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The Internet has become an integral part of politics and will continue to gain importance in the years to come. Internet-based solutions comprise simple websites conveying information, applications which incite and further political participation, and more complex forms of interactive and deliberative policy forming. Particularly in the context of elections the Internet opens up new and promising possibilities for parties and candidates wanting to present themselves and their political programme, to organise the election campaign, to gather funds, to mobilise support and to enter into a direct dialogue with the electorate (cf. Chadwick/Howard 2009, Schweitzer/Albrecht 2011).

So-called Voting Advice Applications (VAAs) take a privileged place among the political websites. VAAs offer help in deciding how to vote by comparing the preferences of parties or candidates with respect to different political issues with the preferences of the specific voters and indicating those parties or candidates who are politically close. Nowadays, one or several VAAs are on offer at practically all national elections in Europe and they are used by millions of voters. The parliamentary elections of 2006 in the Netherlands are an impressive example of the widespread use of online voting aids: About 9.8 million voters took part in the elections and the two biggest VAAs alone were consulted 5.7 million times (Louwerse/Rosema 2011: 6).

These figures, even if regarded with a certain amount of caution, serve as an impressive indicator of the value of VAAs among political websites. Given their widespread use it is astonishing that so far, political scientists have hardly dealt with VAAs and their possible effects on electoral behaviour and election results. Generally, VAAs are seen as an interesting epiphemnon. It is only in the past few years that political scientists have begun to ask the many questions that arise in connection with VAAs and their use.
7.1 What are VAAs and how do they work?

VAAs are issue-matching systems. Their basic functions are simple. At first, a catalogue of issues reflecting the most important political discussions and problems serves to identify the positions of the parties or candidates (for a party election or a personal election respectively). These political positions are saved in the form of a profile. As a next step, the website allows voters to construct their own profile by means of the same catalogue of issues. This profile can then be compared with the profiles of the parties or candidates. The VAAs then calculate the congruence between voters and parties or candidates and display the results as rankings. All VAAs have this basic system in common (differences will be discussed in section 2).

This shows that online voting aids are not only based on the normative idea of so-called issue voting but actually implement issue voting in an ideal fashion (Klein 2006: 595). Issue voting is based on Downs’ (1957) spatial model of politics and on his notion that the congruence between voter and party or candidate with respect to the essential political issues should be the decisive criterion of an election. In its original form, this model assumes that a rational voter will vote for the party which is closest to his or her own views. This approach is thus also referred to as proximity voting. It has to be said, though, that a number of restrictive and somewhat unrealistic assumptions are involved.

Downs based his approach on the electoral campaigns in the USA where in general two parties provide one candidate each, competing against each other in their constituency. The position on the left-right axis provided the only measure of political proximity. The voter needs to have clear preferences in order to arrive at a rational decision and he needs to know the positions of the candidates. This is where Downs’ approach invites criticism. It is doubtful that voters always display clear preferences. Rather, it can be assumed that they often have diffuse preferences (Rabinowitz/MacDonald 1989). Furthermore, in European countries there are usually more than two parties or candidates competing against each other, which considerably increases the amount of information needed for a choice, and the left-right axis alone does not correspond to political reality (cf. Kriesi et al. 2008). In such a complex arena many voters will not have the time to comprehend and compare the positions on a large number of issues.

The model of directional voting takes account of all this and while being a form of issue voting assumes that the voter is interested in rough directions rather than detailed issue preferences. In this way voters can lower their information-seeking costs (Rabinowitz/MacDonald 1989).

The question now arises whether VAAs in their basic approach are closer to the proximity voting model or to the directional voting model. At first sight the matter seems clear: Online voting aids help citizens to lower their information-seeking costs. They facilitate the comparison of the positions of
a large number of parties and a large number of issues with one’s own preferences in a short time (Jeitziner 2004). Insofar they follow the logic of proximity voting. However, in their implementation several VAAs show features which are to be attributed to the directional voting model (for instance in the range of answers containing a neutral middle position or the possibility of weighting issues). The answer to this question is therefore ambivalent, at least from a theoretical point of view (Wagner/Ruusuvirta 2009: 9). Also, no empirical study has yet been undertaken to answer the question which model better explains the voting choices of VAA users.

Such a study would also have to take into account other approaches explaining electoral behaviour, such as strategic considerations which may influence a voting decision. Often, governments are only formed after intensive coalition negotiations, and in parliamentary practice decisions are often compromises between two or more parties. By pre-empting such negotiations and compromises it may be rational for moderate voters to elect extreme parties even though they are not closest to their preferences (Kedar 2005). Moreover, there are sociological factors to be considered (e.g. voting according to social class; Lazarsfeld et al. 1944) as well as socio-psychological factors (e.g. identification with a particular party; Schoen/Weins 2005).

Up to now, VAAs have been based exclusively on the theoretical foundation of issue voting. In principle, it is perfectly possible to integrate other explanatory models of electoral behaviour. For instance, VAAs could offer the possibility of filtering candidates according to socio-demographic features such as gender, age, income and occupation. It will be interesting to see whether VAAs will evolve in this direction in the years to come.

