



eGovPoliNet

The Policy Community

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D2.2 eGovPoliNet portal including advanced functions for community and constituency building (version 2: final version of D2.1)

Work package: WP 2 – eGovPoliNet Portal

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Abstract	This deliverable presents the eGovPoliNet portal (http://www.policy-community.eu/knowledge-portal); the methodology followed in order to develop the portal and its main functionality. D2.2 is the final version of D2.1 which was submitted as interim report at M12 of the eGovPoliNet project.

Table of Contents

ABBREVIATIONS AND ACRONYMS	7
EXECUTIVE SUMMARY	8
1. INTRODUCTION	10
1.1. PURPOSE AND SCOPE.....	10
1.2. COLLABORATION WITH CROSSOVER.....	10
1.3. RELEVANCE TO D.2.1.....	10
1.4. STRUCTURE	11
2. METHODOLOGY.....	12
3. DESCRIPTION OF THE CROSSOVER PORTAL.....	13
3.1. FUNCTIONAL DESCRIPTION	13
3.2. TECHICAL DESCRIPTION	15
4. ENHANCEMENT OF THE CROSSOVER PORTAL.....	18
4.1. FUNCTIONAL ENHANCEMENT	18
4.1.1. Added functionality	18
4.1.1.1. Integration with LinkedIn	19
4.1.1.2. Integration with Mendeley.....	20
4.1.1.3. Portal Wiki.....	22
4.1.1.4. Policy-making Glossary.....	23
4.1.1.5. Content review mechanism.....	24
4.1.1.6. Mass paper citation upload mechanism	25
4.1.1.7. Monitoring portal statistics	25
4.1.2. Removed functionality.....	26
4.2. AESTHETIC ENHANCEMENT	27
5. FUNCTIONAL DESCRIPTION OF THE EGOVPOLINET PORTAL	29
5.1. PORTAL PRESENTATION.....	29
5.2. GUEST FUNCTIONALITY	30
5.3. REGISTERED USER FUNCTIONALITY	34
5.4. REVIEWER FUNCTIONALITY	36
5.5. PORTAL ADMINISTRATOR FUNCTIONALITY.....	39
6. TECHNICAL DESCRIPTION OF THE EGOVPOLINET PORTAL	41
6.1. DATABASE DESIGN.....	41
6.2. LINKEDIN MODULE	42
6.3. MENDELEY MODULE.....	43
6.4. WIKI MODULE.....	44
6.5. GLOSSARY MODULE.....	45
6.6. CONTENT REVIEW MECHANISM	46
6.7. MASS PAPER CITATION UPLOAD	46
6.8. MONITORING MODULE	47
7. CONCLUSION.....	48
8. REFERENCES	49
9. APPENDIX I: METHODOLOGY FOR PORTAL'S CONCEPTUAL DESIGN	51
10. APPENDIX II: PORTAL REQUIREMENTS.....	53
10.1. STUDY OF THE DESCRIPTION OF WORK (DoW) OF THE EGOVPOLINET PROJECT.....	53

10.1.1. Presentation of the DoW Citations	53
10.1.2. Requirements from the DoW Citations.....	55
10.2. ANALYSIS OF POPULAR ACADEMIC AND PRACTITIONER COLLABORATION PORTALS.	59
10.2.1. Presentation of Academic Collaboration Portals	59
10.2.1.1. Research Gate	59
10.2.1.2. Academia.edu	62
10.2.1.3. Ologeez!.....	63
10.2.1.4. ePractice.eu	64
10.2.1.5. Mendeley	65
10.2.1.6. Policy network	67
10.2.1.7. Figshare.....	68
10.2.1.8. LabSpaces	68
10.2.2. Requirements from existing academic collaboration portals	69
10.3. GATHERING OF USAGE SCENARIOS FROM THE PROJECT PARTNERS.....	73
10.3.1. Presentation of Usage Scenarios	73
10.3.1.1. Scenario 1: Introducing a new member to a team.....	73
10.3.1.2. Scenario 2: Finding a partner	73
10.3.1.3. Scenario 3: Search for experts in a particular area.....	73
10.3.1.4. Scenario 4: Profile Management.....	73
10.3.1.5. Scenario 5: Project Publishing and Management	73
10.3.1.6. Scenario 6: Event Management	73
10.3.1.7. Scenario 7: Functionalities for Policy Makers.....	74
10.3.1.8. Scenario 8: Functionalities for Researchers.....	75
10.3.1.9. Scenario 9: Promoting own Results	76
10.3.1.10. Scenario 10: Register & Browse the Knowledge Base.....	76
10.3.1.11. Scenario 11: State – of – play & Comparative Analysis.....	77
10.3.1.12. Scenario 12: Sharing and Contributions	77
10.3.1.13. Scenario 13: Contributions and Elaborations.....	78
10.3.1.14. Scenario 14: Rights Management	78
10.3.1.15. Scenario 15: Updating Content.....	79
10.3.1.16. Scenario 16: Grand Challenges & Future Visions	79
10.3.1.17. Scenario 17: Setting – up a collaboration network	80
10.3.2. Requirements from usage scenarios.....	81
10.4. REQUIREMENTS GATHERING DURING PROJECT’S MEETING AND TELECONFERENCES.....	86
10.5. REQUIREMENTS DOCUMENTATION	86
10.5.1. Requirements List	86
10.5.2. Stakeholders and Roles	91
10.5.2.1. User Groups	91
10.5.2.2. Roles	91
10.5.2.3. Assignment of Roles to User Groups.....	94
10.6. REQUIREMENTS PRIORITIZATION	94
10.7. REQUIREMENTS VALIDATION	96
11. APPENDIX III: PORTAL DESIGN	97
11.1. THE DESIGN PROCESS	97
11.2. ENTITIES’ MODEL	102

11.3. FUNCTIONS' MODEL	103
12. APPENDIX IV: COMPARISON OF EGOVPOLINET'S SPECIFICATIONS AGAINST CROSSOVER PORTAL FUNCTIONALITY.....	109

List of Figures

Figure 1 The methodology followed for the eGovPoliNet Portal Development	12
Figure 2 Guest User Use Case Diagram	14
Figure 3 Registered User Use Case Diagram	14
Figure 4 Platform Administrator Use Case Diagram.....	15
Figure 5 High level architecture of the Crossover platform	16
Figure 6 Crossover physical diagram	17
Figure 7 Functional enhancements to the Crossover portal	18
Figure 8 The LinkedIn module of the portal.....	20
Figure 9 The Mendeley module of the portal	22
Figure 10 The portal's Wiki	23
Figure 11 The Policy-modelling glossary term	24
Figure 12 The review options for the submitted content	25
Figure 13 Monitoring statistics panel from Google analytics.....	26
Figure 14 The new logo of the portal	27
Figure 15 The "About the projects" information tab	27
Figure 16 Portal banner at home page	28
Figure 17 Portal's home page.....	30
Figure 18 Browse methods	31
Figure 19 Search content	32
Figure 20 View item details.....	32
Figure 21 Browse glossary	33
Figure 22 Leave comment on wiki topic	34
Figure 23 Submit case/paper.....	35
Figure 24 Discussion on submitted content	36
Figure 25 The review process	38
Figure 26 Add wiki content	39
Figure 27 Add/Edit a glossary term.....	40
Figure 28 The administrator's control panel.....	40
Figure 29 eGovPoliNet portal ER diagram.....	42
Figure 30 Wiki module configuration	45
Figure 31 Google analytics settings.....	47
Figure 32: The methodology followed for the requirements identification and the conceptual design.....	52
Figure 33: The entities' model of the eGovPoliNet Portal as a UML class diagram.....	102
Figure 34: The functions' model of the eGovPoliNet Portal as a UML class diagram	103
Figure 35: Entities supported / not supported by the Crossover portal.....	111
Figure 36: Functions supported / not supported by the Crossover portal	112

List of Tables

Table 1: Mapping of Requirements with Citations from DoW	58
Table 2: Mapping of Requirements with Popular Academic Portals.....	72
Table 3: Mapping of Requirements with Usage Scenarios, provided by the Consortium	84
Table 4: Requirements List of the eGovPoliNet Portal	90
Table 5: Users of the eGovPoliNet Portal.....	91
Table 6: Roles of the eGovPoliNet Portal.....	91
Table 7: Access Rights for each Role	93
Table 8: Assignment of Roles to Stakeholders	94
Table 9: Prioritized Requirements List	96
Table 10: Traceability table between the eGovPoliNet portal's entities and the requirements. ..	99
Table 11: Traceability table between the eGovPoliNet portal's functions and the requirements	101
Table 12: Definition of the eGovPoliNet portal's entities	103
Table 13: Comparison of the eGovPoliNet Requirements against the Crossover portal	110
Table 14: Comparison of the eGovPoliNet Entities against the Crossover portal	110
Table 15: Comparison of the eGovPoliNet Functions against the Crossover portal	111

ABBREVIATIONS AND ACRONYMS

UBRUN	Brunel University
CERTH	Centre for Research and Technology Hellas
COMPASS	The University of Auckland
DoW	Description of Work
EC	European Commission
EUAK	Europäische Akademie zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen
INNOVA	INNOVA SPA
ITMO	SAINT PETERSBURG NATIONAL RESEARCH UNIVERSITY OF INFORMATION TECHNOLOGIES MECHANICS AND OPTICS
KhNU	Khmelnitsky National University
MRSU	MOSKOWSKIJ GOSUDARSTVENNIJ OBLASTNOJ UNIVERSITET
PUC-PR	ASSOCIACAO PARANAENSE DE CULTURA APC
RE	Requirements Engineering
RG	Rijksuniversiteit Groningen
SUNY	The Research Foundation of State University of New York
TUD	Technische Universiteit Delft
TUK	Technical University Kosice
UCD-NUID	University College Dublin, National University of Ireland, Dublin
UKL	Universitaet Koblenz-Landau
ULAVAL	Universite LAVAL
UNU-IIST	UNU International Institute Software Technology UNUIIST
UTS	University of Technology Sydney
VOLTERRA	VOLTERRA PARTNERS LLP
VUB	Vrije Universiteit Brussel
WP	Work Package

EXECUTIVE SUMMARY

This document is the second deliverable of WP2: eGovPoliNet Portal. WP2 aims to create and maintain the eGovPoliNet portal, namely the project's online presence for multidisciplinary and international constituency building and knowledge exchange. The portal intends to act as an information point but also as a collaborative environment, where members of the community will be able to access the publicly available resources and discuss them.

The present deliverable, D2.2, describes the eGovPoliNet portal (<http://www.policy-community.eu/knowledge-portal>), the methodology followed in order to develop the portal and its main functionality. D2.2 is the final version of D2.1 – “eGovPoliNet portal including advanced functions for community and constituency building”, which was submitted as interim report at M12 of the eGovPoliNet project. However, D2.2 is a very different version of D2.1. This is due to the strategic decision of the eGovPoliNet project to enter into a collaboration agreement with Crossover.

In specific, during Year 1 and at the request of the European Commission the Crossover and eGovPoliNet projects established an official collaboration agreement, according to which the eGovPoliNet portal would take over the already deployed Crossover portal, enhance its functionality and maintain it after Crossover project end. The Crossover portal was provided as a test environment to eGovPoliNet only at the start of Year 2 (October 2012). For this reason, D2.1 that was submitted as interim report at the end of Year 1 described the work undertaken until M12 of the project, focusing on the design of the eGovPoliNet portal (Task 2.1) and the initial activities for the implementation of the eGovPoliNet portal (Task 2.2) before Crossover portal's take over.

After the final decision of the eGovPoliNet consortium to use the Crossover portal as the basis for its knowledge portal at the start of Year 2 (December 2012), the consortium revisited the initial eGovPoliNet portal requirements and decided upon the enhancements that need to be implemented at the Crossover portal. Staying true to the project's mission statement on “*bringing together researchers from different disciplines to share knowledge, expertise and best practice supporting policy analysis, modelling and governance*”, the consortium additionally decided that the eGovPoliNet portal should mainly act as a community building and knowledge base portal and not as a means for communication, as this functionality is already covered by the project's LinkedIn Group. The final Crossover portal with all its content has been handed over to eGovPoliNet on April 2013. It was then enhanced with functional and aesthetic changes, along with validation rounds from the consortium, before being released in July 2013.

Consequently, D2.2 is prepared in a manner that reflects the aforementioned consortium decisions of Year 2. It therefore adopts a different structure than the one followed in D2.1. D2.2 mainly aims to present the final product of WP2, namely the eGovPoliNet portal, as it was released in July 2013. It also aims to describe and justify the enhancements performed on top of the obtained Crossover portal. As regards the work performed during Year 1 and reported in interim D2.1 deliverable, this is included as appendices in D2.2 for completeness reasons.

The main functional enhancements performed during Year 2 can be summarised to the following points:

- The **policy-making glossary** that contains an extensive list of term definitions related to policy modeling.

- The addition of a **wiki** that facilitates the active involvement of end-users by allowing the formulation of content in a collaborative way.
- The **integration with LinkedIn** that establishes a communication channel between the eGovPoliNet portal and the project's active LinkedIn community interested in the policy modeling.
- The **integration with Mendeley** that offers access to a large pool of scientific resources (i.e. journal papers) related to policy modeling.
- The **content review mechanism** that enables the reviewing of submitted content, thus guarantees the high quality of the portal's content.
- The **mass paper citations upload mechanism** that facilitates the automatic addition of existing scientific resources from databases/libraries to the portal.

These enhancements are in line with the mission's focus on "*sharing knowledge, expertise and best practice*" as they focus on increasing and number and the quality of online resources as well as on increasing members' interaction and collaboration on these resources. Moreover, the focus on the research community is evident through the citations upload mechanism and the integration with LinkedIn and Mendeley, two social platforms that are both popular among researchers and academics.

Future work in Year 3 will focus on the continuous update of the eGovPoliNet portal with arising requirements and demands.

1. INTRODUCTION

1.1. PURPOSE AND SCOPE

This document is the second deliverable of WP2: eGovPoliNet Portal. WP2 aims to create and maintain the eGovPoliNet portal, namely the project's online presence for multidisciplinary and international constituency building and knowledge exchange. The portal intends to act as an information point but also as a community environment, where members of the community (i.e. users of the portal) will be able to access the publicly available resources and discuss them.

WP2 includes the following deliverables:

- D2.1. eGovPoliNet portal including advanced functions for community and constituency building [month 12].
- D2.2. eGovPoliNet portal including advanced functions for community and constituency building: Final version of deliverable D 2.1 [month 30]
- D2.3. Final sustainable eGovPoliNet portal [month 42]

The present document is the second deliverable of WP2. Its main purpose is to present the eGovPoliNet portal, its main functionality and the steps and methods used for its development.

1.2. COLLABORATION WITH CROSSOVER

During Year 1 and at the request of the European Commission, eGovPoliNet project entered in an official collaboration agreement with Crossover project in order to use the Crossover portal as the basis for the eGovPoliNet portal. According to this agreement, Crossover will provide its final portal (including its content) to eGovPoliNet to be used as the project's knowledge portal. Furthermore, eGovPoliNet will enhance the portal functionality and maintain it after the end of Crossover.

In specific, the eGovPoliNet portal was developed according to the following timeframe:

- A version of the Crossover portal was provided to CERTH in October 2012 to be used as a test environment for familiarization and development of the enhancements.
- The final version of the Crossover portal along with all its content has been handed over to CERTH on 10 April 2013. CERTH installed the final version of the portal along with its content on one of its servers. It is noted here that content migration was unnecessary as the Crossover portal has been installed to the server along with all its content. Then, the developed functionality was added on top of the final Crossover version.
- The eGovPoliNet portal is productively running on CERTH server (with functional and aesthetic changes applied) from 14 June 2013.
- The eGovPoliNet portal was released to the public on 11 July 2013. Invitations, along with user credentials, were sent to eGovPoliNet partners to access the portal and to add further content.

