Research Article

# Four types of Social Innovation and their impact on democracy in the 21st century

## Cuatro tipos de Innovación Social y su impacto en la democracia del siglo XXI

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**Abstract:** In modern history, there are various types of social innovation that have changed the world in different ways. In part, they go hand in hand with democratisation processes, but especially in the 21st century they harbour potential that threatens democracy. In this article, four types of social innovation are derived from the history of discourse and analysed in terms of their connection with democracy. The article argues that, especially in complex times, the acceptance of the new depends on how democratically it comes about and that, while strengthening democratic innovations is central to Europe's future, they are challenged by authoritarian notions of innovation. As a decisive parameter for a successful improvement or preservation of democratic systems, the article highlights the importance of the broadest possible inclusion, representation and participation in all four types.

**Keywords:** social innovation; democracy; 21st century; inclusion; participation.

**Resumen:** En la historia moderna, existen varios tipos de innovación social que han cambiado el mundo de diferentes maneras. En parte, estos han ido de la mano de los procesos de democratización, pero especialmente en el siglo XXI, han representado una amenaza para la democracia. En este artículo, se identifican cuatro tipos de innovación social derivadas de la historia y se analizan en términos de su conexión con la democracia. El artículo argumenta que, especialmente en tiempos complejos, la aceptación de lo nuevo depende de cómo se produzca democráticamente y que, si bien el fortalecimiento de las innovaciones democráticas es fundamental para el futuro de Europa, éstas se ven desafiadas por las nociones autoritarias de la innovación. Como parámetro decisivo para el éxito de la mejora o preservación de los sistemas democráticos, el artículo destaca la importancia de la inclusión, la representación y la participación más amplias posibles en los cuatro tipos.

**Palabras clave:** innovación social; democracia; siglo XXI; inclusión; participación.

## 1. Introduction

In the history of modernity, we essentially find four types of innovation (Godin, 2012; Pausch, 2018). Beginning with the idea that the future can be shaped by human beings, a critique of traditional power relations and of the divine grace developed at the end of the Middle Ages. The assumption that it is not God or earthly saviours commissioned by him who determine the

fate of the world leads equally to innovation and democracy. This is reflected in the discourse history of both terms. However, it does not mean that innovation is always democratic or contributes to more democracy. The two phenomena can be mutually dependent, but innovation can just as easily contribute to strengthening authoritarianism (Evangelista, 2020; Curato & Fossatti, 2020). For example, the totalitarian regimes of the 20th century were particularly innovative in developing technologies that massively changed social life and destroyed democracies (Evangelista, 2020). But democratic states also produced innovations that damaged democracy (Felt & Fochler, 2009). In the 21st century, this situation has worsened as acceleration, digitalisation and aspects of globalisation threaten the democratic backbone of technological innovations (Rosa, 2017). The purpose of this article is to outline paths to the future of innovation that strengthen democracy. To this end, the four types of social innovation in the modern era are described, in order to then classify them in terms of their effects on democracy and argue for democracy-enhancing innovation for the 21st century.

## 2. Social Innovation and the emergence of democracy in the modern era

### 2.1. Context and historical debate about innovation

The first type of social innovation, which refers to the goal of emancipation, has the longest historical and conceptual tradition. The idea that the future is not controlled by God but can be shaped by human beings developed in the decades of the Enlightenment at the same time as the idea of modern democracy and found a peak in the French Revolution of 1789. The idea that the future can be shaped by humans is therefore a relatively recent phenomenon in historical terms and an important prerequisite for the emergence of innovations (Heintel, 2009, 87).

At that time, innovations were not primarily seen as inventions, but as essential social changes that involved the inclusion of new groups of the population or the bringing about of changes by completely different actors in society. They were thus also seen as something that threatened the established order and therefore had a reputation as something dangerous. In the Renaissance, innovation was considered heresy (Godin, 2012, 8). Later, it was associated with the ideas of the French Revolution and those of socialism (Godin, 2012, 6). In the related conceptual understanding, a social innovation is given when it aims at the release from paternal authority, the liberation of a slave or altogether the liberation of individuals from coercion, oppression and inequality, i.e. an - in the sense of universalistic human rights - emancipation encompassing all parts of society. This concern, which was shared by founding fathers of modern sociology such as August Comte (cf. Comte 1852), met with widespread criticism among conservative social classes and elites. As shown by Godin (2012) the work of William Lucas Sargant, an English economist of the late 19th century, demonstrates this. In a critical publication entitled "The social innovators and their schemes", he accused the social innovators of his time of working schematically and conspiratorially with subversive and revolutionary methods (Sargant, 1858, iii-v). Anarchists like Pierre Joseph Proudhon or social utopians like Robert Owen were included in the group of these social innovators at the turn of the 19th and 20th centuries (Godin, 2012; Sargant, 1860, 446).

