# *E-voting: An Analysis of Sociopolitical Acceptance.*[1]

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**Abstract**: The use of ICT has been growing exponentially during the last decade, covering all human activities. Notwithstanding this, the use of ICT to cast the vote is still –in some sense- a critical question. While some countries have adopted it due to several reasons (to reduce electoral complexity, to reflect their technological achievements or even to *create* democratic legitimacy), others seem to be reluctant even after having made different electoral processes –whatever public or private, binding or not. That's the case for Spain, Mexico and Argentina, where we have made different surveys during those e-voting experiencies. The paper discusses the main findings of them and tries to outline which questions are really relevant from the users' point of view: the citizen.

## 0. Presentation.

As we know, there're several arguments against e-voting that rely on its social perception, saying that people feel afraid from using new technologies. Such a kind of *technolophobia*, which seems to be a little bit irrational, is just the result of the impossibility for most part of the people to know how ICT work. For instance, while in traditional voting systems –using paper ballots and traditional urns— citizens can *see* both the ballot and the urn and are able to be present during the counting process, the using of Internet voting makes it absolutely different.

Furthermore, for a significant number of citizens, the moment when votes are cast is still a strong symbolic moment in their political activity. Instead the list of supposed advantages of e-voting from home (i.e. *pyjama-voting*) those citizens do not want to loose the possibility of socially interact with others. Thus the moment of casting the vote is understood as a way of reinforcing sociopolitical identification with the community, and implicitly renew the *res publica* social contract. Finally, e-voting is usually criticized as *non necessary*: in some countries the electoral system and the electoral procedures are not complex enough to justify the replacement of traditional voting system for e-voting.

On the other hand, the main arguments in favour of e-voting focus on the potentical increasing of participation both in terms of quantity and quality[2]. On one side it is said that e-voting provides more possibilities for citizens to take part in elections, especially for those living abroad, those with difficulties to get to a polling

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[2] BRAUN, N (2005). E-voting – worldwide developements, opportunities, risks and challenges. *Reflections on the future of democracy in Europe,* Strasbourg, Council of Europe Publishing, pps. 115-119 & TRECHSEL, A.H. (2005). Curing democracy's ills? Modern technology and democratic procedures. *Reflections on the future...* , pps. 45-50.

station due to illness or leaving in isolated areas. Moreover, e-voting will stimulate people to participate because of their update effect on the electoral process that will be seen in a more informed citizenship. Finally we have to consider the supposed economic and political benefits of e-voting: not only it will reduce the cost of traditional elections but also will help environmental sustainability. In addition, allows quicker recounts that result in reducing the uncertainty in electoral processes and thus reinforce democratic legitimacy of the system[3].

Our interest is partially to test the validity of these arguments, in favor and against e-voting. Moreover our main focus is to approach e-voting from a socipolitical view, i.e.: How do the voters evaluate e-voting events? Which techonological solution do they prefer the most? How do they evaluate their simplicity, rapidity, security? Why – in certain events- do they opt to cast their votes traditionally instead of electronically? Are they reluctant to accept a generalization of e-voting?

## 1. A sociopolitical approach to e-voting.

To succeed when approaching to the study of sociopolitical perceptions about the use of ICT in electoral processes, one needs necessary to rely on sociological data. While there'll be no problem to find several opinion polls or surveys related to traditional elections, the problem arises when our focus is e-voting events, basically due to the lack of such data. During 2004 and 2005 we have carried out different surveys in Spain, Mexico and Argentina, trying to outline which are the main perceptions of citizens when using different e-voting solutions. As table 1 shows, we covered public and private e-voting events (from citizen consultations to the European Union Constitutional referenda or from the renewal of a Directive Board of a Professional Association to electing representatives to an Student's Council), being these events binding or not, using only e-vote or together with traditional vote, and with remote voting or Direct Recording Electronic (DRE).

