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# Semantic-based eService Delivery for eGovernment Domain

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## 1. Introduction

The introduction of Information and Communication Technology (here after ICT) support for services within the domain of Public Administrations (PA) is a one-way path. The more ICTs are used in the frame of public service, the more it will have to be used in years to come. This is due to clear and quick return of the investment in terms of cost and quality of services. In the opinion of the authors, in years to come a soaring of TIC-based solutions for eGovernment will be witnessed that will improve the service from administrations.
Therefore, it is of the utmost importance to provide with a interoperable support for operations among different Public Administrations. The final goal is boosting the cooperation among PAs. Thus, the cost of operations, the time-to-market and the quality of final services will be largely improved. At this point, it is clear that the proper care has to be put on the interoperability of provided solutions.
Interoperability must be considered from different points of view [Pollock and Hodgson, 2004]. Usually, it is generally understood to mean the ability of disparate IT to exchange and use data and information in order to work together in a networked environment. Nevertheless, it can be applied to different features of the system. In the domain of eGovernment, the Commission of European Community has underlined the importance of this topic [Commission of the European Communities, 2003a], and actually different levels for interoperability have been addressed: technical level, semantic level and organizational level. Therefore, we can state that interoperability is not just a technical feature but a fundamental semantic and organizational aspect.
As PAs evolves its support for eGovernment solutions, multi-layered solutions are introduced to support front and back-office interoperability (both intra and inter administrations). Nevertheless, an indeep review of these systems unveil different problems to deal with. In order to deal with this problems, a new tool is brought into scene: semantics. Nowadays, among the scientific community, semantics is usually considered the enabler technology to develop this sort of solutions where interoperability is of the first importance. As shown on the paper, our proposed solution introduces a semantic representation of reality to support computer-based reasoning and to specify in a formal manner tasks. Therefore, a fitting process about business process, PAs knowledge, and software

applications is developed. A proper knowledge management is needed to promote innovation in Public Administrations and to guarantee the adoption of appropriate solutions. In this way, it is easier for machines to automatically process and integrate available information.
A semantic description, i.e., an ontological model of the reality, can be considered as solid frame for developing knowledge in Public Administrations and, at the same time, it can be seen as a common ground used to build up a highly interoperable solution.
This paper intends to show the implementation of a solution offering customer-oriented services in a Web portal developed by Marche Region, the Tecut portal (www.tecut.it). Representing and processing semantic information regarding individual documents is desirable but not enough. To improve the efficiency and reusability of users' work with Web-based information management systems, it is essential to handle a shared document collections. A semantic-based approach on the so-called "Life Events", LEs here after, is followed to drive proposed features. Our proposal allows several advantages such as automatic services composition, advanced searching mechanisms, new functionalities as well as a better usability from the point of view of end users. Summing up, our approach provides a more friendly users support for eGovernment services. Finally, from our experience, we conclude that the introduction of semantic based LE portal based on intelligent documents facilitates the support of eGovernment solutions in a holistic manner.
The rest of the paper is organized as follows. Firstly, we present the current eGovernment state of the art and a brief introduction to the semantic technology. Secondly, we introduce Life Events, as an artifact to model citizen needs and Intelligent documents as a new and more powerful manner to store and deal with citizen data. Later on, a use case, the Tecut portal, where the proposed ideas are implemented is presented. Finally, conclusions are yielded.

## 2. Review on eGovernment

Since 2001 eGovernment represents one of the most dynamic application domain for Information and Communication Technologies. Moreover, it represents a test bed, not just in Europe and the United States but worldwide for challenges and opportunities in a cross-disciplinary area.
In literature we can find several definitions for eGovernment. Some of them are focused on the role of service, others take care of the point of view of citizens and other are centered in internal processes of the administration. We can outline some them.

- eGovernment is defined as "the use of ICT in Public Administrations combined with organizational changes and new skills in order to improve public services and democratic processes and strengthen support to public policies" [Commission of the European Communities, 2003b].

- According to the UN, eGovernment is defined as "the use of Information and Communication Technology and its application by the government for the provision of information and basic public services to the people" [UN, 2007].

