Using Mobile Technology to Support eDemocracy

Heide Brücher
Petra Baumberger
Competence Center eGovernment,
University for Applied Science,
Berne

Political participation in a modern, federal state is a complex business for an average educated citizen. These circumstances support political abstinence: Statistical studies prove the fact that as far as votes and elections are concerned, which are the most easy way to participate, the participation in votes and elections declined 20% respectively about 40%. Since 1900. Therefore it is necessary to search for new ways to reduce the political abstinence and to motivate citizens to participate in political processes. In this context eDemocracy is an often discussed option. It allows new forms of political participation and thus can ease the access to and the integration of persons and institutions into political processes. „mDemocracy" – as an addition to the eDemocracy – persecutes this aim, to simplify both the access to and the participation in political discussions and problems.
In this paper we discuss the role of mobile technology in democratic processes. Further we outline the legal restrictions as well as technical and political requirements. In particular we analyse where the use of mobile devices can weaken shortcomings of the democratic process supported by non-mobile devices.

1. Introduction

During the past decades, in Switzerland we have observed a declining interest in participating in political processes, which still holds on today. The participation in votes went down about 20% since the beginning of the last century and the participation in elections declined even about 40% [7]. The growing political abstinence in Switzerland is not a unique case, but turns out to be similar in other European countries. In the UK for example, the voter turnout is constantly falling and has hit its bottom in 2001 [2]. Of course, the reasons for that may be slightly different in these two (and other) countries. Nevertheless some of the causes are comparable:

- The complexity of the political business is deterrent for many people.
- The possibilities to spend free time are getting more and more numerous. Most of these offers seem to be more attractive for members of the leisure society that we are living in today, than to handle political problems.
- Politicking or not-politicking often depends on the level of education. Those people, who really need an improvement in their living circumstances, mostly have only a basic education. Therefore they often do not know how to express their matters in an appropriate manner and where to deposit their requests. Due to these circumstance they often have already resigned [5].

It would be simplistic and naïve to imagine that a new kind of technology can redress the drift of falling turnouts at votes and elections, respectively of the political abstinence in general. New possibilities of political participation, for example participation supported by mobile technology, will - as an isolated program - not be able to prevent this development, unless these ideas and concrete applications are part of a much broader revitalisation of democratic life.

Nevertheless, new ideas like eDemocracy or mDemocracy have got the potential to meliorate the ways and chances to participate in political events. In connection with the fact-finding of the missing political motivation among citizens and with regard to integrate them stronger into public life, concepts of eDemocracy have been examined during the past few years. Today we expect that eDemocracy has the potential to simplify the access to political areas and we know that the internet could be an appropriate communication network for bringing people into contact with political themes and the corresponding democratic ways of solution-finding. eDemocracy, completed by the support of mobile technology, respectively by mDemocracy applications goes one step beyond: Due to its characteristics, mobile technology is able to fill the gaps there, where the internet-based applications have their weak points. In this paper we are going to explain the benefits, which mobile technology can provide to enhance the participation in democratic process. But again: It is an illusion to believe that new media or new ways of participation will be the recipe to revitalise the democracy of a nation. The recommendations we are going to make have to be considered in the context of a wider program for making democracy more accessible and meaningful to citizens.

2. Terminology

2.1 The democratic process in Switzerland

Switzerland has a direct democracy therefore its democratic process differs from other nations democratic processes. We will explain it in a few words thus the benefits of mobile technology as an addi-

tional way of participation and the concrete examples presented in chapter 4 will be better understood.
The illustration underneath explains in a very simplified manner, how the democratic process in Switzerland works today without any support, neither by the ICT, nor by mobile technologies:

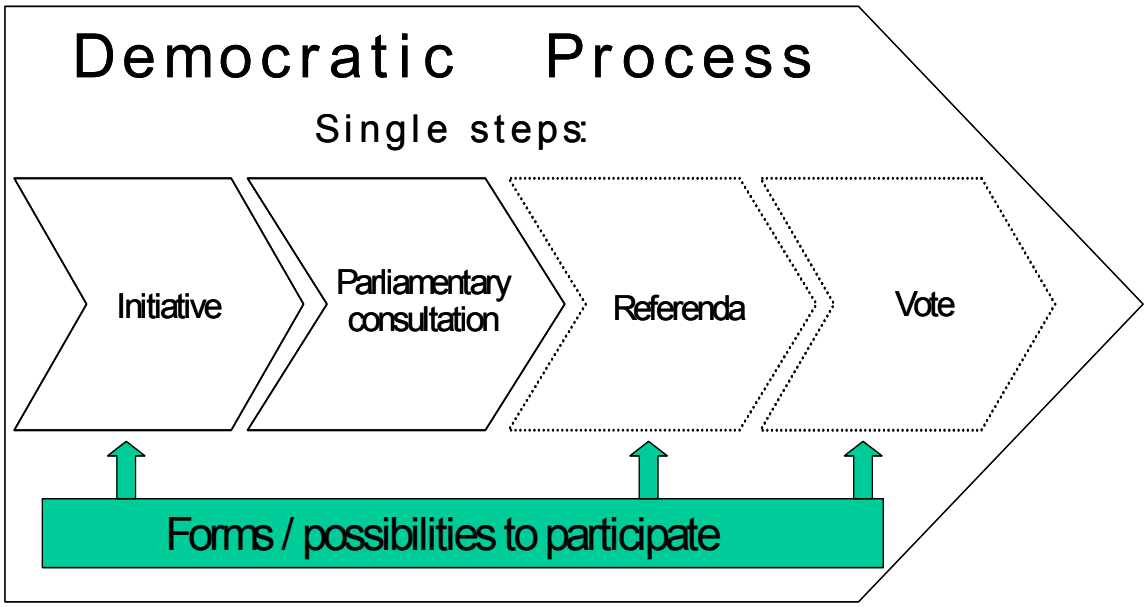

Figure 1: The democratic process in Switzerland

The Swiss citizen has three possibilities to take part in the single steps of the official democratic process[1]:

- Initiative: He may start an initiative with the intention to change certain political, educational or other circumstances. Before the whole citizenship is going to take a vote on the subject he has to collect more than 150'000 signatures of other citizens within a certain period. The number of initiatives started by citizens, is relatively high: Between 1971 and 2000, the Swiss had to vote on 85 initiatives started by citizens [7]. The initiative seems to be a relevant democratic instrument in Switzerland.
- Referenda: If the parliament after consultation decides on a draft in a matter which does not represent the public feeling, the citizens have the chance to organize a petition for a referendum. They have to collect more than 50'000 signatures of other citizens within a certain timeframe. If they succeed, the whole citizenship has to take a vote on the acceptance of the draft.
- Vote / Plebiscite: Four times a year, the Swiss citizens have to take a vote on different drafts, on different levels (nation, cantons, community).

With these three instruments, the Swiss democratic system is a relatively direct one. Nevertheless, there are many possibilities to improve it in several points by easing the access to every single steps of the process. Therefore, the internet and, as a complement the mobile technology, offer a lot of tools and applications which would support an additional way of participation.

2.2 eDemocracy and mDemocracy

Many different definitions of the term "eDemocracy" are currently in use. In respect of such discrepancy we specify the definition of eDemocracy we use and explicate the term "mDemocracy".

eDemocracy comprises all kind of efforts supported by internet technology to:

- Meliorate the ways and the possibilities to take part in public life, especially in the democratic process.
- Ease the access to the political events and discussions.
- Stimulate the exchange among the single political actors, among citizens and between these groups.
- Enhance ways of remote voting.

mDemocracy comprises all kind of efforts supported by mobile technology to:

[1] Not counted are discussions among political non-protagonists, such as members of the family, friends, etc.

- Meliorate the ways and the possibilities to take part in public life, especially in the democratic process.
- Ease the access to the political events and discussions.
- Enhance ways or remote voting.

The main difference between eDemocracy and mDemocracy is, that mobile technology is by far not as suitable as the internet is to support the communication among the citizens respectively between the citizens and the political actors and to support the transmission of complex and voluminous information. This associates the respective end devices of these two kind of technologies: The most spread and best known end device of mobile technology is the mobile phone. But the regular mobile phones do by far not dispose the same amount of features and services as internet applications do. The Short Message Service (SMS) for example does not allow to send messages of more than 160 characters, whereas internet applications, such as email, allow to transmit a nearly infinite quantity of characters and multimedia content. Therefore it is much more reasonable and comfortable to use the internet to take part in chats, to place the own opinion in discussion forums or to exchange political statements by using the email. The Short Message Service may absolutely be used for one-time transmissions of a political statement, for example within the framework of opinion polls. But the *exchange* of political opinions requires other end devices, such as the internet is.

