Public Administration and the tragedy of commons in the information age: e-Government observatory to promote collective action.

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Abstract

This paper aims to relate widely public resources to the tragedy of commons and propose the possibility of on-line collective action as a solution. It brings a practical case of an on-line electronic Government observatory. This Observatory has shown impacts in Brazil helping to provide better governance. Initially it is presented Brazilian context and its distortions at the Public Administration what evidences the importance of social/moral control over public Government. These collective actions in Brazil - as a national community - are fostered by a new crowd sourced online platform. Although some may believe that community in its original concept are geographical small groups, the case

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presented shows with a set of collected data that at information age it is possible to organize a cohesive community driven by a common interest using the Internet.

Keywords
e-Government; Commons; Game Theory; Governance; Public Administration.

1 Introduction

Nowadays the complexity of social systems has achieved a high degree in a way that a set of new problems has aroused. Some of these complex social problems derive from the tragedy of commons that in brief means "The problem of sustaining a public resource that everybody is free to overuse" (MILINSKI, SEMMANN, KRAMBECK, 2002, p. 424).

Brazil faces some problems in Public Administration Governance due to the question of "patrimonialism", a behavior in which those that occupies positions of command - at any level - see themselves as the owner of the resources over their command. The sense of institution is there, in most of cases it is just a matter of misconduct. This argument will be further approached in section 3.2. Thus, the research question is how to improve public governance in this presented context.

In what regards Public Administration and possibilities of collective action, this paper presents a similar approach as Lejano and Castro (2014). They use "game theory" and "tragedy of commons" theoretical frames in an attempt to foster better results for public Administration.

In this way of collective action, the case presented in section 4 will embrace the question of Public Administration and the possibility to improve Governance in public sector. The project is based in a systemic perspective, and powered by an on-line platform as a way to enforce good practices in Public Administration. The theoretical background is the Tragedy of commons applied to public administration at underdeveloped countries. Game theory applied to patrimonialism is presented as a subjacent topic.

2 Research methodology

Methodologically, this study consists in a theoretical-empirical work, a qualitative approach, adopting a case study (YIN, 2013; WOODSIDE, 2010) with participatory research procedure (BREITBART, 2010; BERGOLD, THOMAS, 2012), which foster the empirical procedure in qualitative approach.

This means a study composed by empirical research based on data collection as well as some tools as - Google Analytics - will be used to present data. Theory, data and experience will be presented to advance the debate about the tragedy of commons in public administration at underdeveloped countries.

This study is analytical in its qualitative perspective and based in active participation and data presented. Google Analytics tool brings information about how visitors interact with the platform.

3 Theoretical foundations

At this section it is presented a set of theoretical foundations related to some empiric aspects. Firstly, it is presented the worldview related mostly with to the systemic view and information society.

Afterwards it is evidenced the theoretical basis for the core concepts that sustain the main arguments presented at this paper, including themes like economics of game theory and also the theory of commons. Subsequently there are the contexts references related to the case presented in this paper.

Finally, some concepts related to technological context in which the web tool was configured and used in the case presented to improve Public Administration Governance.

3.1 Systemic view, technology and public administration

The General Systems Theory describes a set of definitions that covers any kind of system. Bertalanffy (1968) describes a system as a whole in which its parts or elements interacts. So, completely different events may be related if they are analyzed with a global approach.

Thus, systematic approach means the relations of a wide range of actors in a complex context, which includes Information Technology in contemporary networked society, political tradition, and culture, among others. This makes Game "theory" and "tragedy of Commons" essential issues in dealing with Public Administration Governance. Living in society is a way to accept differences, and find consensus by adaptation and mechanisms of cooperation. In this sense it is essential to be open to changes and new knowledge.

It may be noted that the human being is constantly changing, in modification and adaptation. Technology deepened this movement. Nowadays on-line platforms became spaces for debate, they are used to think about solutions to community issues and to reflect about collective interest. These on-line platforms are new tools to solve new kind of problems.

The digital economy (TAPSCOTT, 1996) in the Informational Era (CASTELLS, 1999), and the Blown to Bits in the Business (EVANS AND WURSTER, 2000) changed organization's strategy. Production and retail system has been in several ways reinvented with the ICTs revolution that started in the 1970s but had their social shape established in the 1990s.

Now in the 2010's people and these technologies are getting mature enough to promote better Governance through online Collective platforms.

3.2 The problem of patrimonialism in the Brazilian context

Brazil faces a deep problem in Public Administration Governance due the intense "patrimonialism". Patrimonialism is a behavior in which those that occupies positions of command - at any level - see themselves as the owner of the resources over their command in the institutional structure (RIBEIRO, 2010; BACH, 2011; OLIVEIRA, OLIVEIRA, SANTOS, 2011; LUIZ, RISCAL, E RISCAL, 2015; PINHO AND SACRAMENTO 2015). To understand the extension of this problem, Ribeiro (2010), also Filgueiras (2009) - among others - considers the patrimonialism and "personalism" (a personalist individual) as the primary source of high rates of corruption in Brazil.

Patrimonialism, clientelism (those who accept patrimonialism, in change to receive favors from patrimonialist) and personalism make institutions weak, what leads to institutional corruption in the sense of "patrimonial domination". The patrimonialism (DAMATTA, 1993; SANCHEZ-PARGA, 2001). Patrimonialism is intrinsically associated with

clientelism in which the power is considered personal instead of institutional in the democratic perspective (BRINKERHOFF AND GOLDSMITH, 2002; RONZANI, 2007). This conduces to the use of public resources in a predatory way; there is no possibility to true sustainability in this context.

Depending on your country context, to apply the "Tragedy of commons" theory to public administration may appear to be ridiculous, but take a closer look to Patrimonialism concepts and Brazilian context. Context is everything. We understand that tragedy of commons happens in public sector when a huge Government - with a weak state (another contextual aspect) act with patrimonialism. Since a large set of people feel like they own the public resources, tragedy of commons take place.

Milinski, Semmann, Krambeck, (2002, p. 424) affirms that reputation is one of the ways to get rid of the commons tragedy. But here it is argued that this solution is also contextual, because in socio-cultural systems like Brazilian, in practice power is more important than reputation, what leads to a destructive behavior.