- The World Bank states that eGovernment refers to "the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government" [The world bank, 2007].

Additionally, dealing with eGovernment requires the identification of the particular area according to which costumers we are dealing with. These may include individuals, organizations, technical systems, social relations and value systems [Traunmuller, 2003].

**Government-to-Citizen (G2C)** Services in this category deal with the relationships between government and citizens. They allow citizens to access government information and services instantly, conveniently, from everywhere, and, even, using multi-channels solutions.
We can also consider the case of Government-to-Employee (G2E). This area tackles the support for the civil servants themselves with services to manage their carrier, productivity and so on.

**Government-to-Business (G2B)** It drives eTransactions initiatives between government and the private sector such as eProcurement. It also support specific tools for paying online taxes. The opportunity to conduct on-line transactions with government reduces red tape and simplifies regulatory processes. It, therefore, helps businesses to become more competitive.
Close to this area, we can also refer to Government-to-Nonprofit (G2N). This area deals with the special needs of Non Government Organizations such access to specific support their initiatives, information about funding and related issues, etc.

**Government-to-Government (G2G)** This kind of services provides government departments or agencies cooperation and communication and internal exchange of information and commodities. As matter of fact, governments depend on other levels of government to effectively deliver services and allocate responsibilities. The introduction of full interpretability, inside Public Administrations, facilitate the sharing of data, resource and capabilities, enhancing the efficiency, and effectiveness of processes.

As already mentioned, eGovernment is currently a research field where a lot of effort is being placed. As a result, a large number of efforts and initiatives have arisen. In the literature, we can also find some interesting initiatives that make use, at different levels, of semantics applied to LE-based concepts in some manner: the Finnish Web site Suomi.fi (www.museosuomi.fi/suomifi), the EIP.AT project (eip.at), the SemanticGov project (www.semantic-gov.org), the Access-eGov project (www.accessegov.org) just to cite a few.
The promotion of eGovernment introduces a lot of advantages related to effectiveness, efficiency, service quality, transparency and accountability of government. It upgrades of government staff skills and facilitates ICT awareness. At the same time, it reduces the cost and improves the access and the delivery of government information and services to the public, other agencies, and other entities. In this context, the promotion of social agreement

allows the satisfaction of the stakeholders and the diffusion of ICT enabling eGovernment and simplifying integral government services.

## 3. Semantic Technology

The "semantic", as an IT researching field, was born in the earlier 2000's. In May, 2001, Sir Tim Berners-Lee published the foundational article presenting the semantic to the world [Berners-Lee et al., 2001].

> "The Semantic Web will bring structure to the meaningful content of Web pages, creating an environment where software agents roaming from page to page can readily carry out sophisticated tasks for users" [Berners-Lee et al., 2001].

The *ethos* of this idea is to make machines capable of understanding the information within the web. This feature will allow them to make more complex interactions with no need of human support. To accomplish this ambitious goal a long evolution on the technological side has been undertaken during these last years. Currently, the support for these features has been based on the use of OWL [W3C, 2004], a standard from the World Wide Web Consortium. This one allows the IT people to define knowledge about a concrete domain in a formal manner, i.e., to provide an ontology according to the Gruber's definition [Gruber, 1993].

The use of semantic support in IT-based solutions allows the introduction of "intelligence" in software based systems. Thus, it is possible to perform operations no possible in "*raw-data based solutions*". Taking advantage of this semantic support processes automatization is enabled.

We introduce semantic solution in service modeling for a number of reasons. It supports us in making implicit information explicit, which is needed for interoperability and reasoning. It, also, introduces support to describe service in such manner that it allows software agents to search and to obtain services on behalf of the users.

To make this knowledge available for machines, a formal, shared representation of the service must be provided. This knowledge is expressed by means of ontologies. And, in order to express an ontology in a formal manner, different languages [Gomez-Perez et al., 2003] are at our disposal. Ontology Web Language (OWL) [W3C, 2004] is the W3C Recommendation that covers most of DAML+OIL and it is intended to provide a fully functional way to express ontologies. To make possible different levels of complexity, OWL provides different sublanguages with increasing expressivity: OWL Lite, OWL DL and OWL Full. By using OWL, we are addressing a standard, solid and interoperable platform for the provision of this solution.