Due to the limited quantity of characters that transportable via the short message service (SMS) for example, mobile technology is not as suitable as internet applications to support the transmission of complex or voluminous information. In this regard, new kind of message services (MS)[2], such as the Multimedia Message Service (MMS), will be able to effect only little changes in future. Message services supported by mobile technology will not reach the same popularity within a foreseeable period of time as internet applications already have: The retrieval of voluminous data packages via mobile technology will rest cost intensive. The retrieval of the same quantity of data via internet is much less expensive. But this is of no necessity, because mDemocracy is thought as an addition and a complement to eDemocracy. Therefore, supporting the *exchange* among the single political participants and the transmission of complex and voluminous information are applications that will for good reasons be reserved to the internet respectively to eDemocracy.

[2] Message Services (MS) are: Short Message Service (SMS), Instant Message Service (IMS), Enhanded Message Service (EMS) and Multimedia Message Service (MMS). The EMS is only offered by Nokia.

3. mDemocracy versus eDemocracy

As already mentioned, concepts and projects that focus on the support of the democratic process by mobile technology (mDemocracy) do not compete with comparable eDemocracy projects. In fact, mDemocracy supports and completes eDemocracy, respectively supports every single step of the whole democratic process, where eDemocracy is likely to fail (and of course the other way round).

The following four spots represent the weak points of eDemocracy and offer opportunities that mobile technology may cure:

1. Infrastructure
   - 50% of all the people in Switzerland are internet-users. But: Only 44% use it regularly[3], and only 15.5% already have used it for transactions[4] [3]. The penetration of private internet-accesses is much lower: In February 2001, only 6.3% of all the Swiss had their own internet access at home [8]. That means that most of the users in Switzerland are forced to visit a public internet station[5] or if possible to use the infrastructure at the office. But it is proved that people prefer to use the internet in a private surrounding (as it is at home), where there is no time-limit and where they are not observed by other customers and do not have to pay per hour [4].
   - Compared with private and therefore unlimited internet accesses (f. e. at home) in Switzerland, the mobile technology penetrates the citizenship much more than the internet does. About 70% of all the people in Switzerland own a mobile phone. Not counted are smartphones, handhelds etc., which also work on mobile technology.

2. Media capability
   - The fact that only 15.5% of the Swiss internet-users (these are only 7.8% of the Swiss population) already used the internet for transactions, such as e-shopping or e-banking, shows that either the user not yet has enough confidence in the security of the transaction or he does not know how to carry out the transaction. That means that the non-users and a part of the internet users have not enough ability to use the tools and applications necessary for transactions.
   - The high penetration of equipment supposed by mobile technology (above all the 70% owners of mobile phones) means that the use of them is more familiar, than the use of the

[3] Regularly means at least several times a month.
[4] Performing transactions is necessary for some of the eDemocracy-applications, for example eVoting.
[5] For example in libraries or internet cafés.

internet is. The reason for this may be that the mobile phone shows a close functional similarity with another, already well known gadget, the telephone. In addition, the most spread mobile phones do not have such a high amount of functions, as the internet has in its disposal and therefore are easier to handle.

3. Inhibition threshold
   - The insufficient capability of using the internet, respectively the ICT, enforces the inhibition threshold to do the first step into the virtual world. But the unknown medium is not the only obstacle. In addition, everyone has to learn how to handle the unknown tools, such as chats, discussions, usenet etc. As already shown, the biggest part of today's non-users and still many of the users, would have to make their first experiences at a public internet-station or at work, because they have no private internet access. This could increase the inhibition threshold further.
   - The familiarity in using mobile devices finally leads to a lower inhibition threshold than the one discussed in the context of the internet. It seems to be easier and more attractive to test unknown tools and applications with a familiar or well known gadgets like mobile phones are.

4. Dependence of location and time

With regard to political participation, today there are three levels of dependency:

- Level 1 (participation is not supported by internet or mobile technology): Until today, everyone had been forced to appear nearly always in person[6], whenever he was willing to take part in political events, such as discussions or debates, votes, signing of initiatives or referenda. On this level of participation, the dependence of location and time is very high. In today's ways of cohabitation and interworking, which are characterized by globalization and mobility, this grade of dependency seems to become more and more hindering. This can be proved by comparing the numbers of people, who regularly are frequenting the polling station personally to take a vote, with those who regularly choose the way of postal voting. Ordinary, 57% of those who have voted, did it by post [6]. Not counted are the inhabitants of those cantons, which have not yet introduced the postal voting system.