In such context, the person in a power position in public organizations makes this power "position holder person" in practice almost unquestionable due to fragile institutional framework (HAKIN AND LOWENTHAL, 1991; RONZANI, 2007; OLIVEIRA, OLIVEIRA AND SANTOS, 2011). Oliveira, Oliveira and Santos (2011) refer to the expression "hostages" to talk about patrimonialism effects.

While corruption is a more evident and objective issue with laws to fight against it, other discretionary decisions may be considered legal but immoral, with personal or small groups benefits with high negative impacts to the community. In this sense, this situation in Public Administration refers to the tragedy of commons, considering that public resources - widely thinking - are commons. So it is understood that not only a river (the most usual example), but also any public site or public resource that may rather be privately used.

In Brazil such patrimonialism takes place with a strong Government with a weak State, due to a high proportion of political free indicated positions compared to permanent staff public servants (SANTOS, 2009). This context reinforces a lack of true Public Governance.

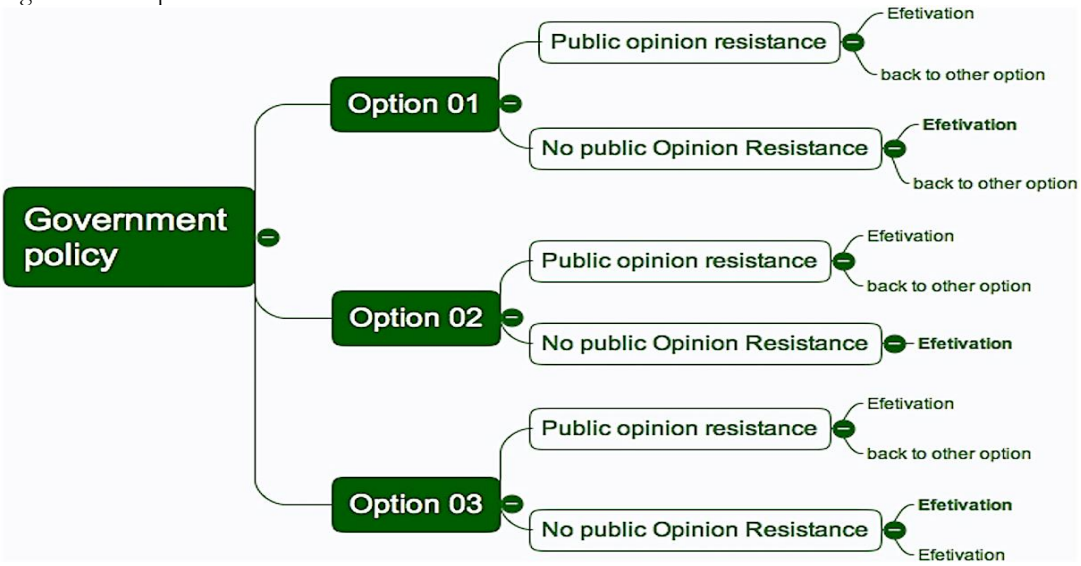
So in what regards this theme, it was observed in recent literature, like Lejano and Castro (2014) the use of the "tragedy of commons" and "game theory" theoretical frames to help to improve better results for communities. This is done in the sense of collective action

that fits the Public Administration Governance in a systemic, holistic and more complex perspective. Along with this mentioned theoretical sets, the electronic Government (e-Gov) Observatory as an on-line platform has demonstrated - as data to be shown in section 3 - as a promising way to enforce good practices in Public Administration, a e-Governance tool.

3.3 Why game theory and individual perspective is not enough

Game theory is an analytical tool for decision-making process that evidences that people react to each other decisions. Game Theory is not new mathematical-economic tool. It was systematized almost a hundred years ago (NEUMANN, 1928) and has been used to economic modeling for a long time (KREPS, 1990). Sequential games are denoted as decision trees as Figure 1.

Figure 1: Example of decision tree



Source: Illustration designed by the authors.

Decision trees are more applied in sequential decision games. In simultaneous games people interact at the same time without know how the other may behave. In this case the most common analysis is the "payoff matrices" as exemplified in Matrix 1.

Matrix 1: Example of decision matrix with predominant strategy (in extreme equilibrium).

Government decision			
		Organized Citizens	
Government		Cooperate	Defect
	Cooperate	+2, +2	-1 , 0
	Defect	-1 , -1	+1 , -2

Source: Elaborated by the authors.

Both examples denote what may happen if there is a strong social capital as expect to be promoted in e-citizenship (electronic, or online, citizenship), or online civil engagement. The psychology and social relations makes it all much more complex (RABIN, 1993) since social impacts reflects on reputation and well-being. And then the approach of Siitonen and Hämäläinen (2004, p. 200) presents the notion that "Conflict management is based on the idea of regulating conflicts" applied to environmental questions. That was a clever approach and may be effective for more conscious society, because in that case Government is supposed to look for good Governance.

As it was pointed in section 2.2 this is not the situation in Brazil. In this case, the social and cultural background demands stronger mechanisms for moral enforcement, also and mainly to government. However, their proposal of "Structure creates behavior" (SIITONEN AD HÄMÄLÄINEN, 2004, p. 203) is also a principle that guided the work developed and here presented.

The tragedy of commons (HARDIN, 1968) refers to the situation in which public goods tend to be over exploited, as individuals if left to their will tends to use it till phase all the resources. The solution pointed by Ostrom (1990) is to develop Governance. "In Governing the Commons: The Evolution of Institutions" it was set a basis for "Collective Action" as solution for the tragedy of commons. This is the start point to social arrangements that produce responsibility over public resources. Nowadays online platforms may be used to structure arrangements that create this kind of moral and political enforcement (coercion) by citizens to foster Public Governance over important public decisions.

In this sense, Lejano and Castro (2014) show that different motivations - individual utility - lead to collective cooperation. Hence, the sense of community and collective action may conduce to the use of a new Technology Information and media - such as a collaborative online observatory of government - to enforce good practice. Based on this belief - around ten years ago - it was launched a platform built based on Drupal content manager. The Observatory is institutionalized as part of a University research group, composed by multiple postgraduate courses with some partnerships with other Universities across Brazil.