7.1.1 Historical development

The Dutch *Stemwijzer* is generally regarded as the very first voting aid. Its earliest version was developed in 1989 in a printed form to be used in teaching politics at school. The popularity of this tool left a lot to be desired, as only 50 copies were sold. In 1994 a first computer-based version was developed and several thousand disks could be sold. In view of the parliamentary elections of 1998, a first online-version was introduced, which was used 6,500 times (De Graaf 2010). In Finland, a VAA had been developed independently two years earlier. In subsequent years, new voting aids were added by and by, so that no fewer than 20 different online-voting aids were on offer for the parliamentary elections of 2007 (Ruusuvirta 2010: 47-49). In other European countries a veritable VAA boom began in the years following the millennium. Today it is difficult to find a European country that does not offer several online voting aids during electoral campaigns (a good overview of

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the rapid expansion of VAAs can be found in Walgrave et al. 2008b as well as in Cedroni/Garzia 2010. Besides a multitude of independent websites, three “families” of VAAs can be distinguished:

The *Stemwijzer* family, based on the Dutch example, is used in many other countries. Its best-known representative must be the German *Wahl-O-Mat*. Stemwijzer versions have also been employed in France, Italy and Bulgaria. The *Stemwijzer* is a reliable and simple voting aid, characterised by a high degree of user-friendliness.

The second family is based on the *Kieskompas*, also developed in the Netherlands and in direct competition with the *Stemwijzer*. The *Kieskompas* differs from the *Stemwijzer* in that the positions of the parties with respect to political issues are not identified by means of questioning but rather by means of an analysis of the programmes of parties and election campaigns. In addition, the *Kieskompas* makes use of a diagram in a two-dimensional system of coordinates rather than a list for the results obtained – in other words it provides a kind of map of the political space. This family comprises the *EU Profiler* (a VAA for the EU elections of 2009), the Canadian *Vote Compass*, the Portuguese *Bussola Eleitoral*, a Turkish version and the US-American *Electoral Compass*.

The third family, finally, has its origins in Switzerland. In 2003 *smartvote* began to operate and it has since been used in Scotland, Bulgaria, Lithuania, Luxembourg and Austria. *smartvote* is a relatively complex online-voting aid to handle, containing a simple list presentation and two different graphical presentations detailing the party positions. In addition, *smartvote* enables voters to compare their own positions not only with those of the parties but also with those of the individual candidates.

### 7.1.2 Who develops and operates VAAs?

Most VAAs have their origins in the context of universities. Scientists interested in electoral and party research are often strongly involved. Early on, institutions engaged in civic education expressed their interest. They then employed VAAs in the context of informing people and as an instrument to

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strengthen the political participation of young and new voters (Fivaz/Nadig 2010). This is typically and ideally the case for the Stemwijzer, the Wahl-O-Mat and the Austrian Wahlkabine.

Smartvote works in close conjunction with various universities, though it has been developed and operated by a non-profit organisation, while Kieskompas is a project of a market-oriented enterprise. Online voting aids are also employed in new democracies in the context of projects aimed at establishing or furthering democracy and as such they are often financed by state agencies for cooperative development or by NGOs. This was the case in the transitional countries of Eastern Europe and more recently in certain countries of the Middle East against the background of the Arab spring. In 2011, versions of both Stemwijzer and Kieskompas were employed in Egypt, Tunisia and Morocco.

More and more often, the media get involved with online voting aids. For one thing, VAAs can be integrated directly into the websites of a media enterprise; for another, data captured in the VAAs such as the various positions of parties on a particular issue can be integrated into the reporting on electoral campaigns. The Belgian Stemtest for instance was developed by several universities at the request of a television channel and was subsequently used in several television shows built around it and preceding the elections (Nuytemans et al. 2010).

Rather unusually, certain political interest groups or even parties themselves operate online voting aids (Ruusuvirta 2010 and Skop 2010). Such voting aids should be met with the greatest scepticism. Essential standards of all respectable online voting aids they must be politically neutral and nonpartisan can hardly be expected when political actors operate their own VAAs. However, such VAAs have remained isolated cases, not least because they are not sufficiently accepted by voters.

7.2 Differences between VAAs

Even though their basic structure is always the same, the various VAAs sometimes differ considerably in the details of their mode of functioning and the methods applied.

At first, we can distinguish between candidate-oriented and party-oriented VAAs. The overwhelming majority of VAAs belong to the party-oriented type, i.e. they offer the voters a comparison with the parties and not with the individual candidates. This reflects the reality of the electoral systems of many countries in which one can vote for parties but not directly for candidates. In some countries, electoral systems are used which make use of

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open lists and other elements allowing the direct election of individual candidates. Switzerland and Luxembourg offer the voter the possibility of compiling a list of candidates from different parties. In Finland – to cite a further example – one can vote for one party only, but with the freedom to change the ranking order of candidates within the list according to personal preferences. In such countries, VAAs are often employed which enable not only a comparison between voter and parties but also between voter and candidates. Hence, with respect to the architecture of a VAA the specific voting system is of prime importance (Ladner et al. 2010: 92).

