E-Voting and the Creation of Trust for Socially Marginalized Citizens in Brazil

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Abstract: Information and Communication Technologies (ICTs) have been implemented in a quite intensive way in both developed and developing countries. In the discourse of the New Public Management (NPM), the principal role of ICT is to improve the delivery of public services to citizens and the distrust of public administration. In responding to distrust and the challenges facing the simplistic technological determinism discourse of ICTs in general and ICT for development in particular, building on areas of trust associated with economic development seems to have been emphasized. On the other hand, despite the influence of institutions in the design and use of ICTs as a compelling enabler of change mentioned in the theory of social shaping and the ideas of citizens' orientation, where technological artifacts are social constructions, it seems to be evident that these institutions can reinforce the same technological determinism and trust. In this paper an attempt is made to show that the use of a technology like e-voting in Brazil has not contributed to improve political participation and the delivery of public services, despite the attempt to promote and create trust in e-voting. With a more critical view of trust, an attempt is made to show how institutions and technology are enmeshed in a structure of vested interests in the public sector in such a way that a fabricated trust is created smoothly.

Keywords: E-Voting, Trust; Participation; Fabricated Trust; Corruption.

rust has been seen as a complex and multifaceted topic of interest since the old civilizations, and some more recent treatment of trust continues to evoke interest across a wide array of disciplines, i.e, psychology, philosophy, sociology, and economics, from different level of analysis—micro/individual, organization/interorganization, society/ economy. However, the diverse perspectives on research into trust from different traditions (i.e. in the USA and Europe) seems to demonstrate that, while the field of trust research is vibrant, researchers in North America and Europe are not talking to each other (Bachmann & Zaheer, 2006).

In addition, the American and European perspectives identify trust as a major field in the domain of management and organization that includes a diverse and wide range of theoretical perspectives in economics, strategy, sociology, organizational behavior, philosophy, ethics, information technology, entrepreneurship, organizational learning, and accounting, covering levels of inquiry ranging from individual to organizational and interorganizational, cross-level, and, finally, a society and economy level (Bachmann & Zaheer, 2006).

It is argued that the rise of trust as a burgeoning field of management research appeared in the last 15 years or so as the result of some factors that include "competition in global markets; the disintegration of production processes; the availability of advanced communication technologies and systems; and post-bureaucratic forms of work organization" (Bachmann & Zaheer, 2006, p.1). Additionally, trust is a central mechanism in economic transactions, and the globalization of business transactions that include alliances, joint ventures, and partnerships, ensuring coordinated complex relationships.

As a multifaceted topic, the concept of trust is seen as problematic, and some researchers do not seem to agree on a definition of what trust is and is not. With few exceptions, researchers do not take a reflexive and critical enough stance on the role of trust (Stahl, 2008). According to Stahl (2008), there are two research perspectives on trust: the positive and the critical, including critical

theory. "The positive perspective is characterized by the assumptions that trust is static, objective, measurable and rational. It serves the base of positivist and quantitative research that aims to prove or disapprove hypothesis" (Stahl, 2008, p.123). For that reason, it is argued that future trust research should rely on qualitative ethnographic case studies, in addition to quantitative and lab studies.

Research on trust in the field of Information Technology (IT) is already seen as a "veritable industry" (Stahl, 2008, p.122), especially because the purpose of trust is to facilitate interaction and exchange, making its concept in IT impoverished (Stahl, 2008). Researchers have always stressed the benefits trust can bring, but attention to its dark side and negative effects are scant and even scarce. "Researchers often recognize that malfeasance may be likely in contexts of high trust, but acknowledgment rarely goes beyond a passing mention that has no bearing on the kernel of the discussion. Still less consideration has been given to the possibility that excessive trust may have negative effects for individuals and organizations even in the absence of malfeasance" (Gargiulo & Ertug, 2006, p.165).

In this paper an attempt is made to show that the use of a technology like e-voting in Brazil has not contributed to improve the delivery of public services and political participation, despite the attempt to promote and create trust in e-voting. With a more critical view of trust, an attempt is made to show how institutions and technology are enmeshed in a structure of vested interests in the public sector in such a way that a fabricated trust is created smoothly.