Social innovation was thus regarded at the time as a revolutionary and subversive programme for the realisation of freedom and equality. This revolutionary connotation was later replaced by a social reformist one, which also made the concept of innovation less dangerous to ruling elites (Godin, 2015). Subsequently, it was used less frequently overall and then usually less revolutionary than humanistic.

Chronologically, clearly after the emergence of an emancipatory approach to social innovation, namely only at the beginning of the 20th century and under the impression of the Industrial Revolution of the second half of the 19th century, the concept of innovation was taken up by Joseph Schumpeter in 1911 (Schumpeter, 1911, 1926) and related to economic development. From his influential economic theory, a second type of social innovation can be derived, which

can be interpreted as adaptation to economic and technical innovations or their use (Pausch, 2018). The change in social practices thus takes place according to what has been developed before and has been able to establish itself on the market. For Schumpeter, as with closed innovation, the essence of innovation remains the new, which proves to be better than the old and therefore usually displaces it. As a result of the displacement of the old, there are consequently losers in innovation processes. These processes have a profound effect on society (Schumpeter, 1911, 1926), because citizens and consumers have to adapt to the innovations of the economy and technology. In this understanding of the term, social innovation is merely the consequence or side effect of technological-economic innovations. Its goal is the adaptation to new technologies and products or their use. It is precisely at this point that two paths to modernity emerge: an emancipatory one, which promotes democracy and is promoted by democracy, and a technological-economic one, which at least potentially endangers democracy. The fact that Schumpeter did not connect his theory of innovation with his theory of democracy remains a curiosity that reveals research desiderata on his thinking (Schumpeter, 1950).

Before the distinction between democracy-promoting and democracy-threatening innovations is refined, a typology is presented, which will subsequently be interpreted in terms of the two forms. For in addition to the two types described, the emancipatory type and the type of social innovation as adaptation, there is also the type of social innovation as problem-solving, which is more technocratic in nature, and the type of social innovation as local norm deviation.

After the concept of innovation was primarily used in economic terms for a long time, in the second half of the 20th century it also attracted renewed interest in the social sciences (Hochgerner, 2012). Various sociologists and social actors included it in their standard repertoire of relevant topics. Social innovation was now no longer interpreted merely as adaptation or utilisation, but redefined - without, however, a simple reversion to the older emancipatory usage. According to Gillwald (2000, 5) social innovations are, in short, socially momentous regulations of activities and procedures that deviate from the previously customary pattern. They are possibly everywhere in social systems, result in behavioural changes and are related to, but not the same as, technical innovations. This definition leaves many questions unanswered, especially those about the difference between an innovation and general social change. Howaldt and Jacobsen emphasise that social innovations are in any case about finding solutions to social problems (Howaldt & Jacobsen, 2010). Howaldt and Schwarz state that social innovations tend to be used as descriptive metaphors in the context of phenomena of social change or social modernisation (Howaldt & Schwarz, 2010, 54). In their view, a social innovation is a recombination or reconfiguration of social practices in certain fields of action or social contexts, intended by certain actors or agents, with the aim of solving or satisfying problems or needs better than is possible on the basis of established practices. A social innovation needs to be socially accepted and diffuses broadly into society (Howaldt & Schwarz, 2010, 54). In addition to the criterion of newness or renewal, four decisive aspects stand out from this very complex definition, namely 1. intended search for solutions to social problems, 2. independence from economic profit, 3. broad social diffusion and 4. change of social practices.