> The institutionalization of cooperative behaviors can be understood as the set of social reproductive processes of synergies by which cooperation can attain specific properties of regularity. (Lejano and Castro, 2014, p.76)

Observatory helps to improve information availability and so to reduce information asymmetry among members of community. Like Ostrom (1998), somehow the idea is to set a behavioral approach to the rational choice theory of collective action. In the sequence it is presented the role played by the media and technology in this process.

3.4 Media and technology applied to governance solution

Schmid and Stanoevska-Slabeva (1998) point out that knowledge management is a key factor for the organization's activities in which innovative information and communication technology is used to reach certain goals. This concept may apply to co-production through Web.

Media knowledge as defined by Perassi (2011) is the information space based on an innovative information exchange support among community. It consists in human and artificial agents in this process. Thus, the media promotes an integrated space of knowledge composed by crowd sourced tacit knowledge, language and meaning.

In this sense, technologies that provide support for the solution are relatively simple. However, the principles behind the technology deserve attention. The first aspect is the media used. Internet as a technology is nothing more than billions of electronic devices connected among them with adequate protocols of communication.

The social use of Internet technology however is that gave power to this technology to transform the entire way people around the world lives. This fact took the economy into the "Informational Age" (CASTELLS, 1999).

Then the structure of information, the media, gives relevance to the technology. The structure of media as its plasticity and permanence, allows people to use platforms at the Internet as a secure, reliable white board (GEYER AND WEIS, 1998).

Such kind of Platforms at Internet in which information is shared and collectively (crowd sourced) fed allows cyber communities. This makes on-line platform for community e-participation a relevant channel to Government observation in a way to generate pressure for collective actions, to foster e-Governance.

This concept is very similar to the Linders (2012) approach of "we-Government". While Linders (2012) see this we-Government as an evolution of e-Government, we argue that since power comes from citizens the e-participation in non-Government on-line platforms is the legitimate e-Government. We also understand that these two expressions deserve to co-exist exactly to remember that the Government should be collectively built in the way of co-production.

Guimarães and Medeiros (2005) argue that the evolution of ICTs, the media and especially the Internet is defining new models for the relationship between state and society, setting up new governance structures.

According to Piana (2007) the concept of e-government was born through the New Public Management (NPM) in the 90s. ICTs can be seen as tools for improving efficiency and also as tools to improve participation. The New Public Service stream (DENHARDT AND DENHARDT, 2000) has already remembered that the Public Administration exists to serve the interest of Citizens, in the sense of participation in first place, then efficiency. Thus, the e-Gov has a multidimensional role, which according to Piana (2007) includes the following elements: ICTs; Government; the relationship between public and private actors; provision of services; modernization and optimization; Governance.

Solutions like Dos Santos Pacheco, Kern and Steil (2007) address the e-government concept from a systemic perspective. According to them, while the government improves its relationship with citizens, it transforms and reinvents itself. They advocate that to stimulate information sharing and the establishment of areas of cooperation it is needed open solutions, flexible and robust. However, it is a Government approach. We stimulate a more we-Government perspective, although it is absolutely important that the Government to keep moving in the direction of on-line platforms of e-Gov.

So what is defined on the e-Government theme is related to an improvement in the efficiency of government management with a broad government relationship with different stakeholders through a new legitimacy (PIANA, 2007). The impact of technology information in civil engagement may be dubious (PINHO, 2011), since there are positive - higher interaction - and negative views - as lack of face–to-face and non-historical group formation. This paper tackles exactly this supposed negative point: Specific platforms may change results, by stimulating coalition formation, what is essential by Game Theory perspective, as it will be demonstrated subsequently. Besides, a set of new technologies allows synchronous connection with audio and video allowing a high number of groups or individuals to interact online; there are both free and paid solutions (Skype, Whatsapp, Viber, you may name yours favorite).

As Clift (2003) believes, Internet will save the democracy in the sense of new relations in Electronic Governance. In this sense we support the Linders (2012) perspective of "Citizen Sourcing (Citizens to Government); Government as a Platform (Government to Citizen); Do it Yourself Government (Citizen to Citizen) new perspectives.

Governance, may be seen as Gonçalves (2006) like the exercise of authority and power from the government and the manner in which that power is exercised in the management of a country's resources for the development of it. In the State perspective it is correct. However, it could be highlighted the role played by Collective (OSTROM, 1990) action, co-production and online e-Participation. Then the definition of Public Administration Governance could be more like the Public Accountability over the Public Resources. In this sense Koliba (2011) presents much of the complexity in this process.

Therefore, the "information era" citizens could co-produce e-Governance through online Platforms on the way to we-Government. This movement may regulate transactions and articulate interests as pressure groups. This leads to a solution by moral enforcement (MILINSKI, SEMMANN, KRAMBECK, 2002) to the "commons tragedy", in the way Lejano and Castro (2014) advocates. It also reaches the Giest and Howlett (2014) Conditions to Governance. The online platform presented in this paper was developed in this perspective.

4 Theoretical foundations

At this section first it is explicated the motivations for an e-Gov observatory associating it with the theoretical set mentioned before, evidencing the link to the tragedy of commons. In this sense it is presented the e-Gov observatory working philosophy, its principles, inputs, process and expected results. Subsequently it is presented a quantitative analysis based on data like access, member numbers and other quantitative aspects. It is also presented a qualitative analysis about citizen engagement and impact of the e-Gov observatory.

4.1 The e-Gov Observatory, Governance, and the Tragedy of Commons

Public resources - like budget - are excludable and rivals in their allocation. The process to choose how money will be used – both in budgeting and after that when contracting – may suffer misuse due to patrimonialism. Hay (2004 p.43) affirms that people "individual rationality translates into collective irrationality".

In this context the typology of goods stated by Ostrom and Ostrom (1977) would be too simple to embrace the complexity of the context, which is the externality in individual behavior (DAVIES, 2009). So, patrimonialism applied to any public resource may be subjected to the tragedy of commons.

To present it in a Game Theory like format, it is useful to develop a Reference table with the main assumptions used to this case.

Table 01: Reference table with main assumptions used at hypothetical Game matrices.