These ones are expressed, of course, in a particular language. Nowadays, the scientific community has reached an agreement around the use of OWL [W3C, 2004], a W3C [W3C, 2005] language to express semantic information.

## 4. Modeling services: Life Events

From the review of current fashion front-office for eGovernment service, some shortcomings and limitation become clear. These limitations are related to the following constraints.

- **Locating services is not a simple task.** When looking for a particular service in the web site of a PA, it is not a trivial task to find the proper place where the service is held. This is due to wide variety of classification for services, mechanisms for its invocations, visual interfaces and even problem to know before hand if the administration is the responsible for the wished service.

- **Very few administrations provide information about the evolution of services.** Once the operation is requested no more information or tracking is possible. So, in the case of services that take a lot of time, citizens may not feel involved in the process.

- **Web accessibility is not always a highlight in most Web portals.** Official web sites are often WAI-AA or WAI-AAA compliant [W3C, 2007] but this is not the general rule. Besides, the classification of the information itself and the interaction mechanisms are not always as simple and easy as we would wish.

- **Little information about the service, execution conditions, or its evolution is provided.** It is not common to find information about the level of security of invoked operation, the maximum life span for services allowed, laws that support and regulate that services, etc.

- **Several administrations can be concerned by the same topic.** In some operation there may be several administrations concerned (i.e., moving to a new home) and that may drive citizens to confusion.

- **Different mechanisms for identification are required in different administration for the same citizen.**
  No single and horizontal mechanism to access services is available on most official web sites. Usually, a citizen must authenticate himself using different mechanisms in different administrations: a pair user/password, a digital certification, a smart card,...

- **Usually it is not possible to customize the access to services.** It is not possible for citizens, once they are logged in, to access the most likely services to be invoked according to their profiles, their customized interfaces, and, even in most cases, no profiles are stored. We observe lacks on citizen profile managing.

This leads us to propose a new paradigm to model and characterize services in this domain. The use of LEs is proposed. At the same time, we discuss on a proper methodology useful in order to transform common service into a LE expressed under the terms of the provided ontology.

### 4.1 LE Definition and Characterization

LEs can be considered as an artifact to model those situations where a citizen needs support or license from a Public Administration to tackle a situation from his own point of view.

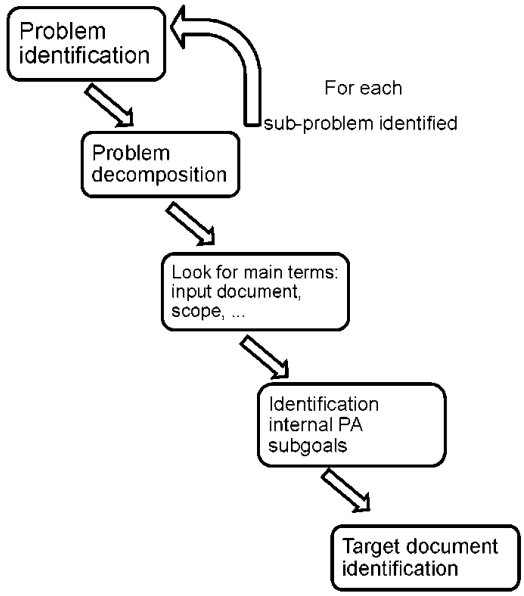


Fig. 1. Schema for the defintion of LE.

This would be case of LE such as moving, losing the wallet or requesting a grant; on contrary situation such as getting a form or a certification or submitting a piece of information to a Public Administration cannot be considerer in the same way. LE can be describing under the following topics.

- **Task.** Title for the considered operation. Folksonomies plays an interesting role as they provide support for semi-automatic enhancements of discovering services.
- **Description.** High level description of the desired operation expressed in natural terms from the point of view of the citizen.
- **Input Documents.** As previously stated, all operations carried out by the administration require some input documents. Citizen is requested to provide a signed form in order to invoke the operation. This element plays a role similar to *preconditions* in some environments. In the considered case, we can identify as inputs documents, the current certification.
- **Output Document.** Of course, as a result of any performed operation, the PA in charge must provide an output expressed in terms of the ontology. This information will be put together into one or several documents. This output will vary its content from the expected document (i.e., a certification, a license, . . . ) to information about the failure to get the expected document.
- **Scope.** We must identify the scope of the operation (local, national, international, . . . ) where we want the operation to be recognized.