Howaldt and Schwarz point out that innovations do not produce good per se, but are dependent on perspective and thus ambivalent (Howaldt & Schwarz, 2010, 54). They strip the term of its strong normative meaning, as it is inherent in the emancipatory type. The fact that social innovations, unlike technological or economic ones, are not aimed at increasing profits is largely undisputed. If one understands the emergence of social problems as constructivist with Blumer, innovation can be sharpened to problem solving. For Blumer, social problems are mainly results of a process of collective definition. They do not exist independently of this as a constellation of objective social conditions (Blumer, 1975, 102) In his five-step model, he points out that a problem must first be perceived, recognised and defined as such by a group and then brought to public recognition. At this point, democracy comes into play as a framework condition for social innovation, because only in democratic societies is it possible to negotiate problems in

public (Pausch, 2022). From the third stage, the mobilisation of strategies for action, the focus on solving the social problem begins, which continues with the creation of plans for action and their implementation (Blumer, 1975). If one follows this sociological approach, one can also conceptualise social innovation as a novel solution to a social problem along the aforementioned five stages - here it essentially begins from stage 3, the mobilisation of strategies for action, and is concretised in the subsequent creation of solutions.

Finally, another view of social innovation is offered by Canadian sociologist Yao Assogba with recourse to various classics of sociology such as Max Weber or Raymond Boudon. According to Assogba, a social innovation is the response to a concrete social and localised problem, as a solution to a situation experienced as unacceptable or unsatisfactory. It is usually based on a humanistic motive. What no longer seems acceptable is to be changed (Assogba, 2010). This starting point resonates with the need for revolt against oppression, lack of freedom and injustice as described by the French philosopher Albert Camus. The slave who stands up to his master is at the beginning of this kind of social innovation, which he demands, however, not only for himself but for everyone (Camus, 1997; Pausch, 2019). With its emphasis on the local aspect, it differs from the previously mentioned assumptions, even if the goal is basically problem-solving here as there. However, while the initiative in the previously discussed type comes more from the government or administration, here the need for change is carried from the bottom up, as it is not seen or deliberately ignored by those in power.

The approach thus has its starting point on a small scale, in contrast to governance processes or open innovation, which are each initiated by the elites. It is not where institutionalised power and its actors start that this kind of innovation begins, but on the contrary, where this institutionalised power is challenged "from below" or simply ignored. Social innovation thus develops here in a "little codified" way, in a "certaine clandestinité", i.e. potentially underground, since it involves deviant solutions that imply a violation of established rules. Another characteristic of social innovation is that it aims at a social finality and underlying values and - in addition to diffusion and acceptance - institutionalisation as the final stage, which in turn requires state intervention (Assogba, 2010, 2). "Innovation thus inscribes itself in a dialectic that involves, on the one hand, the rupture with the institution, and on the other, the reconstruction of the institution as a new norm, which in turn can be questioned." (Assogba, 2010, 2). So while social innovation as problem solving refers to a coordinated and planned act of governance by legitimised and organised actors, Assogba points to the subversive element of innovation. It is a bottom-up process. The pursuit of social finality in a localised space reveals the normativity of innovation. The focus is not on management or governance, but on shaping and changing the social. The actors of this kind of innovation often act in the background (i.e. subversively), at least initially, because their solutions can be threatening to the establishment (i.e. the norm-setting actors). The method is nevertheless ultimately dependent on the involvement of various actors in order to achieve acceptance and democratic legitimacy but can be compared to a step-by-step plan that begins in secret and gradually becomes public. Blumer's model mentioned above is thus also relevant for this type. The components of a social innovation are:

1. The starting point is a concrete local problem, which is responded to with a novel solution.
2. The aim is not only to solve the concrete local problem, but to achieve a social finality based on values such as equality or justice, thus democratic improvements.
3. Social innovation is supported by a multitude of actors. It starts from a few local actors and spreads through a democratic process and negotiations and networks.
4. Social innovation proves its efficiency through diffusion and adaptation outside its original, local application framework. It is considered a successful experiment that is transferable to similar situations. 5. Institutionalisation is the final stage of a successful social innovation. This is usually associated with state intervention, i.e. legal implementation. (Assogba, 2010, 2).