Core element of all VAAs is the questionnaire or catalogue of issues on which basis the matching procedure is operated. The choice of issues considered is therefore a central criterion of quality (Walgrave et al. 2009). As a rule, the issues are selected by political scientists in a multi-step procedure. In the case of the German Wahl-O-Mart a group of young and politically interested voters are involved in addition to the scientists (Marschall/Schmidt 2010). Statistical procedures are widely used to ensure that the catalogue of issues is adequate in splitting up the different parties. The most scientific and elaborate procedure by far is applied for the Belgian Stemtest. A catalogue of 70 questions is compiled and then reduced to about 30 definitive questions by means of complex statistical procedures and with the aid of computer simulations (cf. Nuytemans et al. 2010 for a detailed description of the procedure). VAAs also vary as to the size of the questionnaire which usually contains about 30 questions.

Answer options and weighting possibilities play an important role besides the design and size of the questionnaire. As for answer options there is a distinction between those with a neutral answer (e.g. “don’t know” or “no answer”) besides a “Yes” and a “No” answer and those without a neutral position. A second distinction concerns the degree of scaling. There are VAAs where certain questions can only be answered in the positive or negative while others allow answering in more detail along multi-step Likert-scales. Often the possibility is given of weighting certain questions or even entire areas of issues or of defining certain questions as “killer” criteria (i.e. in these areas a party must agree with the answer of a voter in order to be included as a recommended choice).

A further distinctive feature is the way in which positions of parties or candidates are identified. Two procedures are in use: the direct questioning or the analysis of election programmes by experts. Both procedures have advantages and disadvantages. When surveys are conducted it must be noted that parties and candidates may display a strategic behaviour by answering questions in order to appear in the best possible light. This problem will be addressed further in section 7. While the problem of strategic behaviour does not arise in the analysis of election programmes there are other challenges to be dealt with. It may happen that certain policy fields are not covered by the
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election programmes of all parties and in the case of small parties an explicit

election programme may not even exist. A special case is presented by the

EU Profiler which was developed for the EU elections of 2009. It consisted

in a version of Kieskompas which was supplemented by elements taken from

smartvote. For instance, both procedures for identifying party positions were

employed (Trechsel/Mair 2011). A definitive judgment cannot be made as to

which procedure is to be preferred. In practice it has been shown that the ma-

jority of VAAs operate with direct questioning. This is particularly true of

VAAs like smartvote which identify the position of each individual candi-

date.

Different methods are also employed in the calculation of the congruence

between party or candidate profile and voter profile. Often, simple measures

distance are employed such as the City Block model or Euclidian distance.

From a purely methodological-mathematical point of view there are models

which are better suited but the distance-based models have the advantage of

being more transparent to the voter and easier to understand (Marschall/

Schmidt 2010). This is an important aspect as VAAs depend on voters trust-

ing them. It is difficult to trust a voting aid whose methods of calculation re-

semble a black box.

A final difference between VAAs lies in their presentation of results. A

ranking of parties according to their congruence with the voter is common to

all VAAs. This ranking is usually presented graphically by means of bar

charts. Additionally, presentations of left-to-right axes and multidimensional

political spaces are employed. In multidimensional presentations, on the one

hand, two-dimensional coordinate systems/maps are employed. They com-

prise not only a left-to-right axis but also a liberal-conservative axis or a so-

called GALTAN-axis (green/alternative/liberal-traditional/authoritarian/

nationalist). VAAs of the Kieskompas family apply this kind of presentation.

On the other hand, some VAAs also employ spider web graphs, which pre-

sent political positions along up to eight axes (e.g. smartvote with the follow-

ing axes: openness in foreign policies, liberal economic policies, restrictive

financial policies, law and order, restrictive migration policies, elaborate en-

vironmental policies, elaborate welfare system, and liberal society).

It can be said that different VAAs have very different ways of dealing

with design and methodology. Studies have shown that not only the composi-

tion of the questionnaire (Walgrave et al. 2009, Nuytemans et al. 2010) but

also the matching procedure (Louwerse/Rosema 2011) have a significant in-

fluence of the results. The question thus arises whether there is a right and a

wrong method and whether some VAAs issue good or bad electoral recom-

mendations. Research has not yet found definitive answers to these questions,

probably because there is not a single correct approach but several possible

approaches which lead to differing but perfectly correct electoral recommen-

dations.
7.3 Increasing popularity

The use of online voting aids has increased considerably in recent years. The Dutch example shows this particularly well. In 1998 the first Stemwijzer website was used 6,500 times. For the 2002 elections, over two million voting recommendations were registered, and for the 2006 elections as many as 4.8 million (de Graaf 2010: 41-42). For the 2010 elections the figure fell to 4.2 million due to competition with Kieskompas, which was used 1.5 million times (Louwerse/Rosema 2011). Thus, the number of voting recommendations issued in 2010 corresponds to more than 50% of the Dutch voters.