- Level 2 (participation is supported by internet): If someone would like to participate in the political process by using the internet, he first needs a PC with internet-access. This is no problem, if he has an access at home or at work. Nevertheless he is tied to a specific place, where the necessary infrastructure exists. If he has no possibility to use the internet at home or in the office, he is forced to use a public station. In this case, he is not only tied to the specific place, but also to the business hours of the library or the internet-café. That means that a person is not yet within reach any time, only because he has an email-address. There will always be hours during which he is not able to take care of his email-account. For politicking, the grade of independency on this level is higher as without any support by internet, but there still remains a certain dependence: Someone is not able to get in contact with anybody at any time, because he is always tied to a specific place where he finds the necessary infrastructure and, under certain circumstances, to specific daytimes.

- Level 3 (participation is supported by mobile technology): Mobile devices allow an independence of location and time that is nearly absolute. Every location which is covered by the mobile net, is the same as a full ubiquity of the owners of portable phones (as long as it is switched on). In that way, politicking becomes possible anywhere at any time. The other way round, someone is within reach anywhere, as long as his phone number is known.

Thus, mobile technology has three important qualities that let it become particularly suitable to support and complete eDemocracy:

- High penetration
- Low inhibition threshold
- Independence of location and time

4. Examples

Figure 2 again shows the democratic process in Switzerland. But with the support of mobile technologies and the internet, there are many more possibilities to participate:

There are many examples for these "New forms of participation", presented in the figure 2. The following examples focus on different ways of participation

[6] The only exception in Switzerland is the postal voting that has been introduced between 1979 and 1999 in the different cantons. Today, only five of all the Swiss cantons have not yet realized the way of postal voting: Schwyz, Tessin, Waadt, Wallis and Neuenburg.

supported by mobile technologies, but leave out several elements of eDemocracy that were mentioned before.

1. Initiative as well as referenda:
   - The citizen, group or party that collect signatures for an initiative which they have started, could send their slogans as short messages.
   - The citizens give their signature, which they normally fill in a corresponding form, digitally via MS.
   - Owners of mobile phones could automatically be invited via MS to take part at political discussions, events and meetings carried out in the vicinity.
   - On advertising spaces, such as newspapers, magazines, posters or flyers temporary MS-Newsletters could be introduced: For example: "Do you want to know more about …? Send the key word "xxx" to #number#". Until the plebiscite, the subscriber will periodically get short information about the subject he later on may probably be going to take a vote on.
   - WAP-sites offer information about the current initiatives, referenda or other plebiscites.

2. Parliamentary consultations:
   - On advertising spaces, such as newspapers, magazines, posters or flyers, a mobile technology-based opinion poll is introduced. Every owner of a (mobile) phone is invited to take part by voting by phone, and every owner of a mobile phone can be invited to express his opinion via MS.
   - On advertising spaces, such as newspapers, magazines, posters or flyers temporary MS-Newsletters are introduced: For example: "Do you want to know more about …? Send the key word: "xxx" to #number#". The subscriber will periodically get short information about the subject the parliaments are discussing.
   - WAP-sites offer information about the discussed subjects.
   - The MS can be used to deposit personal opinions and feelings about a certain subject directly at one of the responsible political protagonists.
   - The MS can also be used for participation of the public in certain TV-programs, such as political debates: The viewers send their statement via SMS, which will be showed from time to time at the bottom of the screen.

3. Vote
   - Owner of portable phones can subscribe to a reminder-service. They periodically get a short message, such as: "Don't forget to vote next week-end!" the days before the plebiscite takes place.
   - mVoting as a further development of eVoting and telephone voting.