*2.2. The 4 types of Social Innovation*

The history of the term innovation thus shows several changes in meaning since the end of the Middle Ages. From the four understandings of innovation described above, types can be derived that differ from each other, not in all aspects, but in relevant aspects: either in the goals, the methods, the actors of innovation or in their temporal and spatial horizons. Individual innovations cannot always be clearly assigned to one type or another. In some cases, mixed forms can occur also in relation to the impact on democracy[1]. Finally, it is exactly this question of the impact on democracy that is of particular interest for this article.

**Table 1.** Four types of Social Innovation.

|  | TYP 1:<br><br>SI as emancipation | TYP 2:<br><br>SI as adaptation to technological innovation | TYP 3:<br><br>SI as problem solving | TYP 4:<br><br>SI local norm deviation |
|---|---|---|---|---|
| **Goals** | Emancipation | Profit | Problem solving by management | local problem solving with emancipatory goals |
| **Methods** | **BOTTOM UP** through reform, rebellion or revolution | **TOP DOWN** through marketing or open innovation | **TOP DOWN through** technocratic management or governance | **BOTTOM UP** through subversion or rebellion |
| **Initiators/actors** | Revolutionnaries, rebels, reformers | Entrepreneurs, inventors | Managers, civil servants | Activists |
| **Spacial dimension (at initiation)** | Global, universal | Market-oriented (target groups) | State or sub-state levels (governmental) | Local |
| **Time dimension (impact)** | Midterm to longterm | Short- and midterm, but long-term impact | Short- and midterm | Midterm |
| **Democratic impact** | Positive with a possibly negative turn | Possibly positive, negative or neutral | Possibly ositive, but negative or neutral | Mainly positive |

Source: Author's elaboration. Translated and adapted (Pausch, 2018).

In this table, the four types derived from the discourse history of social innovation are summarised. Their impact on democracy cannot be seen one-dimensionally. While the goal of emancipatory innovation is always to improve participation and increase political freedom and equality, it can also take an authoritarian turn in an unintended direction, as we saw in the course of the French Revolution. Nevertheless, it tends to promote democracy. Adaptation to technology, on the other hand, has a higher potential to be used for anti-democratic causes, although it has not infrequently also advanced democracy, at least indirectly. The third type of innovation as problem-solving, as a technocratic-pragmatic approach, is not primarily interested

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[1] An example of such a hybrid form is the EU project ICARUS, which is about innovative approaches to urban security. Cities work together with the police, social workers, scientists and other stakeholders. Special methods such as design thinking were used to identify problems and develop innovative solutions. Here the different types of social innovation as a problem solution mix with that of local norm deviation. When it comes to goals, the focus is just as much on emancipation as security policy. And even technological solutions can be developed within the project. For more information on the project see: https://www.icarus-innovation.eu/

in democracy, and can therefore both benefit and harm it, depending on the case. The fourth type, on the other hand, has an underlying democratic note similar to that of emancipatory innovation. By focusing on a local problem, its effect is to promote democracy on a small scale. It hardly poses a real democratic danger and has thus a mainly positive impact on democracy. In terms of direction and impact as well as actors, it is not always clear what the relationship is between bottom-up and top-down processes. Heiko Berner brings empowerment into the debate as a missing link that can close the gap between the political system and citizens (Berner, 2023).

### 3. Paths to modernity: innovations that promote and threaten democracy

If we look at the innovation processes of the modern era, we can roughly divide them: We can refer to democratic innovations as those that strengthen democracy as a result. Neutral innovations have no discernible effect on democracy. Innovations that threaten democracy are those that push democracy back. Democratic innovations are those that benefit democracy in a broad sense. This goes further than recent definitions of democratic innovation, such as those formulated by Smith (2009), Geissel (2023) or Elstub and Escobar (2019). The broader approach is able to capture historical processes towards democratisation. For this purpose, we can refer to the Varieties of Democracy Index V-Dem of the University of Gothenburg. V-Dem distinguishes five basic principles of modern democracy: electoral, liberal, participatory, deliberative and egalitarian (Vanhanen, 2000). All innovations that help these basic principles and improve them can be qualified as democratic innovations in terms of their output. In terms of input, we can understand democratic those processes that focus on participation and inclusion, reject systematic violence against people, seek dialogue and not only want to achieve the above criteria, but also take them into account in their methods and actions.