1.3. RELEVANCE TO D.2.1

D2.2 is the final version of D2.1 – “eGovPoliNet portal including advanced functions for community and constituency building”, which was submitted as interim report at M12 of the eGovPoliNet project. However, D2.2 is a very different version of D2.1. This is due to the

previously described strategic decision of the eGovPoliNet project to enter into a collaboration agreement with Crossover.

In specific, after the consortium's final decision to use the Crossover portal as the basis for its knowledge portal at the start of Year 2 (December 2012), the consortium revisited the initial eGovPoliNet portal requirements and decided upon the enhancements that need to be implemented at the Crossover portal. Staying true to the project's mission statement on "*bringing together researchers from different disciplines to share knowledge, expertise and best practice supporting policy analysis, modelling and governance*", the consortium additionally decided that the eGovPoliNet portal should mainly act as a community building and knowledge base portal and not as a communication point, as this functionality is already covered by the project's LinkedIn Group.

Consequently, D2.2 is prepared in a manner that reflects the aforementioned consortium decisions of Year 2; it also adopts a different structure than the one followed in D2.1. D2.2 mainly aims to present the final product of WP2, namely the eGovPoliNet portal, as it was released in July 2013. It also aims to describe and justify the enhancements performed on top of the obtained Crossover portal. As regards the work performed during Year 1 and reported in interim D2.1 deliverable, this is included as appendices in D2.2 for completeness reasons.

1.4. STRUCTURE

The rest of the document is structured as follows:

- Section 2 introduces the methodology followed for developing the eGovPoliNet portal.
- Section 3 presents the Crossover portal (its final version as provided to eGovPoliNet in April 2013).
- Section 4 describes the enhancements made for converting the Crossover portal to the eGovPoliNet portal.
- Section 5 presents the eGovPoliNet portal functionality for each user role.
- Section 6 presents the technical characteristics of the portal.
- Section 7 concludes the deliverable and section 8 provides the reference list.
- Appendices I – IV (sections 9-12) present the work undertaken during the first year of the project, i.e. the extraction of the requirements and the conceptual design of the eGovPoliNet portal and the comparison of the requirements and concepts against the Crossover portal. This work was included in interim D1.1 report, but it is also reported here for completeness reasons, as D2.2 is regarded as the final version of D1.1.

2. METHODOLOGY

The methodology followed for developing the eGovPoliNet portal is based on the collaboration agreement among eGovPoliNet and Crossover. According to this agreement, Crossover provides its final portal (with its final content) to eGovPoliNet to be used as the project's knowledge portal. Furthermore, the agreement specifies that eGovPoliNet will enhance the portal's functionality and maintain it after the end of Crossover.

Therefore, the steps adopted for realising this agreement are as follows:

Step 1. Identification of the additional functionality to be integrated to the Crossover portal. After extensive discussions in project meetings and teleconferences, the Consortium decided to enhance the portal with the following functionality: (i) the addition of a policy-making glossary that contains definition of terms related to policy-making, (ii) the addition of a wiki where registered users can collaboratively edit information related to policy making, (iii) the addition of a review content process where reviewers check the submitted content to the portal before publishing it, (iv) the integration with the project's LinkedIn community, (v) the integration with Mendeley as a source of scientific literature for policy making, (vi) a mechanism for massively uploading paper citations to the knowledge portal, and (vii) the addition of a monitoring tool of the portal statistics, e.g. Google analytics.

Step 2. Development of new functionality of the GovPoliNet portal. The new functionality has been developed using a test version of the Crossover portal. The test version was provided to CERTH at the start of Year 2 (October 2012) exactly for allowing time to familiarise with the portal and prepare the functional enhancements in a stable environment.

Step 3. Installation of final Crossover portal. The final Crossover portal with all its content has been handed over and installed to one of CERTH's servers. It is noted here that content migration was unnecessary as the Crossover portal has been installed to the server along with all its content.

Step 4. Enhancement and release of the portal. The installed version of the final Crossover portal has been updated with the functional and aesthetic enhancements that were previously developed in the test environment. After its validation by the consortium, it was finally released to the public.

The methodology followed is depicted in Figure 1 below.



Figure 1 The methodology followed for the eGovPoliNet Portal Development

3. DESCRIPTION OF THE CROSSOVER PORTAL

This section describes the main functional and technical characteristics of the Crossover portal, the portal used as the basis for the eGovPoliNet portal. Information presented in this chapter has been adopted from Crossover's deliverable “D6.3: The Crossover Platform” (Triantafillou et al., 2012) - readers should refer to this deliverable for more detailed information.

3.1. FUNCTIONAL DESCRIPTION

This section describes the functionality and the main actors supported by the Crossover portal. An actor is defined as any user who exchanges data with the portal. The basic actors of the platform are (Triantafillou et al., 2012):

- The **Guest user** who is able to browse the pages of the Crossover platform and use the offered search functionality. Therefore s/he can view the details of cases, people, organizations, etc. that are available inside the portal but they will have no right to add or modify the existing content. The downloadable material (e.g. papers in pdf format) is also not available to guests.
- The **Registered User** who can add new content into the platform (cases & practices as well as experts & organisations), download content, acquire statistics and provide relevant feedback on the existing content. The registration at the Crossover platform is not open to everyone and only users related to the project are registered.
- The **Administrator** who monitors the platform from the technical point of view, ensures its proper operation and handles users, roles and statistics. The administrator is also responsible for the overall operation of the platform and especially for the ways the content is submitted and/or provided to the users and can be made available through the platform in an easy and effective way.

Each actor has access to different functionality of the portal based on the rights they have. Specifically the **guest user** can:

- Browse portal entities. The user can browse pages of the website menu as well as browse tags from the available tag clouds.
- Search for entities i.e. cases, papers, methods, people and organizations.
- Use tree view search filters. This enables the searching of entities that have been tagged with taxonomy terms and can be selected from a tree view representation.
- Apply free text search using keywords.
- View details of all the platforms' entities i.e. cases, papers, methods, people and organizations. Such details include the title, year, name, surname, email etc.
- View attachments of an entity

The use case diagram at Figure 2 illustrates the functionality available to the guest user.

The **registered user** has access to all the functionality available to the guest user. Furthermore she/he has a list of additional capabilities:

- Discuss about an entity. The registered user can leave a comment for an entity or Like/Dislike other people's comments on an entity

- Download attached documents or other media that are presented in the details page of an entity
- Edit details of existing entities in order to correct an error or add missing information.
- Add new entities i.e. case/paper and person/organisation

The use case diagram at Figure 3 illustrates the functionality available to the registered user.

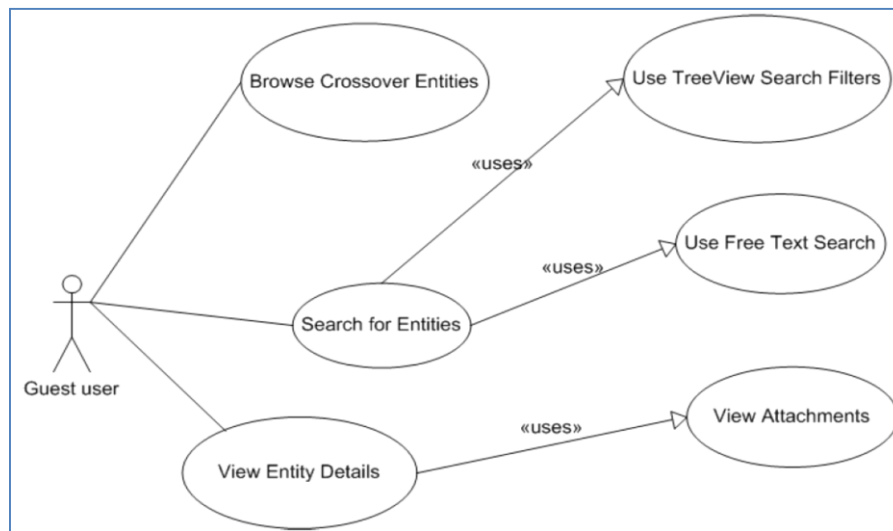


Figure 2 Guest User Use Case Diagram

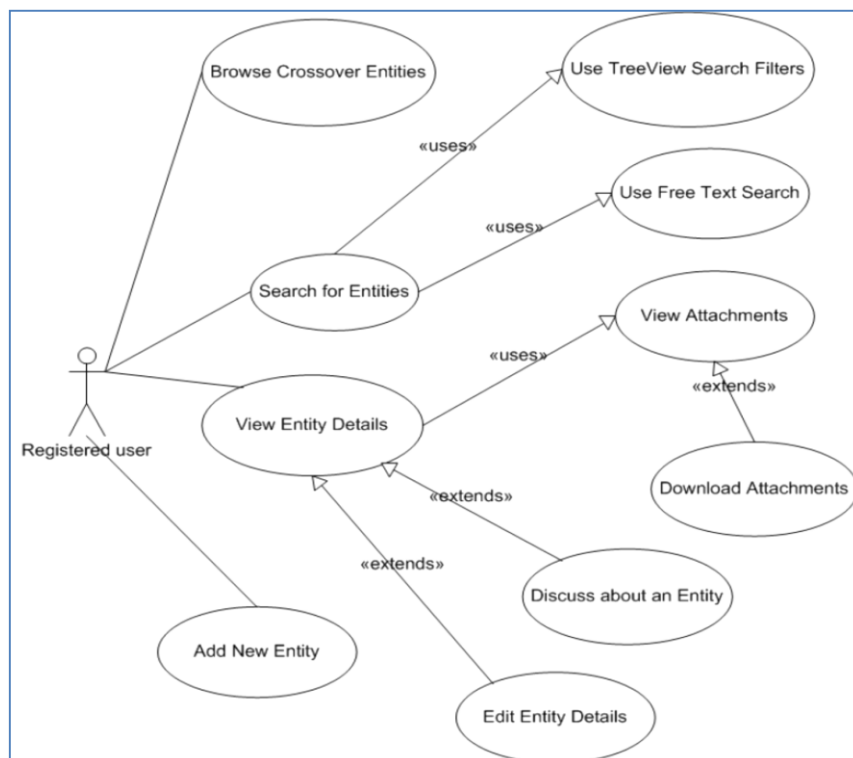


Figure 3 Registered User Use Case Diagram

Finally, the **system administrator** manages the whole platform including users' roles, applications etc. Specifically the system administrator can:

- Handle application parameters/ item metadata. The administrator can view, add, modify, delete, search application related parameters.
- Handle roles (security & permissions). Specifically she/he can create a new role, modify an existing role, assign permissions to roles and remove a role.
- Handle users. The system administrator can assign roles to users, add new / modify existing user, remove users and search users filling various criteria.
- Run statistics (traffic statistics). The system administrator is responsible to monitor the platform's traffic. He can run and see reports based on Platform activity statistics.
- Handle editor's choice entries e.g. select cases or people to appear to the front page.
- Application setup i.e. handles general options or handle pages and menu options.

The use case diagram at Figure 4 illustrates the functionality available to the system administrator.

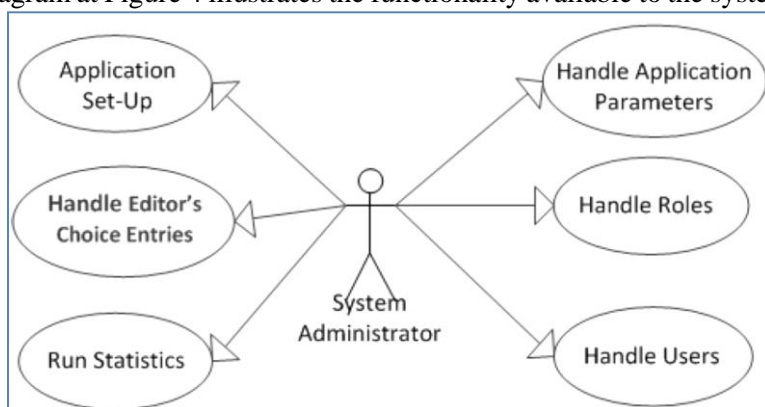


Figure 4 Platform Administrator Use Case Diagram

3.2. TECHICAL DESCRIPTION

The Crossover platform is mainly based on the DotNetNuke (DNN) framework. DotNetNuke is a development framework that gives the ability to quickly build and deploy feature-rich, interactive websites and applications, in Microsoft environments. DotNetNuke is an open source application. It is free, there are no licensing fees or per registered user fees associated with it. In addition, the code to the application is open and available to all. Through an intuitive, menu-driven interface, DotNetNuke can be used to easily create new sites or web applications with extended functionality and features. Specifically DotNetNuke offers:

- **Modules** which are standalone pieces of code providing specific functionality to the user, and can be grouped together in units to form complete web pages. Modules can be easily added, edited, deleted, restored, moved around on a page, or transferred to other pages. DotNetNuke includes many free modules (e.g. Events List/Calendar etc.). Moreover, custom made modules can be easily implemented and deployed in the DotNetNuke platform.

- **Skins** which are customized and interchangeable sets of graphics that allow administrators to easily change the look of their websites without having to reorganize content. This way the user interface can match the needs of a particular web application.
- A built-in **content management system** which is a file management solution and a role-based management system.

The Crossover platform consists of the core DotNetNuke platform and DotNetNuke modules that offer the required services and functionalities. More specifically, four custom modules were created in order to offer the desired functionality about submitting, searching and viewing the entities of the Crossover. The custom DotNetNuke modules are:

1. The **Entity Submission module**, offering the functionality to submit new entities to the Crossover platform
2. The **Entity Details module**, which provides full details about a specific entity.
3. The **Entity Search module**, which gives access to a set of criteria that can be used in order to search entities related to a specific domain, person, tool, etc.
4. The **Diigo reader module** that integrates the third party bookmarking tool ‘Diigo’ with the Crossover platform.

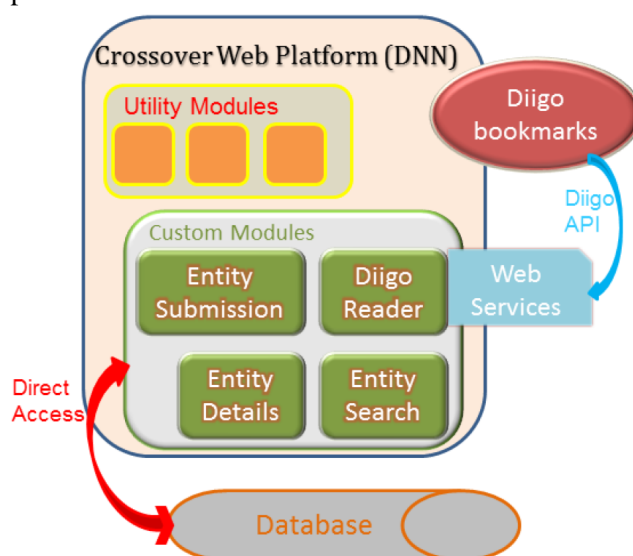


Figure 5 High level architecture of the Crossover platform

The interconnection, interaction and data exchange between the first three modules and the platform are direct since they reside in the same server. The Diigo Reader communicates with the online service offered by the provider of the tool. This communication is realised with the use of the available Diigo API, which is based on Restful web services. The results coming from the aforementioned modules are presented to the users via the presentation layer of the platform which is developed with the use of DotNetNuke skins.

Except from the four main custom DotNetNuke modules, a number of utility modules, which are bundled with the DotNetNuke framework are also exploited at the Crossover platform. An example of such a module is the user and role management module. Examples of utility modules include *i*) the “announcements module” which gives the ability to post news and announcements to the platform’s users and *ii*) from a technical perspective the “HTML module” which enables the developers to add custom HTML code in any place inside the pages of the platform.

The high-level architecture of the Crossover platform, including the custom DotNetNuke modules and their interconnection is depicted at Figure 5.

The physical structure of the Crossover platform has two main levels of components (Figure 6). The lowest level contains the servers and the operating system of the platform and the highest one contains the DotNetNuke framework upon which the Crossover platform is built. A database server and a web server are also included in the platform. The web server is responsible for the portal's presentation and for the applications that run behind the portal. It interacts with the database server in an appropriate way in order to handle, retrieve and display data to the end user. Simultaneous data access, backup and auditing without any interruption of the web interface are ensured by the use of a database management system (RDBMS).