Similar developments can be observed in other countries. In Germany, Wahl-O-Mat was in operation for the first time for the parliamentary elections in 2002 and used 3.7 million times. For the 2009 elections 6.2 million voting recommendations were recorded, which corresponds to about 12% of voters (Garzia 2010: 14). In Switzerland, smartvote began operating for the parliamentary elections in 2003 and issued 255,000 voting recommendations. Four years later the number rose to 963,000 and in 2011 as many as 1.2 million voting recommendations were issued. In other words, usage rose from five to over 23% in eight years.

Even though this development is impressive, these figures must be met with caution. The number of voting recommendations issued does not in itself indicate the number of users. Some scientific studies are thus based on lower user figures (Ladner 2009). The example of smartvote and the figures for the 2007 elections in Switzerland help to show this. In 2007 there were 4.9 million voters in Switzerland, 2.4 million of which took part in the elections. smartvote was used 963,000 times. However, many voters used smartvote several times in the course of the electoral campaign and asked for voting recommendations for more than one constituency. With the help of server statistics a clearer picture was gained and an estimate was made according to which between 350,000 and 375,000 people had in fact used smartvote. This figure corresponds to seven to eight per cent of voters (Ladner et al. 2010).

Interestingly, this estimate can be confirmed by the results of the Swiss electoral study Selects based on a representative survey of voters which included the question whether they used smartvote. If a figure of 350,000 users is assumed and if this figure is put in relation to the total figure of citizens entitled to vote the percentage of users drops from 23 to seven per cent.

To what extent user figures for other countries also need to be adjusted downwards is difficult to estimate. There are no uniform standards defining how the use of VAAs can be quantified in a reliable way. In order to prepare much-needed data sets which can be compared internationally it is necessary to take measures when evaluating the data of the websites of VAAs (e.g. by means of cookies; Marschall/Schmidt 2010) and to apply standardised procedures when analysing the data.
Even though the user figures need to be somewhat adjusted, the rapidly growing popularity of online voting aids still demands an explanation. Clearly, the widespread use of the Internet is partly responsible. In many European countries more than 80% of the population have Internet access. It also has to be noted that VAAs often enter into partnership with the media – and they are sometimes operated by the media – which increases their popularity enormously. And it can be argued that the logic of VAAs corresponds to the Zeitgeist of an increasingly individualised society: VAAs offer personalised information which the traditional media and information channels cannot supply.

A further reason for the popularity of VAAs can be found in the structural changes of voting behaviour. Electoral research has shown that voters try to reduce the complexity of voting decisions by means of shortcuts (Dalton/Wattenberg 1993: 196). Two of the most important voting aids were originally the social classes or groups (e.g. adherence to the working class or to a religious group) and the proximity to a particular party. Especially the identification with a party tended to minimise the efforts involved in voting decisions. As a worker one would vote for the social democrats and as a catholic for a catholic party. In the 1970s, this began to change dramatically in the Western industrialised countries. The working class, for instance, has lost some of its significance, and so has adhesion to a particular religious group. Industrial societies have become service-based societies, globalisation has had a huge impact and geographical mobility has increased hugely. There has been movement in all directions and the social stratification has gradually lost its structuring effect (Garcia 2010). These developments have also led to changes in voting behaviour. In the course of a de-alignment process, ties to political parties have loosened, parties have lost members and the number of voters switching from one party to another is growing steadily (Dalton/Wattenberg 2002). Today, voters pay more and more attention to issues and political position or to the record of achievements of parties and candidates. It is evident that online voting aids correspond well with the informational needs of the more individualised and issue-oriented voter.

A final reason for the popularity of VAAs lies in the specific voting systems and party systems of the various countries. Particularly in countries with a candidate-oriented electoral system (such as Switzerland and Finland) and a strongly fragmented party system, voters find it much harder to gain sufficient information about the positions of parties and candidates (Nuytemans et al. 2010). In these countries, VAAs and the reduction of complexity and informational costs they offer correspond well to a service that is much sought after (Ladner et al. 2010b and Ruusuvirta 2010).

Against this background we can assume that VAAs have yet to fulfil their potential. User figures will continue to increase though maybe less sharply than before (Cedroni 2010).
7.4 Who is using VAAs?

When political science began to take an interest in VAAs, one of the first questions was who uses these new tools. As in other areas of research on e-democracy, the issue of the so-called digital divide was one of the dominating aspects within VAA-related research. It was feared that only a very limited circle of voters would have access to VAAs (Cedroni 2010 and Trechsel 2007). And in fact, the users of online voting aids are far from representing the voters at large.

In a number of countries, interviews were made with VAA users. All studies arrive at almost identical conclusions with respect to the socio-demographic features of the user groups (Fivaz/Nadig 2010, Fivaz/Schwarz 2007, Marschall/Schmidt 2010 and Wall et al. 2009). The typical VAA user is male, young, and well educated. It is of no surprise that the typical VAA user has much in common with the typical Internet user.

These findings have been confirmed by the results of a representative survey among Swiss voters in 2007 (Fivaz/Nadig 2010: 181). As regards age groups, the 18- to 35-year-old users are overrepresented by 13%. But it is interesting to note that only the age groups above 65 years are clearly underrepresented. It has also been shown that the biggest differences are not found among the gender or age groups but among the education level groups and, closely tied to these, the income groups. The only significant difference with studies from other countries is the proportion of women among the smartvote users which at 44% is just 2% below the proportion of women among the voters. According to other studies, the proportion of women is about a third of all users (Wall et al. 2009).