It is important to distinguish between an output or result dimension and an input or process dimension. The latter is about the question of whether the process was in accordance with democratic principles. The outcome dimension focuses on the question of whether the outcome of the process strengthens democracy or not. Since this article is primarily concerned with a conceptual classification, only a few examples are cited without deeper analysis of the details. However, this would be necessary in further research, from a historical as well as a current perspective, and would also be indispensable for examining the usefulness of the concept.

Conversely, innovations that are detrimental to democracy are to be regarded as innovations that endanger democracy. This is the case when political rights are restricted, minorities are discriminated against, access to voice and co-determination is made more difficult, etc. An innovation cannot always be clearly classified as promoting or endangering democracy. Often, it is a complex interplay of different variables that decides which effect predominates. In certain cases, there can also be winners and losers, i.e. groups that gain democratic participation through an innovation while others lose. An example of this could be the switch to digital voting. The conceptualisation proposed here serves as an orientation and does not assume that every individual case can be clearly classified.

If one considers the above-mentioned types of innovation, the first one, namely the emancipatory type, is clearly democracy-promoting in terms of the goal and the intended output. The struggle for political equality and emancipation corresponds to several principles listed in the V-Dem Index. It calls for equal political rights, especially the right to vote (electoral), participation and co-determination (participatory) and an egalitarian society overall. Only the deliberative demand is not explicitly included in the emancipatory type, although deliberation can go hand in hand with the other demands. The historical example of the labour movement or the suffragettes in the struggle for the right to vote shows this. In the 21st century, the demand for an extension of the suffrage to people with foreign citizenship or a reduction of the voting age would be understood as democracy-promoting innovations in this sense. Also measures that advocate for human and civil rights through the right to vote can be seen as emancipatory, democracy-promoting innovations.

When considering the input dimension of such innovations, one has to take into account whether the same rights are fought for through democratic means, i.e. whether dialogue is relied on or whether violence is considered a legitimate means. This is a highly complex question in terms of political theory. It touches the relationship between revolt as non-violent resistance and revolution as violent overthrow, which is based on the philosophy of Albert Camus (1997) (Pausch, 2019). Without going into this problem in more detail here, it can be said that the systematic use of violence can in any case be classified as anti-democratic, while under certain authoritarian conditions the resistance of the oppressed often cannot do without violence. Rodion Ebbighausen refers, with reference to Camus, to some elements that need to be taken into account for the use of violence as self-defence if one feels committed to the fundamental democratic and peaceful idea: Firstly, it would have to be self-defence and directed against violence by extremists or authoritarian rulers in order to avert even greater harm. Secondly, all other means must have been exhausted beforehand. Thirdly, it must remain the exception and not the rule, and fourthly, care must be taken to prevent any collateral damage and to spare third parties (Ebbighausen, 2013). Finally, those who use violence under these criteria to achieve a democratic goal must always be aware of the problematic nature of violence and never generally understand it as a legitimate method (Camus, 1997). All this applies not only to the type of emancipatory innovation, but also to the others. The input dimension, i.e. the method of enforcing an innovation, must be oriented towards democratic standards and in exceptional cases respect the aspects mentioned above.

In the second type of innovation, that of adapting to or using technologies and inventions, the democratic benefit is often not clear-cut, but depends on many intervening variables. If we take the invention of new means of communication as a criterion, for example, these have historically been quite conducive to democracy in the longer term, since they have improved and expanded access to information and the possibilities of having a say, regardless of whether we are talking about the printing press, the mass media or the internet. At the same time, however, they have created new exclusions. At any rate, they are conducive to democracy if they improve the aforementioned criteria of electoral, liberal, participatory, deliberative and/or egalitarian. Online elections, digital petitions, the internet and social media potentially contribute to an easier expression of opinion (Lewandowsky & Pomerantsev, 2022). At the same time, new media bear the danger of exclusion and can often be used by rulers to secure authoritarian conditions (Asimovic et al., 2021; Bakir & McStay, 2018). The example of digitalisation and artificial intelligence can be used to illustrate the problems. The innovations that are advancing at breakneck speed in these areas require adaptation to them. Today, it is hardly possible to lead a life without digitalisation. Those who do not use a smartphone or do not have an email address can no longer participate in social life on an equal footing (Fan & Zhang, 2021). But the dependency goes much further, so that without a Google account or MS applications, much of what is part of social life in the 21st century is not possible. This creates dependencies on private companies that are becoming more powerful and largely lack democratic back-stops (Fuchs, 2021). This is one of the biggest democracy problems of our time. The knowledge about the emergence of such technologies as well as the resources are also completely unequally distributed and pose new challenges to the idea of democratic equality. In their emergence and ownership, technological innovations would therefore have to be given a more inclusive flavour in order not to be primarily democracy-endangering.