The database server contains the core DotNetNuke data structure which is the base of all the other modules and functionalities. The actual content of the Crossover front-end and the data needed by the developed DotNetNuke modules also reside in the same database, which has been extended to include the required tables. Finally, the Diigo bookmarking tool resides outside the server and therefore the communication with the platform takes place via the Diigo Reader module. The Diigo API provides a set of RESTful web services that allows the retrieval of bookmarks. The Diigo Reader invokes these services and displays the results to the end user of the Crossover platform.

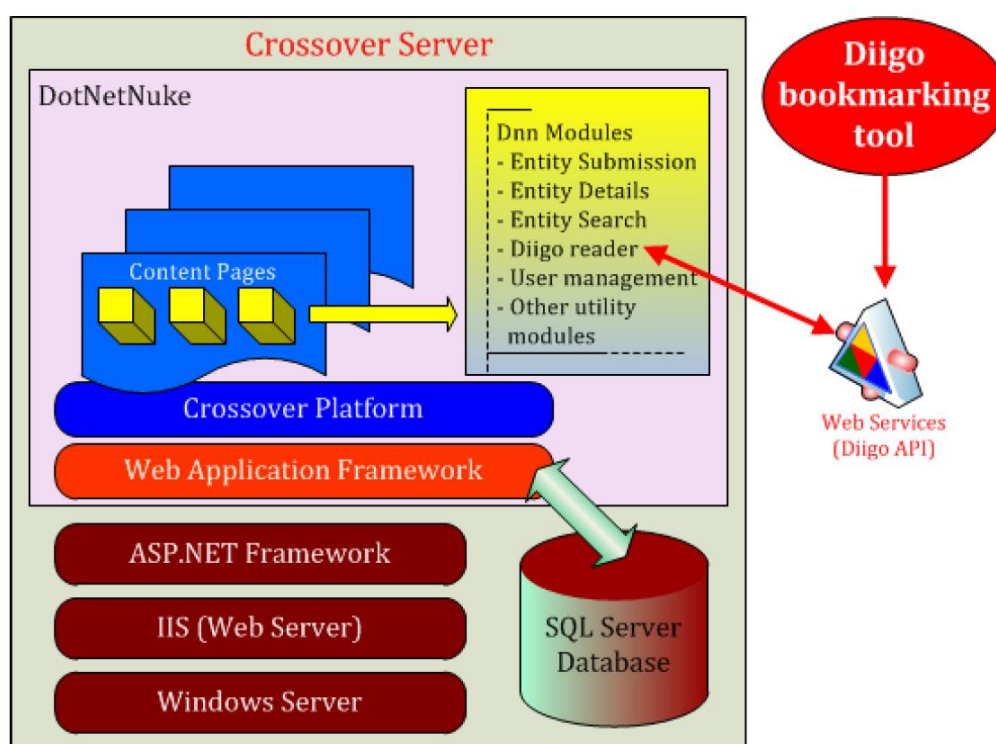


Figure 6 Crossover physical diagram

4. ENHANCEMENT OF THE CROSSOVER PORTAL

This section describes the enhancements made to the Crossover portal in order to match the eGovPoliNet needs and requirements. The changes made are both functional (section 4.1) and aesthetical (section 4.2). The functional changes refer to functionality added (although some Crossover functionality has also been removed), while the aesthetical changes refer to improving site visualization and promoting eGovPoliNet's brand.

4.1. FUNCTIONAL ENHANCEMENT

4.1.1. Added functionality

This section describes all the functional enhancements made to the Crossover portal. The functionality added to the portal (Figure 7) includes the following:

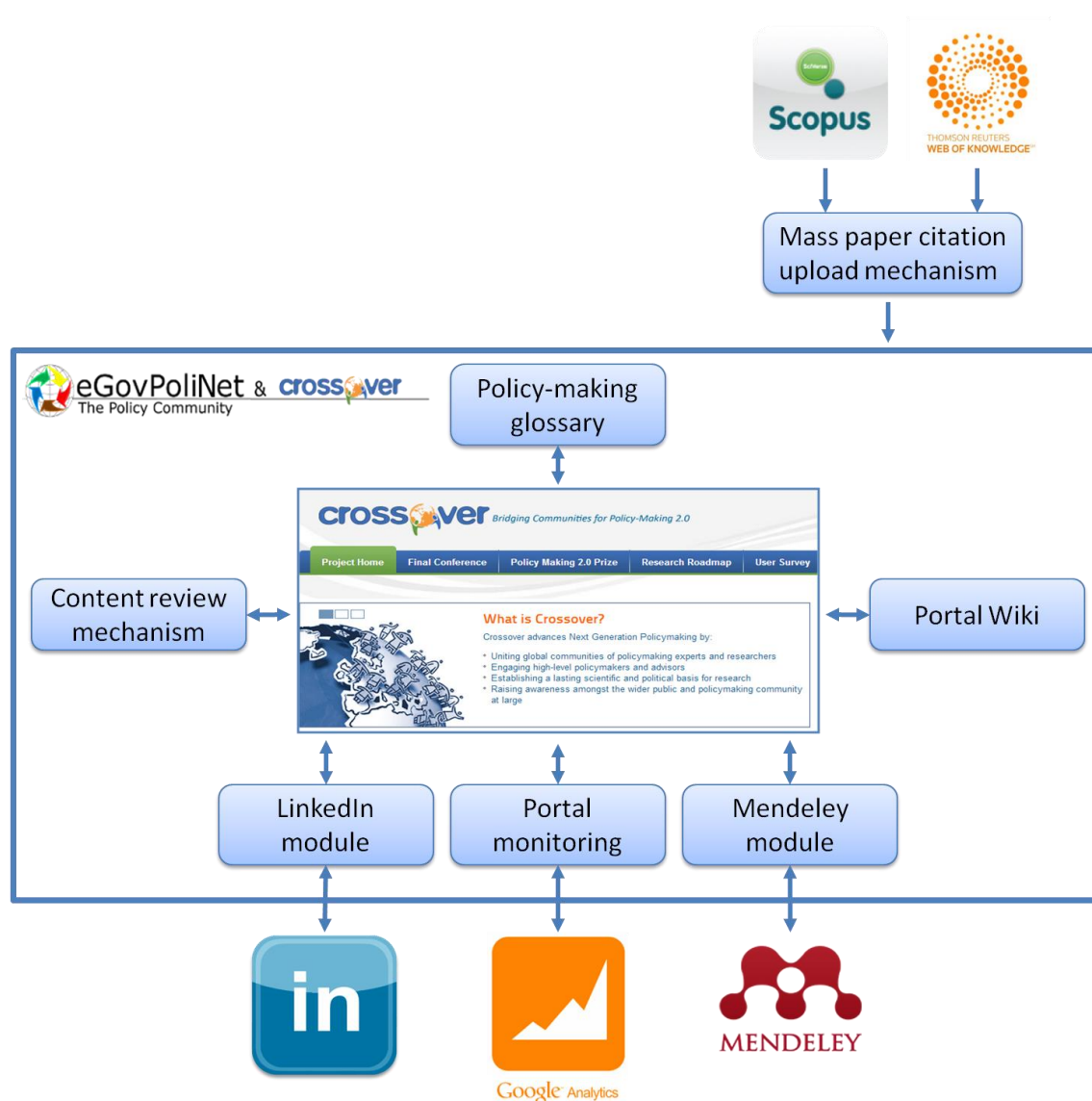


Figure 7 Functional enhancements to the Crossover portal

- The **integration with LinkedIn** that establishes a communication channel between the eGovPoliNet portal and the project's active LinkedIn community interested in the policy modeling. This functionality is described in detail at section 4.1.1.1
- The **integration with Mendeley** that offers access to a large pool of scientific resources (i.e. journal papers) related to policy modeling. This functionality is described in detail at section 4.1.1.2
- The **wiki** that facilitates the active involvement of end-users by allowing the formulation of content in a collaborative way. This functionality is described in detail at section 4.1.1.3.
- The **policy-making glossary** that contains an extensive list of term definitions related to policy modeling. This functionality is described in detail at section 4.1.1.4
- The **content review mechanism** that enables the reviewing of submitted content, thus guarantees the high quality of the portal's content. This functionality is described in detail at section 4.1.1.5
- The **mass paper citations upload mechanism** that facilitates the automatic addition of existing scientific resources from databases/libraries to the portal. This functionality is described in detail at section 4.1.1.6
- The **monitoring of the portal statistics** that monitors users' activity on the platform in order to identify potential problems and take correction actions to increase their satisfaction. This functionality is described in detail at section 4.1.1.7.

4.1.1.1. Integration with LinkedIn

LinkedIn is a social networking site designed specifically for the business community. The goal of LinkedIn is to allow registered members to establish and document networks of people they know and trust professionally. It also enables the formation of interest groups that share a discussion area, moderated by the group owners and managers. Groups keep their members informed with updates to the group, including most referenced discussions within relevant professional circles. Two types of groups are supported: *i*) private groups that are accessible to members only, and *ii*) open groups to all internet users to read, although they must join in order to post messages.

A joint effort has been made by the Crossover and the eGovPoliNet projects to create and maintain a LinkedIn group, namely "Policy Making 2.0"¹, which brings together the policy community, focusing on the way the ICT is changing policy making practice. The "Policy Making 2.0" group is created as an open group, so no enrollment is required in order to access the content. The group has gained success since it is active from November 2011 and counts more than 1200 members who regularly post discussions and comments related to policy making.

The integration of "Policy Making 2.0" LinkedIn group with the eGovPoliNet portal establishes a two way communication channel that: *i*) enables the flow of information from an active policy community (i.e. LinkedIn group) to the portal, *ii*) facilitates the active involvement of the users of the eGovPoliNet portal to the LinkedIn group by enabling easy access to the discussion on existing LinkedIn posts.

¹<http://www.linkedin.com/groups/Policy-Making-20-4165795?gid=4165795&mostPopular=&trk=tyah&trkInfo=tas%3Apolicy%20mak%2Cidx%3A2-2-5>

Specifically, the “Policy Making 2.0” group has been integrated to the portal by showing the 5 most popular posts on the portal’s homepage (Figure 8). The popularity of the posts is decided by LinkedIn, which offers an API method for returning the most popular ones. The information provided for each post is the following:

- The name and photo of the person who wrote the post. There is also a link to the person’s profile at LinkedIn
- The title and a short description of the post.
- A link to the full post at LinkedIn where the user can read/like the complete post, and start a discussion on the post by leaving comments

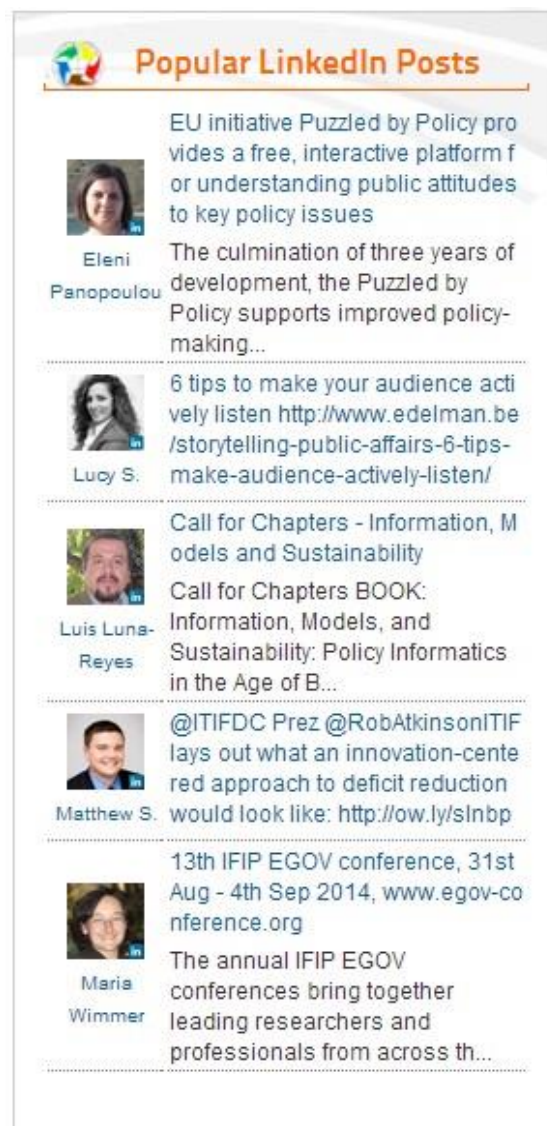


Figure 8 The LinkedIn module of the portal

4.1.1.2. Integration with Mendeley

Mendeley is a reference manager and academic social network that helps the user organize her/his research, collaborate with others online, and discover the latest research. Specifically, it is a

combination of a desktop application and a website which helps the user manage, share and discover both content and contacts in research. Mendeley is currently very popular across researchers who are the main stakeholder group of eGovPoliNet; currently it counts more than 2 million users.

The main functionality offered by Mendeley is listed below:

- Automatic extraction of document details (authors, title, journal etc.) from academic papers into a library database.
- Management of user's papers e.g. full-text search across all papers, export of the document details in different citation styles etc.
- Sharing and synchronization of a document library with selected colleagues.
- Online backup of users' libraries.
- Detailed statistics of all things interesting e.g. Is the interest in a research topic growing or declining? What are the most widely read papers on a specific subject?
- Research network that allows the user to keep track of colleagues' research activity and help for the identification of people with similar research interests.
- Recommendation engine for papers that might interest the user, but are not yet in her/his library.

The integration with Mendeley establishes a connection between the portal and a great pool of scientific papers. Currently, Mendeley holds data for more than 85 million research papers that are continuously updated when new papers are published. Through this integration the eGovPoliNet portal can provide high quality, up to date scientific information, tailored to the area of policy modeling.

Specifically, Mendeley has been integrated with the portal by showing on the portal's homepage the 20 most related papers to Policy modeling (Figure 9). In order to identify these papers a text based search is conducted through the Mendeley API which returns the results. For each paper the following information is presented:

- The title of the paper. The title offers a link to the original paper at the Mendeley library where the user can get more information about the paper (e.g. abstract, ISBN, related papers etc.).
- The authors of the paper.
- The publication year.

Apart from Mendeley other alternative scientific databases were also examined for inclusion (e.g. ResearchGate) but they were rejected due to technical reasons - they do not offer APIs that enable integration to other platforms.

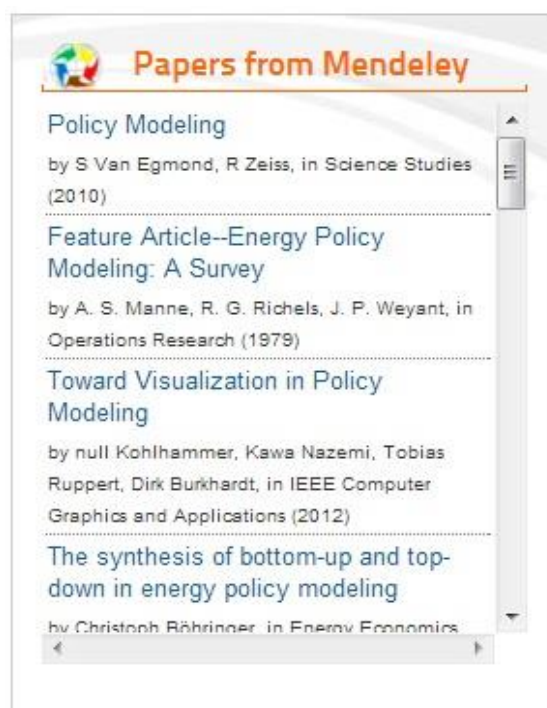


Figure 9 The Mendeley module of the portal

4.1.1.3. Portal Wiki

A wiki is a web application which allows people to add, modify, or delete content in collaboration with others. Text is usually written using a simplified markup language or a rich-text editor. While a wiki is a type of content management system, it differs from a blog or other similar systems in that: (i) the content is created without any defined owner or leader, and (ii) it has little implicit structure, allowing structure to emerge according to the needs of the users.