- **Security Conditions.** This is intended to express the conditions for the security mechanism involved during the whole process. This includes the identification of both parties, citizen and PAs, and also the way is stored by any agent involved that could be able to use it.
- **Cost.** This will express the amount you have to pay for the requested operation and/or also the time it will take for the completion of the operation.
- **Steps.** A LE can go through different stages until its fulfilling. A description of them must be provided to be at the disposal of citizen willing to make use it.

### 4.2 Methodology

In order to transform common services into a LE expressed in the proposed terms, we must follow a simple methodology. For the sake of clarity, we are going to show the former by means of an example: the situation in which a citizen has to move to a new residence. This operation may require the collaboration of several different PAs and several processes the citizen does not have to be aware of. Thus, we propose the following schema (see Fig. 1).

1. Identify the problem and dealing features as PAs involved.

   Applied to our practical case, the task we are dealing with is the change of address for a citizen. The involved PAs are the cities council, of course, they should involve several offices or divisions but that should be transparent for the citizen.

2. Decompose the problem into several different problems that may be solved in a single step, i.e., each step must produce as output a document meaningful for the citizen.

   The considered operation in the example may involve one single operation and no subprocesses are relevant to the citizen.

3. For each identified subprocess, look for the input documents, scope and cost. These ones must be ex-
   pressed in terms of the LE ontology.

   The input document required in our case is the certification of the current citizen address, the document to prove the new address and the signed request for the change. The scope for the operation is national. No cost is put on the citizen and no limitations are related to it.

4. Identify internal partial aims for citizens and PAs. These steps usually involve internal documents. They
   can be meaningless for the citizen but relevant for the administration.

   In our example, several steps can be identified: check for the correctness about the former address data, look for pending payments, update internal data, notify related PAs, and, finally, generate the certification for the new address.

5. Identify possible documents as possible final steps of the operation.

   In our case, the target document is the certification for the new address. Nevertheless, if problems arise, mainly related to some internal step, documents to notify those

errors may be generated. Those documents will inform about problems due to pending payments, problems with legal constrains, . . . These documents must be included in the ontology.

6. Update all services and agents that may be aware of the new service.

### 4.3 Applying semantics

So far, no technological binding has been established. This approach can be used in different frameworks or using several technologies. Nevertheless, in our work we take advantage of semantic support to unleash all possibilities within this technology.

The proposed approach benefits from the power of OWL to express the information relevant for the system. Nevertheless, we must keep in mind that OWL is just a tool to express knowledge with all its potential and limitations. Some limitations on the possibilities of OWL to express knowledge have been faced. In particular, OWL does not support relations that involve properties whose range is a class itself. Only an individual from a particular class is a possible range for properties. This leads us into shortcomings in the definition of some relations (for example, we would like to establish a relation between an individual from the class LE and a subclass of "document", not an individual from that class). This situation was overcome using a higher level of abstraction implicit in a single individual (the use of individual documents belonging to the class document as a generic one with no information by itself).

Additionally and for the sake of consistency of current and future information in the system, some rules has been defined (see Fig 2): all LEs generate some Document (Rule 1), all LEs are supported by some PA (Rule 2), all Documents are issued by some PA (Rule 3), etc.

Of course, lower level details about the conformance to local or national laws regarding document and legal procedures are not considered at this point. Therefore, further implementations of the system must take into account their own legal framework and stick to their own constrains.

## 5. Tecut: implementing concepts

Web portals are playing an important role in the provision of digital services for citizens and PAs. The evolution from the old-fashion Web sites to the current Web portals has allowed the development of new ways of doing business, learning, accessing services, ... They are referenced, in the modern information society, as eTechnologies. At the same time, PAs noticed the emerging of Web portals as significant tools enabling eGov-ernment and they are introduced as gateways to interact with citizens. The use of Web portals makes possible the reduction of time and cost for both Public Administration and citizens, enables 24/7 services, and provides a better quality of service for citizens.