The type social innovation as problem-solving harbours both potentials, while the one of local norm deviation as described by Assogba (2010) can rather be regarded as democracy-promoting and usually already carries this claim in itself. The more technocratic approach to problem-solving, on the other hand, can very clearly also be democracy-endangering, as it has a strong bureaucratic flavour, which in turn does not prioritise a democratic backbone and the adherence to or achievement of the principles of electoral, liberal, participatory, deliberative and egalitarian. The measures discussed as democratic innovations in the narrower sense, i.e. citizens'

councils, mini publics or citizens' assemblies, youth councils, etc., can often begin as local deviations from norms, but can also be initiated from above as solutions to problems and are democratically oriented in their output. In their emergence and implementation, however, not all the requirements for democratic legitimacy and inclusiveness are always fulfilled.

The most discussed and relevant democratic innovations at the beginning of the 21st century are an extension of the right to vote, the democratisation of supranational entities, for Europe above all the European Union, citizens' councils at various levels, and a democratisation of workplaces, economic relations and education systems (Herzog, 2023; Landemore & Fourniau, 2022). Individual countries are facing further specific challenges (Merkel, 2019). However, perhaps the more relevant question for democracy in the 21st century is to what extent technological innovations (new media, artificial intelligence, and digitalisation) have a negative impact on democracy and its principles, as they are described in the V-Dem index (Vanhanen, 2000).

## 4. Discussion and conclusions: Democracy-promoting innovation for the 21st century

Innovation has always had a certain relationship to politics and power issues. Democracies have done much in their modern development to make changes to the status quo and thus innovation possible. At the same time, however, innovations can also endanger democracy, and this is especially true at a time when democracy as a whole is in crisis and a new counter-wave of authoritarianism is emerging worldwide (Merkel, 2018). The early 21st century has produced a large number of socially relevant innovations. At the same time, the number of democratic states has been declining since 2005. Even old and well-established democracies are losing quality. This raises the question of which innovations to strive for in the future and how to implement them. A look at strategies of innovation is crucial from this point of view.

If one draws on the four types of innovation mentioned above, emancipatory innovations in the 21st century are manifold, recognisable and usually driven by social movements. The strongest dynamics can be seen in the area of the climate movement, which can be considered innovative-emancipatory and democracy-promoting in several respects. Both in terms of climate policy goals and in its methods, innovative approaches are evident that have an impact on democracy. The goal of leaving a viable planet for future generations raises an extremely exciting question for democracy: To what extent do future generations, who are either not yet born or do not yet have the right to vote, have inalienable rights and to what extent must these be protected by current policies (Asenbaum et al., 2023; Maeda, 2021)? What is emancipatory about the demands of the climate movement is the idea of freeing future living people and other living beings from their dependence on current politics. This results in a certain tension between the interests of currently living citizens and the formulated or assumed and very probable interests of still very young or future living citizen. The difficulty for democracy is to weigh up to what extent present interests can be curtailed for the existential interests of future citizens without undermining other principles of democracy (Beckman, 2013). This is not trivial and cannot be answered unequivocally, but the potential for improving democracy lies in the efforts of many climate activists. In addition to the climate goals and corresponding demands, the climate movement is also characterised by the fact that they push for innovations in democracy and at least propose them as a supplement to parliamentarism (Willis et al., 2022). First and foremost are the climate councils, which in France, for example, meet on the basis of randomly drawn citizens to develop policy proposals (Landemore, 2023). Within their own movement, Fridays for Future, for example, are also trying new, democratic ways of decision-making (Della Porta & Portos, 2023). Another example of innovation that promotes democracy as emancipation is the Black Lives Matter movement, the Pride movement and others that work against discrimination and equality (Della Porta et al., 2022). The extent to which they are able to assert their concerns or defend what they have already achieved will depend very much on the general development of democracy and its resilience.

