Promoting Transparency in Government through FACIN: The Brazilian Government Enterprise Architecture Framework

Vanessa T. Nunes[1], Claudia Cappelli[2], Marcus Vinicius da Costa[3]

[1]Departamento de Ciência da Computação - Universidade de Brasília (UnB)
Caixa Postal 4466 - 70.904-970 - Brasília - DF – Brazil

[2]Programa de Pós-Graduação em Informática – Universidade Federal do Estado do Rio de Janeiro (UNIRIO)
Av. Pasteur, 458, Urca - 22.290-240 - Rio de Janeiro – RJ

[3]Serviço Federal de Processamento de Dados (SERPRO)
SGAN Quadra 601, Módulo V – 70836-900 - Brasília - DF – Brazil

`vanunes@gmail.com, claudia.cappelli@uniriotec.br, marcus-vinicius.costa@serpro.gov.br`

Abstract. *The growing demand for truth based on transparency has increased around the world. For this reason, transparency has been at the top of the public agenda in many aspects and public organizations have been evaluated in their ability to provide trustful knowledge and transparency on its operations, performance and results. We believe that an Enterprise Architecture (EA) initiative is a consistent way to enhance the support of the implementation of transparency in processes, information and applications. Therefore, we present how transparency is to be driven and implemented inside the initiative that has been conducted by the government in order to develop the Brazilian Government EA Framework (FACIN).*

1. Introduction

Many debates have arisen and continue going on in Academia and Industry, especially in government domain, regarding the implementation of freedom of information laws and on their initial results. Brazilian Access to Information Law that regulates the constitutional right of access to public information (Law 12,527 of 2011[1]), Brazilian Complementary Law 131 (Law 131 of 2009[2]) that determines the availability of information on the budgetary and financial execution of public institutions, and the Brazilian Decree number 6,932 of 2009[3] that established the compulsory release of the Service Letter (in portuguese: "Carta de Serviços") with information of services provided by public organizations, are the most notorious examples of Brazilian government actions to promote organizational transparency. They have encouraged active transparency, which caused a growing availability of information about public organizations in their institutional sites.

---

[1] http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/lei/l12527.htm

[2] https://www.planalto.gov.br/ccivil_03/leis/LCP/Lcp131.htm

[3] http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/decreto/d6932.htm

The concept of transparency, at first, seems a simple idea. Public organizations are mostly concerned on providing access of public data when demanded for transparency. But transparency goes beyond publicizing data. It is to allow access, ease of use, ensure quality, improve understanding and ensure auditability of processes and information. It requires for its practice, the existence of methods that make it possible to establish it efficiently and systematically in organizations. In addition, it is required instruments that allow monitoring the way it is established in (public) organizations to verify its attendance to both strategy organization as the needs of society (Harrison et al., 2011).

Such demands require not only knowledge about how strategic, management, governance, processual, application, resources, infrastructure and many other data are to be represented but also what are the concepts related to a set of data, how they interrelate and what is their context considering the three pillars that constitute a socio-technical perspective of computing: people, technology and organizational processes. The alignment of these various government sets of data are not something that can be achieved by considering only the political will or even efficient management skills. It requires a discipline that joins the diverse views that may represent the unfolding of its purposes, not individually, but as a whole. The aim is to go beyond providing transparency of isolated data, but also providing citizens with tools to understand and use available information and beginning to coin a critical thinking about information, actions and services and collaborate to create a democratic society with participative citizens.

Therefore, Brazilian Government, with the participation of expert citizens, Academia, organizations and private companies, is developing FACIN, the Brazilian Government Enterprise Architecture Framework to support Governance and Interoperability. This paper aims to present and discuss how FACIN can support the systematization of transparency in the Government through its structural proposal.

2. Research Goals

One of the aims of the Brazilian Strategy of Digital Governance (Estratégia de Governança Digital - EGD) is to provide transparency on digital interactions (through e-government services) among citizens and Government. It consists of democratizing the access to information, broaden discussions and streamline the delivery of public services with focus on efficiency and effectiveness of government functions. In order to comply with these goals, one of the requirements society demands is that organizations assure that not only their computerized information are transparent, but also their computerized processes [Cappelli and Leite 2010].

Through the establishment of Enterprise Architecture (EA) and interoperability standards, FACIN aims to support the Brazilian Strategy of Digital Governance[4] (EGD), increasing collaboration among governmental organizations and improving the efficiency and transparency of e-government services and investments to society.