1.   Trust and ICTs for Development

It is stated that while Information and Communication Technologies (ICTs) hold the potential to improve the democratic process and the provision of services, expand citizenship and empower the people, they have the ability to perpetuate and reinforce existing economic and social inequalities, leading to a further worsening of poverty. Although it is always mentioned that the final aim of ICT in developing countries is the empowerment of the members of society, there are examples that "it is often actively disempowering" (Stahl, 2008, p.89).

In addition, it has been stated that some observers are, in fact, not convinced that the high investments in ICTs "have provided the expected outcomes in terms of increased efficiency in the administrative procedure and improvement in the quality of services actually delivered" (Cordela, 2007, p.267). In terms of ICTs failures, the comments are quite alarming, when it is argued "that approximately 85% of government information technology projects worldwide have been failures" (Cordela, 2007,p. 267). It is estimated that in the UK only 30% of technology-based projects are a success (Cordela, 2007).

It is quite hard to trust information technology applications considering the way how they are being developed all over the world. "Today's internet and existing networks are not trusted-oriented in design and might be compromised by many untrustworthy factors, such as hackers, viruses, spam, faults, and system failures" (Zou, Dai & Pan, 2008, p.vii).

In many cases, most of the ICT applications can be seen as a set of market driven reforms in line with the narrow discourse of the New Public Management (NPM) rationale initiated in the early 1980s (Dunleavy & Hood, 1994, Hood, 1995), based on a lean government team putting 'your tax dollars' to work more efficiently, in the attempt to foster the "improvement services" agenda, which is very much about technological issues. On the other hand, the 'relationships improvement" agenda, which is about citizenship, transparency, participation and democracy is underdeveloped. Research on e-government in Brazil, especially local e-government, has shown that ICTs are designed in such a way that they resemble the traditional political structures, avoiding new forms of interaction and participation (Rodrigues Filho, 2010). Therefore, in this "service-first-and-democracy later" approach, the relationship between trust and ICTs should be deeply analyzed, especially when "trust is often described as a tool for the generation of profits" (Stahl, 2008, p.127).

What does the relationship between trust and ICT mean, if trust is very much related to a human relationship? How to promote and create trust in ICTs, when there is no universal definition of

trust? Why do most research trust studies not show the dark side of trust, paying little attention to the negative sides of the term? It is stated that trust can have a range of detrimental effects, when used for the exclusion of groups such as women, nepotism, corruption and the promotion of illegal behavior (Stahl, 2008). As a strong mechanism for social control, trust can lead to oppression. "In many instances, consumers may be better served by distrust vendors, rather trusting them" (Stahl, 2008, p.129).

Because ICTs initiatives in most part of the world can be characterized as privatized in the sense that its infrastructure is built through contracts to the private sector, and politicized as governments award large contracts to private-sector companies that also donated to the political party in power, governments in general assume a business orientation, reducing citizenship to service transactions as consumers (Kozolanka, 2008).

If the discourse of trust is to be used for the design of ICTs in public services aiming at promoting engagement among groups which are currently socially excluded, improving democracy and citizenship (i.e. relationships improvement), then it will have profound implications for the society as a whole. In that case, the mainstream and dominant trust research has to follow and to accept different approaches, hearing also the voices of researchers from developing countries, that sometimes are excluded from academic journals and conferences, because of their critical or pessimist view in the way how ICTs are been developed and promoted in both developed and developing countries.

2. Fabricated Trust in E-Voting in Brazil

There are many different forms of classifying trust. Koehn, for instance, distinguishes between goal-based, calculative, knowledge-based and respect-based trust (Koehn, 2003), while other forms have been classified as: knowledge-based, institution-based, calculative-based, cognition-based, and personality-based trust (Stahl, 2008). Fabricated trust has also been mentioned in the literature: "The fragility of organizational trust can be seen in companies other than Enron. Many of these same trust issues have played out recently at WorldCom, Tyco, Global Crossing, and Adelphia. Executives at these firms fabricated trust with their various constituents by manipulating expectations, social influences, and perceptions of the company's track record" (Currall & Epstein, 2003).