A Wiki module has been added to the portal in order to allow users to add content related to policy modeling in a collaborative way. For example, the Wiki is being currently used in order to collaboratively create future scenarios of ICT support in policy modeling and governance. The users can either contribute to the scenarios by editing the corresponding wiki page or they can leave feedback by using the commenting functionality. Moreover, they can contribute by initiating a completely new scenario. Based on their role, the users have different rights on the wiki content:

- Guest users can search, browse, see and comment the wiki content.
- Registered users can search, browse, see and comment the wiki content.
- Reviewers have the same rights with the guest and registered users plus the capability to add new content to the wiki and edit existing content.

Figure 10 shows a future scenario created at the Wiki and accompanied by the rating and comment functionality.

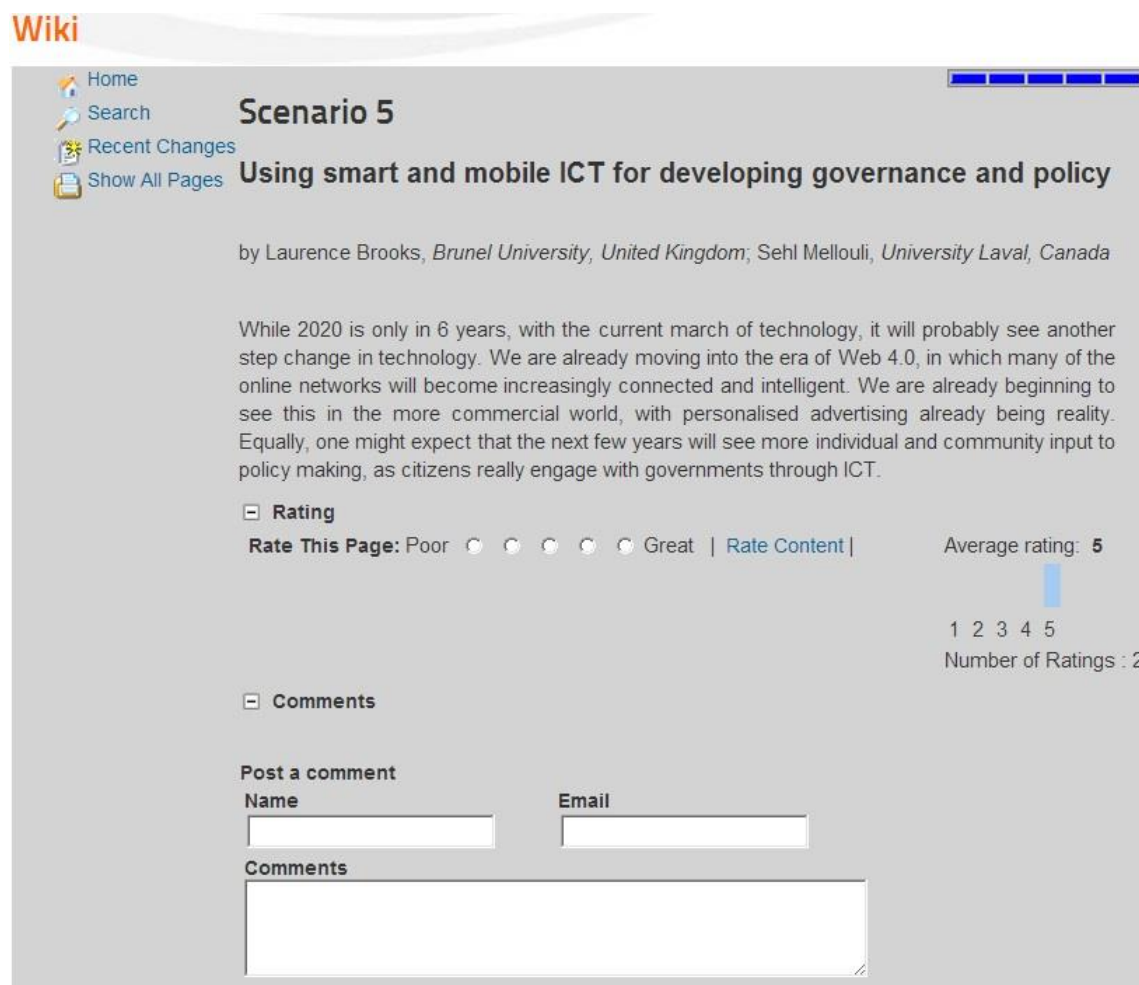


Figure 10 The portal's Wiki

4.1.1.4. Policy-making Glossary

A glossary is an alphabetical list of terms in a particular domain of knowledge with the definitions for those terms. In a general sense, a glossary contains explanations of concepts relevant to a certain field of study or action.

The portal's policy-making glossary contains an extensive list of terms related to policy modeling and policy making, thus offering a broader view of the area. The terms have been collaboratively created and verified by the project's partners in order to meet high standards. Authorized users can add or change terms to the glossary, while all other users can search or browse the glossary in an alphabetical order.

For each glossary term the following information is stored:

- The **title** that is used to short the term alphabetically.
- The **description** that clarifies the term's meaning. The description can contain text, bullet lists figures etc.
- **References** related to the term.

Figure 11 illustrates a term from the glossary.

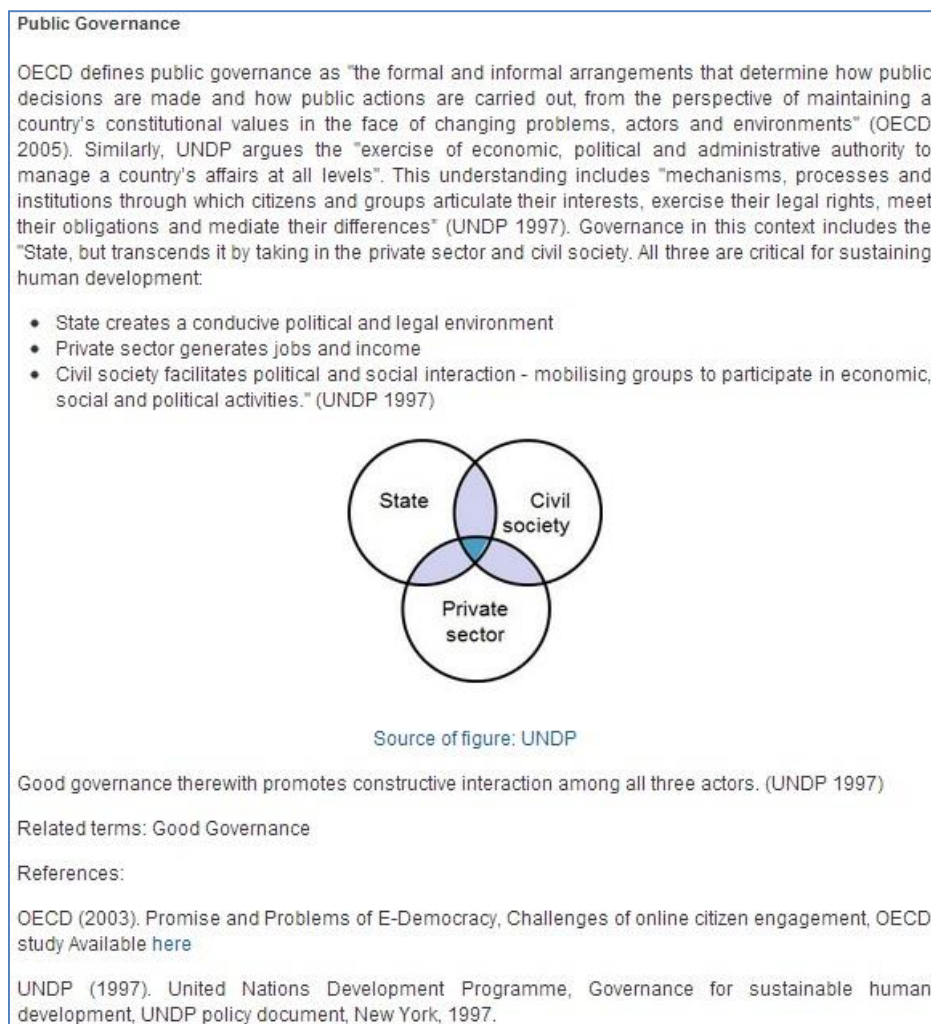


Figure 11 The Policy-modelling glossary term

4.1.1.5. Content review mechanism

At the Crossover portal each registered user can submit new content (i.e. cases, papers, persons and organizations) that is automatically published on the portal. This was in line with Crossover's objective to keep registration closed to members and animators of the consortium. However, eGovPoliNet follows a different approach, more open than Crossover, allowing everyone to be a registered user and thus to contribute content to the portal. For this reason a content review process was deemed necessary for the platform in order to enable the reviewing of the submitted content before publishing, filtering inappropriate content and guaranteeing the published content's high quality.

For this reason, a new role has been created, the "Reviewer", and has been assigned to some selected users from the consortium. The reviewers are responsible to check the submitted content and decide if it is appropriate for publishing or not. Specifically the actions available to the reviewers are:

- **editing** of the submitted content. The reviewer can edit the submitted content before publishing it.
- **viewing** of the submitted content in the way it is to be published.
- **deletion** of the submitted content if found not appropriate for publishing.
- **publishing** of the submitted content.

Figure 12 illustrates the available options (i.e. edit, view, delete, publish) when reviewing submitted content.



Figure 12 The review options for the submitted content

4.1.1.6. Mass paper citation upload mechanism

One of the main roles of the eGovPoliNet portal is to collect and provide to the users content related to policy modeling, also in the form of the scientific papers. Currently, a huge number of related papers exist in various sources, i.e. in bibliographic databases (e.g. Scopus) and in libraries maintained by experts (many members of the eGovPoliNet consortium maintain such libraries). These sources enable the massive exportation of paper citations in various common formats (e.g. bibtex).

In order to add the papers of the existing databases/libraries to the eGovPoliNet portal using the manual functionality offered, each paper has to be added individually through the web interface. The manual insertion of a new paper to the portal lasts approximately 2-3 minutes. Taking into account the large number of papers (hundreds or even thousands) that could be extracted from the existing databases/libraries a considerable amount of time is needed to manually insert all of them to the portal. For this reason, we developed a mass paper citation upload mechanism that enables the automatic import of existing citations from databases/libraries, thus facilitating and accelerating the population of the portal with content.

The mass paper citation upload mechanism can import directly to the eGovPoliNet portal citations that are in bibtex format (this format has been chosen because it is a very common bibliographic reference format supported by many databases). The user responsible for the execution of the mechanism is the system administrator. When the papers are imported they automatically undergo the review process as every other manually-added resource in order to be checked before publishing.

4.1.1.7. Monitoring portal statistics

The monitoring of the portal's statistics is important in order to monitor site's take up and usage patterns and accordingly adapt the strategy for satisfying existing users and attracting new ones. The service selected to monitor the portal's statistics is Google analytics.

Google Analytics is a service offered by Google that generates detailed statistics about a website's traffic and traffic sources and measures conversions and sales. It aims at marketers instead of

webmasters and technologists, from which the industry of web analytics originally grew. It is the most widely used website statistics service. Google Analytics can track visitors from all referrers, including search engines and social networks, direct visits and referring sites. The tracking of visits gives insights into how visitors use the site, how they found the site, and how to keep them coming back. These insights might lead to adaptation of the strategy, for example:

- By noticing patterns on hot topics, this information can be used in ongoing efforts to better provide the users with what they're looking for.
- If a considerable number of visitors accessing the portal site via mobile devices, it is a good idea to invest in making a more mobile friendly site.

Google analytics has been configured to monitor the statistics of the portal. Figure 13 shows some monitoring statistics of the portal.

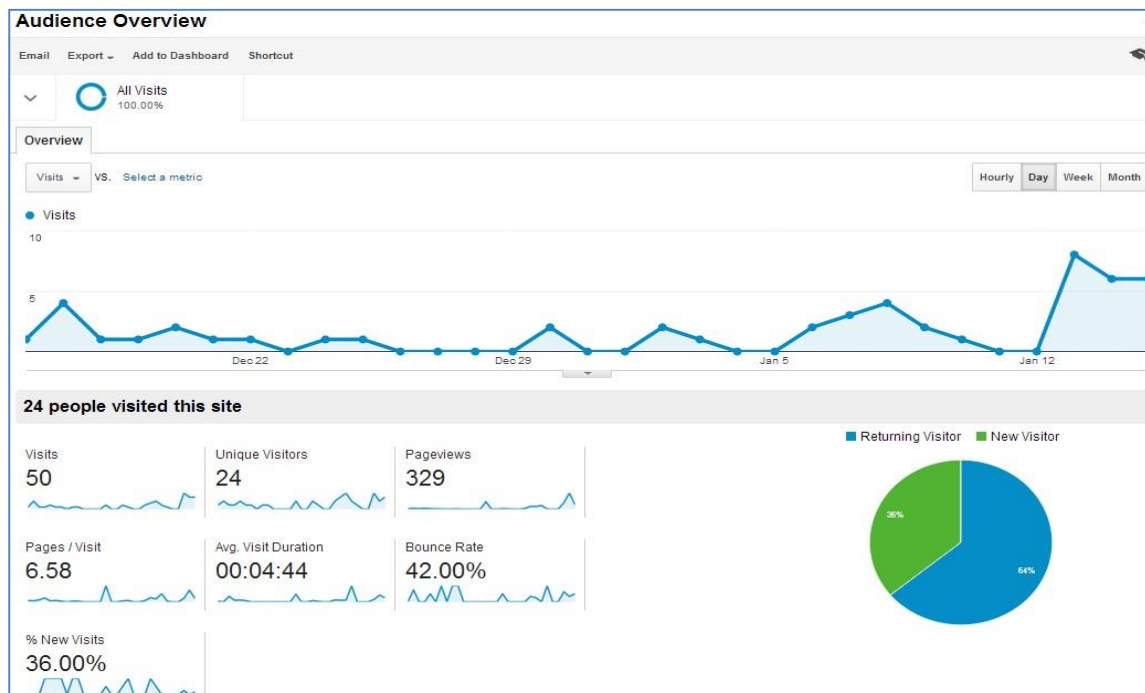


Figure 13 Monitoring statistics panel from Google analytics

4.1.2. Removed functionality

Except from the functionality added to the portal there is also some functionality that has been removed because it was either not needed for the purposes of the project or because the same functionality is offered in a different way or through a different channel. The functionality removed is the following:

- The integration with Tweeter. The eGovPoliNet project uses LinkedIn as a dissemination channel to communicate the project results. Tweeter is not used so the connection with the portal has been disabled.

- The “News box”. The purpose of the portal is to create a knowledge base for policy modelling (e.g. papers, cases, glossary terms etc.), while news & events are available at the project’s website.
- The “User survey” tab. The Crossover Project launched this survey in order to build a research roadmap for policymaking which was completed before the portal’s hand over to CERTH. So the need for the survey no longer existed.

4.2. AESTHETIC ENHANCEMENT

Numerous aesthetic enhancements have been made to the portal in order to improve its appearance but also in order to adapt it to the eGovPoliNet needs. The aesthetical changes are listed below:



- We changed the logo (Figure 14) in order to contain both the eGovPoliNet and the Crossover projects.
- We replaced the Crossover icon on portal menus and items’ headings with the eGovPoliNet icon: .
- We removed Crossover wording from all Headers
- We changed the “About the projects” information tab (Figure 15). Information for both projects is now available there: all Crossover information has been maintained, while for eGovPoliNet the link directs the user to the project’s website.
- We changed the box/banner at the home page (Figure 16) to refer both to eGovPoliNet and to Crossover.