Players Theme	**Government Interest**	**Citizens interest**
Identification (description)	Party or group that detains the power by means of being in charge of state higher positions	Electors; taxpayers, all range of People that is submitted to State and thus to the Government.
Main objective	**Patrimonialism:** Stay in Government at any cost.	Good infrastructure, high quality education system; high quality health services; environmental sustainability, Prepared security, health; High level of accountability; high level of public transparence.
Perspective	Next election; Keep government positions.	**Game A:** Pay the bills till the end of the month; Have conditions to live; **Game B**: Besides to survive, to engage in collective interest.

How Government should Govern	Generally against empower people	To have better evidence for decision making; Soliciting citizen input to improve public services; promote greater engagement and empowerment of citizens; To use innovative channels to make services more citizen-centric; (Farrell and Goodman, 2013)

Source: Elaborated by the authors.

For matrix 2 let's consider citizens as not engaged. In this situation, people hardly has information enough to fight patrimonialism, because public servants suffer moral harassment; citizens feel impotent to face Government's overwhelming force from small things to bigger ones.

In a scale from -10 to +10 it is shown how ends for each player in the possible situations proposed at the matrix 2:

Matrix 2: Patrimonialism hypothetical bimatrix game, Game A.

Government decision			
G o v e r n m e n t		**Citizens**	
		Citizens Cooperate (Citizens Engage to promote collective interest)	**Isolated Citizens** (Citizens, self interest, ignore)
	Cooperate with collective interest	**(G) +5 , (C) +10**	**(G) -5 , (C) -10**
	Defect (Patrimonialism)	**(G) 0 , (C) -10**	**(G) +10 , (C) -10**

Where: (Government; Citizens) represented by [(G) numerical result, (C) numerical result]

Source: Elaborated by the authors.

In this case for player "Government" the range of outputs is from 0 to +10, so even in worst scenario, it remains in power and has the chance to change things (zero), since Government has control over almost everything in this patrimonialistic context.

For the "Government cooperate" strategy, the output range is from -5 to +5. This means 3 out of 4 times it will be the worse choice. Hence, for a "patrimonialist Government" there is a predominant strategy: to keep patrimonialist. Follows formal demonstration – Game theory.

2 x 2 Payoff matrix Player (G):

5 0

0 10

2 x 2 Payoff matrix Player (C):

10 -10

-10 -10

Extreme Equilibrium= [(G) +5, (C) +10] the combined maximum.

Expected Payoff = [(G) +10, (C) -10]

There is a catch: in this "Game A", since citizens are not organized, they simply do not play, so Government decides the Game. As knowing that, the expected result anyway will be [(G) +10, (C) -10].

Although "Extreme equilibrium" - when the output is maximized considering the possibilities for all players - it only will happen if re-enforced or mediated by an external - higher - force. Otherwise it tends to be assumed as a non-cooperative game, in which each player adopts their best choice considering the reaction of other players.

As seen in Game theory demonstration above the expected payoff is Patrimonialism, in which Government use its power in self-benefit, leaving collective interest. It is an entropy process: once State and Citizens are not strong enough to limit Government, patrimonialism takes place and it is hard to move it back to a healthy stability for decision making process like a democracy is meant to be.

A way to revert patrimonialism to a true representative democracy with high standards in decision-making process - accountability and transparence - is the distributed and diffuse social control over Government, reinforcing collective interest.

Now let's repeat the Game Matrix, now Game B, considering citizen engagement: Government now knows that citizens are making pressure over State institutions as much as Government is pressuring institutions. So Government understands that the most possible scenario is that citizens will cooperate each other and act as a group – a coalition. Basically now Government may choose to have 0 or +5. Let's see this at matrix 3.

Matrix 3: Patrimonialism hypothetical bimatrix game, Game B.

Government decision			
Government		**Citizens**	
		Cooperate (Citizens Engage to promote collective interest)	**Isolated Citizens** (Citizens, self-interest, ignore)
	Cooperate (with collective interest)	**(G) +5 , (C) +10**	**(G) -5 , (C) -10**
	Defect (Patrimonialism)	(G) 0 , (C) -10	**(G) +10 , (C) -10**

Source: Elaborated by the authors.

Here in "Game B" citizens play as a coalition and intensively acknowledge Government about that, interacting by making suggestions and supervising.

Group formation – citizen coalition - implies in less information asymmetry, since groups of coalition share information and doing so are harder to delude:

> Groups are more likely to make choices that follow standard game-theoretic predictions, while individuals are more likely to be influenced by biases, cognitive limitations, and social considerations. (Charness and Sutter, 2004, P. 158)

Thus, one of the points we would like to highlight is that Patrimonialism makes Governments stand as groups self-interests centered, while population only will have a chance to make collective interest prosper if there is citizen engagement. Nowadays, the most effective way to create groups is by means of online – non-privately controlled – platforms, like the e-Gov Observatory approached in this paper.

The e-Gov Observatory, like other online platforms, promotes this citizen coalition. Internet and online platforms such as "social networks" played a singular hole in recent citizen movements such as Arab Spring (HOWARD ET AL, 2011); elections (CARLISLE AND PATTON, 2008) and other social events related to citizen engagement.

So, online mobilization is also a key aspect in the theory of commons. Giest and Howlet (2014) highlight the role of network management as a pre-condition for commons

governance. In this sense Giest and Howlet (2014, p. 38) advocates "the governance of the commons as the creation of social, intellectual and political capital".

