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Citizenpedia: simplifying Citizens interaction with Public Administration

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ABSTRACT

Governments are facing increasing expectations from citizens to deliver more innovative and responsive services. Digital technologies offers opportunities for more collaborative and participatory relationships across stakeholders to actively collaborate in the design of public services and participate in their delivery. In this work we present Citizenpedia, a software framework under development within the H2020 SIMPATICO project, that aims to involve citizens in improving e-services provided by public administration and simplifying their usage.

CCS CONCEPTS

• **Applied computing** → *Computing in government*;

KEYWORDS

E-government, Citizen participation, Citizenpedia

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1 INTRODUCTION

Public sector innovation and the modernisation of public administrations are considered important underlying factors for economic growth in a global market. Although E-Government continues to be recognized as a key strategy for improving government services and the effectiveness of public policies and programs, new approaches are needed to support a shift from government-centric services to user-centric ones [3]. Following the European eGovernment Action Plan [1], it is clear that there is a need to move towards a personalized delivery of e-services that can leverage both on innovative technologies and on the collaboration with citizens, entrepreneurs and civil society. One of the main challenge to face with is the need to offer a more effective experience to citizens in their daily interaction with Public Administration (PA) by offering a personalized delivery of PA online services, by enabling a better comprehension of the complex processes and documents (forms, regulations, etc) behind these services, and by engaging them to improve the administration procedures. The SIMPATICO project [2] mainly deals with the above challenge. Its goal is to improve the experience of citizens and companies in their daily interactions with the public administration by providing a personalized delivery of e-services based on Natural Language Processing techniques and by promoting an active engagement of people for the continuous improvement of the interaction with these services.

In this work we present Citizenpedia, a subsystem of the SIMPATICO project whose goal is to provide a place where citizens can find answers to their questions/doubts and interact in an amenable way with the public administration.

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2 CITIZENPEDIA ARCHITECTURE

The Citizenpedia is the human computation framework that leverages the SIMPATICO project with the collaborative knowledge provided by its stakeholders. It is composed of several building blocks shown in Figure 1, each one providing a functionality. Two main ways of accessing the Citizenpedia exist: through a web user interface (mostly for citizens/civil servants) or through a REST API (aimed for the communications with other SIMPATICO components or 3rd party applications). The main three tools exposed to stakeholders are: a) the Question and Answer Engine (QAE), where citizens can post and resolve doubts regarding e-services and public administration; b) the Collaborative Procedure Designer (CPD) that offers graphical tools to the civil servants and stakeholders to collaborate on the design of administrative procedures; c) the Servicepedia, which serves as *wikipedia* container for information about the PA services. The *Gamification engine* is a backend component which enables to apply gamification techniques within the Citizenpedia in order to improve citizens engagement. Finally, the persistent part of the Citizenpedia is maintained in the Collective Knowledge Base (CKB), composed by the *Database*, which stores the data from the QAE and CPD, and by the *Indexing Engine* used to provide enhanced results to text-based queries in the QAE.

Question & Answer Engine. The *Question & Answer Engine* (QAE) provides a place where citizens post and resolve doubts regarding e-services and public administration. Its look-and-feel is similar to popular question & answer web site (see Figure 2). The

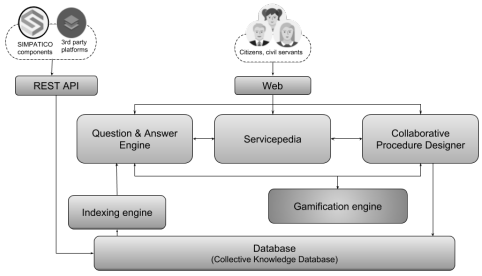

Figure 1: Citizenpedia overall architecture

main functionality of QAE is to create and answer questions in a public manner. Users are encouraged to communicate in a public manner, with the aim for all the generated information to remain over the time. This is usual in QAE places in the field of computing (e.g. Stack Overflow), where sometimes an answer written two or three years past in time is useful for the user seeking for a doubt clarification. In addition, questions are searchable and sortable. In order to keep the user engaged, a rewarding and reputation mechanism is considered. Each time a user conducts an action (e.g. posting/answering a question, leaving a comment, and so on), it is recorded and several points are given. This enables users to gain reputation, distinguishing the most active participants in the community. In addition, once a user reaches certain level of reputation, he/she gains some moderator-role skills.

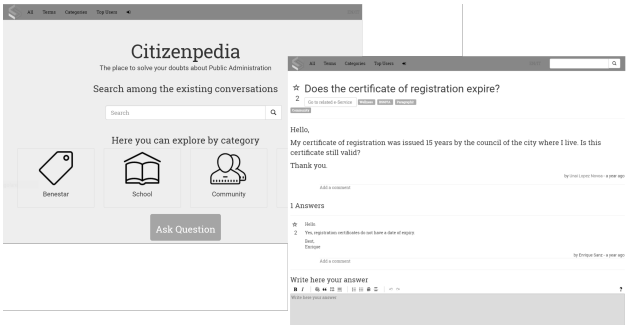

Figure 2: QAE user interface

Collaborative Procedure Designer. The *Collaborative Procedure Designer* (CPD) is the Citizenpedia component that allows to describe administrative procedures in the form of flowcharts/diagrams, enabling citizens to comment on them. The core of the CPD is a model that allows for the definition of multiple hierarchical views, each providing a representation of the procedure with a growing level of details. Currently, only the two lowest views of the hierarchy have been designed: the *value-chain* view and the *interaction* view. The *value-chain* provides information concerning the sequential phases that the procedure is broken into. From this view it is possible to learn the name of the phases and realize the phases' temporal order. By expanding a specific phase, an *interaction* view gets displayed. This view shows a flow of the interactions between the citizen and the PA that are carried out in that phase. Also, the communication channel through which the interaction will occur is explicitly indicated by means of specific icons. The example shown in Figure 3 provides an expanded view of the phase named "Proceedings for the Release of Construction Permit" that belongs to the "Construction Permit" procedure diagram. While the citizen is the user that will benefit of these views, the civil servant is in charge of drawing the views. In fact, the latter is supported by a graphical designer to create the hierarchical views of an administrative procedure. CPD realizes a collaborative environment on which the stakeholders (citizens and civil servants) cooperate to the design and the improvement of administrative procedures. In order to stimulate such participation and cooperation, it adopts the same rewarding and reputation mechanism designed for the QAE.

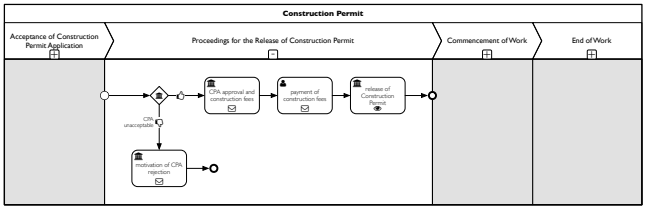

Figure 3: Administrative Procedure Diagram

Servicepedia. Servicepedia integrates information from the QAE, the CPD and the PA electronic services (mainly, html forms) to contextualize the existing questions, answers and procedure steps. Through it, Citizens are granted access to the description of electronic services provided by the PA and its associated set of questions and answers contributed and bound to each of the elements the service is composed of (e.g., paragraphs or interaction elements of the html form).

3 CONCLUSIONS

In this work Citizenpedia, a framework designed and under development within the context of the H2020 SIMPATICO project [2] has been described. It allows to gather collective knowledge from users and civil servants about procedures and e-services provided by public administration. In future works the developed prototype will be completed and validated through experimentation in the three pilot sites of the project.

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