Recently, in a deep and complete work about trust in Brazil, Sandra Jovchelovitch, a professor of the London School of Economics, mentioned that to her knowledge "there is no specific empirical study about trust in Brazil" (Jovchelovitch, 2008, p.105). To my knowledge she is correct and her vibrant and recognized theoretical research on trust in Brazil shed some light in this work. The advantage of her distinctive and advanced approach to trust is that it destabilizes much theorizing and research on trust that has tended either to study trust as a characteristic of individual or as a functional characteristic of societies. "Theory has ensnared between two reductionisms: reduction down to the individual and reduction up to social functions" (Gillespie, 2008, p.121).

If trust is a social, cultural and psychological phenomenon, it is created in different ways. "Trust cannot be understood outside the cultural and social contexts in which it takes shape and in which it is exercised as social practice" (Jovchelovitch, 2008, p.118). In addition, as a culturally sensitive approach, trust must be conceived "as a dialogical construct based on self-other relations and apprehend it as it is practiced in practice in different situations and at different levels of social life" (Jovchelovitch, 2008, p.108).

In Brazil trust is well recognized as an affair of private life and "never addressed to what is public. Brazilians rely on persons, trust friends and family, and anyone with whom they can develop a personal relationship; but institutions, the law, the State, and politics deserve none of this kind" (Jovchelovitch, 2008, p.116). Thus while mistrust in public life is widespread Brazilians trust neighbors, friends, family with whom they engage in everyday interaction, "away from the State and political institutions" (Jovchelovitch, 2008, p.106).

Corruption, impunity, violence, crime, fear, the struggle for survival, inequalities and self-serving interests make the configuration of social representations about public life, and help us to understand the cultures of trust and mistrust or the duality between trust in the private life and mistrust in the public sphere or social life or on how trust operates in these two worlds (Jovchelovitch, 2008).

If trust is often described as a tool for the generation of profits, the moral and ethical nature of trust needs a deep discussion with regard to e-voting in Brazil, especially looking at trust as a human and technical relationship. If trust can be used for corruption, the promotion of illegal behavior, and as strong mechanism of social control, it is necessary to know the factors affecting trust in e-voting technology as a secure mechanism of voting counting, especially when so many national and international reports emphasized the lack of security of this technology. In addition, there is a need to know how the Electoral Court in Brazil has influenced the discourse of trust in e-voting technology.

2.1.   E-Voting

Because the concept of trust is seen as problematic and as a tool for the generation of profit and the accommodation of interests, two factors were considered in the analysis of trust in e-voting. The first one is related to e-voting security, and the other one is related to investment in e-voting technology in Brazil. In this case, to trust e-voting voters should consider, among other variables, these two factors. For this purpose, empirical data were compiled from Brazilian national budgets in order to know the volume of expenditures in this technology along the years. In addition, a quite extensive literature review has been done by this author during the last couple of years, in terms of e-voting security to generate a more critical view on e-voting technology in Brazil (Rodrigues Filho, Alexander & Batista, 2008; Rodrigues Filho & Gomes, 2008).

In 2002, Brazil became the first member of the United Nations to conduct a large-scale national election using e-voting technology. In that year more than 100 million people, many of them living under the poverty line, used electronic machines to vote, by typing a candidate number into this machine. The media all over the world was astonished by the mention that the "days of transporting paper election ballots through the Amazon by canoe" were over (Hamilton, 2002). However, the media pointed out that investment in this election was expensive, by figuring out that hundreds of million dollars had been spent on software and hardware.

Although it is known that this was the biggest election on the planet using e-voting technologies and more than 100 millions voters cast their ballots on more than 406,000 touch-screen machines scattered all over the country, we still do not know the exact cost of large-scale elections in Brazil using e-voting technology.

In Brazil, investment in information technology and other initiatives working towards e-government, such as e-voting, e-health, e-procurement have been happening without a definition of an appropriate public policy and without research work dealing with these actions. What does it mean for democracy to hold an electronic election for millions of poor people, most of them living under the poverty line, when in the developed world most people did not have the experience of voting electronically or even did not want it? Do the people know the high costs of e-voting technology? Was not this public network project designed to the advantage of corporate actors than to the benefit of millions of illiterate people accustomed to the traditional voting methods? These and many other questions have not yet been answered, and the Brazilian authorities do not seem to give importance to them.

