-coordinator of the project and is responsible for the implementation and analysis of the focus groups, the survey implementation, and the manifesto data. Post-doc 2 co-coordinates the big data and text analysis (roll-call votes, parliamentary proceedings) and the VAA development and implementation (including the media analysis and parties' self-placement). Post-docs are preferred over doctoral students, due to the complex four-fold empirical strategy that requires scientific collaborators with hands-on experience in conducting and coordinating such studies. Research assistance is hired for survey translation, coding political party manifestos, transcribing the focus groups, collaborating in collecting the text corpus, and for the VAA development (e.g. testing, imputing party positions). External resources are used for fielding the survey and recruitment for and implementation of the focus groups and the technical implementation of the VAAs (see attached quotes). *Table 2* describes the schedule of the project, in relation to the work packages and the planned output.

Table 2. Project timeline

Year	*Project stage*	*Research phase/task*	*Milestones*	*WP*	*Actors*
Oct. 2021-	Theory-building	Socio-political consequences of digitalization: a new cleavage?	M1: Theoretical model	WP 1	PI
Sep. 2022	Data collection & analysis	Focus groups I	M2: Focus group data	WP 1,2	PI, post-doc 1
		Analysis of party manifestos (2015, 2019)	M3: Article 1	WP 1,2	PI, post-doc 1
			M4: Manifesto data I	WP 3	PI, post-doc 1
Oct. 2022-	Data collection & analysis	Analysis of parliamentary proceedings & roll-call votes	M5: Pol. Debate data	WP 3	PI, post-doc 2
Sep. 2023		Analysis of party manifestos (2023)	M6: Manifesto data II	WP 3	PI, post-doc 1
		Survey design		WP 2,4	PI, post-doc 1
		VAAs development (incl. party-self positioning & media analysis	M7: VAA	WP 5	PI, post-doc 2
	Dissemination	International 2- day workshop		WP 1-3	PI, post-doc 1, 2
Oct. 2023-	Data collection & analysis	Joint political debate and manifesto data analysis	M8: Article 2	WP 3	PI, post-doc 2
Sep. 2024		Survey wave I & II	M9: Survey data	WP 2,4	PI, post-doc 1
			M10: Article 3	WP 2	PI, post-doc 1
Oct. 2024-	Data analysis	Publication of findings	M11: Monograph	WP 1-4	PI
			M12: Article 4	WP 4	PI, post-doc 1, 2
Sep. 2025	Dissemination	Dissemination conference		WP 1-4	PI, post-doc 1, 2
		Data archiving	M13: Publication data	WP 2-5	PI, post-doc 1, 2

Several work packages are identified in the study, respectively relating to the theory-building part of the study, and the different empirical components:

- WP 1. **Theory-building** regarding the winners and losers of digitalization.
- WP 2. **RQ 1 and 2**, focus groups and survey**.**

- WP 3. **RQ 3**, analysis of party manifestos, parliamentary proceedings and roll-call votes**.**
- WP 4. **RQ 4,** implementation of survey experiment.
- WP 5. **VAAs** development.

The planned project output consists of the following publications, that are also taken up in *Table 2*:
Article 1 – RQ 1, theory and focus groups
Article 2 – RQ 3, political debate and manifesto data
Article 3 – RQ 1&2, survey data
Article 4 – RQ 4, survey data
Monograph – RQ 1-4 and theory-building

2.5 Relevance and impact

The proposed project will lead to a number of important insights regarding the socio-political consequences of digitalization, which are clearly under-researched.

From an academic point of view, the study makes the following contributions. First, the study makes a theoretical contribution to the subfields of comparative politics and political sociology by proposing a further development of cleavage theory regarding the winners and losers of digitalization. This theory-building part of the study connects classic cleavage theory from political science with the political sociology of the digital divide, advancing the current state of the art. Second, the study provides new insights regarding the digital divide in society, and whether we can speak of a social conflict in this respect, advancing a novel typology and testing it empirically. Our study will identify more precisely than previous studies (and specifically in the Swiss context) the distribution and levels of citizens' digital skills, and which groups are specifically affected by digitalization. Furthermore, it will make use of newly developed indicators of subjective and objective dimensions of the individual consequences of digitalization. Third, by investigating to what extent the potential conflict between winners and losers of digitalization materializes politically, and by mapping the Swiss political debate regarding the digital society, the study provides important insights regarding an understudied policy and issue domain, that is likely to become increasingly relevant. It is currently unknown how political parties deal with digitalization issues, and how citizens think about them, but with these issues becoming ever more salient, so is their politicization. By understanding how and to what extent this issue domain becomes embedded in the political sphere, and how citizens and political parties position themselves on these issues, this study will investigate the political potential of this issue. No studies to date have done so in the Swiss context, while the country is increasingly faced with political initiatives – both from above and from below - regarding digitalization. Finally, by studying in an experimental setting how voters react to the offer of political parties, the study is able to show how the increased visibility of parties' positioning on digitalization and may lead to altered party preferences and, potentially, behaviour. These insights studying the political demand- and supply-side in direct relation to each other bring the

different components of the project together, and inform to assessing to what extent the hypothesized divide between winners and losers of digitalization may develop into a cleavage, with corresponding potential for party system change.

The broader impact of the study mainly relates to two components of the study. Firstly, by studying individuals' digital skills and related experiences and attitudes, this project can identify current societal challenges regarding digitalization and the demands it places on citizens. While most often the digital divide is interpreted as a generational divide, previous studies have shown that it is not that simple. Digital inequalities are multidimensional and often widen existing inequality gaps. The insights of this study will a provide fine-grained assessment of digital equality, that can inform policy and strategies to tackle it. Secondly, studying the impact of digitalization on the political demand- and supply side is important both for citizens and political parties because these issues impact citizens in their social and economic realities on a daily basis. This project can help to inform the public about parties' position-taking on these issues, to what extent this matches public opinion, and whether there is a mismatch in terms of citizens' demand and the political supply. For political actors, the project is relevant because it will identify the potential for (new) political parties to politicize the potential new conflict. These insights can help to strengthen democratic representation regarding a topic that has profoundly impacted society in the last decades – and will arguably continue to further do so.

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