**Table 1. The set of surveys[4].**

| E-voting event | Country | Public/ Private | Binding/ Non binding | Technical solution | Voters | People Surveyed | % surveyed / voters |
|---|---|---|---|---|---|---|---|
| **MP-DC** | SPA | PUB | NB | Remote | 882 | 563 | 63.9 |
| **MP-H** | SPA | PUB | NB | Remote | 545 | 238 | 43.7 |
| **EUR-Reus** | SPA | PUB | NB | Remote | 153 | 85 | 55.5 |
| **EUR-SBG** | SPA | PUB | NB | DRE | 68 | 66 | 97.0 |
| **CETIB** | SPA | PRIV | B | Remote | 608 | 220 | 36.2 |
| **TEC-SC** | MEX | PRIV | B | DRE | 985 | 919 | 93.3 |
| **QUI-SC** | MEX | PRIV | B | DRE | 362 | 307 | 84.8 |
| **HOS-MDC** | ARG | PRIV | B | Remote | 741 | 679 | 91.6 |

[3] For an interesting state-of-the-art, see Josep Mª Reniu (Ed.): *E-voting, the last electoral revolution*. Barcelona, ICPS, 2008.

[4] Acronyms: MP-DC (MadridParticipa – Distrito Centro); MP-H (MadridParticipa – Hortaleza); EUR-Reus (European referendum – city of Reus); EUR-SBG (European referendum – city of Sant Bartomeu del Grau); TEC-SC (Instituto Tecnológico de Estudios Superiores de Monterrey, Campus Torreón – Student's Council); QUI-SC (Facultad de Químicas, Universidad Autónoma de Coahuila – Student's Council); HOS-MDC (Sistema hospitalario de la región de Mendoza – Medical Deontological Council).

These surveys were carried out both on-line and in-person, depending on the technical availability on each event[5]. For all cases the percentage of people surveyed was undoubtedly significant in order to present our conclusions related to each event[6]. Nevertheless, we do assume that some kind of *pro-technological bias* could be identified in our data set[7]. Our questionnaire wasn't altered substantially at each occasion, and it allowed us to generate data around five main sections: sociological profile, institutional evaluation, technical evaluation, ICT acceptance and future behaviour, plus an additional section when traditional vote was offered as another voting channel (table 2). This methodological strategy brings us the opportunity to make comparisons between events and e-voting solutions.

**Table 2. The survey.**

| Survey sections | Short description of data |
|---|---|
| **Sociological profile** | Gender and age. MP (DC & H) also included monthly income range. |
| **Institutional evaluation** | Evaluation of the event, focusing on the decision to use e-voting, the information provided and the organizational evaluation. |
| **Technical evaluation** | Evaluation of the techical solution used: prior information on the functioning and trust, simplicity, security, rapidity and general satisfaction. |
| **ICT acceptance** | Degree of acceptance for using e-voting in binding and non binding electoral processes. |
| **Traditional vote** | Reasons alleged by those who opted to use traditional vote instead of e-voting (MD-H & CETIB). |
| **Future behaviour** | Self-estimated future voting behaviour about using e-vote. |

Thus our paper will present the main findings of our research, differentiating amongst each kind of e-voting event, for the following items:

a) General evaluation (*citizen's satisfaction with the use of e-voting*),
b) Institutional evaluation (*previous information and organization of event*),
c) Technical evaluation (*comparing different technical solutions* –remote or DRE)
d) Will for using e-vote (*attitudes towards the generalization of e-voting, acceptance of e-voting for consultations and/or public and binding elections*)
e) Coexistence of voting solutions (*attitudes towards the coexistence of e-voting and traditional voting; why use e-vote?)*

## 2. General and Institutional evaluation

In general terms, surveyed people felt quite satisfied with the use of e-voting rating their satisfaction[8] with a median value of 4,2 out of 5. Except in the case of CETIB,

[5] We only used on-line questionnaire in MP-DC and HOS-MDC. On the contrary, we carried out our survey in-person in EUR-Reus, EUR-SBG, TEC-SC, QUI-SC. Finally, a mixed strategy was used in MP-H & CETIB.

[6] In aggregate terms, we applied our surveys to 3.077 voters out of 5.230, which is a 58.8%.

[7] Because of economic constraints, as well as the lack of comparable data, we were limited in our surveys to the voters. Thus we were not able to implement focus groups or surveys to those who decided not to vote, although in some of the events we did interviewed traditional voters (i.e. MP-H & CETIB).

[8] We asked voters to rate their general satisfaction with the e-voting event as a whole, in a scale from 0 (very insatisfied) to 5 (very satisfied).

where voters were merely technicians[9] and two candidates were running for the office, in the rest of events we found an undoubtable acceptance of them (table 3).