Figure 14 The new logo of the portal




Figure 15 The "About the projects" information tab



What is eGovPoliNet?

eGovPoliNet is an initiative supported by the European Commission aiming to establish an International Policy Community which deals with ICT solutions for Governance and Policy Modelling. 18 partners from 16 countries both within and outside of the EU are working together to share ideas, experiences and practices in the field.


eGovPoliNet focuses on generating interaction amongst experts from various scientific disciplines and practitioner groups in order to provide evidence and insight into the development of new methods of Governance and Policy Modelling for those involved in the policymaking process.



What does eGovPoliNet offer?

eGovPoliNet aims to:

- STRENGTHEN Research & Practice in Digital Public Governance and Policy Modelling
- OVERCOME the existing fragmentation in the field
- INTEGRATE Research & Practice capacities of individuals and organisations
- DEVELOP an international knowledge base to enable the sharing of skills and expertise
- BUILD a sustainable framework to ensure long term viability and widespread adoption in Europe and worldwide



eGovPoliNet – Crossover collaboration

Crossover aimed to advances Next Generation Policymaking by:

- Uniting global communities of policymaking experts and researchers
- Engaging high-level policymakers and advisors
- Establishing a lasting scientific and political basis for research
- Raising awareness amongst the wider public and policymaking community at large

This platform was developed by Crossover, which ended in March 2013. eGovPoliNet took over from there, sustaining and enhancing the platform towards an active Policy Making 2.0 community.

Figure 16 Portal banner at home page

5. FUNCTIONAL DESCRIPTION OF THE EGOVPOLINET PORTAL

This section describes the final eGovPoliNet portal in terms of the offered functionality. First, a short presentation of the home page is provided and then the functionality available to each of the different user roles is presented. The eGovPoliNet portal foresees four different user roles: i) guest users, those who have not registered to the portal, ii) registered users who have full rights to add resources, edit the wiki, etc., iii) reviewers who have rights to review the content uploaded by the registered users and publish it to the portal and iv) portal administrators.

The eGovPoliNet is accessible at <http://www.policy-community.eu/knowledge-portal>.

5.1. PORTAL PRESENTATION

The eGovPoliNet portal is designed in a user friendly way that enables easy access from the home page to all functionality (Figure 21). The home page contains the following parts to access this functionality:

- A **Navigation bar** that intends to aid visitors in travelling through the portal's functionalities (e.g. Glossary, Cases/Papers etc.)
- A **Banner** that provides basic information about the scope and objectives of both eGovPoliNet and Crossover.
- An area where users can **browse the portal's content**, i.e. cases & practices, methods, experts & organizations.
- A field where users can **search** the whole portal including the submitted content (e.g. cases/papers).
- An area that presents the most **popular LinkedIn posts** of the "Policy Making 2.0" group. Users can easily navigate to the original post at LinkedIn and leave their feedback.
- An area that presents **papers from Mendeley** related to policy modeling. Users can easily navigate to Mendeley and get more information about a specific paper.



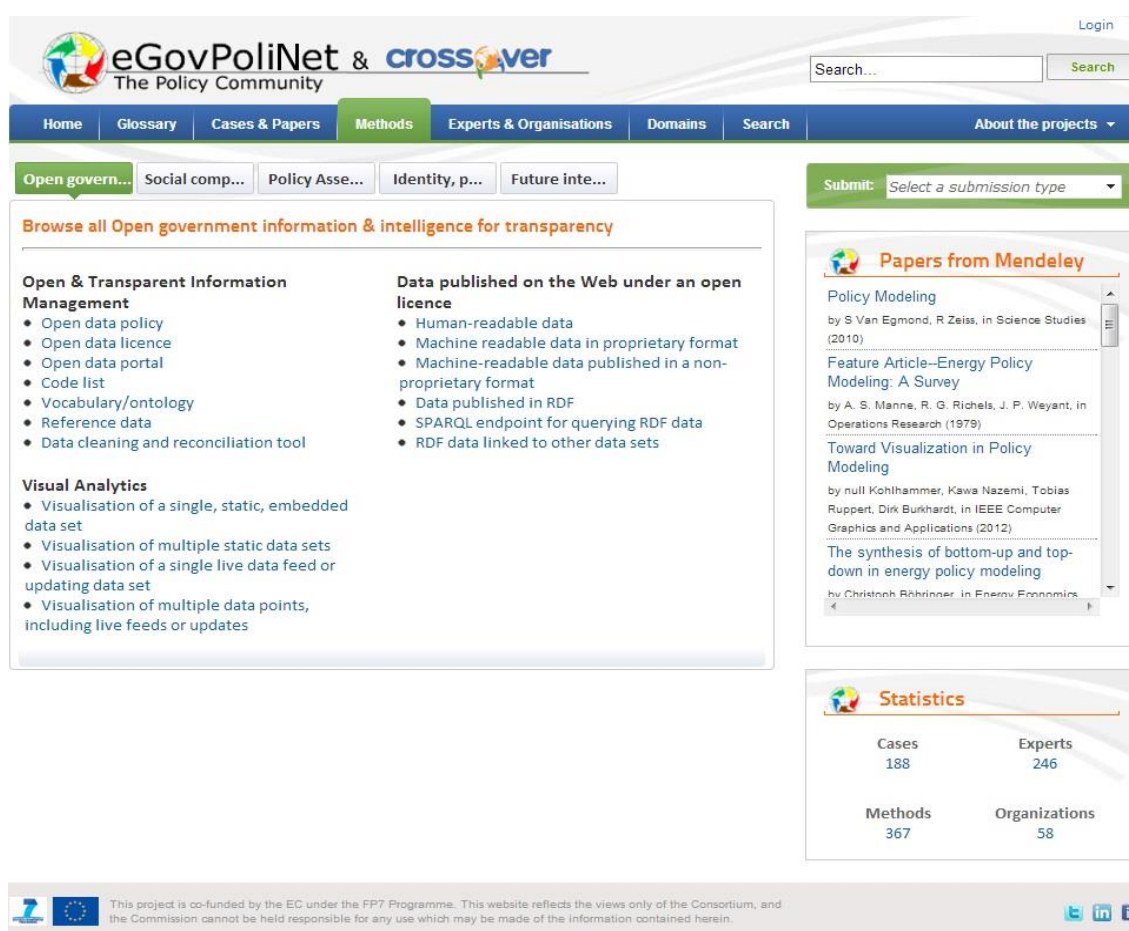
Figure 17 Portal's home page

5.2. GUEST FUNCTIONALITY

Guest is any user that does not have credentials for the portal. The functionality available to guests is:

- Browse the available content categories. The categories are: i) cases & papers, ii) Methods, iii) Experts & Organisations and iv) Domains. E.g. Figure 18 shows the browsing of the Methods.
- Search the content using the tag tree to filter out the results. In this way, for example, the user can search only for papers, or refine more the result by searching for papers in "International Journals". The refinements available are defined by the tag tree. Figure 19 shows the search interface of the platform where users can search using the tag tree.
- View the details of each item detected either via browsing or through search. For example for the papers (Figure 20) the information available are the publication year, the place it was published, the ISBN, the implementation level, the authors, the reference people or organizations, the domain, tag and a short description. For other types of content (e.g. organizations) different information is available.

- Browse/search the glossary terms (Figure 21). The user can either browse the glossary terms in an alphabetical order or search using text search.
- Browse and leave feedback to the most popular LinkedIn post from the “Policy Making 2.0” group. To access this functionality a valid account at LinkedIn is required.
- Browse Mendely papers related to policy modeling. Basic information is provided for each paper (title, authors, year); users can get more details through the link to the Mendeley entry.
- Browse the wiki content and leave comments (Figure 22). Guest users can see all the wiki content and provide feedback using the comment functionality.

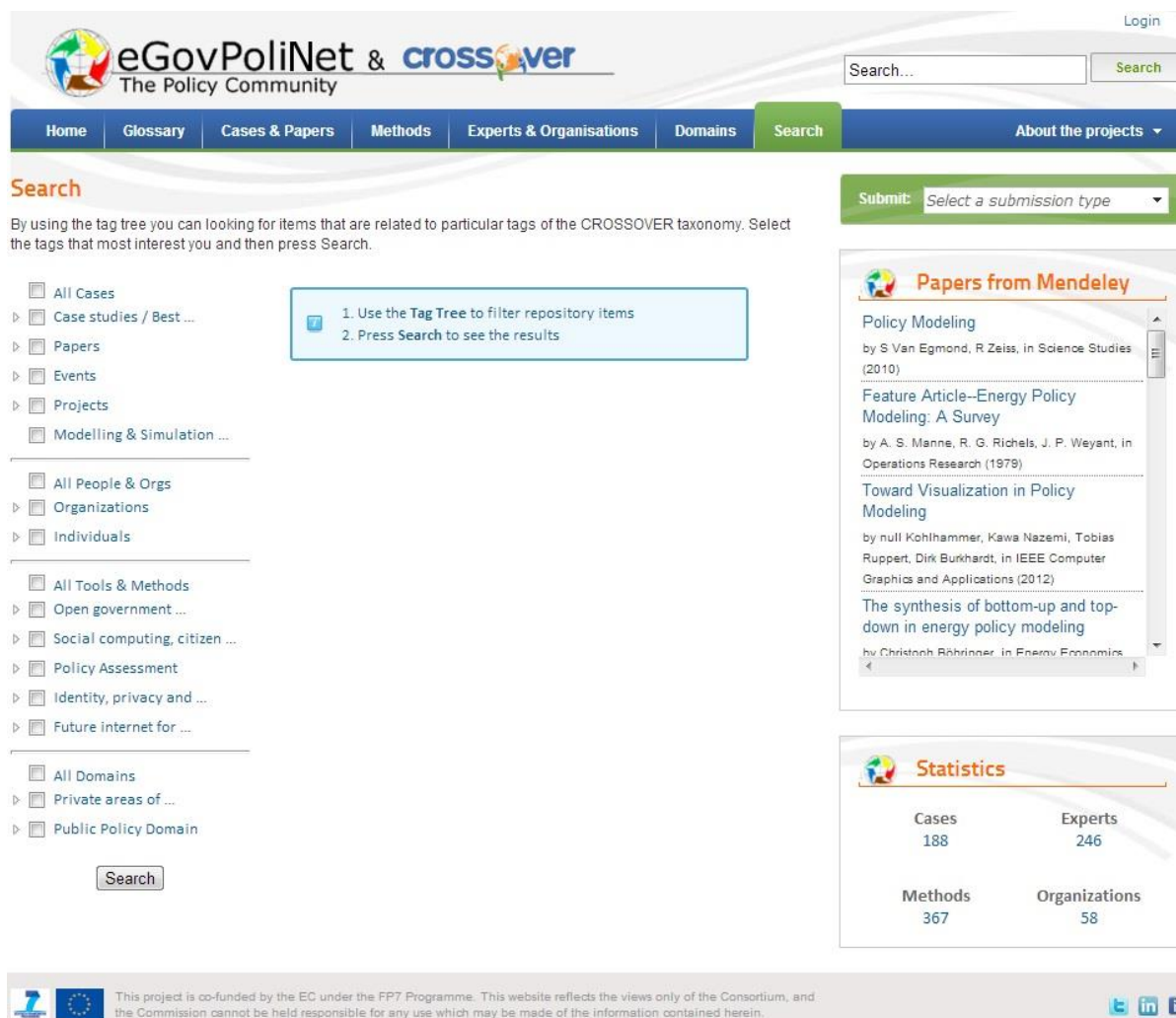


The screenshot shows the eGovPoliNet portal interface. At the top, there is a navigation bar with links: Home, Glossary, Cases & Papers, **Methods**, Experts & Organisations, Domains, Search, and About the projects. Below the navigation bar, there are several tabs: Open govern..., Social comp..., Policy Asse..., Identity, p..., and Future inte... The main content area is titled "Browse all Open government information & intelligence for transparency". It is divided into two columns. The left column is titled "Open & Transparent Information Management" and lists several items: Open data policy, Open data licence, Open data portal, Code list, Vocabulary/ontology, Reference data, and Data cleaning and reconciliation tool. The right column is titled "Data published on the Web under an open licence" and lists: Human-readable data, Machine readable data in proprietary format, Machine-readable data published in a non-proprietary format, Data published in RDF, SPARQL endpoint for querying RDF data, and RDF data linked to other data sets. Below these columns, there is a section titled "Visual Analytics" with a list of items: Visualisation of a single, static, embedded data set, Visualisation of multiple static data sets, Visualisation of a single live data feed or updating data set, and Visualisation of multiple data points, including live feeds or updates. On the right side of the portal, there is a section titled "Papers from Mendeley" which lists several papers: "Policy Modeling" by S Van Egmond, R Zeiss, in Science Studies (2010); "Feature Article-Energy Policy Modeling: A Survey" by A. S. Manne, R. G. Richels, J. P. Weyant, in Operations Research (1979); "Toward Visualization in Policy Modeling" by null Kohlhammer, Kawa Nazemi, Tobias Ruppert, Dirk Burkhardt, in IEEE Computer Graphics and Applications (2012); and "The synthesis of bottom-up and top-down in energy policy modeling" by Christoph Behringer, in Energy Economics. Below this, there is a "Statistics" section with a table showing the following data:

Cases	Experts
188	246
Methods	Organizations
367	58

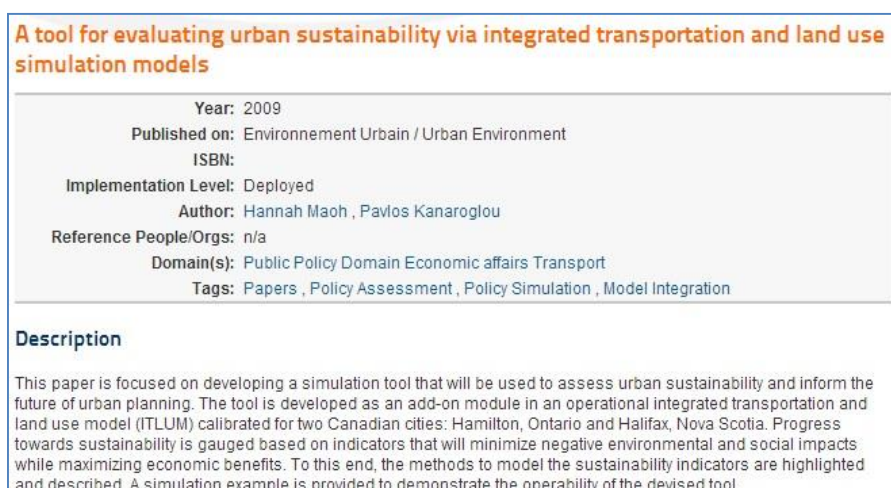
At the bottom of the portal, there is a footer with logos for the European Union and the project partners, and a disclaimer: "This project is co-funded by the EC under the FP7 Programme. This website reflects the views only of the Consortium, and the Commission cannot be held responsible for any use which may be made of the information contained herein." There are also social media icons for Twitter, LinkedIn, and Facebook.

Figure 18 Browse methods



The screenshot shows the eGovPoliNet & crossover search interface. The header includes the logo and navigation tabs: Home, Glossary, Cases & Papers, Methods, Experts & Organisations, Domains, Search, and About the projects. A search bar is located in the top right. Below the header, the 'Search' section is active, displaying a tag tree on the left for filtering repository items. A central box provides instructions: '1. Use the Tag Tree to filter repository items' and '2. Press Search to see the results'. On the right, there is a 'Papers from Mendeley' section listing several policy modeling papers, and a 'Statistics' section showing counts for Cases (188), Experts (246), Methods (367), and Organizations (58). The footer contains a disclaimer about EC funding and social media links.

Figure 19 Search content



The screenshot shows the 'View item details' page for a paper titled 'A tool for evaluating urban sustainability via integrated transportation and land use simulation models'. The details include: Year: 2009, Published on: Environnement Urbain / Urban Environment, ISBN: (blank), Implementation Level: Deployed, Author: Hannah Maoh, Pavlos Kanaroglou, Reference People/Orgs: n/a, Domain(s): Public Policy Domain Economic affairs Transport, and Tags: Papers, Policy Assessment, Policy Simulation, Model Integration. A description follows, stating the paper focuses on developing a simulation tool to assess urban sustainability and inform the future of urban planning, calibrated for two Canadian cities: Hamilton, Ontario and Halifax, Nova Scotia.