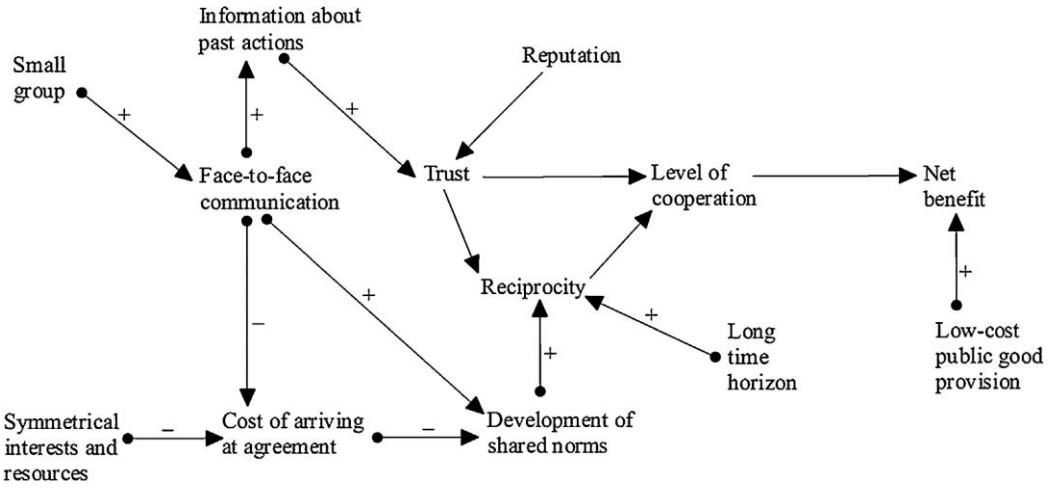
Davies (2009, p.3) says that countries with an environmental richness generally ended up poor and underdeveloped. Some problems cited are rent seeking and corruption; state predation among others.

> However, the inefficiency characterizing the commons problem in diamond mining is unrelated to uncertainty or the ex post dimension. The source of the inefficiency is the externality in individual behavior, like in the traditional tragedy of the commons.(…) I highlight also sets private returns above social returns (…). (Davies, 2009, p.3)

As presented by Davies (2009), when the context - legal, cultural, institutional - allows private return to be above social return there is a similar situation of "tragedy of commons" to whatever collective resources individuals have access to.

What we emphasize in this sense is that in Brazilian context - and similar countries - public resources are subject to tragedy of commons.

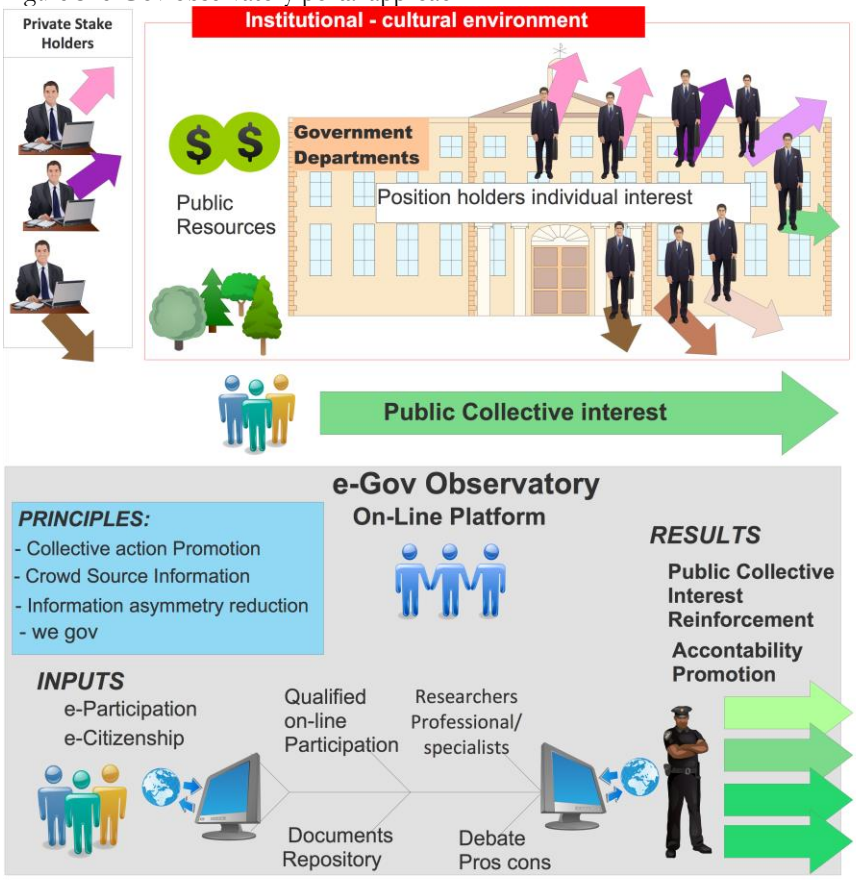
Figure 2: Toward a general theory of collective action.



Source: Ostrom, 1998.

Ostrom (1998) considered Collective action start in small communities. But an on-line platform – like e-Gov observatory - may help to gather social capital. This reduces information asymmetry by crowd sourced means. This process takes place with the participation of qualified information fed by researchers and skilled professionals that are registered in the platform. That is how collective action seems to be on-line in the Information Age.

Figure 3: e-Gov observatory portal approach



Source: Elaborated by the authors

So as people interact using the platform and other social media this process promotes accountability and good Governance in public sector.

Back to theory, ultimately, one of the most important roles of Government - if not all of it - is the challenge to manage collective resources. This reality goes from the local government to counties or regions as well as nationally.

The observatory of electronic Government congregates people interested in to interact with each other to observe the Government. By doing so, people interact with each other to enforce Government good practices by the official online means – e-Gov. The observatory team believes that as Clift (2003) said, like television saved democracy in the past, Internet will save democracy in this new century in a more participative way.

The observatory congregates some research groups that realize meetings on a regular basis. These meetings are physically and on-line as the group has an infrastructure that allows members and contributors to participate from anywhere by videoconference with a simple laptop or even smartphone connected to the Internet. Meetings may congregate people from anywhere in the country and partners at other countries as well.

The online collaborative platform relies on "Drupal" open source content manager software with several plugins. This tool proved to be powerful not because the technology itself but due to the online crowd sourced and social network principles. Online Media shows its value for this case. Several social networks – like Facebook, twitter and similar - are intensively used to reproduce and broadcast. However, since they are privately controlled we understand that they do not qualify to be the main platform.

The Observatory team members and volunteers share information of situations, political and legal issues. Observatory care about Government powers in Brazil: Executive, Judiciary and Legislative.

The Observatory allows researchers and approved contributors - certified professionals and researchers from elsewhere - to create and publish reliable information about hot topics in the Government. This kind of observatory is filling a gap between strongly reliable scientific information, and very fast but not a hundred percent reliable online sources of Government issues information.