**Table 3. Degree of satisfaction with the use of e-voting.**

| E-voting event | Degree of satisfaction |
|---|---|
| **MP-DC** | 4.0 (n=562) |
| **MP-H** | 4.4 (n=199) |
| **EUR-Reus** | 4.0 (n= 85) |
| **EUR-SBG** | n.a. |
| **CETIB** | 3.8 (n=163) |
| **TEC-SC** | 4.7 (n=919) |
| **QUI-SC** | 4.6 (n=307) |
| **HOS-MDC** | n.a. |
| **Median value** | **4.2** |

To confirm that good initial impression we focused on different instititional questions regarding the information about the event in itself, the organizational tasks, the supposed applicability of the outcomes[10] and, finally, we asked them to evaluate the decision of using e-voting techniques.

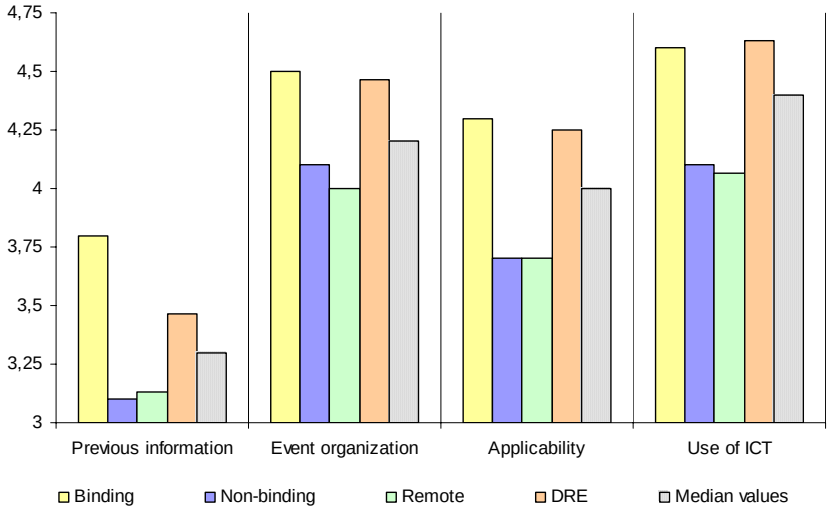
*H1: We assume that PA and companies will devote more resources towards the institutional background when carrying out binding events due to their legal effects. Thus we'll expect higher values with regard to non-binding or pilot events.*

From our data, on one hand, at aggregate level we realize that there's a really weak element on the events analized: the previous information given to the voters/citizens is deficient (graph 1). Keep in mind that we're dealing with a *pro-technological bias* of voters, and thus the observed scores for each question usually are higher than a normal distribution. In this sense, if we find a low value (or relative low) it will mean that it's really a *black hole*, even the existence of the socalled bias. That is exactly the situation with previous information, whether all other items get acceptable median scores all above 4 point in our 5-points-scale.

[9] CETIB stands for *Association of Techno-Industrial Engineers of Barcelona*, a mandatory professional association.

[10] We assume that this question has a relative salience when talking about binding events. In fact we just replicated it in these events in order to get comparable data. However these data will be interesting to have a "checking point" to compare with non-binding ones.

**Graph 1. Institutional evaluation of e-voting events.**




On the ohter hand, if we break data according the binding variable (which in our study match the private criterion), we get a picture where there exists a significant distance in all items for both kind of events. The more stonshing is the gap when considering the information provided to voters/citizens. It seems that non-binding events (or pilots) doesn't deserve so much communicational efforts, basically due to their *advisory status*. Its odd to find it when a public administration (PA) is taking care and promoting the event: our common sense will tell us that a PA will basically be interested in having sucess and promoting turnout by using all its communicational resources. In fact, reality goes far away: neither in both events of MP (in charge of the Madrid City Council) nor the ones related to the European Referendum (Home Office) did exist a clear and resolute information strategy[11].

Futher on we also see sligth differences on the rest of items, but always in the *pro-binding* events direction. It could insinuate that despite of using the same e-voting solution in different events, either PA and companies doesn't assign the same resources or at least the same *willingness* to garantee the success of those events because they have *no political nor legal effects*. And that attitude is reflected on the survey, penalizing such king of slovenliness that seems to assume that people are qualified to identify whether there is a real compromise or not.