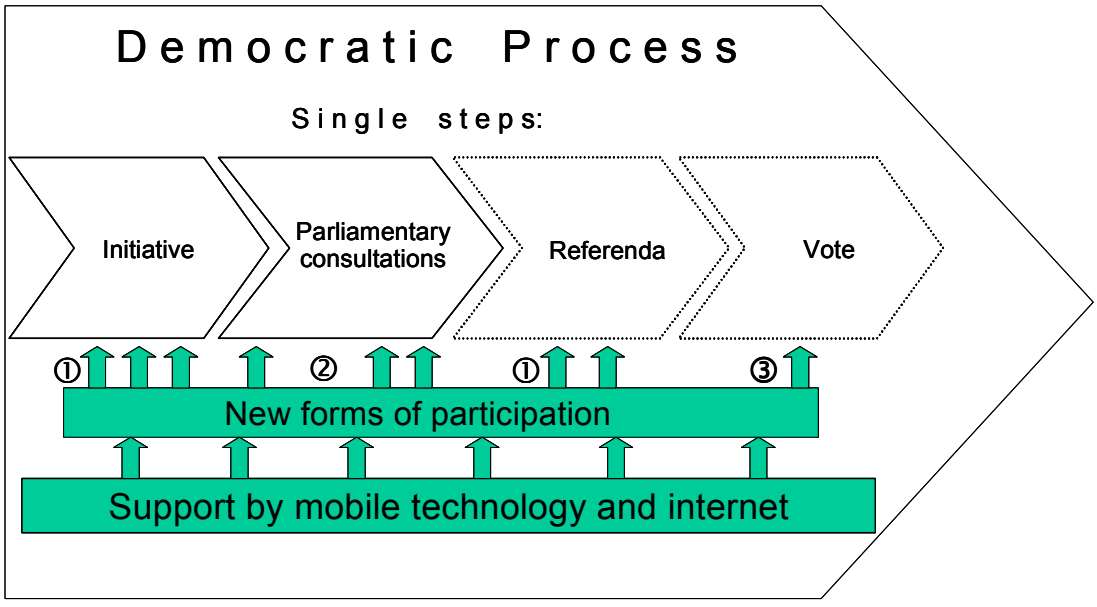

Figure 2: Democratic Process with examples

5. Benefits for the citizen

As already mentioned, many citizens are deterred by the complexity of today's political business. Thus it is necessary to use every possible means to ease the access to political events and to take part actively. Mobile technology is a convenient means to support these plans because the gadgets are simple to handle and the penetration of mobile phones is relatively high. In this way, many, above all younger generations, could be motivated for politicking. The report of the Independent Commission on Alternative Voting Methods in the UK states for example that it is quite possible that telephone voting (an in this case there's no difference between a common telephone and a mobile phone) has the potential to increase voter turnout at a manageable cost [2]. This suggestions has been confirmed by the British Marketing Research Bureau International: "Twenty and thirty somethings have embraced mobile technology because it is useful and offers great accessibility to a wide range of services. [...] Almost half of under 55s quizzed would rather choose the next Prime Minister on their phone than tick a ballot sheet. And around 50 per cent of 18-24 year olds questioned who do not intend to vote in the June 7 election claimed they would be more likely to if phone voting became a reality." [1] The wide acceptance of mobile technologies would - at least as far as voting is concerned - lead to a clear improvement.

6. Requirements

As it happens with every innovation, it is necessary to analyse the requirements of the mDemocracy in different dimensions:

1. Technology:
   - Technically, the installation of mDemocracy is not such a big problem, because there is no need of any new technology or application. Therefore mDemocracy is an ingenious project also in an economical view because it bases on already existing and well known technical devices.
   - As far as voting is concerned, attention would need to be paid on the one hand to the authentication of the voters and on the other hand of making the system as user-friendly as possible. It has to be sure that someone, who takes a vote, is allowed to do so, and that no one abuses the system to vote more than once. The usability demands for example that it will be allowed at any stage to repeat the instructions and choices. In addition, the capacity of the system would need to be sufficient to deal with peak periods. Because "congested telephone lines could cause considerable frustration for people attempting to cast a vote." [2].

2. Politics and society:
   - As soon as mDemocracy services are offered by a federal authority, such as mVoting, it should be for sure that these services are free of extra charge. Therefore, the government first has to negotiate with the telecommunication companies. Not only because of that, but also, because it has to ensure that the mobile net coverage is sufficient. Otherwise, inhabitants of a non covered region will get political disadvantages, what would be opposed to the democratic idea.
   - As already mentioned, it would be very important, to create the services as user-friendly as possible. In addition, the telecommunication companies should support the federal authorities to establish the citizen's confidence in the system and its applications.

3. Legal restrictions:

With regard to mDemocracy in Switzerland, it would be an indispensable prerequisite to cause the federal, cantonal and communal authorities to do the necessary legal adjustments. Public law for example demands to fix mobile technology as an additional possibility to take part in the democratic process. And the application of the mobile as well as of the internet technology to support democracy presupposes, that these additional possibilities of politicking keep the same conditions as the traditional ways do.

There are five spheres in which legal restrictions have to be observed: security and secrecy, integrity and authenticity and data protection.