With respect to the danger of a digital divide it can be noted that there are signs of normalisation, i.e. the socio-demographic profiles of VAA users and voters in general are becoming more alike. In the course of the years, discrepancies between gender and age distribution have decreased noticeably (Ladner et al. 2010).

In the studies on the characteristics of VAA users their political profiles have also been captured. Here, too, the results across different countries are closely comparable. The typical VAA user is very strongly interested in politics and can be said to have a political knowledge that is way above average – not only compared to the entire population but also compared to the voters (Fivaz/Nadig 2010). In view of their electoral behaviour, up to 90% of VAA users state that they will participate in the elections (Marschall/Schmidt 2010: 78). In addition, it can be shown by means of Swiss data that VAAs are particularly popular with swing voters and voters with loose party ties (e.g. first-time voters) (Fivaz/Nadig 2010 and Ladner et al. 2010b). As regards the proximity to the parties, in 2007 smartvote was used more frequently by voters of the left and middle-left parties than voters of the right and conservative parties (Ladner et al. 2010). This gives rise to the question whether VAAs
Voting Advice Applications can take an influence on the electoral behaviour of voters and on the election results.

7.5 The impact of VAAs

In view of the ever increasing use and importance of VAAs it is surprising that the question whether they have an influence on the electoral behaviour of their users has only moved to the foreground of VAA research in the past two or three years. Indications for such an influence have already been visible for some time. In Finland, for instance, before elections VAAs are the most important source of information for young voters (Ruusuvirta/Rosema 2009: 2). In Switzerland surveys among the users of smartvote show the crucial role of this website with regard to the information gathering and processing: 86% of smartvote users have referred to it as an important source of information, while other online media were relegated to second position with 68% of users; television channels and newspapers jointly took third position with 61% each (Ladner et al. 2010: 115).

With respect to the impact on electoral behaviour, three questions can be posed (Garzia 2010: 23): First, do VAAs change the way in which users get hold of relevant information on elections and the way in which they handle this information? Second, do VAAs have an impact on electoral participation? And third, finally, do VAAs have a direct influence on the electoral decisions of their users and on the election results?

As for the impact on the way in which users get hold of and treat information, the so-called cognitive effects, several studies arrived at clear and positive results. Marschall/Schmidt (2010) showed that in Germany about 60% of people interviewed have been stimulated by Wahl-O-Mat to look for further information on the elections in general and on the parties and their positions in particular. 70% even claimed to have discussed the received voting recommendation with family members or friends. It is of particular interest that even among those users who hardly talk about politics, 63% were stimulated by Wahl-O-Mat to discuss the elections with others (Marschall/ Schmidt 2010: 83-84). Comparable figures also exist for Switzerland and thus confirm the German results: 55% of Swiss VAA users went on to look for further information and 70% were led to discuss the elections with other people (Ladner/Pianzola 2010).

The rise of the Internet and the expansion of new possibilities of an electronic democracy are not greeted with enthusiasm by everyone. There are also sceptical and critical voices to be heard. It is feared that the introduction of e-voting and other online services – as for instance VAAs – could lead to an instant democracy of sorts, in which the voters deal with political contents and actors in a hasty and superficial fashion. Instead of contact and exchange
with other human beings, information would be drawn almost exclusively via
the computer. The electoral choice itself would also be largely delegated to
the computer (e.g. Buchstein 2004).

Fortunately, research on VAAs shows that these fears are not substanti-
ated. As has already been shown, VAAs have led their users to look for fur-
ther information elsewhere and to discuss the elections increasingly with oth-
ers. Besides political knowledge and interest, which is strengthened by the
use of VAAs (Garzia 2010: 22), it has further been shown that users do not
accept voting recommendations uncritically (Fivaz/Nadig 2010). Often the
voting recommendations are simply taken as a starting point for further re-
flexions in the course of finding a decision. Thus the first question can be
answered in the positive.

In many Western countries, low or declining voter turnout can be ob-
served. Even if it is clear that technological progress alone cannot increase
rates of political participation, it is nevertheless a hope which is time and
again expressed not only in connection with the introduction of e-voting but
also in the context of the widespread use of online voting aids (Cedroni 2010:
256).

A series of studies based on user interviews has looked into the question
whether the use of VAAs leads to an increased participation rate. These stud-
ies all conclude that there is a positive effect on participation; however, the
figures found differ strongly depending on country and study. For Finland it
can be shown that the use of an online voting aid increases the probability
that the user participates in the elections by up to 23%. For Switzerland, the
corresponding figure is 15%, for the Netherlands it is 12% and for Germany
it is 8% (Garzia 2010 and Ladner/Pianzola 2010).