Figure 20 View item details



The screenshot shows the eGovPoliNet portal interface. The top navigation bar includes links for Home, Glossary, Cases & Papers, Methods, Experts & Organisations, Domains, Search, and About the projects. The main content area is titled 'Glossary' and displays search results for 'Complex Adaptive System (CAS)'. The results include a detailed definition of CAS, related terms, and a list of references. On the right side, there are two sidebars: 'Popular LinkedIn Posts' featuring several posts with author profiles and titles, and 'Papers from Mendeley' showing a paper titled 'Policy Modeling' by S. Van Egmond and R. Zeiss.

Glossary

All Categories:
Policy making

Search for a term:
 in **Policy making**

Or, select a letter below:
A|B|C|D|E|F|G|H|I|J|K|L|M|N|O|P|Q|R|S|T|U|V|W|X|Y|Z

Results:

Complex Adaptive System (CAS)

Government officials and other decision makers increasingly encounter a daunting class of problems that involve systems composed of very large numbers of diverse interacting parts (Shalizi, 2006). These systems are prone to surprising, large-scale, seemingly uncontrollable behaviors. These traits are the hallmarks of what scientists call complex systems. A complex system is composed of many parts that interact with and adapt to each other and, in so doing, affect their own individual environments. The combined system-level behavior arises from the interactions of parts that are, in turn, influenced by the overall state of the system. Global patterns emerge from the autonomous but interdependent mutual adjustments of the components (Jacobson et al., 2011).

According to John Holland CAS is a special category of complex systems dealing with living systems that have the capacity to change, learn from experience and sometimes forecast (Holland, 1999). The control of a CAS tends to be highly dispersed and decentralized. If there is to be any coherent behavior in the system, it will have to arise from competition and cooperation among the agents themselves. The overall behavior of the system is the result of a huge number of decisions made every moment by many individual agents. (Holland, 1992, p. 17). Typical phenomena in complex adaptive systems are the emergence of macro-level structures due to interactions at the micro-level (self-organisation). These macro-structures in turn determine the behavioural freedom at the micro-level (downward causation).

Related terms: Complex System

References:

Holland, J. H. (1992), Complex Adaptive Systems, Daedalus, Vol. 121(No. 1), pp. 17-30.

Holland, John H. (1999), Emergence: from chaos to order, Reading, Mass: Perseus Books.

Jacobson, M., Kapur, M., So, H.-J., & Lee, J. (2011). The ontologies of complexity and learning about complex systems. Instructional Science, Vol. 39(No. 5), pp. 763-783. doi: 10.1007/s11251-010-9147-0

Shalizi, C. R. (2006). Methods and Techniques of Complex Systems Science: An Overview Complex Systems Science in Biomedicine. In T. S. Deisboeck & J. Y. Kresh (Eds.), (pp. 33-114): Springer US.

Popular LinkedIn Posts

EU initiative Puzzled by Policy provides a free, interactive platform for understanding public attitudes to key policy issues
Eleni Panopoulou
The culmination of three years of development, the Puzzled by Policy supports improved policy-making...

6 tips to make your audience actively listen http://www.edelman.be/storytelling-public-affairs-6-tips-make-audience-actively-listen/
Lucy S.

Call for Chapters - Information, Models and Sustainability
Call for Chapters BOOK: Information, Models, and Sustainability: Policy Informatics in the Age of B...
Luis Luna-Reyes

@ITIFDC Prez @RobAtkinsonITIF lays out what an innovation-centered approach to deficit reduction would look like: http://ow.ly/sinbp
Matthew S.

13th IFIP EGOV conference, 31st Aug - 4th Sep 2014, www.egov-conference.org
The annual IFIP EGOV conferences bring together leading researchers and professionals from across th...
Maria Wimmer

Papers from Mendeley

Policy Modeling
by S Van Egmond, R Zeiss, in Science Studies (2010)

Figure 21 Browse glossary

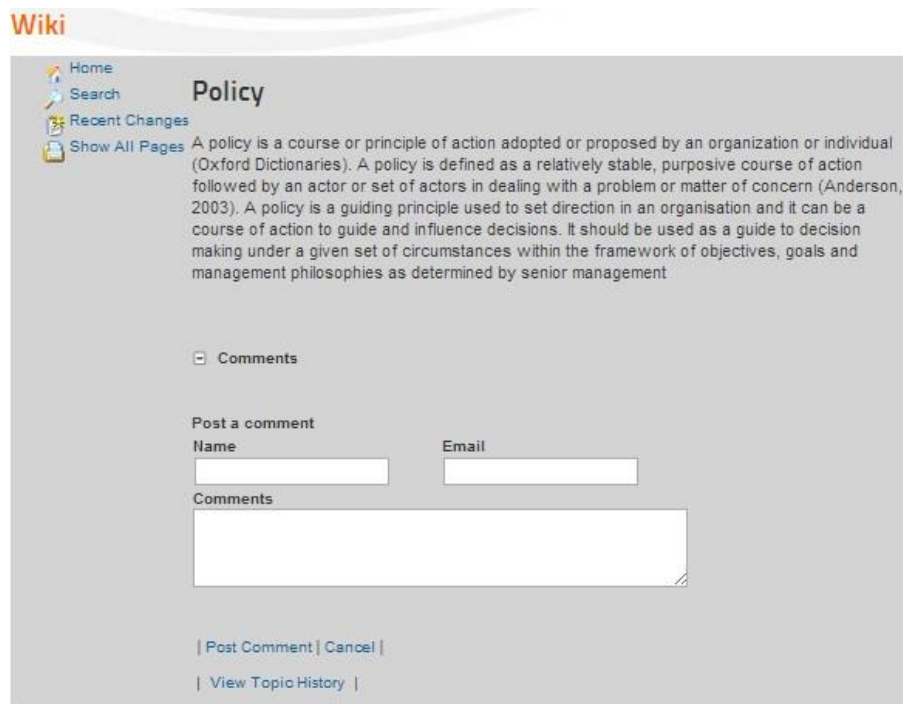


Figure 22 Leave comment on wiki topic

5.3. REGISTERED USER FUNCTIONALITY

The registered user is a user that has credentials for the portal. The registered user has access to the same functionality as the visitor plus the following actions:

- Submission of new content (Figure 23) to the portal (i.e. case/paper, person/organization).
- Commenting on submitted content (Figure 24). The registered users can leave comments for each content item and initialize a relevant discussion. The commenting functionality offers easy integration with popular existing social media including Disqus, Facebook, Tweeter and Google plus.

Submit a Case / Paper

Basic Information

Title:

The title of your submission

Published On:

Where the submission has been published

Description:

The description of your submission

Year:

The year of your submission

ISBN:

The ISBN of your submission

Implementation Level:

The implementation level of your submission

Link(s):

Links related to your submission

Tagging

Domains:

Full List (Click to add to list)

- ☐ Private areas of applications
- ☐ Public Policy Domain

Selected Domains

The Domains related to your submission

Figure 23 Submit case/paper

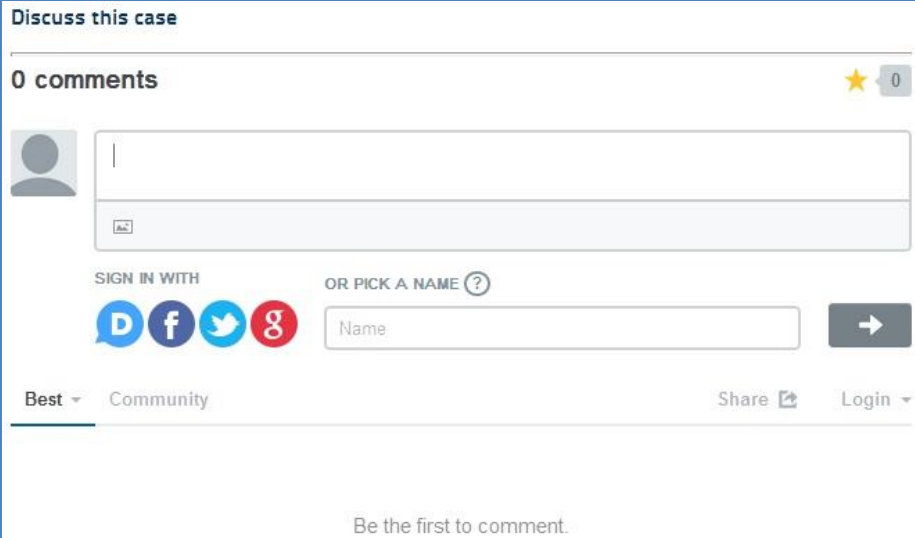
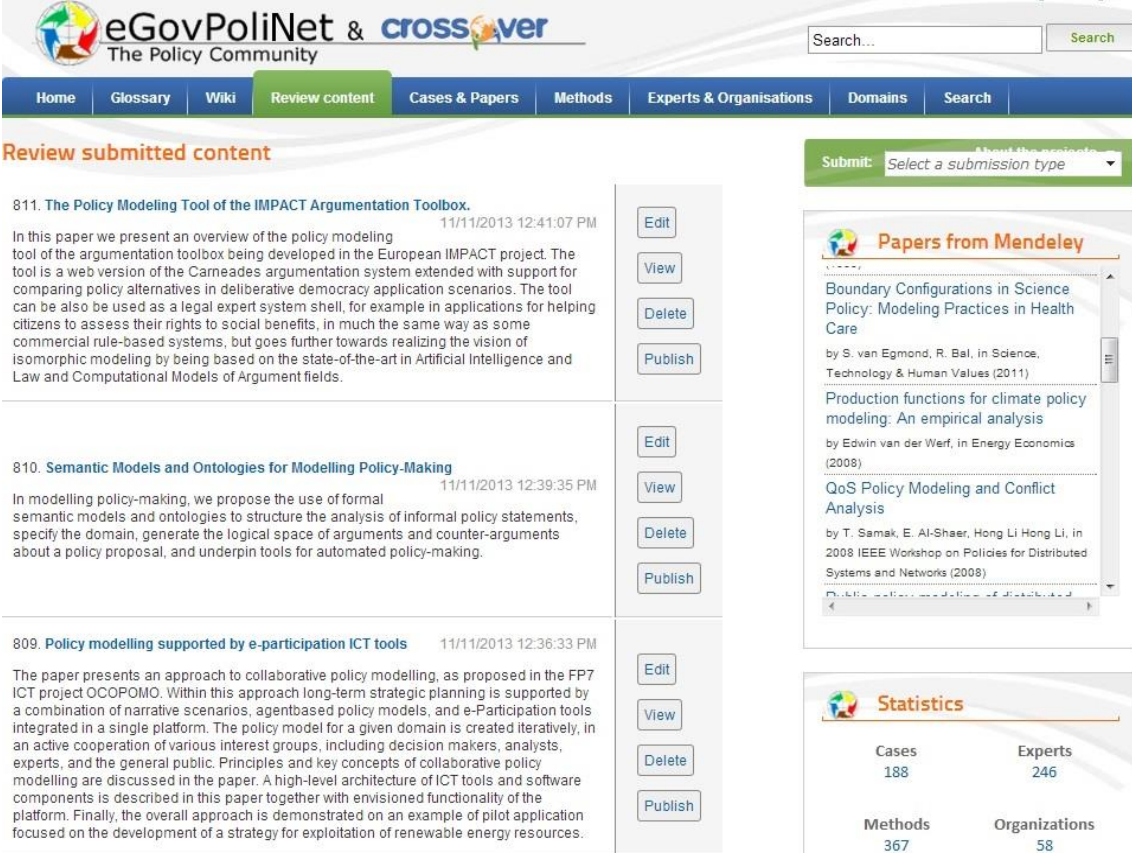


Figure 24 Discussion on submitted content

5.4. REVIEWER FUNCTIONALITY

The role of the reviewer is assigned to selected users that are responsible for checking the submitted content before being published. The reviewers have access to the same functionality as registered users plus the ability to check the quality and integrity of the submitted content

before publishing it (



Review submitted content

811. **The Policy Modeling Tool of the IMPACT Argumentation Toolbox.** 11/11/2013 12:41:07 PM
In this paper we present an overview of the policy modeling tool of the argumentation toolbox being developed in the European IMPACT project. The tool is a web version of the Carneades argumentation system extended with support for comparing policy alternatives in deliberative democracy application scenarios. The tool can be also used as a legal expert system shell, for example in applications for helping citizens to assess their rights to social benefits, in much the same way as some commercial rule-based systems, but goes further towards realizing the vision of isomorphic modeling by being based on the state-of-the-art in Artificial Intelligence and Law and Computational Models of Argument fields.

810. **Semantic Models and Ontologies for Modelling Policy-Making** 11/11/2013 12:39:35 PM
In modelling policy-making, we propose the use of formal semantic models and ontologies to structure the analysis of informal policy statements, specify the domain, generate the logical space of arguments and counter-arguments about a policy proposal, and underpin tools for automated policy-making.

809. **Policy modelling supported by e-participation ICT tools** 11/11/2013 12:36:33 PM
The paper presents an approach to collaborative policy modelling, as proposed in the FP7 ICT project OCOOMO. Within this approach long-term strategic planning is supported by a combination of narrative scenarios, agentbased policy models, and e-Participation tools integrated in a single platform. The policy model for a given domain is created iteratively, in an active cooperation of various interest groups, including decision makers, analysts, experts, and the general public. Principles and key concepts of collaborative policy modelling are discussed in the paper. A high-level architecture of ICT tools and software components is described in this paper together with envisioned functionality of the platform. Finally, the overall approach is demonstrated on an example of pilot application focused on the development of a strategy for exploitation of renewable energy resources.

Submit: Select a submission type

Papers from Mendeley

Boundary Configurations in Science Policy: Modeling Practices in Health Care
by S. van Egmond, R. Bal, in Science, Technology & Human Values (2011)

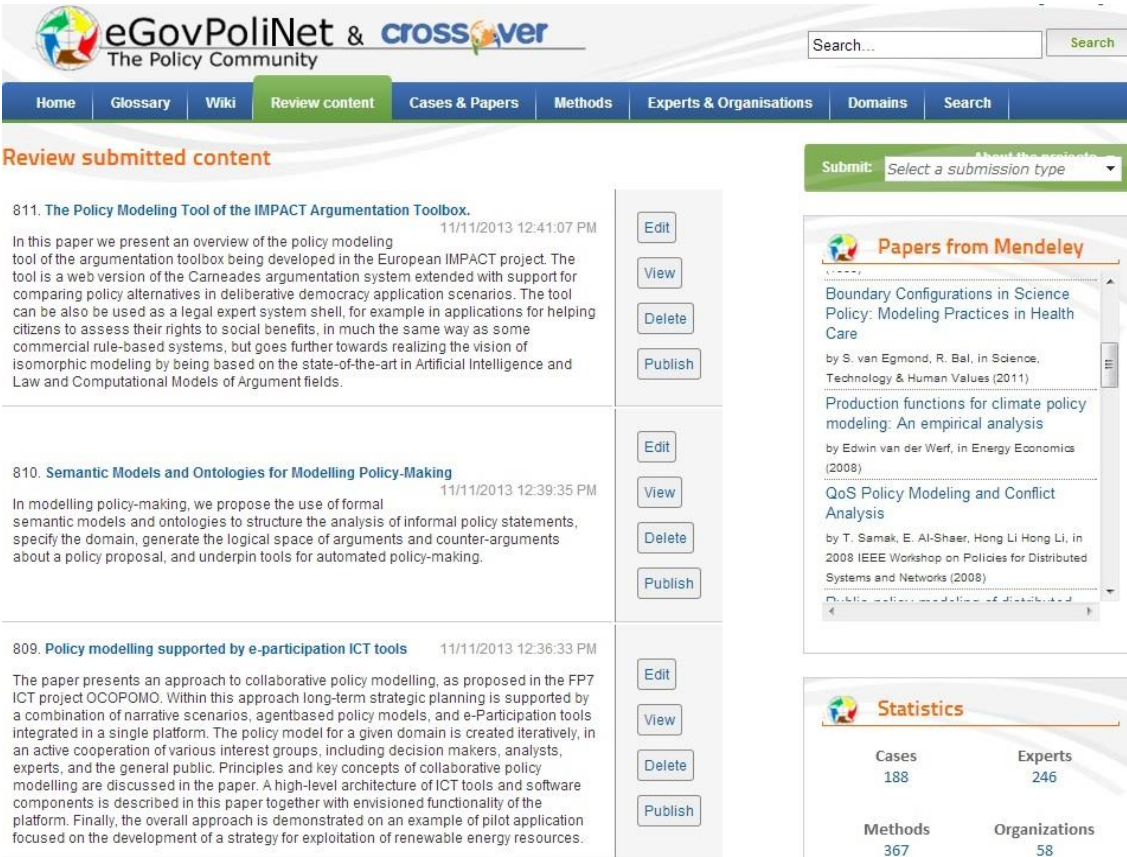
Production functions for climate policy modeling: An empirical analysis
by Edwin van der Werf, in Energy Economics (2008)

QoS Policy Modeling and Conflict Analysis
by T. Samak, E. Al-Shaer, Hong Li Hong Li, in 2008 IEEE Workshop on Policies for Distributed Systems and Networks (2008)

Statistics

Cases	Experts
188	246
Methods	Organizations
367	58

Figure 25). Whenever new content is submitted all reviewers are notified through e-mail in order to review it. For each submitted item they can: i) view it, ii) edit it, iii) delete it or iv) publish it. The reviewers are also responsible for populating the Wiki with new content or editing the existing content (Figure 26).



eGovPoliNet & crossover
The Policy Community

Search...