A number of eGovernment portals have been already developed even though, in several cases, shortcomings related to interoperability and usability limit their usage and potentiality. Due to the unavoidable need for service integration, interoperability concerns must be solved. This issue involves concerns at administrative, operational, technical, semantical, legal and cultural level [Bekkers, 2005]. Thus, PAs must perform a long-term study to evaluate how to deploy their solutions. Theses ones must provide the highest possible level of satisfaction to really increase the level of interaction with citizens.

In this context, the introduction of LEs and intelligent documents bring us a new sort of eGovernment platforms. Full integration among documents and the LEs is provided. Thus, a system capable of presenting a standard representation for eGovernment documents and model citizen needs is developed.

### 5.1 Motivation

Several Italian Regions were suggested to develop eGovernment solutions aimed at increasing interactions between Public Administrations and citizen by means of ICTs infrastructures. In order to accomplish this high level goal, several issues related to key aspects in the eGovernment domain have to be taken into account, such as authentication and authorization, service publishing and discovery as well as composition. As results of these considerations and according to a study about skills for the case [Corradini et al., 2006a], it was developed the Tecut portal (see Figure 3), a fully integrated eGovernment portal for shared and standardized services. Tecut is developed in collaboration with one of the Italian local administration, the Marche Region. Taking into account the former considerations, LifeEvent and intelligent document based approach was used to deliver service in a more suitable way for users.

| Rule | Definition |
|---|---|
| Rule 1<br>$R_1 = \{\forall LE \exists\, Doc,$<br>$generates(LE) = Doc\}$ | <owl:Class rdf:about="#LifeEvent"><br><rdfs:subClassOf><br><owl:Restriction><br><owl:onProperty><br><owl:FunctionalProperty<br>rdf:ID="generates"/><br></owl:onProperty><br><owl:someValuesFrom><br><owl:Class<br>rdf:about="#Document"/><br></owl:someValuesFrom><br></owl:Restriction> |
| Rule 2<br>$R_2 \quad \{\forall LE \exists\, PA,$<br>$isSupportedBy(LE) \quad PA\}$ | <owl:Class rdf:about="#LifeEvent"><br><rdfs:subClassOf><br><owl:Restriction><br><owl:someValuesFrom<br>rdf:resource="#PA"/><br><owl:onProperty><br><owl:InverseFunctionalProperty<br>rdf:ID="isSupportedBy"/><br></owl:onProperty><br></owl:Restriction><br></rdfs:subClassOf> |
| Rule 3<br>$R_3 - \{\forall Doc \exists\, PA,$<br>$isGeneratedBy(Doc) = PA\}$ | <owl:Class rdf:about="#Document"><br><rdfs:subClassOf><br><owl:Restriction><br><owl:someValuesFrom<br>rdf:resource="#PA"/><br><owl:onProperty><br><owl:InverseFunctionalProperty<br>rdf:ID="isGeneratedBy"/><br></owl:onProperty><br></owl:Restriction><br></rdfs:subClassOf> |

Fig. 2. Rules defined in the system

### 5.2 Features

The portal implements the proposed transformation of final services as they are requested by citizens into new LEs expressed in terms of the semantic definition (as previously mentioned). This approach is suitable for eGovernment field, or at least more suitable than in other environments, due to several reasons: all operations require some input document, the most common output in the service is a new document, there is no need (opportunity) for bargaining about services, there are limits and conditions very explicit about the data managing in terms of trustability and security (non-repudiation, privacy, integrity and confidentiality) and operations does not have real time constrains.

A global vision of the Marche Region, the scenario of this successful use case, involves financial entities, big enterprises, SMEs and a large and highly distributed population. This environment is quite convenient in order to test the system.

Even a lot of issues deserve a special attention, we would like to outline some of them of special relevance at this point. In the next subsection we focus on the authentication, document management and discovery and composition.


Fig. 3. Tecut Portal Home-Page.