On the basis of these results alone it is difficult to estimate how big an
impact VAAs have on actual participation. The studies were based on direct
interviews with users. These tend to overestimate the impact of VAAs when
asked directly. It must also be taken into account that some of the users
would have taken part in the elections without the VAAs. Cautious estimates
conclude that smartvote increased the participation in 2007 in Switzerland by
0.6 to 1.0% (Ladner/Pianzola 2010: 220).

Just as for the testing runs for e-voting systems, VAAs have been shown
to have only a slight impact on electoral participation rates (Ruusuvirta/
Rosema 2009). An important explanation may have to do with the fact that
these instruments are primarily preaching to the converted (Norris 2003).
Among the VAA users those groups are overrepresented which are already
characterised by an above average participation rate (e.g. those with a strong
interest in politics). Even for VAAs it is difficult to persuade those who do
not take part in elections to show an interest. Among young and first-time
voters it appears to be possible to some extent to further their interest in poli-
tics and their electoral participation by means of online voting aids (Fivaz/
Nadig 2010).
From the perspective of the public and above all from the perspective of the parties and other political actors, the question of the impact of online voting aids on the electoral decisions of their users is of course very important. If this question is put directly to the users, it appears perfectly plausible that there is a considerable impact of VAAs on the electoral decisions of their users. About 70% of users interviewed stated that *smartvote* had directly influenced their decisions (Ladner et al. 2010b). This is an unusually high figure, which, however, mirrors the complexity of the Swiss electoral system and the far-reaching possibilities involved in voting compared to other countries.

For this reason it was asked more precisely in which way the *smartvote* recommendation had an impact on the voting decision. Only 15% of those asked stated that they had adopted the recommendation in its entirety and copied it onto the ballot paper. The other users adopted the recommendation only partially. For instance, they listed candidates from different lists on their ballot paper (so-called “panaschieren” or mixing) or they listed candidates with a particular proximity twice and thus gave them two votes (so-called “kumulieren” or cumulating). Very many users stated that on the basis of the recommendation they voted for candidates they had previously not known and would therefore not have voted for. And about a third of users claimed to have consciously not voted for particular candidates on the basis of the recommendation received (cf. Ladner et al. 2010).

The Swiss results can therefore only be interpreted against the background of the specific Swiss electoral system and they cannot be directly compared with results from other countries. In the remaining studies the question was asked whether the use of VAAs had led to voting for a party other than the one originally intended. The resulting figures vary strongly depending on the country. In the Netherlands, between 15 (Aarts/van der Kolk 2007) and 10% of users (Kleinnijenhuis/van der Hoof 2008) claimed to have adjusted their electoral decisions due to the recommendation received. For Germany this figure is six per cent (Marschall 2005) and for Finland as low as three per cent (Mykkänen/Moring 2006).

These research results are viewed rather critically by the VAA researchers themselves. A series of considerable methodological difficulties gives rise to justified doubts as to their validity.

Most of the studies are based on surveys conducted before the elections. Correspondingly, what is captured are voting intentions and not real voting decisions. Hence a Belgian study has captured both voting intention and voting decision for the users of the VAA *Do De Stemtest!* by means of questioning before and after the elections. Among those users who said that the *Stemtest* had convinced them to vote for another party only two thirds effectively did so in the end. This study thus concludes that the evaluation of voting intentions is a very unreliable measure of the impact of VAAs. Post-election questioning leads to more reliable results (Walgrave et al. 2008).
A second point of criticism concerns the quality of the survey data. Most studies are based on online surveys of VAA users. Usually the users are asked on the VAA website after the recommendation is given whether they would participate in a scientific survey. Only few studies deviate from this pattern and use data from representative surveys of electoral research (e.g. Marschall/Schultze 2011 and Ladner et al. 2010). Most online surveys can neither produce representative data for the entire electorate nor for only the Internet users. As has been shown already, VAA users have a very specific socio-demographic and political profile. Furthermore, the decision of the user to take part in a survey is a form of self-selection calling into question whether the data are representative with respect to VAA users, if measures are not taken to control this effect (Marschall/Schmidt 2010). Addressing this criticism it has been tried to control the distortions of the various selection procedures by means of elaborate statistical methods (e.g. “Heckmann-model/-corrections”) (Pianzola/Ladner 2011b, Vassil 2011a and 2011b). The findings of these studies show as before that VAAs influence the electoral decisions of their users but that previous studies have clearly overestimated these effects.

A further problem arises with respect to causality. Even if VAA users can be shown to vote for another party than originally planned, it cannot be concluded with certainty that this is due to the voting recommendation. It is perfectly possible that the electoral behaviour has changed for another reason. The only way of arriving at reliable results is by doing controlled experiments (Pianzola/Ladner 2011b and Vassil 2011b). During the elections in Switzerland in autumn 2011 such an experiment was conducted with smartvote users. The results however are not yet available.

In individual studies it has also been tried to measure the impact of VAA recommendations indirectly. This has not been crowned with clear results though. It can be shown that candidates who are recommended particularly often by smartvote also receive many personal votes during the elections. But individual candidates who are often low on the smartvote rankings may also finish with very good election results (Pianzola/Ladner 2011a).