When there is a controversial decision-making process in judicial process, legislative process - a law proposition - or Government (executive power) decision, other media such as Television, radio and social networks presents the question to the society. Researchers usually are aware of these questions from the beginning, or already published something about it before or in some days publish something about. As much as possible online sources are linked: official websites, laws or other articles, scientific papers. Sometimes different perspectives are honestly published. Comments are wide opening available, allowed without restriction and stimulated. To point out denounce partial or pseudo journalistic online articles - always with basis in laws, official information and scientific sources with online links - are also usual. Citizens find the information from the observatory by:

• On line search;

• Receiving a link from friends by social networks or e-mail;

• Going directly to the Observatory internet address and a few community keeps becoming actively engaged as citizen;

• Or is member of team that natively started in academic research or accredited professional that is approved to become member at the online tool.

4.2 e-Gov observatory data description and analysis

The observatory is up and running at almost a decade. Along the time the dynamics of participation and e-participation was also observed. Besides the qualitative description, the Google Analytics tools allow to quantitatively analyze some data. This data and team experience will be the basis to the analysis.

The data was exported from the Google Analytics, considering one month period in April of 2015 year. Figure four shows that more than 90% of absolute number of access are from Brazil.

Figure 4: Countries registered access.

Country	Acquisition		
	Sessions ↓	% New Sessions	New Users
	332,667 % of Total: 100.00% (332,667)	81.68% Avg for View: 81.68% (0.00%)	271,722 % of Total: 100.00% (271,713)
1. Brazil	300,838 (90.43%)	81.01%	243,702 (89.69%)
2. Portugal	4,703 (1.41%)	88.71%	4,172 (1.54%)
3. Mexico	3,533 (1.06%)	88.54%	3,128 (1.15%)
4. Spain	2,727 (0.82%)	89.00%	2,427 (0.89%)
5. Colombia	2,372 (0.71%)	89.04%	2,112 (0.78%)
6. Mozambique	2,168 (0.65%)	81.92%	1,776 (0.65%)
7. Argentina	1,736 (0.52%)	90.44%	1,570 (0.58%)
8. Peru	1,695 (0.51%)	92.63%	1,570 (0.58%)
9. Angola	1,683 (0.51%)	83.72%	1,409 (0.52%)
10. United States	1,547 (0.47%)	87.07%	1,347 (0.50%)

Source: Google Analytics (2015).

Since the e-Gov observatory has its focus on Brazilian electronic Government it was expected that most of the access to the platform should come from Brazil, what in fact happened (90,4%).

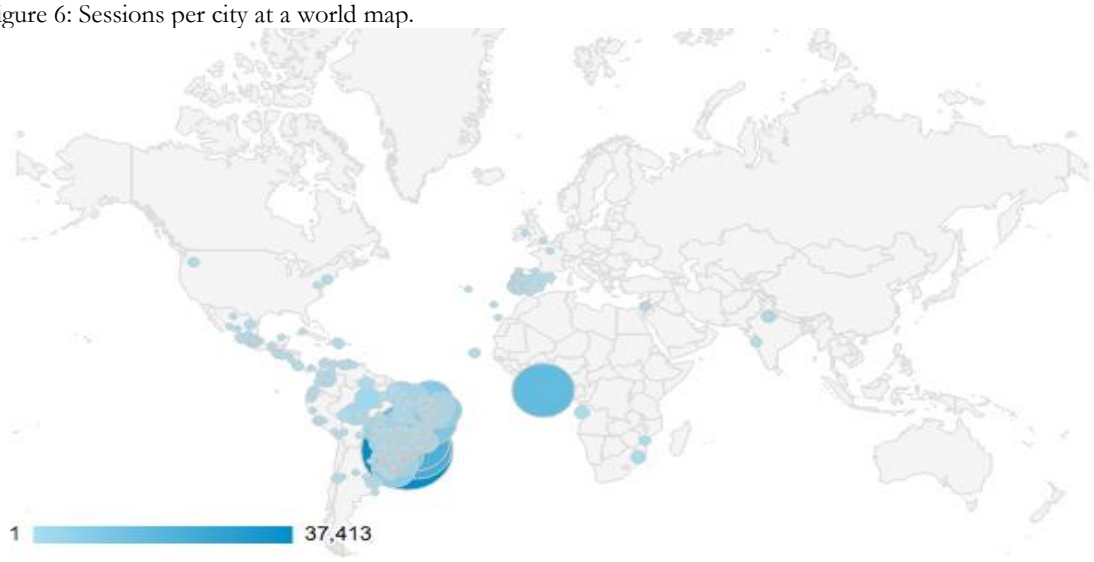
Figure 5: Countries registered access by language.

Language	Acquisition			Behavior		
	Sessions ↓	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration
	332,667 % of Total: 100.00% (332,667)	81.68% Avg for View: 81.68% (0.00%)	271,722 % of Total: 100.00% (271,713)	89.33% Avg for View: 89.33% (0.00%)	1.16 Avg for View: 1.16 (0.00%)	00:00:47 Avg for View: 00:00:47 (0.00%)
1. pt-br	**292,548** (87.94%)	81.16%	237,425 (87.38%)	89.37%	1.16	00:00:47
2. es	**9,540** (2.87%)	90.73%	8,656 (3.19%)	89.77%	1.12	00:00:46
3. en-us	**8,530** (2.56%)	83.08%	7,087 (2.61%)	88.02%	1.22	00:00:51
4. pt-pt	**7,456** (2.24%)	85.64%	6,385 (2.35%)	88.73%	1.16	00:00:48
5. en	**5,049** (1.52%)	75.12%	3,793 (1.40%)	93.46%	1.08	00:00:30
6. es-es	**3,365** (1.01%)	88.92%	2,992 (1.10%)	89.18%	1.13	00:00:46
7. es-419	**1,955** (0.59%)	87.06%	1,702 (0.63%)	87.47%	1.17	00:01:06
8. pt	**1,335** (0.40%)	86.37%	1,153 (0.42%)	82.70%	1.29	00:01:02
9. es-mx	**620** (0.19%)	88.39%	548 (0.20%)	87.58%	1.15	00:01:02
10. en-gb	**449** (0.13%)	84.86%	381 (0.14%)	83.07%	1.40	00:01:00

Source: Google Analytics (2015).

