Towards a Legal Compliance Verification Approach on the Procurement Process of IT Solutions for the Brazilian Federal Public Administration

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***Abstract*—The Brazilian federal government regulates the process for procurement of Information Technology (IT) solutions through specific legislation named Regulatory Instruction - RI Nº 04/2010. This process consists of three phases: procurement planning, supplier selection and contract management. This work helps (i) specify and validate an approach for traceability between legal requirements and documents created in the procurement process of IT solutions; (ii) reduce manual work for the verification of legal compliance in the set of artifacts produced; and (iii) support activities of auditing and inspection during and after the procurement of IT solutions by the Brazilian federal government.**

***Index Terms*—regulatory instruction; legal compliance; traceability**

I. Introduction

The process of IT solutions procurement by the Brazilian Federal Public Administration is governed by a specific law called Regulatory Instruction Nº 04/2010 (RI Nº 04/2010) and created by the Brazilian Ministry of Planning, Budget and Management.

According to RI Nº 04/2010, IT solutions procurement must follow three phases: procurement planning, supplier selection and contract management. Each of these phases involves performing a set of activities that consume and produce artifacts [1]. Also according to RI Nº 04/2010 [1], IT solutions must be aligned with a strategic business goal that is described in the Master Plan for Information Technology (MPIT).

Artifacts created during the IT procurement process should: (i) be consistent with each other, (ii) in legal compliance and (iii) aligned with the MPIT [2]. A manual verification of these requirements is laborious and complex because of the large number of artifacts.

This paper proposes a traceability approach to support visualization between artifacts produced during the process for procurement of IT solutions, MPIT and legal requirements of the RI Nº 04/2010. The main goal here is to help identify non-conformities of the procurement process.

The expected contributions of this research are: (i) to provide a traceability visualization mechanism of legal requirements; (ii) to provide a tool to identify non-conformities and (iii) to support auditing and inspection activities.

II. Research Project Definition

The definition of the research project was carried out in an innovative way, through a modeling tool for business instead of following the traditional scientific methodology.

The *Business Model Canvas (BMC)*, a tool used to support the creation of business models [3], was used to define and structure the research. This innovative approach helps: (i) to identify the contributions of the research, (ii) to identify who will benefit directly or indirectly from the approach, and (iii) to show how the research is conducted.

III. Our Approach

A. Value Propositions

Describes how products and services create value for a specific customer segment. In this paper, we describe the expected scientific contributions of our research. They are:

1) *To Create a Traceability Model:* Define a traceability reference model between artifacts created during the process for procurement of IT solutions and requirements of the RI Nº 04/2010.

2) *To Support Traceability Visualization:* Creation of a tool to show traceability relationships between artifacts of IT solution procurement and legal requirements of RI Nº 04/2010.

3) *To Support Management of the Procurement Process of IT Solutions* – Better management and control of the life cycle of IT procurement by using a traceability approach.

4) *To Propose a "Lean and Agile" Instance of the Procurement Process of IT Solutions:* to be used by federal agencies with a small IT staff or with people who lack experience in the procurement process of IT products and services.

5) *To Support Auditing of the IT Solutions Procurement Process:* Traceability visualization helps auditors verify legal compliance.

6) *Greater Transparency in the Actions of Procurement IT:* Disclosure in institutional websites of the IT solutions procurement process providing a navigability mechanism using traceability relationships created by the approach.

B. Customer Segments

Define the different groups of people or organizations an enterprise aims to reach and serve. In this paper, they describe potential involved users (stakeholders) and beneficiaries of the approach. They are federal public agencies, organs of internal and external control, scientific community and society.

C. Channels

Describe how a company communicates with and reaches its Customer Segments to deliver a Value Proposition. In this paper, they describe the way in which this research interacts and reaches its stakeholders for delivery of the suggested contributions. In this case, the choices of channels are the traceability tool, publications in journals and presentations in conferences and workshops.

D. Customer Relationships

Describe the types of relationships a company establishes with specific Customer Segments. Here, they correspond to the interaction possibilities of this research with stakeholders. They are e-mails, sites, discussion forums, and research projects.

E. Key Resources

Describe the most important assets required to make a business model work. In this paper, these include the theoretical and conceptual frameworks of this research, which are RI Nº 04/2010; procurement model IT solution [4]; reference models for traceability; research databases; processes for procurement IT solutions; approaches that deal with the legal requirements notation; legal compliance approach that deals with the mapping of the legal requirements in laws, facilitating traceability; and a rule-based approach to support automatic generation of traceability relationships between design models and code specification [5].

F. Key Partnerships

Describe the network of supplier and partners that make the business model work. In this paper, they correspond to partners and suppliers that will contribute to the preparation of this work: the Federal Rural University of Pernambuco, and the Secretariat of Logistics and Information Technology of the Ministry of Planning, Budget and Management (SLTI/MPBM).

G. Key Activities

Describe the most important activities a company must do to make its business model work. In this paper, they describe the methodology for conducting this research. Our traceability approach extends the work presented in [5]. Our research is divided into the following steps: systematic review; definition of relationships (artifacts of the process versus legal requirements); instantiation process of procurement IT solutions; definition and specification of model traceability; and application and assessment traceability model.

H. Cost Structure

Describe all costs incurred to operate a business model. In this paper, they correspond to the costs of the development of this research. These costs are essentially intellectual aspects. Possibly, there will also be costs for enrollment in scientific events.

I. Revenue Streams

Represent the cash a company generates from each Customer Segment. In this paper, they describe the revenues arising from this research, which may be related to money (currency), or related scientific reputation and recognition. In this case, the revenue can come from research projects approved/renovated, papers and consultancy.

IV. Conclusion and Future Work

The federal government is the largest contractor of IT solutions in Brazil, with large investments that grow every year. This reality led to the creation of a specific law for the procurement of IT solutions (RI Nº 04/2010).

It is very complex to ensure that the procurement process of IT solutions is in accordance with current legislation. This paper highlights an approach to address this problem based on the traceability of the legal requirements. The expected scientific contribution of this work is the specification and evaluation of the proposed approach on real cases. The expected technical contribution is the creation of mechanisms to assist and optimize the activities of inspection and auditing during and after the procurement of IT solutions.

The work's main limitation is that it only meets the legal requirements of the federal government of Brazil targeting procurement IT solutions. The future work consists in the implementation of key activities briefly described in this paper.

References

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