#### 5.2.1 Authentication

The authentication process plays a main role in Tecut. It represents the instant when the system determines the association between the digital identity and the user. The recent proliferation of digital services has raised concerns about a lot of authentication mechanisms.

Marche Region supports the realization of a central authentication solution through Cohesion [Corradini et al., 2005]. It is an infrastructure that provides solutions for complex technical problems and a set of common standard services predisposed to realize applicative cooperation as the Italian eGovernment plan states. Authentication services for centralized

management access in private areas are provided by Single Sign On (SSO) [Clercq, 2002] and Profiling system.

- The SSO's tasks are predisposed for the transfer of credentials between authenticated users and access portal. In particular, the authentication on the framework is possible with different levels: via weak registration using username and password and via strong registration using services regional cards "Raffaello". Furthermore, SSO allows a transparent access to the portal's reserved areas without further authentications and it allows that authentication credentials and user profiling are made available to different application domains. Indeed, the user authentication check is delegated to the service. It uses a regional services register to validate the profile in respect to the access roles.

- The profiling system is dedicated to the coordinated management of credentials information, logically divided in a static subsystem and in a dynamic one, containing a series of attributes capable to indicate the user's preferences when accessing the services. A part of user base profile will be requested during the registration phase, and another part is communicated after explicit request, when a service is used. The goodness of this approach is a semantic based representation of the profile to guarantee a proper users management.

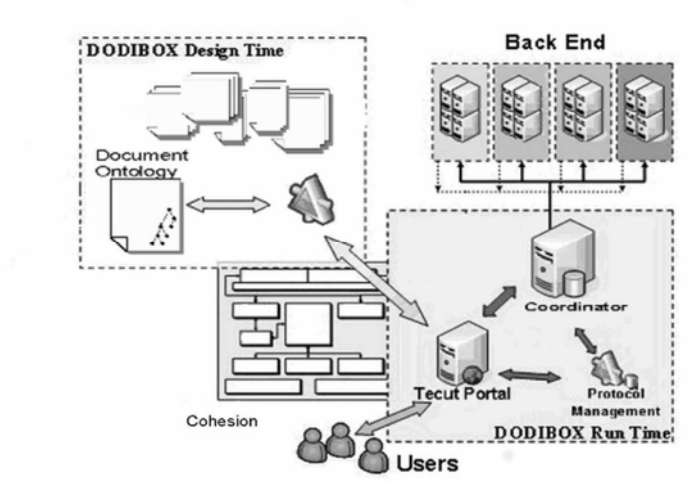


Fig. 4. Document Management System.

In users profiles we have reused former already defined data representation. For example, for the definition of the citizen, one main class in the system, FOAF (www.foaf-project.org) has been reused, and, to mark documents in the system, metadata in [CEN, 2004] has been taken into consideration. This is part of a general philosophy leading toward the maximum possible agreement and reusability both of ontologies and software derived from the former.

### 5.2.2 Intelligent Document Management

Tecut document management is based on Dodibox [Corradini et al., 2006b] (see Fig. 4 for a general overview). The framework presents two different subsystems considering the design time and run time functionalities. The first one, design time subsystem manages document repository through document ontology. On the other hand, the run time subsystem propose a component base approach. A **front-end component** manages the users filling in form fields (using a tracing system), and processes the digital signature. A **coordination component** processes the submitted forms and the forms storage. At the same time, it also forwards the forms to reach the right back-end capable of managing the documents. An **extra component** supports the system during the protocol and updating step. The point of collaboration between the two subsystems is a Web Service that can convert the submitted form into compiler instance for the runtime system.

The core of Dodibox system is based on the coordination, it represents an unique applicative gateway dedicate to intelligent documents. The gateway can manage an intelligent routing verso back-end systems strongly heterogeneity. We underline the role of the semantic of document header, it plays a fundamental role during the coordination. Beside header component previously mentioned, it transports the application gateway type with the aim to active the proper standard adapter (one for each applicative gateway type). At this time the expected gateway are:

- HTTP Post - to forward the document via HTTP;
- FTP - to forward the document via FTP;
- EMAIL - to forward the document via e-mail;
- Certified Electronic Mail - to forward the document via certified electronic mail managing the go back receipt;
- PROTOCOL - to forward the document to Web Service dedicate for the documents protocol;
- Web Service - to forward the document to a back-end Web Service on the base on WSDL defined at orchestration time;
- Message Queuing Services - to forward the document in a message queue allowing the asynchronous and asymmetric interaction with related back-end systems.