As Portugal shares the Portuguese language, its second place in this rank (1,41%) is logical. The same logic applies to other Portuguese speaking countries Like Mozambique (0,65%) and Angola (0,51%). Other countries appears in the rank most probably due to absolute size and research or economic interest.

Figure 6: Sessions per city at a world map.



Source: Google Analytics (2015).

In figure 7 it may be seen the volume of access from cities in Brazil.

Figure 7: Access by Brazilian cities rank

	City	Sessions	Sessions
		332,667 % of Total: 100.00% (332,667)	332,667 % of Total: 100.00% (332,667)
1.	Sao Paulo	37,413	11.25%
2.	Rio de Janeiro	22,096	6.64%
3.	Belo Horizonte	21,036	6.32%
4.	(not set)	16,209	4.87%
5.	Brasilia	14,721	4.43%
6.	Salvador	10,747	3.23%
7.	Goiania	10,014	3.01%
8.	Curitiba	9,989	3.00%
9.	Fortaleza	8,792	2.64%
10.	Porto Alegre	7,758	2.33%

Source: Google Analytics (2015).

These data show that the citizens accessing the e-Government observatory are well distributed along the Brazilian territory, since the higher number of access comes from the bigger cities. To evidence this fact in the Table 2 it was ranked the bigger cities in Brazil according with the Government official report of absolute population of cities in the first column. In the second column there is the number of views by city data obtained from Google analytics. After that it was compared also the absolute number of population and absolute number of observatory portal's views.

Table 2: Portal access data analysis

Bigger Cities in Brazil	Views Rank	UF	City	Population	Views	% of Population
1º	1º	SP	São Paulo	11.895.893,00	37.413,00	0,31%
2º	2º	RJ	Rio de Janeiro	6.453.682,00	22.096,00	0,34%
3º	6º	BA	Salvador	2.902.927,00	10.747,00	0,37%
4º	5º	DF	Brasília	2.852.372,00	14.721,00	0,52%
5º	9º	CE	Fortaleza	2.571.896,00	8.792,00	0,34%
6º	3º	MG	Belo Horizonte	2.491.109,00	21.036,00	0,84%
7º		AM	Manaus	2.020.301,00	-	-
8º	8º	PR	Curitiba	1.864.416,00	9.989,00	0,54%
9º		PE	Recife	1.608.488,00	-	-
10º	10º	RS	Porto Alegre	1.472.482,00	7.758,00	0,53%

Source: Elaborated by the authors based on data from Brasil-IBGE (2010) and Google Analytics.

The table presents in the subsequently columns the absolute number of population and portal visualizations.

These absolute numbers indicate that in all these bigger cities in different regions of Brazil proportion of population that had contact with the portal varies between 0,31% and 0,84%, with an average of approximately 0,5% of view per city. It means an spectacular number of one in 150 people in these bigger cities in the country had contact with the portal in these 30 days. Among these visitors a few – 18.3% are returning visitors, as may be seen in figure 08.

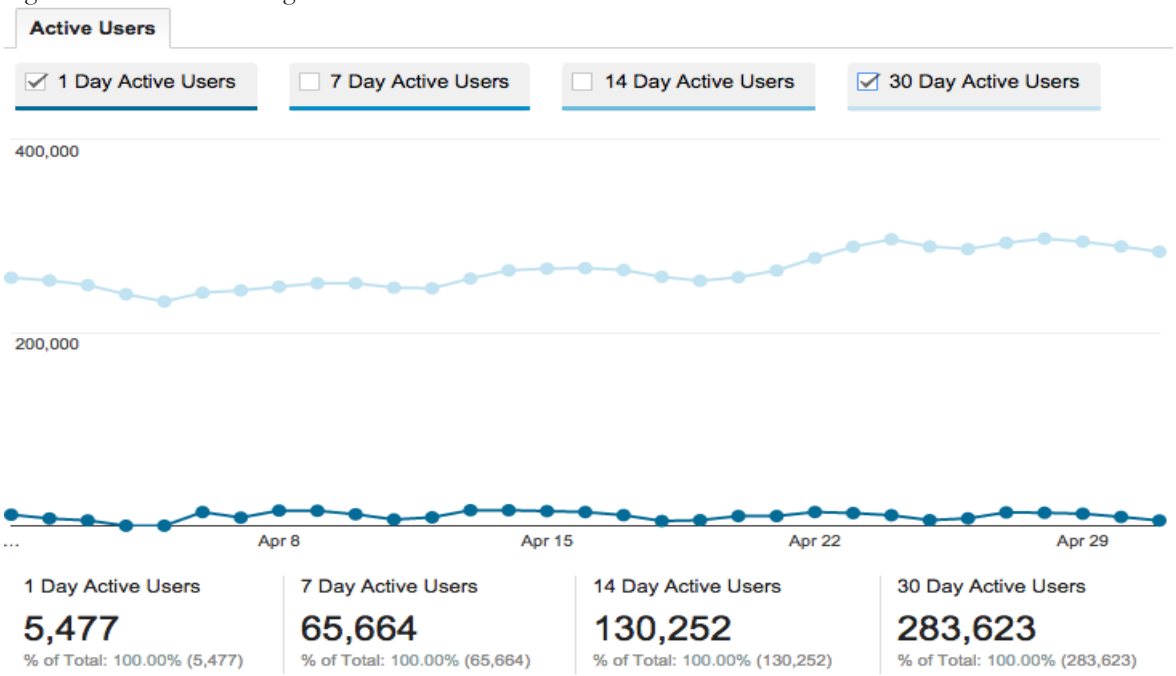
Figure 08: New and returning visitors

	User Type	Sessions	Sessions
		332,667 % of Total: 100.00% (332,667)	332,667 % of Total: 100.00% (332,667)
1.	New Visitor	271,722	81.68%
2.	Returning Visitor	60,945	18.32%

Source: Google Analytics (2015).

It may be seen as good information since it means that more people are getting in contact with the portal. The negative aspect is the lack of engagement in larger scale, those more engaged represents those 18,3%. Anyway access data is consistent, since access is constant along the month as it may be observed in figure 9.