If we turn to the different technical solution used, we realize indeed almost same differences: the events that used DRE solutions appear to be better rated than those of remote voting for all items. A possible conclusion could be that remote voting demands a higher knowledge (or at least *familiarity*) with ICT whereas the DRE machines used *looked & operated* as ATM. That need of a certain knowledge also implies for organizers the need to garantee a wide spreading of information, not only about the system in itself but the event. As we saw above, it's difficult to believe on a simple

[11] To be fair it must be said that the Madrid City Council improved its information policy at the second event, MP-H. A curious anecdote related to EUR-REUS was that the Spanish Home Office sent a huge amount of posters, flyers and even a short survey to the 52 cities that were designed to take part in the pilot. The point was that all this documentation arrived at the majority of cities during the second week of the process, so the cities' civil servants couldn't sent it to their fellow citizen.

coincidence when that was exactly the worst item on the institutional evaluation. Finally, the rest of questions were rated in the same fashion that we saw regarding the binding/non-binding variable.

**3. Technical evaluation.**

One of our first reports was commissioned for a PA and a technical company[12] and obviously one of their (and also our) interests was to get a feedback about their e-voting solution. It was really surprising to see the results, both because of the values and of the availability of voters to give their *technical* judgement. After that we decided to keep using and replicate the initially designed questions, basically to be able to collect a data base that could allowed us for making comparisons[13]. The e-voting systems analyzed were of two types: remote and DRE. The remote solutions were provided by SCYTL (in MP-DC, MP-H, CETIB & HOS-MDC) and INDRA (EUR-REUS), while DRE solutions were responsible of SCYTL (EUR-SBG) and the IEPCC (TEC-SC & QUI-SC)[14].

According to that different questions arised:

*H2: We expect better values for DRE solutions because of their similarity with ATM.*

*H3: We expect strong criticism when evaluating security and trust.*

*H4: We expect rapidity to be the best valued item, as a commonly duced advantatge of e-voting systems.*

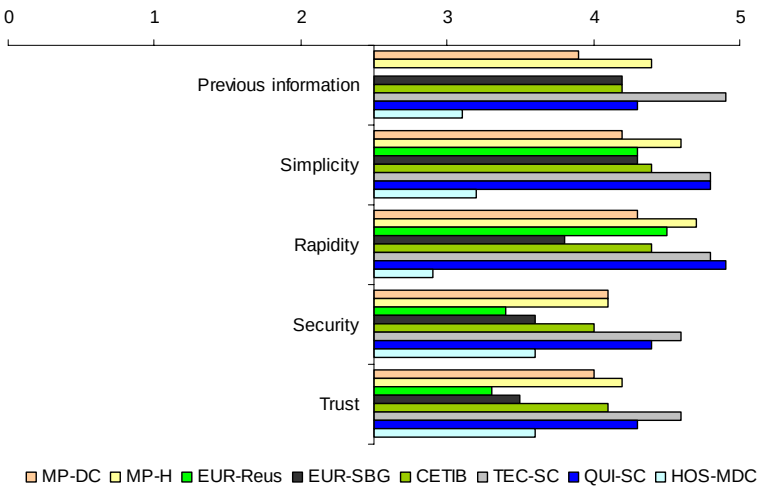
In order to confirm our expectations, we focused on four major questions directly stemmed from the different technical solutions used and we also included an additional question trying to find out if voters did have enough information about the e-voting systems they were going to use (graph 2).

[12] BARRAT, J. & RENIU, J.Mª (2004): *Electronic democracy and citizen participation. A sociological and legal report about the citizen consultation MadridParticipa*. Madrid, Ayuntamiento de Madrid/Scytl/Accenture
[available on-line: www.ub.edu/grepa/JMReniu/Informesociologico_ing.pdf].

[13] As in the institutional evaluation, voters/citizens were asked to rate each item using a scale from 0 (very bad) to 5 (very good).

[14] SCYTL, Catalan company whose origin was an spin-off that, in the last years, has come developing and applying technologies of remote e-vote in different areas, whether public pilot or private binding processes [www.scytl.com]. INDRA, Spanish company specialized on information technologies, simulation and automatic systems of maintenance and technological equipment of defense being included in the first of them everything the aspects related to the computerization of the public adminstrations and, in a more specific way, the perfection of the electoral processes [www.indra.es]. IEPCC, that means *Instituto Electoral y de Participación Ciudadana de Coahuila* (Electoral & Citizen Participation Institute of Coahuila) is a Mexican electoral institution which has been probably the most successul in designing and implementing a DRE, that has been used in numerous events and the most important was their use in a limited number of constituencies during the governor election in september 2005 [www.iepcc.org.mx].