It is surprising that there is no evaluation of e-voting in Brazil, even in places in which there are claims of tampering in the voting process. There is a need to expand the discussion about e-voting in Brazil, in order to see whether the country needs it or not, considering the huge amount of resources spent on elections. By using data related to expenditure in information technology compiled from the Electoral Justice, responsible for elections in Brazil, it was recognized that

investment in e-voting is higher than that in basic social programs that could help the poor much more in areas of education, clean water and health (Rodrigues Filho & Gomes, 2008).

Table 1 show that the Electoral Justice is among governmental agencies such as the Ministry of Health, Finance, and education, which spend more in information technology in Brazil. In some years within this decade, for instance, the Electoral Justice has spent more money in e-voting technology than in all the teaching hospitals in the country.

With regard to the digital divide, one question that has to be answered is this: has such huge investment in e-voting technologies in Brazil reduced inequalities in access to information technology? Voters see the voting machines only during the short time when they cast their ballots. After that, they have no other chance to touch the machine screen again, except in the next election. In order words, this is a very expensive technology just used for the counting of votes at election times. It is not a technology that can be used between elections for the purpose of improving people participation in democracy.

However, one thing is known: Diebold, the machine maker, has gained the largest contract in its history by selling e-voting machines to the Brazilian government. In a news release in January 2000, Procomp Amazonia Indústria Eletrônica, a subsidiary of Diebold, "announced it has received the largest contract in the Diebold history" after an order made by the Tribunal Superior Electoral that was valued at more than US$ 100 million. "For Diebold, this is the largest single order in the company's 141-year history" (BlackBoxVoting.Org, 2007), selling a kind of e-voting machine that the American society, for instance, does not want to use due to its insecurity and lack of reliability.

Table 1: Expenditures on Information Technology by Government Agencies (Value in Million US$)[1]

AGENCIES	2004	2005	2006	2007	2008
ELECTORAL JUSTICE	64.393	7.745	55.754	12.325	107.634
MINISTRY OF HEALTH	23.589	61.787	61.398	49.268	74.172
MINISTRY OF FINANCE	254.488	403.190	513.012	688.070	664.757
SOCIAL SECURITY	126.262	138.795	220.828	313.506	253.308
MINISTRY OF EDUCATION	35.203	58.981	58.203	891.820	159.391
PLANNING & BUDGET MANAGEMENT	33.831	49.801	51.185	65.449	79.658

Conversion of the Brazilian currency, real (R$) into US$: The Annual Average was calculated based on table elaborated by the Conselho Regional de Economia de Sao Paulo, Years: 2004 = 2.9249; 2005 = 2.4333; 2006 = 2.1763; 2007 = 1.9475; 2008 = 1.8367.

Paradoxically, election administration in Brazil is done by the Superior Electoral Court (Tribunal Superior Eleitoral – TSE), known as the Electoral Justice, which has unexpectedly and so quickly adopted one technology that has not yet been sufficiently tested even in the developed world. The controversies over e-voting are underway and e-voting technology failures have been registered throughout the country. More recently, scientists have started to worry about computer voting systems and numerous reports have found them vulnerable to errors and tampering (Norden et al., 2006; Oosteveen & Besselaar, 2004; Kohno et al., 2003; Konrad, 2003; Manjoo, 2003).

In the current system of electronic voting (DRE), the voter does not see the ballot box, but a representation of it. In turn, the machine does not supply an independent and true registration of each individual vote that could be used for a count or verification of errors in the machine or some type of tampering. In this case, if the machine registers a result in its memory that is different from

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[1] Source:Brazil/PRODASEN: Relatórios da Consultoria de Orcamento/Camara dos Deputados/PRODASEN

that chosen by the voter, neither the voter nor the inspectors will know about this. Because of this, some specialists in computer security believe that such machines are more vulnerable to tampering than any another form of voting system, especially through the use of malicious computer codes.

Although there have been differences in security concerns regarding electronic voting among computer specialists, there seems to be an emergent consensus that the existing technology does not attend sufficiently to the principles of computer security. Some of these specialists argue that software can be modified in such a way that the results of an election can be modified, being very difficult to be detected (Fischer, 2003).