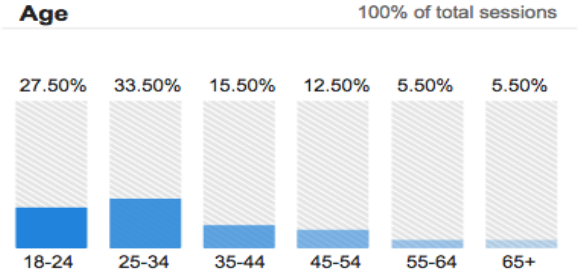
Figure 09: User access along the month.



Source: Google Analytics (2015).

About user's access analysis with Google Analytics there is a catch: this tool –may be tricky, because returning visitors are reported to be about 18% and this rate is known by Internet Protocol address (IP Address) analysis directly at the platform server to be higher. It means that the range of people is really that wide, but more people returns. Returning visitors also stay on the platform interacting for more time, these users are engaged on the collective causes, and are more active as citizens.

Figure 10: Access by age



Source: Google Analytics (2015).

Demographic data shows that engagement in politics by means of e-Gov takes place mostly by people from 25 to 34 years old (33,5%). Here there are plenty of factors that may be listed. Young's from the age of 18 to 34 are looking for establishment in work market, what may induce them to pay attention to economics, justice and other public themes with a sense of urgency.

The knowledge of Public Administration and the sense of importance about macroeconomics, politics, access to justice and law are acquired slowly. This may explain partially why even more connected the age range of 18 to 24 years was slightly less interested than the age range of 25 to 34 years old. Older people seem to be more resigned. It is empirically known that true participation is still a cultural problem, specially in Brazil. It is valid to remind that in Brazil the vote is obligatory; it does not mean that there is effective participation or consciousness in this process. For most population politics is only the act of voting, what is something to be done each couple of years. Decision process and public debate of collective interest are themes to be learned.

4.3 Qualified participation

The e-Gov observatory has more than ten thousand contributors. There are members from research groups from Universities and professional's public administrators, lawyers. Usually posts are developed based on news related to government situations – decisions about to be taken. These posts are based in experience, in technical subjects about law making process as well as policymaking process.

The relevance of the e-Gov platform in the sense to enforce public collective interest is based in the fail of the public choice or any other public Administration methodology till now. The logic of this argument is detailed described by Hay (2004)

> The systematic exploitation and pollution of the environment, it is argued, is set to continue since individual corporations and states, despite a clear collective interest, choose not to impose upon themselves the costs of unilateral environmental action. (HAY, 2004, p.43)

For example, in Brazil there are some themes like health and education that needs urgent actions that are clearly of collective interest. This is not generally speaking but effectively talking. But individual choice of public position holders - and private stakeholders – leads to different results.

About technology used to access the platform it was found that full operational systems (desktops/notebooks) are the predominant device used to interact with the platform. It is possible to see that 17% of access was originated from mobile devices, probably, for the moment, in fast search on the net or more engaged member interactions while on the streets.

4.4 Platform Results

Practical implications of on-line platform used to observe the e-Gov may be inferred from numbers related to one of the themes approached by researchers. The "Internet Civil regulatory framework", was a relevant debate that took place in Brazil from year 2011 to 2013. The research including "Marco civil da Internet" - which means Internet Civil regulatory framework - at http://www.egov.ufsc.br returns 1220 different intern links. It means that this theme has been approached on the platform this number of times. Some of those themes are shown on the Table 3 below.

Table 3: Impact in numbers.

Theme	Debate title sample: (translated from portuguese)	Number of readers	Number of comments
The Internet Civil Regulatory Framework	"The Internet Civil Regulatory Framework analysis" April 27th, 2012	845	0
	"Electronic-Government: an introduction" October 4th, 2012.	4204	21
	"Intellectual property and digital World" November 7th, 2012	1348	22
	"The right to privacy in the use of the Internet: failure of existing legislation and violation of the fundamental principle of privacy"April 6th, 2015.	403	0
	"The Internet Civil Regulatory Framework divides opinions on copyright" November 22nd, 2012.	372	0
Sample	Search Sample.	7172	43

Source: elaborated by the authors based on platform data.

It is important to remember that participation is qualified, what in the e-Gov observatory means that only applicants that are at least active academics (or skilled professionals) are allowed to post or comment. However, the content is open access to be read.

Other relevant observation is that since the platform is wide open in the way it can be used, several times users prefer to replicate the link on social networks and the discussion takes place somewhere else on-line.

Qualitatively it is possible to see that e-participation through online platform was intense. These qualified participations in the debate covered from constitutional to philosophical aspects and pulled in to on-line social networks influenced deputies and senators as well as their advisors in some laws aspects.

So the on-line platform is an electronic e-Government observatory in the sense to observe what is being offered from the government. But it goes beyond: it allows and stimulate the we-government in the sense that there are collective action that starts there and comes out of the platform and is addressed to Government – Executive, legislative and Judiciary – with messages from an organized civil society. The main channel - media - to that is social

network, where politicians nowadays need to be present. But there are others like personal contact, presenting results and reports from the online platform.

5 Concluding Remarks

As theory suggests and both data and empirical experience tends to confirm, the online collaboration platform helps to improve information sharing and collective action. The most technical alerts start on the platform with engaged citizens co-producing scientific and technical information, be it about an environmental, legal, technological or bureaucratic subject. Then the product of the debate is shared online in other social media.

One of the most impressive points is that this effort was proven nationally wide in range of action. This implies that on-line collective action is country capable. In this sense, the presented online platform has allowed to organize what happens in a chaotic way in other social media. The online tool with the support of a team and its supportive collaborators made it possible.

The individualism and lack of collective sense is the root of most of the problems: sometimes patrimonialism conducts to clientelism. However, politicians in a lot of situations are harassed to make individual concessions. So clientelism also conducts to patrimonialism. That's why good governance will help both collective interest as well as the rulers and leaders will also be benefited.

Although it is hard to measure the direct impact in public administration, it was possible to perceive that relevant debates were raised at the platform and somehow reached national scenario in questions like the Internet Civil Regulatory Framework, net neutrality, electronic voting security issues, and environmental issues like in several other themes.

The e-Government observatory has promoted the "we-Government", as well as the e-Participation using the Crowdsource Power and - by that - promoted Governance by enforcement; it means, somehow by putting Government into moral pressure.

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