More than one application gateway related to a single document can be activated. A coordination engine provides autonomously a re-synchronization of parallel process. The engine manages also exceptions rising during the interaction with system outdoors. After the document is stored, the engine produces a log message allowing users feedback about document process.

### 5.2.3 Discovery and Composition

Processes related to discovery and composition of services were specially taken into account. The conditions to execute a particular LE can be checked in a automatic manner by a semantic engine. As LE are expressed in terms of OWL expressions, a semantic software was developed to discover if a certain LE can or can not be invoked. These conditions for the execution of a LE are based on the profile of the citizen and the document he/she is in possession at the time of invoking the LE.

Accordantly, the output of the operation is also defined also in terms of the same ontology and, in this case, involves also the documents addressed in the LE. Thus, it is quite simple to

make compositions using a semantic reasoner as it only will have to link outputs and inputs expressed in the same terms from the same ontology.
As a result of these design decisions, advanced ways for the composition and the discovery of services are possible within the project Tecut.

### 5.3 Discussion

This new approach brings several advantages in the design and planning of a semantic based solutions for government web portal focusing on the eGovernment portal main functionalities. Our approach supports the cooperation in an environment as Marche Region characterized by a lot of small municipalities. At the same time, this study case is aimed at supporting activities of small and medium enterprises. The introduction of LE and intelligent document promotes stakeholders cooperation reducing administrations cost and promoting the maturity of eGovernment taking into account diverse organizations of the administrations.
The provision of this sort of solutions requires the engagement of PAs in a long term bet. It is compulsory that PAs make up their mind and give a step ahead in the adoption of semantic in their applicatin. Even outcomes are clear, as this project shows, and almost mandatory in current state of the art, some PAs currently are not getting involved as it would be desirable. So, for the sake of future solutions, it is important to illustrate the scene of eGovernment with success use cases as the presented one.

## 6. Conclusion

Currently, PAs are or will be experiencing a large and deep transformation and this transformation has already begun and it is mainly focussed in improving the interface used by citizens. Nevertheless, it is expected to compel also transformations inside PAs themselves in order to achieve better internal procedures that facilitates the managing of back-office mechanism. That is in aim of the presented proposal that suggests the introduction of LifeEvents to support services with an homogeneous schema along all PAs involved.
This evolution in the provision of service is based on providing a semantic layer of service where PAs can build up their own services in a quite straight forward manner. Therefore, they can focus on the service itself and not of how this service can possible be delivered. By taking advantage of the proposed schema, PAs will be in position to provide a better service to their citizens and also to improve their own internal dynamics.
The *ethos* of the proposal lays in supporting in a holistic manner the concept of one-stop service when ever it is possible. As stated in [Commission of the European Communities, 2003a], the goal is that *the customer need not be aware of the various public administration bodies that co-operate in seamlessly delivering the service.*
In this approach, the use of Life Event and intelligent documents plays a main role to prove the status of performed operations and guarantee the conditions achieved in previous operations. Under this approach, it is possible to orchestrate services in a automatic manner.
The provision of a solution aimed to support operations in the scope of Public Administrations requires the collaboration of those last ones. Mechanisms and business logic involved in the frame of public service highly differs from other related environments such eBusiness. Methodologies and options available on one field are no possible on the

other and conversely. Thus, developers in the area must keep in mind a number of cautions that may increase the time-to-market in the eGovernment context.
These concepts presented along the paper are actually tested on the Tecut Platform, as shown in the article. This project provides with an empirical validation of suggested ideas. Making the best of available technologies, not very mature in the field of semantics, it was possible to develop a holistic software support that provides citizen with advanced services. With in this project, it is tested a solid and reliable method to support back-office procedures and tackle the proper use of documents in the context of the Public Administration.

## 7. Acknowledgment

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