**Graph 2. Technical evaluation of e-voting events.**



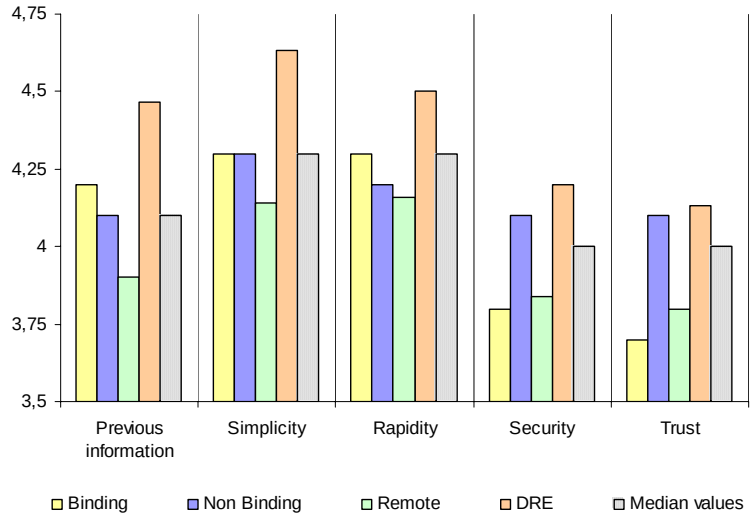

Obviously, it's more interesting to analyze data broke down according the characteristics of each e-voting event. Using the same criteria as in the previous section, graph 3 presents the values both on the binding/non-binding and remote/DRE features. If we analyze the additional question (previous information) we find that paradoxically has better values than the informational question at the institutional evaluation. A possible explanation could be the different responsability for that topic: PA (or the institutional authorities in private events) were in charge of that question, whereas technical information was a matter of central interest for the e-voting corporations and thus they made an effort to present their solutions in a suitable fashion. An additional element has to be found in the binding character: all public events analyzed were non-binding, were *pilot* events. It could explain why PA didn't assign especial resources for a large informational strategy, on the contrary as happened in private and binding elections[15].

Moving to the different features data on graph 3 shows that simplicity and rapidity are the two questions that voters do value the best, as a result of the arguments tipically used in favor of a transition from traditional to e-voting systems[16]. The differences between groups are really slight and the only question to point out is that DRE get better values basically because there's no need for a previous ICT knowledge or training: one just need to know how to *touch* a screen to cast the vote.

[15] A good example about how to manage an information campaign is to be find at CETIB. The Directive Board launched a communicational and informative campaign in september'04, including several remote pilots to familiarize its members with the remote voting. During february and april'05 there were different lectures about e-voting, and in may'05 an *operations manual* was presented to facilitate turnout in june'05 elections. (Cfr. RENIU, J.Mª & BARRAT, J. (forthcoming): *Avaluació de l'ús del vot electrònic vinculant. Informe sociològic i jurídic de les eleccions a la Junta de Govern del Col·legi d'Enginyers Tècnics Industrials de Barcelona –CETIB-.* Barcelona: Fundació Bofill [in catalan]).

[16] We'll not reproduce here all arguments typically used when defending e-voting systems. As a concrete example to present those arguments related to the *comfortability* (simplicity + rapidity) of e-voting, we often speak about the *pyjamas-voting* (anyone is able to cast the vote from home, at midnight, wearing a pyjamas and taking a coffee).

**Graph 3. Technical evaluation of e-voting events according to their features.**




On the contrary, security and trust appear as the worst qualities but with some relevant nuances within groups. About the perception regarding security of e-voting, binding events appear as the ones with more doubts for voters. The marked difference with non-binding events is surely related to the *non relevance* of the vote because of the event's nature in itself. At the same time, remote e-voting is perceived as non secure enough compared with DRE solutions. Both dimensions behave consistent when trust is at sight: binding and remote events are seen as useless to create the necessary trust that e-voting solutions need to consolidate themselves.