Consequently, the security of electronic voting is susceptible to failures and frauds and some Brazilian experts have questioned our e-voting system and its security through internet sites, forums, articles and books (Maneschy, 2000; Brunazo Filho & Cortiz, 2006). According to the critics of electronic voting, the Electoral Justice have opened the doors for new and sophisticated frauds much more serious than the traditional ones (Maneschy, 2000). Similarly, reports of international scientists corroborate what some Brazilian academics and scientists say, basing their arguments on the security and risks of this kind of system in the United States (Norden, 2006; Caltech/MIT Study, 2001; Kohno et al., 2003; The Constitution Project, 2001).

Some authors have been in favor of a more reliable e-voting system that can have the so-called voter-verifiable trails and an open source code and it is likely that this kind of system may appear with the advance of technology and its lower price. It is alleged that e-voting will never be error-free, but it may be better to move towards a system that can offer high reliability "rather than rejecting technology that will be adopted anyway" (Maynihan, 2004). On the other hand, Randell & Ryan (2005) emphasize the importance of political and socio-technical approaches for the development of an e-voting system that can ensure public trust in the results of an election.

As it is now, e-voting technology has made transparency more fragile because it has denied the voter ownership and control over both the elections and the electoral process. So, e-voting technology has alienated the voter from the electoral process and his own vote, turning democracy into an illusive exercise during elections (Rodrigues Filho & Gomes, 2008). In many countries people need democracy between elections and not just during elections time.

3. Trust, Corruption, Vote Buying and Turnouts

One of the purposes to use e-voting technology in the developed world is to increase turnouts, due to the discredit of voters with politicians and political parties. However, in many instances, the kind of electoral reforms proposed in many countries to make easier for registered voters to cast their ballots tends to benefit politicians and their parties with perverse consequences towards political engagement (Berinsky, 2005).

In Brazil, many electoral reforms have been approved over the last few years, but none of them aiming at improving political engagement. Although we do not know about the true relationship between e-voting technology and turnout, during the last elections turnouts have decreased in Brazil. A decrease in turnout may be a reduction in citizenship and trust, but its relationship with e-voting technology is not clear. It is necessary to make it clear that an increase in turnouts does not necessarily mean more political participation and civic engagement. In many countries there is some political participation at election time, but people need democracy between elections and not only at elections time. People want to participate in the decision making process between elections, and this is not always the case. It is here that the use of ICTs may help voters to have a better engagement in the political process. In the case of Brazil, voters need government "of, by, and for the people".

It is known that corruption in elections in Brazil and in many other countries are not abstract things. It is a crude and disgraceful reality. Electoral corruption is a kind of arrangement usually involving candidates, donors and voters who are bribed to sell their votes in a transaction in which the object can be cash, food, cloth, construction material, medicine, and the provision of other services. Since the year 2000 that the NGO named "Transparência Brasil" has carried out surveys

about vote buying in Brazil. According to the Transparência Brasil (2006), the Electoral Justice in the country is responsible for neglecting the problem of vote buying. It is strange that the Electoral Justice is very much in favor of the e-voting technology system used in Brazil and is unable to enforce the law to combat vote buying. Vote buying by itself is a sign of reduced citizenship and distrust in the political system.

So, e-voting in Brazil has not stopped vote buying which is increasing, and in 2006, during the last election, was twice higher than in the previous elections. What is surprising is that vote buying is higher among persons with secondary or higher education than voters with only primary education or below. It is expected that the poorer the voters, the more vulnerable they are to offers. The surveys from Transparência Brasil (2006) have shown that this is not true. More offers were made to the poorer, but vote buying is registered among the wealthier classes. In order to give an idea of the magnitude of the problem of vote buying in Brazil, in 2006 it was found that about 8% of voters have been asked to sell their votes for money, which correspond to, approximately, 8.3 million voters, representing more than the population of some European countries.

As result of this, should we trust e-voting technology in Brazil? What is the level of trust by the voters? Which criteria should be used to measure trust at the institutional and interpersonal level? Who is interested in the discourse of trust? How should e-voting technology be evaluated in a disintegrating political system? Do we need e-voting technology for the election of corrupted politicians? Do we need high cost e-voting technology just to count votes when less expensive technology can do it more efficiently? Do voters know the technology itself to trust it? Why is e-voting not being used in traditional democracies?