Therefore, while developing each of the four interrelated parts of FACIN, as shown in Figure 1, we aim to define a set of operationalizations and implementation

---

[4] http://www.planejamento.gov.br/EGD

mechanisms specific to consider transparency in conceptual modeling, architecture development and architecture management.
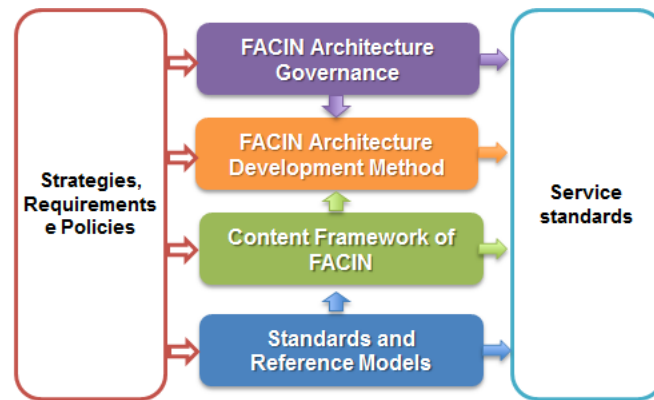
Figure 1. FACIN Structure

- **FACIN Architecture Governance**: Describes the mechanisms of control and monitoring of the design and development of organization's EA ensuring their responsiveness to internal and external regulations and its efficient and effective evolution. It aims to: ensure that the requirements and strategies are treated and made possible through EA and to structure resources and skills necessary for the development of EA capabilities.

  Regarding transparency, we aim to develop control mechanisms to monitor and evaluate the application of Freedom of Information Laws and specific transparency characteristics defined by the public organization.

- **FACIN Architecture Development Method**: Describes a guide for organizations of public administration to develop and implement models. It aims to propose directions, guidelines and good practices for the development, implementation and maintenance of governmental organizations' EA. It also includes techniques and common approaches.

  Regarding transparency, we aim to define how transparency operationalizations are to be elicited and modeled in the enterprise architecture models and artifacts so as to reinforce a systematization of its implementation in the public organization through applications, actions and infrastructure.

  In order to stablish mechanisms to model, maintain and manage EA models, we are using, as a foundational base, the TOGAF Framework[5]. TOGAF, an open standard collaborative Framework developed by more than 600 associated enterprises around the world, is an EA methodology and framework used by the world's leading organizations to improve business efficiency. It has also been used by a number of countries in order to develop their Governmental EAs. For each of its phases we seek to stablish actions and information needed to model, maintain and manage transparency characteristics inside organization's EA.

---

[5] https://www.opengroup.org/togaf/

- **FACIN Content Framework**: Describes the structure of related elements that contains generic models to represent the different governmental organizations' point of views. It aims to unify the representation of the main organizations' views and the relationship among them and to organize and classify the common main elements addressed throughout the development, implementation and maintenance of organizations' EAs.

  Regarding transparency, we aim to first provide a way of organizing and interrelate concepts not only within an organization view (for example, strategic view, governance view, business view, data resource view, application view, infrastructure view, etc) but also across them, which is already part of an EA initiative goal. We also seek to elicit and identify data related to each concept instantiation, in order to support the implementation of transparency characteristics as metadata (for example, date of creation, creation author, date of update, update author, degree of secrecy, presentation forms, among others). The elicitation of relevant information will use as a foundation, the Transparency SIG (Softgoal Interdependency Graph) proposed by Cappelli (2009), the Organizational Transparency Maturity Model[6] and the methodologies and evaluation results of Independent Evaluation Institutions such as, Linagurg-Maduell Index[7], Open Data Index[8], Open Budge Index[9], and others.

- **Standards and Reference Models**: Describe (customize) technical and managerial standards, guidelines and best practices – existing in the government and from the market – for the development of FACIN from strategic to the operational level to be used throughout the development of organizations' EA.

  Regarding transparency, we aim to identify transparency standard and reference models so as to use as a base and as monitoring control. In relation to the first we are making use of the Transparency SIG (Softgoal Interdependency Graph) proposed by Cappelli (2009) and published in Leite and Cappelli (2010), define principles for transparency as characteristics represented in an NFR Framework (Chung et al., 2000), and operationalization actions so as to systematize the incorporation of transparency characteristics in organizational processes and information. In relation to the last, we seek to monitor the evaluation of Independent Organizations that aims to evaluate transparency and openness of information related to specific domains of Governments around the world such as Open Data Index[10], Open Budget Index[11], Global Right to Information Index[12], Transparency International[13] and etc.

---

[6] https://sites.google.com/site/ciberdem/modelo-de-maturidade-em-transparncia-organizacional

7 http://www.swfinstitute.org/statistics-research/linaburg-maduell-transparency-index/

[8] http://index.okfn.org/

[9] http://www.internationalbudget.org/opening-budgets/open-budget-initiative/open-budget-survey/

[10] http://index.okfn.org/

[11] http://www.internationalbudget.org/opening-budgets/open-budget-initiative/open-budget-survey/

[12] http://www.rti-rating.org/

[13] https://www.transparency.org/

3. Expected Contributions

The expected contributions of FACIN to the enhancement of transparency in public organizations are: (i) Increased knowledge, visibility and trust about the public organization and how it operates; (ii) Increased transparency in the planning, management and measurement of public actions and programs; (iii) Improvement of the monitoring of adherence of actions to strategic planning and the laws; (iv) Improvement of the dialog and interoperability within the Government and with Society; (v) Improvement of the engagement and decision making within the public organizations; and (vi) Increased Citizen Engagement.