Home Glossary Wiki **Review content** Cases & Papers Methods Experts & Organisations Domains Search

Review submitted content

Submit:

811. The Policy Modeling Tool of the IMPACT Argumentation Toolbox. 11/11/2013 12:41:07 PM

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Papers from Mendeley

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Statistics

Cases	Experts
188	246
Methods	Organizations
367	58

Figure 25 The review process

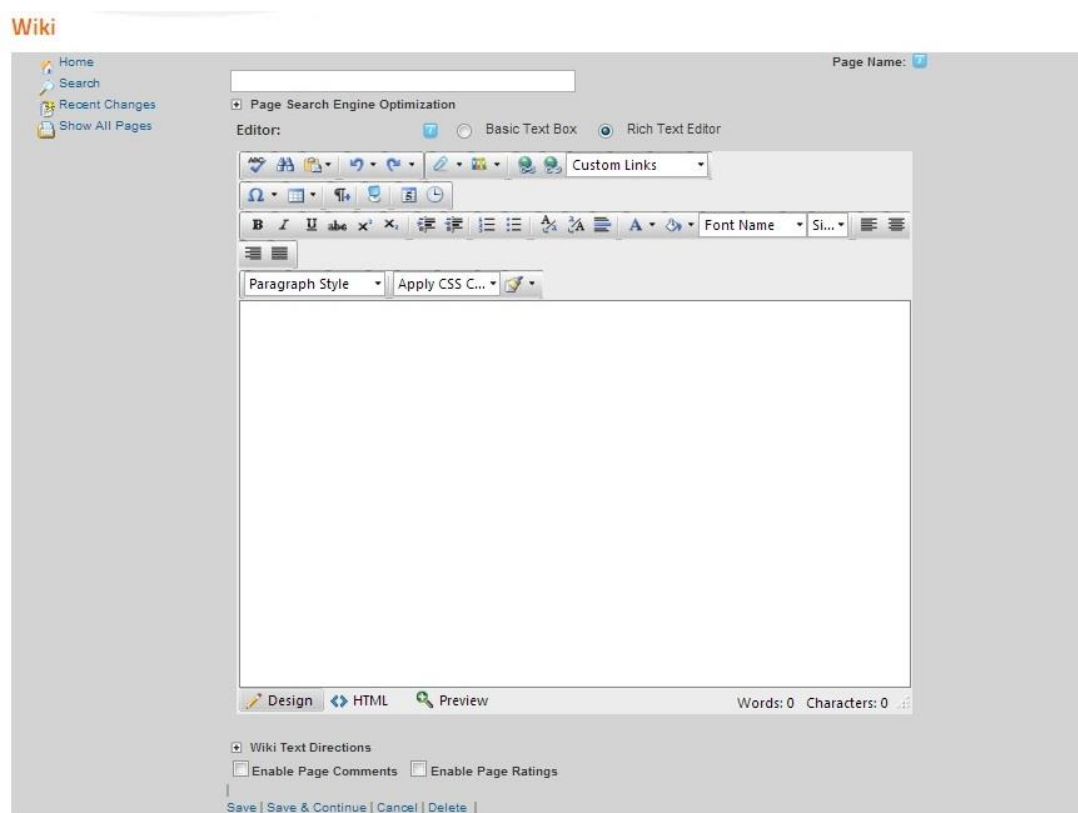


Figure 26 Add wiki content

5.5. PORTAL ADMINISTRATOR FUNCTIONALITY

The Portal Administrator is an authorized person who is responsible for the overall operation of the platform. The portal administrator is responsible for the following actions:

- Monitoring the platform from the technical point of view, viewing statistics based on the platform's traffic/activity and ensuring its proper operation.
- Managing security roles and assigning them to the appropriate users. For example, the administrator assigns the reviewer role to selected registered users.
- Managing users. The portal administrator can create new users in the portal, modify their information or even delete them.
- Setting up applications and modules, i.e. handling general options, handling pages and menu options, adding/ modifying portal's modules.
- Maintaining the glossary i.e. adding/editing the glossary terms (Figure 27).

Add/Edit a Glossary

Term:

Definition:

Category: ☐ ☒ Policy making

[Update](#) [Delete](#) [Cancel](#)

Figure 27 Add/Edit a glossary term

Figure 28 shows the administrator's control panel.



Figure 28 The administrator's control panel

6. TECHNICAL DESCRIPTION OF THE EGOVPOLINET PORTAL

This section presents the technical description of the eGovPoliNet portal. Since the basis of the portal, provided by Crossover, is already presented in a chapter 3, this chapter focuses on the technical description of the enhancements made by the eGovPoliNet project.

6.1. DATABASE DESIGN

At the base of all the modules and functionalities of the portal lies a database which contains the core DotNetNuke data structure. The actual content of the eGovPoliNet front-end and the data needed by the developed DotNetNuke modules also reside in the same database, which has been extended to include the required tables.

eGovPoliNet adapted the Crossover database design to match the needs of the new added functionality. Specifically, a new field, namely “isPublic”, was added at the table “crsvr_Entities” that contains entries for each item of the portal’s content (cases, papers etc.). This boolean field indicates whether an item is public to the portal or not and is used in order to implement the content review mechanism (i.e. every new submitted item is by default not public, when the item successfully passes the review process it is published).

The schema of the eGovPoliNet part of the database is presented in the ER diagram depicted in Figure 33.

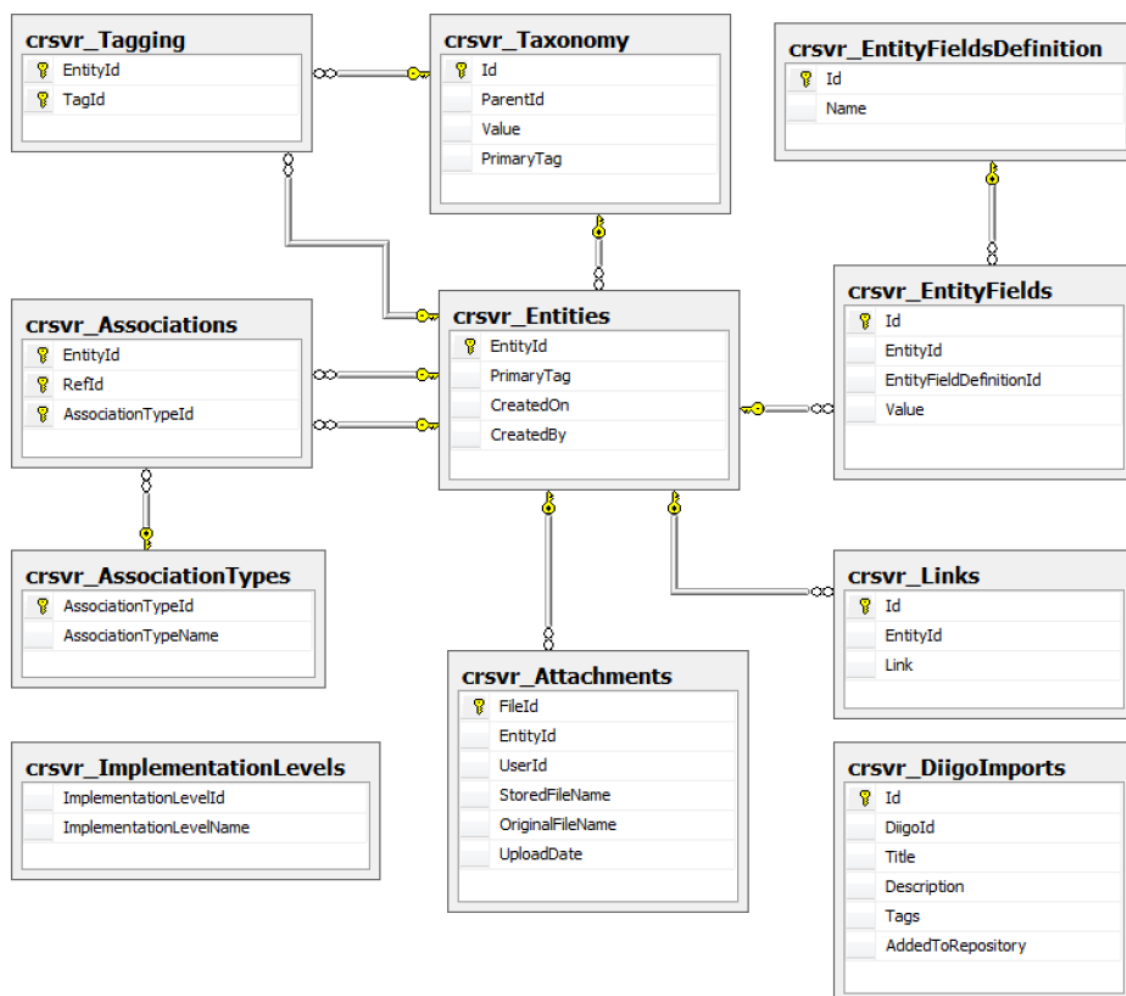


Figure 29 eGovPoliNet portal ER diagram

6.2. LINKEDIN MODULE

LinkedIn offers APIs (RESTful and Javascript) in order to allow applications to interact and retrieve information from the platform. Moreover, in order to enable the secure access to the platform, LinkedIn uses the OAuth² standard for authorization (based on OAuth an API key is required).

The LinkedIn module follows the OAuth process for authorization (using an API key that has been issued for the module). When it is successfully authenticated it makes a call using the Javascript API to retrieve the posts from the “Policy Making 2.0” group. The API call is presented below. Specifically, the call requests the 5 most popular discussions of the group; for each discussion it requests the title, summary, public url and the creator. Finally for the discussion’s creator it requests the first name, last name, picture and public profile url.

² <http://oauth.net/>

```
IN.API.Raw("/groups/4165795/posts:
          (title,summary,site-group-post-url,creator:
            (first-name,last-name,picture-url,site-standard-profile-request))
          ?category=discussion&order=popularity&count=5")
```

The returned result is in JSON format and contains all the information requested at the API call. An example JSON result is illustrated below.

```
{ "creator": { "firstName": "Thei",
               "lastName": "G.",
               "pictureUrl": "http://m.c.lnkd.licdn.com/mpr/mprx/0...",
               "siteStandardProfileRequest": { "url": "http://www.linkedin.com..." } },
  "siteGroupPostUrl": "http://www.linkedin.com/groupItemview=&gid=4165795...",
  "summary": "A short policy...",
  "title": "Learning from this type of stories"
}
```

6.3. MENDELEY MODULE

Mendeley offers a REST API in order to allow application to interact and retrieve information from the platform. The API offers two main types of methods: *i)* public methods that do not require authentication and *ii)* user specific methods that require authentication.

The Mendeley module makes use only of public methods so no authentication is required. This means that the user does not need to have an account at Mendeley to see the results. Specifically, the module returns the top 20 papers related to policy modelling. In order to get the required results we make use of the “search” public method provided by the Mendeley API, which takes as input the search terms. In our case the search terms are “title: Policy modelling”, which searches for papers that refer “policy modelling” at their title. Moreover the API call requires some more parameters: *i)* the consumer_key that is related to the application requesting (i.e. the eGovPoliNet platform) access to Mendeley, *ii)* the number of items (i.e. papers) requested and *iii)* the format (e.g. json) of the returned result. The specific API call used to get the top 20 papers related to policy modeling is illustrated below.

```
GET http://api.mendeley.com/oapi/documents/search/title:
    "Policy modeling"?consumer_key=...&items=20&format=json
```

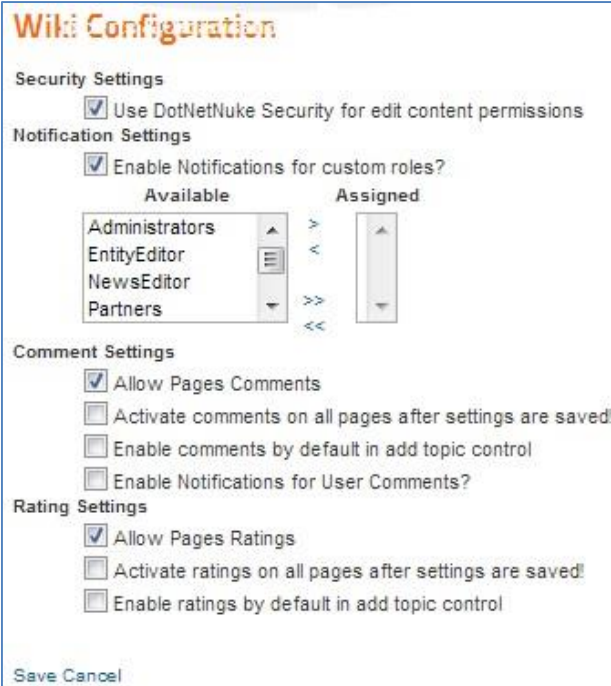
The returned result is in JSON format and contains all the information requested at the API call. An example JSON result is illustrated below. For each paper the result contains canonical ids together with the title, publication outlet, authors, year, doi (if available) and the mendeley catalog url.

```
{ "documents": [
  { "uuid": "909633e5-f92e-3a32-8fb3-3aa4ce6a530a",
    "title": "Policy Modeling",
    "publication_outlet": "Science Studies",
    "year": "2010",
    "mendeley_url": "http://www.mendeley.com/catalog...",
    "authors": [ { "forename": "S", "surname": "Van Egmond" },
                  { "forename": "R", "surname": "Zeiss" } ]
  },
  { "uuid": "1050931b-a76d-3de9-ac0b-9c77c6b6c3bf",
    "title": "Feature Article - Energy Policy Modeling: A Survey",
    "publication_outlet": "Operations Research",
    "year": "1979",
    "mendeley_url": "http://www.mendeley.com/research...",
    "doi": "10.1287/opre.27.1.1",
    "authors": [ { "forename": "A. S.", "surname": "Manne" },
                  { "forename": "R. G.", "surname": "Richels" },
                  { "forename": "J. P.", "surname": "Weyant" } ]
  }
  ... ] }
```

6.4. WIKI MODULE

The eGovPoliNet Wiki is built using an existing module, the DotNetNuke Wiki³. The Wiki module has been configured to inherit the security settings from the DotNetNuke platform. This means that the Wiki module recognizes the three basic roles (registered users, guest users and reviewers) and grants them different rights. Registered and guest users can only search and browse the Wiki, while reviewers can also add new content to the wiki and edit existing content. Moreover, the Wiki has been configured in order to allow page comments and page ratings from all users (even from guest users). The module's configuration is illustrated at Figure 30.