**4. Paper instead of *bytes?* Reasons for a choice.**

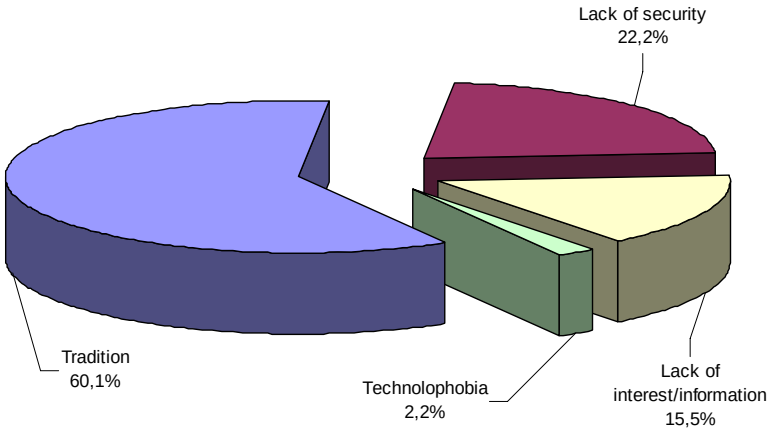
Although we're dealing with e-voting some events decided to bring voters the possibility to choose the way they will cast their votes. It happened in MP-H (public non-binding citizen consultation) and CETIB (private binding election), both using remote voting powered by SCYTL[17]. That coexistence of traditional and electronic voting gave us an incredible opportunity to address to traditional voters and ask them for an explanation about their choice. Because of the restrictions on the survey, we ask them just one question: *why did you choose to vote traditionally?*

H4: *We expect traditional voters to justify their option by the supposed existance of a lack of security or even for such a kind of* technolophobia.

The answers couldn't be more revealing and were almost identical for the two events (graph 4): six out of then traditional voters based their option on a traditional basis, being their central argument that «*we always cast our votes using paper ballots and transparent urns and, more important, we meet each other at the polling station, sharing the democratic* liturgy». The remainder arguments were also relevant: as a second reason we fund an ascertainment about lack of security, which led voters to distrust on the e-voting possibility.

[17] Traditional voters interviewed: MP-H, 131; CETIB, 57.

**Graph 4. Reasons aduced when opting for traditional voting.**




Third reason is also revealing: 15% of voters decided not to cast their votes electronically because of a lack of information about the system as well as due to their poor interest in doing so. Finally few voters openly declared that their option was due to such a *technolophobia*: they were scared to use ICT basically because of their age and/or their ignorance on these new technologies[18].

**5. Attitudes towards e-voting in the near future.**

We have seen up to here how citizens evaluated e-voting in general, the institutional background of each event, the technical mechanism used and why some voters did prefer to cast their votes traditionally rather than electronically. Finally, it's time to look for their future attitudes regarding a possible generalization of e-voting systems. To do so we asked voters to declare themselves facing a near future when e-voting will be generalized as well as if they will vote electronically in public and binding political elections.

H5: *We expect voters will support generalization of e-vote, but will be a bit reluctant to use it in public and binding political elections*.

The picture we got is everything but pessimistic for a future implementation of e-voting in Spain, Mexico and Argentina: whatever kind it is the event considered it has a really high acceptance and predisposition to the generalization of e-voting (table 4). We fund supporting rates over 75% reaching almost 94% in those events that used DRE solutions. Non-binding and DRE events need to stand out because of their high

[18] About the relationship between age and the use of ICT, we fund that a significant number of old people didn't use even an ATM and prefer to go personally to the bank every month to withdraw their allowance. They do not have credit cards nor movile phones, for example. (BARRAT & RENIU, 2004, op.cit. / RENIU, J.Mª: (2005): *Improving citizen participation through the use of electronic voting. A sociological report regarding the Citizen Consultation on the "Huerta de la Salud" Park in the Hortaleza District. Madrid*. Madrid, Ayuntamiento de Madrid. [available on-line: www.ub.edu/grepa/JMReniu/Avanzando_ing.pdf]).

supporting values, attributable to a *gratuitous effect*[19] on the former and to its easiness on the latter.

However we must add a rider: whereas we do not have data for all events, we can affirm that most part of voters that support a normal and general use of e-voting are as well clearly supporters for a *complementary* option. They will accept e-voting in future events (whatever binding or not, using remote vote or DRE) even if they do not like it but having the real chance to choose casting their votes traditionally or not.