4. Results Already Achieved

FACIN Content Framework, depicted in Figure 2, has been proposed and presented during the IV Governance Forum (IV Fórum de Governança – Áreas de Integração para o Governo Eletrônico).
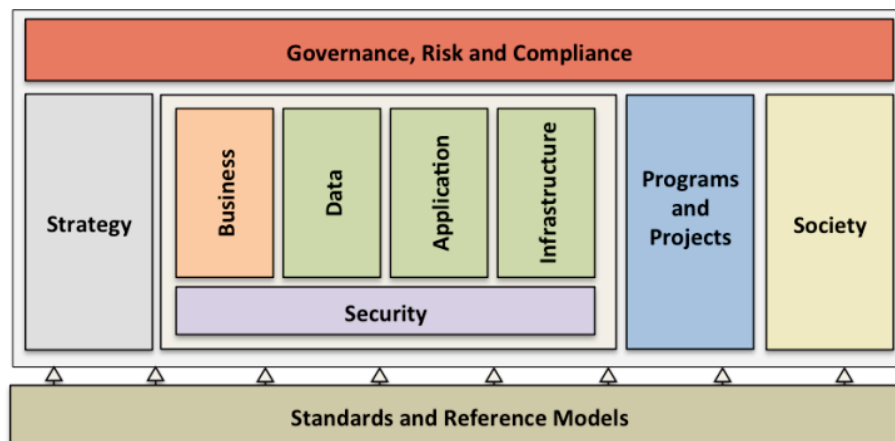

Figure 2. FACIN Content Framework

For each view it was proposed the following items: (i) a description of the view with its purposes and benefits; (ii) the value of the view in relation to the others; (iii) critical success factors; (iv) roles and responsibilities; (iv) policies and guidelines; (v) associated patters and best practices; and (vi) main elements of the view that were proposed to represent a set of useful, coherent, consistent, and structured description of the components of a particular view of the organizations' EA. All these items compose the Reference Model (RM) of each view of the FACIN and should be used as the basis for all governmental organizations.

Therefore, FACIN Content Framework structure is composed of 9 Reference Models: Strategic Reference Model (SRM); Governance, Risk and Compliance Reference Model (GRM); Business Reference Model (BRM), Data Reference Model (DRM); Application Reference Model (ARM); Infrastructure Reference Model (IRM); Security Reference Model (SecRM); Programs and Projects Reference Model (P2RM); and Society Reference Model (SocRM).

The scope of the main elements of the view covers: (i) a conceptual metamodel that defines and related the main concepts of the view; (ii) a set of common artifacts (documents, sheets, etc) that are to be generated and maintained by the organization;

and (iii) a taxonomy of the common terms. The conceptual metamodel is underdevelopment and its first version stablished the main concepts of each view. So far, transparency has been considered as a premise but has not been developed in a formal way. The next phase, starting in early 2017 is to formally define the information regarding transparency and other internal requirements identified during the discussions.

5. Conclusions

Transparency, or lack thereof, has been at the top of public and private agenda in many aspects. Organizations have been evaluated in their ability to provide trustful information and knowledge with transparency considering their operations, performance and results (Fung et al., 2007). Therefore, we presented FACIN as way of organize and standardize systematic methods and actions to implement transparency in public organizations.

We believe that EA can help to overcome the problems of providing understanding and awareness of why and how business activities are performed, what information is related to these activities, as well as the IS and technology to support the operation of public organizations.

The development of FACIN is been undertaken in the following phases: (1) We began developing the Content Framework, to establish what are the most relevant concepts and elements for the government as a whole. In this phase we have been discussing the proposed Content Framework inside internal forums that includes also other members of disciplinary entities and specialists from Academia and the Industry. By December 2016 it is going to be released to public consultation; (2) A series of real evaluation scenarios are going to be performed in first trimester of 2017; (3) The Architecture Development Method is expected to be started in November 2016; (4) The Architecture Governance is to be developed in the first semester of 2017; and (5) The standards and references are being defined accordingly, to which part of FACIN they are required.

References

Cappelli, C. and Leite, J.C.S.P (2010) "Software Transparency", Business and Information Systems Engineering, v.2, i.3, pp.127-139.

Cappelli, C. (2009) "Uma abordagem para transparência em processos organizacionais utilizando aspectos", Ph.D Thesis, Pontifícia Universidade Católica do Rio de Janeiro.

Chung, L., Nixon, B., Yu, E. and Mylopoulos, J. (2000), Non-functional requirements in software engineering, International Series in Software Engineering, v.5, Springer, Kluwer Academic Publishers.

Fung, A., Graham, M. and Weil, D. (2007) "Full disclosure, the perils and promise of transparency", Cambridge University Press, Cambridge.

Harrison, T.M., Guerrero, S., Burke, G.B., Cook, M.E., Cresswell, A.M., Helbig, N., Hrdinová, J. and Pardo, T.A. (2011) "Open government and e-government: democratic challenges from a public value perspective," Proc. of the 12th Annual Int. Conf. on Digital Government Research: Digital Government Innovation in Challenging Times, pp.245-253.