Technology solutions to support supervisory activities and also to provide information access to the society

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Abstract. Inmetro’s data about the conformity of certificated products, process and services are, usually, displayed at fragmented databases of difficult access for several reasons, for instance, the lack of computational solutions which allow this kind of access to its users. A discussion about some of the technological solutions to support supervisory activities by the appropriate regulatory bodies and also to provide information access to society in general is herein presented, along with a theoretical explanation of the pros and cons of such technologies to the conclusion that a mobile platform seems to be the best tool for the requirements of Inmetro.

1. Introduction
Inmetro, as part of their duties, makes use of the delegation of enforcement activities of the conformity of products, as a tool to ensure the safety of society and the environment. Despite the operational decentralization, this centralization of strategy refers to a responsibility, especially regarding the quality of management of compliance information. This management remains with the institution, which today is facing difficulties in providing this information to its partner control agencies, who work directly in the inspection process. Therefore, it is necessary to study information management strategies, with emphasis on supporting fiscalization processes and dissemination of information to society.

With the advent of relevant legislation [1] which regulated the constitutional right of access to public information, the need to act more expressively, through quick response strategies and accurate provision of data and information which facilitate the monitoring of work, became clear to Inmetro; in line also with the principles of transparency and publicity which guide the delegation of its activities.

2. Actual Situation
Initiatives to provide information to regulatory agencies and society become problematic either in the absence of complete automated tools capable of integrating the databases necessary to consultations at fiscalization points and control and those requested by the citizen himself, or when tools that do not fully meet the initiative’s needs are provided. In the present scenario, governments must mobilize in order to provide not only the supervisory bodies, but also citizens, greater transparency and possible
accessibility to information, creating objective goals to expand their reach and using, to this end, all the tools available in the marketplace. The creation of information distribution platforms and online services, also known as e-Government, has been widely discussed, especially as their social influence and reliability [2].

It is necessary to understand whether portal which centralizes services and information would facilitate access for its stakeholders and also facilitate the dissemination of compliance information by Inmetro, and what would be the optimal way of making this portal available, without losing sight of the larger current demand for this type of resource.

The Democratic State requires that, "In addition to the principles of equality and freedom, the democratic ideal consists of action, participation, responsibility and interaction between different subjects" [3]. The extension of democracy demands an increasing participation of civil society in discussions and decision-making processes related to public policy [4]. The National Constitution, as established in 1988, considers the civil participation as essential, exercising democracy in a direct and participatory manner. The various levels of government should then provide sufficient mechanisms to secure the right progress of these rules.

Following the constitutional requirements for the exercise of citizenship, it is essential that the State shall ensure to all Brazilians the means to exercise their rights, therefore understand citizenship is also to understand the individual's relationship forms with the State [5]. It has been pointed out by several authors that "The democratic possibilities can be influenced by new technologies since they have the power to change the way people relate and communicate" [6], meanwhile, the constant and fast advances in Information and Communication Technology, mainly internet and connectivity, have been flaunted as the next opportunity to transform the relationship between governments and citizens, particularly in their role as service costumer [7].

The concept of Mobile Government, related to the Mobile Democracy, present to the citizens a great opportunity for two essential activities. First, the opportunity to express opinions directly to governments, exercising their representation in a clear and structured way. This allows governments to have access to an important set of information about authentic opinions directly acquired from the population, without the intervention of consultants and advisers. Second, governments can accomplish the dissemination of information to encourage citizen participation and question them directly [8].

3. Methodology

In order to better understand the mechanisms for providing information to existing stakeholders, the different features and the Government's needs in terms of availability of information on compliance have been outlined through documentary research.

It can be seen that through the development of new computing platforms, access to different forms and functions in software has expanded greatly. New lines of research point to the Internet of Things [9] and Pervasive Computing [10] as a reality ever closer.

These new computing paradigms require an equally innovative approach in the use of infrastructural resources. The continuous improvement of distributed systems [11] has culminated in the current availability of cloud systems, known as Cloud Computing [12]. It is a trend that supports the development of complex computer projects using various simpler devices working in a coordinated manner.

For software development within these paradigms, one of the most common structures is the Service-Oriented Architecture - SOA [13], which enables tight control over features available remotely. These controls are important for the security of the information disclosed, and for satisfying the requirements of the various available profiles [14].

The advent of mobile devices enables the distribution of computational functionality to individuals in the field, such as enforcement agents or citizens seeking information at any time. However, such devices have limited resources such as battery life, information storage capacity and processing performance. Such limitations would be minimized by sending information to more powerful servers, which would then be responsible for processing and sending the results to the mobile device [15].
Importantly, this type of solution has much more elaborate security demands, establishing new requirements for information security policies [16].

Based on the documentary research undertaken, the next step of this study was to enumerate the government’s IT parameters which must be adopted for this work. Based on these parameters and documentary research conducted previously it was possible to identify the pros and cons of different computational solutions for the provision of compliance information to agents of control and inspection and citizen.

The continuation of this work, still under development, is a quantitative research, taking advantage of the collection and objective analysis of data in order to identify the services that may be incorporated into this structure, as well as new services which may be required in the future. It is a questionnaire directed to its target audience, enabling the identification of potential new services and ongoing projects which can be added to the current one. At this stage also it will be possible to identify other factors which may be for or against such computational solutions. The SurveyMonkey® software will be used as a tool for survey [17]. It is an available free software that allows the development of questionnaires and the automatic processing of the responses.

4. Conclusion
Following these concepts, it is concluded that creating an integrated framework for the provision of a mobile services platform is a possible solution to the problem presented. The proposal for a portal developed into a mobile platform, allowing access to information when it is needed seems to be the best alternative for the fiscalization process, according to the analysis of pros and cons of each computer solution studied.

A portal for mobile devices allows the distribution of computational functionality to individuals in the field, such as enforcement agents or citizens seeking information at any time. All regulatory agencies, the Brazilian Network of Metrology and Quality agents, the appraisers of the General Coordination of Accreditation, all of which use compliance information in diffuse Inmetro bases, are potential direct beneficiaries of this solution. In addition, the range of mobile devices has a wide prospect for growth [18] as well as being a necessary tool for the positioning of Inmetro in a context of modernity.

It is important to heed the computational requirements involved in aspects of information processing, because such devices have limited resources, a problem that should be minimized by sending information to more powerful servers, which will be responsible for processing and sending the results to the device mobile [15]. The computational requirements involved in security must also be considered, by adhering to the most modern application development paradigms.

This solution was chosen based on government IT parameters. However, the prototype is expected to be validated through research by survey, to assess its navigability, ease of use and adherence to the parameters identified, in addition to the opinion of Inmetro IT experts.

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