- Questions of *security* and *secrecy* appear as soon as elections or votes are concerned. But "no form of remote voting can assure the level of secrecy [and security] that can be guaranteed by casting a vote in a polling booth within a polling station." [2]. With the traditional voting method (not included postal voting), it is sufficient to present oneself at the polling station. With any other form of a (remote) voting system, there must be some other security key.[7] With postal voting, (in Switzerland) this would be the official ballot paper and a declaration of identity. With telephone voting it would be a personal identification number and in addition to that a secondary identifier, wherefrom several forms are existing. In fact, unlike the eVoting, mVoting does - in regard to the se-

[7] There exist already methods that the user is authorized by an authority via the communication network he uses.

curity - not effect comparable difficulties. A computer system is vulnerable to hackers, while it is not possible to use a phone to sabotage the voting system [2]. But it has to be taken into account that the transmission of messages by mobile technology is not tap-proof and therefore not an absolute secret way.

- Concerning the transmission of secret data, for example of votes, *integrity* and *authenticity* are important presuppositions. The adherence of the integrity guarantees the intactness of data and information transmitted by mobile or internet technology. With regard to ballots and elections, the voter has the right to be sure, that his vote – for example for a certain representative – will effectively be counted in exactly this way. It will absolutely necessary to assure, that data can not become diversified during the transmission. Beneath the integrity, the authenticity is a further requirement. The adherence of this requirement assure, that it is possible to identify the sender of the data non-ambiguously.
- Switzerland has a relatively severe Data Protection Act. The implementation of every additional possibility of politicking requires the strict adherence of these legal restrictions that describe the admeasurement *of data protection*.

The adherence of the legal presuppositions will be one of the biggest requirements of mDemocracy (as well as eDemocracy) concepts and projects. But the absolute biggest demand will be, to manage the splits between the – above all legal – requirements presented above and the usability.

7. Benefits vs. Requirements

As it has been explained in the chapters above, mobile technology holds many convenient applications and tools to ease the access to political participation. Even though a couple of demands will have to be answered, there seem to be no unanswerable show-stoppers that could let the idea die. But although mDemocracy has, compared with eDemocracy, some weighty advantages, it nevertheless is important to realize that mDemocracy, as an isolated concept will not be able to increase voter turnout and to decrease political abstinence. mDemocracy will only be a convenient idea, if it is integrated in a much wider and general concept that focuses on all aspects of political participation.

The requirements considered above show that the development of mDemocracy and its translation into action does not demand anything completely new. Many things already exist, respectively many prerequisites are already fulfilled or are standing at the stage of their fulfilment. The technical infrastructure for example does not ask for any change or enlargement. Political requirements, such as a digital signature or the legal establishment of additional ways of remote voting, are - due to the discussions about similar eDemocracy projects - already well known, and in Switzerland the necessary political initiatives have already been started. It also is a great advantage of a democracy supported by mobile technology that there are no changes needed in the previous democratic process to integrate mDemocracy applications. All in all, the idea of a mDemocracy seems to be very economical and according projects could be translated into action soon and without any serious hindrances. Nevertheless there will remain two points which are not as easy to handle:

- One difficulty will be to convince the responsible political decision-makers of the advantage of mDemocracy. Therefore it is very important not to present the idea isolated from eDemocracy programs, but to put both of them in a close relation. mDemocracy and its tools have to be presented as a complement to eDemocracy and in addition to existing ways of participation.
- The second difficulty may be to persuade the users of mobile technology of the security of the system. This problem does not concern the whole democratic process, but above all the voting. Telecommunication companies and the federal authorities will have to work closely together and to work out an acceptable program.

8. Conclusions

If the advantages are weighted up with the difficulties and the requirements, mDemocracy appears to be a relatively simple and cost-effective solution to open the citizens additional ways of participation. mDemocracy will be easier to turn into action than similar eDemocracy projects, above all, because the difficulties due to the necessary security-standards are easier to solve. Moreover the penetration of mobile devices is much higher than the penetration of the internet, the inhibition threshold is lower and the mobile devices and their functionality seem to be more familiar to the users than the internet and its possibilities are. One of the supplementary and important advantages is that mobile technology offers a nearly absolute independency of location, as for example the necessary internet-access in the context of eDemocracy.

The only risk that remains and which we should not run into, is to consider mDemocracy as an isolated solution. Thereby the idea would lose in value, be-

cause only in combination with or as a complement to other concepts such as eDemocracy it is an ingenious plan.

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