**Table 4. Attitudes towards generalizing e-voting and using e-vote in public politically binding elections.**

| Generalize e-voting? | Binding | Non-binding | Remote | DRE |
|---|---|---|---|---|
| Yes | 76,9% | 87,8% | 78,8% | 93,8% |
| No | 23,1% | 12,3% | 21,2% | 6,2% |
| **E-voting in political elections?** | **Binding** | **Non-binding** | **Remote** | **DRE** |
| Yes | 77,9% | 86,3% | 80,5% | 88,1% |
| No | 22,1% | 13,8% | 19,5% | 11,9% |

To conclude, if we assume that a future scenario for e-voting will include (even be focused on) public political elections then we need to know if people could accept to cast their votes electronically. In this sense the conclusion is equally optimistic: there's a clear support for e-voting in all electoral processes (nearly 80%), even among those who took part in non-binding events (86%). Nevertheless we must keep in mind that all our data present a certain *pro-technological bias* as we expressed previously, and surely a general survey will give us a more detailed approach to the common people opinions.

## 6. Learning some lessons from the use of e-voting.

What can we learn form our research? Basically we learnt that e-voting could be a good complementary *tool* to improve citizen engagement in politics. Trying to implement e-voting systems as the unique solution could derive in legitimacy crisis, as digital divide will be present as an structural variable. Furthermore we fund that people like to keep voting traditionally but, whereas paradoxical, they support e-voting as well.

From this picture, it seems cleverer to design a gradual process of implementation. If the option is for remote voting, it will have to focus on people who need special measures to garantee their right to vote: basically people living abroad or in isolated areas within the country[20]. Additionally it could be considered to create an open and voluntary register for those citizens that decided to use it. If the option is to

[19] After several non-binding events which are majoritarian in Spain, we have identified a certain kind of voters' statements that put under question their real *utility and interest*. Under these considerations, non-binding or pilot events are perceived as vain, without any real effect on their lives and thus with no need at all to get engaged with. That's what we try to denote by talking of a *gratuitous effect*: it doesn't matter at all if the event goes right or not because their purpose often doesn't match with the supposed standards of a good e-voting exercise.

[20] The use of remote voting for abroad residents was carried out as a pilot in the catalan legislative elections in november 2003, using an e-voting solution by SCYTL.

implement DRE then it will be advisable to select a little sort of constituencies where to start offering a double possibility for voting: keeping the traditional vote and besides one DRE placed and operated following the same legal criteria than the traditional urn.

However during our research we formulated several hypothesis regarding different sections in our study. We validated our hypothesis regarding institutional issues where we expected higher values for those binding events, basically because of their interest and utility for voters. We have the ascertainment that people are somehow *tired* of taking part in pilot events that had nothing to do with their own worries. People want to see a correspondence between participation and decision but non-binding events only serve to narrower (usually political and economic) goals.

About technical issues, we expected better values for DRE instead of remote voting. The reason for that was our belief that their similarity with ATM could be an strong argument. As we saw there was a clear difference in favour of touch-screen solutions in all aspects: simplicity, rapidity, security and trust. We also expected voters to be critical with security and thus with the *perception of trust* using e-voting. Data validated as well our hypothesis, specially when evaluating remote voting events. Finally we also expected rapidity to be the best valued item, and then again data confirmed our belief. As we said, to consider e-voting as a better option rather traditional vote we need to offer a surplus advantage and in our current world speed seems to be the most valuable feature.

When we turned to the analysis of why voters declined to use e-voting, we expected them to justify their behaviour in terms of lack of security and *technolophobia*. Fortunatelly we did not validate it and we find perhaps the most shocking argument: they opted for traditional vote because of *democratic liturgy*. The action of casting a vote is seen as a part of a democratic socialization process which implies for the voter to feel as part of a political community. Don't be mistaken, this is not a trivial argument from ignorant people. It is probably the proof that politics can never be confined to a virtual ciberworld and always would have to rely on interpersonal relationships. Furthermore we did not find evidence to support our hypothesis regarding lack of security nor technolophobia, even we know that there're people aware of ICT world.

To conclude, we analyzed the attitutes towards e-voting in the future where we expected to find reluctances to use it for political binding elections. We are satisfied with our data because they show people supporting the generalization of e-voting solutions and e-voting in every kind of elections either. We assume that Spain, Mexico and Argentina will never be leading countries in the implementation of e-voting and perhaps it could be because our political culture is made of different values than in more advanced countries or whatever additional argument... but at the end we do believe that our data allows us to stick up for e-voting.