The second and third types, i.e. innovation as adaptation or use of technological innovations, and innovation as problem-solving by bureaucracy, are at the crossroads between democracy-promoting and democracy-threatening innovation. As argued earlier, inventions and research results from a wide range of fields are key drivers of social change and social innovation, i.e. the transformation of social interactions. They can drive democracy and often have done so in the modern era, but rarely without producing innovation losers. Today, we face very specific challenges. Technologies, digitalisation, artificial intelligence can help spread misinformation, imitate voices and faces, perfect plagiarism to the point of undetectability, make combat robots operational, and so on and so forth (Risse, 2021). Two problems of democracy become apparent. The first is the output that threatens democracy, i.e. technologies that restrict the lives, equal rights and freedoms of citizens and work in favour of authoritarian regimes. The second danger is in the development and research of these technologies themselves and in their framework conditions. Hardly any of the great technological inventions of the last centuries were democratically desired or sufficiently legitimised. What was researched at what time with what goals was largely left to the freedom of the market or science, very often also to the military. The atomic bomb, genetic engineering, the internet and so on did not come into being because a democratic majority had explicitly spoken out in favour of research in these areas. Even though in times of democracy, technology and science policy are linked back to parliaments, the public has had no realistic possibility to influence it. There may be exceptions to this rule, but they are not very significant.

The resources for inventions, developments, etc. are not democratically distributed either, but in the hands of a few, with the exception of state research institutions. All this leads to a problem of democracy with accelerated technological progress (Rosa, 2013). The particular challenge with this type of innovation is that it is not only applied in a way that inhibits democracy in authoritarian regimes, but that it is also common in existing, established and functioning democracies and can thus contribute to undermining them. Now, it can certainly be assumed that authoritarian regimes still do not allow any democratic linkage of their innovation policy and that they push ahead with innovations under the aspect of maintaining their own power. In contrast, democratic forces are relatively powerless and limited to international reactions such as boycotts, public pressure or diplomatic measures. In their own sphere of influence, however, it is all the more important to focus on innovation that promotes democracy and to contain the aspects that endanger democracy. Democratic minimum standards in innovation policy would be important. This could mean, for example, that participation plays a greater role in innovation processes, in the form of communicative rationality as defined by Habermas, i.e. according to the principle that those who have a say in an innovation and can get involved are more likely to accept it (Habermas, 1981). We can assume that people who have been involved in a process, who have been able to contribute, to criticise, to put forward their own proposals, will accept the result of this process better, even if it is not considered ideal or runs counter to their own interests (Habermas, 1981). This can also be understood as a dialectical principle, in that contradictions clash, are negotiated in discourse processes and finally lead to a result that need not be synthetic in itself, but is at least legitimised for a time by the upstream democratic discourse and meets with broad acceptance. In innovation research, the conviction has prevailed for some years that the participation of the target audience, potential consumers, users or - in the case of social innovations - citizens, not only increases the acceptance of the result, but also the quality of the "product" (Faber, 2008). Under the catchword "open innovation", this idea is partly systematically implemented in corporate innovation management. Democracies should also increasingly demand this from entrepreneurial, technological innovation.

The same applies to the bureaucratic form of innovation as problem-solving from above, from ministries and official offices. Here, too, it can be assumed that authoritarian regimes try everything to deal with social problems under the aspect of maintaining power. Democracies must take care that their innovations do not create inequalities, but on the contrary fight them. In

any case, it must be possible to expect all actors in the political system, including the bureaucracy, to work to promote democracy and to pay particular attention to this issue, especially in times of burgeoning authoritarianism.

Four types of social innovation can be distinguished in recent centuries. They have contributed to democratisation in different ways, but sometimes also have the potential to threaten democracy. In the 21st century, where authoritarian tendencies increasingly threaten democracy, special attention should be paid to power relations and the conditions under which innovations emerge, as well as analysing their consequences. In the future, the preservation of democracy and its spread will also depend decisively on how we shape our innovation policy.

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