The discourse of trust in e-voting machines in Brazil has been done in part by the Electoral Justice, whose ministers have always emphasized that e-voting is a secure technology that should be trusted. Too much money has been spent in a marketing propaganda aiming at emphasizing that people should trust e-voting technology. After one decade of intensive marketing propaganda it is possible that many people trust e-voting in Brazil. Some people are even proud to say that this "Brazilian" technology is not used in the developed world because it was developed in a developing country.

There is a need to improve citizenship in Brazil through more transparency and political participation. Unfortunately, most of the public information technology projects in the country seem to be reducing citizenship while it is reinforcing dominant institutional control and oppression for poor communities that in many cases have access to very expensive technologies that frequently are offering them very poor interaction (Rodrigues Filho, 2010).

4．Conclusion

Trust in e-voting technology in Brazil seems to be fabricated by an intensive marketing propaganda that may be of great interest to corporations as vendors of e-voting machines. At an institutional level trust in e-voting is supported by the Electoral Justice that is always emphasizing that e-voting machines are secure and should be trusted by voters. The institutional roles related to trust in e-voting in Brazil have to be analyzed beyond passive trusters or voters as carriers of trust in a "continuous process of reflexive constitution which requires mutual openness and intensive communication" (Mollering, 2006, p.366).

Because voting is mandatory in Brazil, there is a need of a democratic tool for civic and effective participation in the democratic process which is contingent upon political participation. Democracy means widespread involvement of ordinary people in matters of governance. In its current trend, e-voting technology does not seem especially hopeful. For those who endorse technologies enthusiastically as they emerge, such as e-voting, any criticisms or requests for wider debate about policy options in technology are often regarded as negative and unhelpful. Critical voices have often been labeled backward and obstructive, especially when try to explore social and political consequences of technological choices.

Some electoral reforms may have perverse consequences on citizenship and democracy. By making it easier for all citizens to vote does not mean improvement in democracy and citizenship, especially when a top-down political tool is designed in ways that bring more power to the political elite. Can we combine an approach very much based on market-driven forces (e-voting) that suits existing political and bureaucratic elites with a real process of democratization (e-democracy)?

There is no doubt that e-voting facilitates the work of the Electoral Justice in Brazil when few hours after an election the names of those elected are informed. This brings prestige to the Electoral Justice whose power is reinforced by e-voting technology. Over the last ten years there is an official massive propaganda in Brazil about e-voting and its security, in addition to training and demos on how to vote electronically. As a consequence, it is possible that large part of the Brazilian society trusts our e-voting system and its security, even without having the necessary knowledge about the technology.

It seems that democracy in Brazil is at risk: women's representation in the Brazilian parliament has decreased; our representatives in the Parliament are getting richer than their predecessors, and rich politicians get richer after their elections; turnouts decreased in the last elections, and vote buying increased substantial. Corruption in the Brazilian Parliament has reached such a level that both the national and international press have commented on such a sophisticated organization to buy votes (The Economist, 2007).

There was no interest of the political elite to discuss e-voting in Brazil, including the dominant press let alone the poor that are excluded completely from the political life. With the institutionalization of trust in e-voting by the Electoral Justice or the official voice supporting it, it is quite hard to question this technology and its security, because any critique is always disqualified, especially if the attempt is to uncover the power and control phenomena. However, if people care about citizenship, the time is appropriate for the debate on whether ICT is empowering people or not.

How helpful would it be if the academic research work in the developed world could look not only at the technicalities of ICTs, but to its social and political issues and on how should it be designed in ways that reflect our best understanding of freedom, social justice, addressing the source of inequality and injustice. The technical problems of e-voting, especially in terms of security can be solved in the near future, and people can easily understand it. However, when matters related to social and political problems are considered, it will take years for the poor voters to understand what is going to happen to them. This situation forces us to care about them and the future of democracy. We cannot survive without the help of technology, but we cannot let the market work and express our politics passively with regard to the discourse of trust that may be based on profit and self-serving interests fabricated behind closed doors.

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