### 7.6 Linking VAAs with e-voting systems

An aspect of VAAs that has hardly been addressed by research so far is the linking of VAAs with e-voting systems. At first glance this seems to be a risky proposal, but is this idea really so absurd? How would someone react if they were asked to fill in a booking form by hand or even appear in person at a travel agent’s after having found a hotel or a flight online? This is exactly what 15% of smartvote users do today (Ladner et al. 2010). They answer the smartvote questionnaire online, receive a voting recommendation and then copy the names of the candidates by hand onto their ballot paper.
Of course, a hotel reservation cannot really be compared with casting a vote in an election and it would be irresponsible to propose such a far-reaching change to the voting procedure without thorough scientific studies which evaluate advantages and risks and propose necessary measures and safety mechanisms. The question still remains, though, why voters should be forced to copy the result of a fastidious electronic selection process by hand onto a ballot paper, above all when it is a matter of giving votes to a large number of candidates.

In Switzerland the linking of VAAs with an e-voting system has been tried once in a test run based on which first conclusions can be drawn. In the elections 2005 for the student council at the University of Berne, voting was only possible via an e-voting system. The operators of smartvote were asked on the one hand to develop this e-voting system and on the other hand to make smartvote available for these elections. The students then had two possibilities for casting their vote. They could visit the e-voting platform directly and compose their ballot paper according to the legal requirements usual in Switzerland. They then had to log in to cast their votes. The second possibility involved having a voting recommendation issued by smartvote which could be forwarded to the e-voting platform by means of a click. There the recommended candidates were inserted into a list. The students could then further adjust this list according to their preferences and finally log in to cast their votes.

The common offer of a voting aid and an e-voting system contributed to a threefold increase in electoral participation compared to the previous elections. At the same time, elections were held for the student council at the University of Zurich. Here an e-voting system was offered without any voting aids. The participation rate at the University of Berne turned out to be twice as high as the rate at the University of Zurich. This is an indication that the linking of the two online platforms can certainly have an impact on electoral participation. It seems that VAAs provide an added value making voting more attractive.

A juristic study has examined this test run at the University of Berne and has concluded that such a linking of VAAs and e-voting is in principle compatible with the constitutional and the election laws. This study further points out that the VAAs involved would have to be subject to conditions and clear quality standards, issued and controlled by the state (for instance in the form of a certificate) (Rütsche 2008).

On the one hand, government institutions in many countries are developing safer and more reliable e-voting systems. These systems are supposed to simplify the act of voting and render it more attractive. On the other hand, in recent years numerous VAAs have been created which offer the voters a real extra value in the form of additional information and time-saving (Garzia 2010 and Jeitziner 2004). A linking of the act of choosing with the act of voting makes perfect sense from a process-oriented point of view. For this very reason, scientists should address early on the challenges of such a step.
7.7 An open question: the quality of VAAs

Up until now, VAA research has above all been concerned with how often and by whom online voting aids are used and whether their use has an impact on voting participation or voting results. Publications dealing with questions regarding the quality of VAAs are very rare (e.g. Skop 2010 and Walgrave 2009). VAAs are used by a large number of voters (cf. section 3). Even if it is still unclear how strongly they really influence voting decisions (cf. section 5) it is nevertheless clear that they have an enormous potential to influence the information flow and the information processing of the voters (Lau/Redlawsk 2006: 262). For this reason alone it is necessary that science takes a closer look at the quality of the recommendations offered.

In the studies so far published four aspects of quality are mentioned: The formulation of transparency requirements and a behavioural codex, the quality of the questionnaire employed as well as the quality of the matching methods used, and finally the question whether the answers given by the candidates and the parties for the VAAs can really be trusted.

From a normative and juristic point of view VAAs are committed to the principle of contributing to a free and authentic forming of opinion. Issuing a voting recommendation can however be seen as an intervention in this opinion-forming process. Even if it is often not declared openly, many VAAs would like to not only improve the information base of voters but also influence them towards a “better” voting decision (i.e. one more strongly governed by issues). But as long as this is based on objective political information, issuing a voting recommendation is in no way reproachable but rather desirable as an additional offer of information (Rütsche 2008). The required objectivity however can only be guaranteed by a maximal transparency on the part of the VAAs.

VAAs cannot claim to stand for improved transparency in politics while operating like black boxes themselves. For this reason VAAs should make completely transparent their funding as well as who is responsible for developing and operating them and the methods applied (Nuytemans et al. 2010 and Rütsche 2008). Only very few VAAs openly provide this information, often they do not even publish the matching algorithms employed (Louwense/Rosema 2011).

Over and beyond this they should also be committed to a correct behavioural codex, which guarantees equal treatment of all parties and candidates (Rütsche 2008). This is something that is often violated today. Often VAAs are not in a position to get hold of the required information for all the candidates or parties. For the 2009 elections in Belgium it was inevitable to exclude nine of a total of 17 parties from participating in the Stemtest because of a mismatch of work and the time available. Thus, only the eight parties which were already represented in parliament were included. The operators of Stemtest were aware that small and new parties were put at a disadvantage
but they found no better solution (Nuytemans et al. 2010: 130). Many VAAs know comparable trade-offs (e.g. the Wahl-O-Mat).

In practice one is still far from comprehensive transparency and an equal treatment of all parties. Originally it was expected that competing VAAs would have a positive effect on the quality of the offers and also improve transparency. In the meantime it has been admitted that this expectation was probably too optimistic. This raises the question whether the adherence to basic quality standards, as they have been called, should not be demanded and controlled by the state (Rütsche 2008).

A second important quality feature of a VAA is the questionnaire employed to capture the political points of view. Depending on how this is composed, completely different voting recommendations may result (Walgrave 2009). In principle it is clear that the questionnaire must address the current and politically relevant issues before the elections. In addition, the questions should be clearly formulated and easy to understand. Finally, they should be questions to which the parties give different answers (Marschall/Schmidt 2010: 67-68, Nuytemans et al. 2010 and Walgrave et al. 2009: 1168).

The problem with these quality criteria is that there are hardly any objectively measurable indicators. Even in the Belgium system with its impressive and very elaborate procedure for the composition of the questionnaire (Nuytemans et al. 2010) a large number of questions are formulated and in a second step a comprehensive statistical simulation is undertaken to show which questions are to be omitted there is still a need for decisions which are made by means of estimates and experience rather than on an objective basis.

Comparable problems are also encountered in the context of the third quality feature. It is understood that the matching procedure is of importance. Louwersa/Rosema (2011) calculated voting recommendations based on the Stemwijzer data set combined with the matching procedures of different VAAs and showed that the different methods result in marked differences with regard to the parties recommended. They compared city block models, distance calculations by means of Euclidian distance, as well as different multi-dimensional spatial models. This resulted in differing voting recommendations for up to 90% of users!

As impressive as these findings are, it is difficult to translate them into concrete recommendations. It cannot be said that one of the tested methods calculates the issue congruence “wrongly” or “better”; they simply calculate it “differently”.

The fourth quality feature that is often criticised concerns the question how reliably and honestly parties and candidates answer to the VAA questionnaire. It can of course be assumed that parties and candidates try to position themselves strategically well. In the Netherlands, parties have openly admitted this and it has subsequently been discussed in the media. In Switzerland, the parties provide their candidates with advice as to how to respond to the smartvote questionnaire in cases of doubt (Ladner et al. 2008). In the
cases of a Lithuanian VAA it has even been criticised that the online voting aid supports populist parties and puts these at an advantage, as they adapt their responses to the current public opinion and have no scruples to change them again after the elections (Ramonaité 2010).

Precisely on this subject there are also well supported empirical findings which contradict the image of the politician who promises one thing before the elections and does something very different afterwards. A Swiss study (Schwarz et al. 2010) shows that the statements or political stances taken for a VAA can in fact be relied on. The starting point was 34 questions used by smartvote which after the elections led to discussions and votes cast in parliament. The study compared the pre-election statements of the elected members of parliaments which they had made for smartvote with their effective post-election behaviour. In 85% of cases the parliamentarians’ behaviour corresponded to what they had promised before the elections, and this can be considered a very high figure indeed. A comparable study of a Czech VAA arrives at somewhat lower figures of congruence between VAA answers and voting behaviour. The question arises whether the problem of insufficient congruence between pre-election promises and post-election actions is really a problem of VAA s. It could be a general problem especially of “young” democracies in Eastern Europe (Skop 2010: 216), in which party structures and the very complex processes of a democracy have yet to be solidified. VAAs can thus be regarded as a part of the solution rather than as a part of the problem insofar as they increase the transparency in this context and support a systematic control of electoral promises.

7.8 Conclusions and future developments

In European countries online voting aids today constitute a solid component of electoral campaigns. It can be assumed that their user numbers will increase in the years to come. After a somewhat timid start, research on VAAs has intensified in terms of both quantity and quality. It is known today which voter groups use VAAs and it has been shown that VAAs lead to positive effects on voter turnout. In particular, research has also shown that the voting recommendations issued influence the electoral decisions of voters.

There remain, however, certain research gaps which should be filled in the years to come: It has been shown that there are substantial differences between the findings of different countries. The most important reasons for this are bound to be the possibilities of the voting systems at issue (e.g. whether parties only or individual candidates can be elected) as well as the differing party systems. It would be good if research could focus on these differences and launch more internationally comparative studies. But this would also necessitate uniform standards for surveys within the group of VAA researchers,
as is already the case for electoral research with the CSES study.\textsuperscript{13} It has furthermore been shown that the available data sets are not in all cases convincing. Increased international networking and exchange would certainly lead to improvements in this respect.

In analysing the impact of VAAs it has been shown that surveys alone cannot answer all questions. If a detailed analysis is required as to how VAAs influence the decision-making of voters it is necessary to work with experimental research methods.

Finally, the growing significance of VAAs with respect to the political reality requires that research focuses more than before on the question what constitutes the quality of a voting recommendation and how VAAs can be further elaborated and improved.

\textbf{Literature}


Fivaz, Jan/Schwarz, Daniel (2007): Nailing the Pudding to the Wall. E-Democracy as Catalyst for Transparency and Accountability. Paper presented at the Interna-