³ <http://dnnwiki.codeplex.com/>



Wiki Configuration

Security Settings
☒ Use DotNetNuke Security for edit content permissions

Notification Settings
☒ Enable Notifications for custom roles?

Available		Assigned
Administrators	>	
EntityEditor	<	
NewsEditor	>>	
Partners	<<	

Comment Settings
☒ Allow Pages Comments
☐ Activate comments on all pages after settings are saved!
☐ Enable comments by default in add topic control
☐ Enable Notifications for User Comments?

Rating Settings
☒ Allow Pages Ratings
☐ Activate ratings on all pages after settings are saved!
☐ Enable ratings by default in add topic control

Save Cancel

Figure 30 Wiki module configuration

6.5. GLOSSARY MODULE

The eGovPoliNet Glossary is built using the DotNetNuke Toolkit⁴. This toolkit contains a Glossary module that has been used in order to build the glossary of the eGovPoliNet portal.

The module enables the division of the submitted information into different Categories to facilitate searching either by keywords or by a term's first letter.

The module has some limitations that do not enable the formatting of the description of the glossary term. This limitation has been overcome by using html tagging inside the description to format the text. An excerpt of a description using html tagging to create a bullet list is illustrated below.

...All three are critical for sustaining human development:

```
<ul style="text-align: justify; ">
```

```
<li>State creates a conducive political and legal environment </li>
```

```
<li>Private sector generates jobs and income</li>
```

```
<li>Civil society facilitates political and social interaction - mobilising groups  
to participate in economic, social and political activities." (UNDP 1997)</li>
```

```
</ul> ...
```

⁴ <http://dnntoolkit.codeplex.com/>

6.6. CONTENT REVIEW MECHANISM

The Content Review Mechanism is developed as a new custom DotNetNuke module for the needs of eGovPoliNet. The purpose of the module is to add a review process for all submitted content before publishing it. When new content is submitted the “isPublic” field (see section 6.1) is by default false (isPublic=0). The reviewers are responsible for checking this content and make it public i.e. make the “isPublic” field true (isPublic=1).

All the entities that are not yet public appear at the content review mechanism for approval. The following SQL queries select such entities. The first SQL query selects the papers/cases (PrimaryTag=1) that are not yet public (isPublic=0) and have not been deleted by the reviewers (isDeleted=0) while the second selects the persons/organizations (PrimaryTag=20) that are not yet public and have not been deleted by the reviewers.

```
SELECT EntityId, isDeleted, isPublic, CreatedOn
FROM crsvr_Entities
WHERE PrimaryTag = 1 and isPublic=0 and isDeleted=0
ORDER BY CreatedOn DESC

SELECT EntityId, isDeleted, isPublic, CreatedOn
FROM crsvr_Entities
WHERE PrimaryTag = 20 and isPublic=0 and isDeleted=0
ORDER BY CreatedOn DESC
```

6.7. MASS PAPER CITATION UPLOAD

The mass paper citation upload mechanism has been implemented as a script that takes as input a valid bibtex file that contains all the paper citations and imports them to the eGovPoliNet portal. The process followed for the mass paper citation upload is the following:

1. The papers' citations from a library or a bibliographic database are exported in bibtex format. An example bibtex is illustrated bellow. The required fields for each bibtex entry are the Title, Journal, Year and Abstract.
2. The script takes as input the bibtex file and creates the corresponding SQL code that inserts directly to the eGovPoliNet database the information of the papers (the execution of the SQL code directly to the database can be done only by the system administrator). Specifically, for each entry of the bibtex file a new paper is inserted at the portal and by default it is set as not public. An example SQL code is illustrated bellow.
3. All the submitted papers are set under review. The reviewers are then responsible for filling any missing information and make the papers public to the portal.

```
@article{ISI:000266057300001,
  Author = {Peristeras, Vassilios and Tatabanis, Konstantinos and Goudos, Sotirios K.},
  Title = {Model-driven eGovernment interoperability: A review of the state of the art},
  Journal = {COMPUTER STANDARDS & INTERFACES},
  Year = {2009},
  Abstract = {This paper reviews the state of the art in the area of eGovernment...},
}
```

```
INSERT INTO crsvr_Entities VALUES
```

```
(860,1,'2014-01-20 16:47:05',1,0,0,0)
```

```
GO
```

```
INSERT INTO crsvr_EntityFields VALUES
```

```
(860,0,'Model-driven eGovernment interoperability: A review of the state of the art'),
```

```
(860,1,'COMPUTER STANDARDS & INTERFACES'),
```

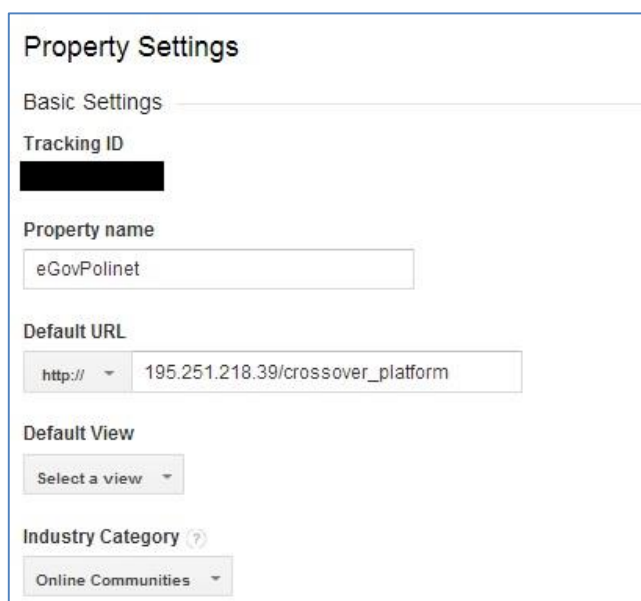
```
(860,2,'2009'),
```

```
(860,4,'This paper reviews the state of the art in the area of eGovernment ...')
```

```
GO
```

6.8. MONITORING MODULE

The monitoring module is implemented using the Google analytics service⁵ that is connected with the eGovPoliNet platform to monitor the traffic. In order to achieve this, the eGovPoliNet site has been registered to Google analytics (Figure 31) and a unique tracking ID has been generated. DotNetNuke offers a module that facilitates the interaction with Google analytics, the only configuration needed is the tracking ID generated by Google analytics. When the tracking ID is completed, the monitoring automatically starts.



Property Settings

Basic Settings

Tracking ID
[REDACTED]

Property name
eGovPoliNet

Default URL
http:// 195.251.218.39/crossover_platform

Default View
Select a view

Industry Category ?
Online Communities

Figure 31 Google analytics settings

⁵ <http://www.google.com/analytics/>

7. CONCLUSION

D2.2.2 describes the eGovPoliNet portal and its main functionality, as well as the methodology and timeframe followed for developing it. Furthermore, we have explained the nature of the collaboration with Crossover and the implications for the eGovPoliNet portal. Detailed information on the changes and enhancements made to the Crossover portal have been explained in the previous chapter. In this last section we would like to refer to the portal's organisation and link it to the project's strategy described by WP1.

The portal has been designed in a way that it offers valuable resources and functionality to unregistered (guest) visitors. In specific, all resources of the knowledge base (including papers, people, cases, glossary terms, wiki entries, etc.) are available to guest users. We find that this is an important contribution to the field of policy modelling.

Registered users can additionally upload resources and comment on resources. In essence, registered users for eGovPoliNet are proven professionals in the field and for this reason, although the registration is open to everyone, they need to demonstrate relevant capacity in order to be granted access to the portal.

Reviewers are registered users who can additionally review and publish the submitted resources as well as create/edit wikis. In essence, reviewers are selected members of the consortium whose role is to maintain an overall supervision of the knowledge and ensure content's high quality.

The eGovPoliNet consortium finds that this arrangement of roles provides maximum added value to the research community ensuring at the same time that no interested party is excluded from the available knowledge. The wide public has access to a broad knowledge base, while the closed registration eliminates jargon and ensures content of high quality, which is anyway double-checked by a small core of involved members, the reviewers. This roles' arrangement seems also optimal for ensuring minimum maintenance effort, something important for the portal's future sustainability.

8. REFERENCES

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Zowghi D. and Coulin C. Requirements elicitation: A survey of techniques, approaches, and tools. Engineering and Managing Software Requirements, pages 19-46, 2005.

9. APPENDIX I: METHODOLOGY FOR PORTAL'S CONCEPTUAL DESIGN

The methodology followed consists of two major steps. The first step is the identification of the requirements and the second step is the construction of the conceptual models of the eGovPoliNet portal based on the identified requirements.

For identifying requirements, we searched the requirements engineering (RE) literature and selected a structured RE technique. We decided to follow the RE method proposed by Hoffmann and Lehner (2001) because it is a widely used methodology and encompasses all the essential processes that a RE method should include (Jiang et al., 2008). The selected RE method includes four steps depicted in Figure 32.

Each step is elaborated next.

1. Requirements elicitation is the process of identifying and elaborating requirements. The literature includes a great variety of different techniques (Zowghi and Coulin, 2001) including interviews, questionnaires, workshops, task analysis, joint sessions, document analysis, observations, scenarios and information system analysis. We choose to collect requirements using three different techniques. The first technique is document analysis. We analyse the Description of Work (DoW) of the eGovPoliNet project in order to identify the fundamental requirements. The second technique is the information system analysis. A number of well-known online community building and collaboration portals already exist and we want to capitalise on their experience. The third technique is usage scenario. Aiming at capitalising on our established partnerships within eGovPoliNet project, we ask partners to develop usage scenarios (in free text format) or use cases diagrams depicting their needs and expectations from an online community building and collaboration portal.

Apart from these, and during regular project meetings and teleconferences, the requirements are extensively discussed. Project partners come up with additional requirements not included in our initial draft portal requirements.

2. Requirements documentation is the process of documenting the requirements specified in the previous steps. The literature includes a vast variety of requirements documentation artifacts, such as requirements lists, requirements specification documents, use cases and requirements templates (Winkler, 2007). We choose to document requirements in list format as it presents them in a compact format and facilitates their review.

3. Requirements prioritization is the process of identifying the most valuable requirements from the requirements set by distinguishing the critical few from the trivial many (Berander and Andrews, 2005).

There are many techniques for prioritizing requirements (Berander and Andrews, 2005). We choose to consult the stakeholders, i.e. the Consortium, for deciding which the core requirements of the portal should be. In particular, after numerous consortium meetings where the portal requirements were extensively discussed, the core requirements and functionality were decided.

4. Requirements validation is the process of detecting and resolving requirements errors such as omission, incorrectness, duplication, conflict, ambiguity and inconsistency. Methods for validating requirements include checklist-based validation, peer reviews and inspections (Hoffmann and Lehner, 2001). We choose to employ peer reviews for validating requirements. In particular, the requirements list is disseminated to the eGovPoliNet project partners in order to review and elaborate on it. The requirements list is updated according to the feedback received.

For constructing the conceptual models describing the eGovPoliNet portal we follow the methodology proposed by Arrango (1994) for constructing conceptual models for a particular domain. We omit the initial steps of their method since are referred to data collection and we have already collected the required data, i.e. the requirements. The Arrango's method includes the following steps:

1. Identification of the concepts. In order to extract the concepts (i.e. entities, functions and relationships) for the eGovPoliNet portal and taking into consideration the absence of systematic methods for concept abstraction, (Prieto-Diaz, 1990), a technique proposed by Bennett et al. (2010) for indentifying classes and relationships from text has been chosen to be followed.

2. Development of the conceptual models. Following the guidelines of recent approaches, (Bennett, et al., 2010), the domain concepts are modelled using UML notation, (OMG, 2011). For modelling the domain's entities UML class diagram is used because it is widely used for modelling entities and the relations among them, (Bennett, et al., 2010). For modelling the domain's functions, UML use cases diagram is used due to its suitability for modelling the behavioural aspect of the domain.

3. Evaluation of the conceptual models. Very few approaches propose methods for validating the domain model, (Arrango, 1994). Evaluation is usually performed informally through reviews by domain experts or by using the models to facilitate understanding of existing IS, (Arrango, 1994). For evaluating the domain models we use the latter technique. In particular, we validate the models through existing portals by examining whether the functionalities of the examined online community building and collaboration portals and their underlined concepts are included in the conceptual models.

4. Functional comparison of the Crossover portal against eGovPoliNet's requirements. concepts and functions. The purpose of this activity is to identify which requirements and concepts the Crossover portal covers and to reveal the additional functionality that is required to be developed by eGovPoliNet. A test version of the Crossover portal has been obtained to facilitate this comparison.

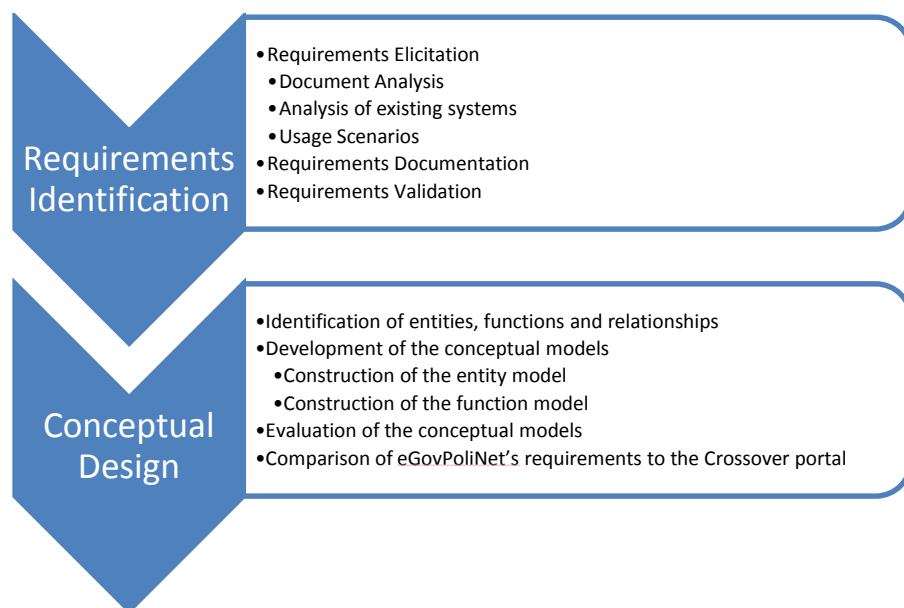


Figure 32: The methodology followed for the requirements identification and the conceptual design

10. APPENDIX II: PORTAL REQUIREMENTS

Following the requirements engineering methodology presented in Appendix I, we performed the following activities:

10.1. STUDY OF THE DESCRIPTION OF WORK (DOW) OF THE EGOVPOLINET PROJECT

In particular we studied the DoW and identified the various DoW excerpts, concerning the eGovPoliNet portal. Then, based on the identified citations we extracted the requirements contained in them. The relevant DoW excerpts and the corresponding requirements are also presented next.

10.1.1. Presentation of the DoW Citations

Next, various DoW excerpts, concerning the eGovPoliNet portal, are cited. We also cite a usage scenario contained in DoW.

Citation 1 (Part A, pp 3)

Interested stakeholders will be supported by a community portal for knowledge sharing, collaboration, dissemination, and multidisciplinary constituency building in an open environment.

Citation 2 (Workplan table, pp 4)

Investigation of online and offline means to:

- a) establish contacts (i.e. searching, identifying, awareness raising and reaching out widely),
- b) attract the target group(s) to join and participate in the network/community (i.e., attract stakeholders to register at the eGovPoliNet portal, participate in offline events, use online services and contribute to online activities), which means offering clear benefits and keeping entry barriers low
- c) keep the interest of the target group(s) (i.e. undertake efforts to motivate the target group(s) to take collective action).

Citation 3 (Workplan table, pp 7)

The eGovPoliNet portal concerns the online presence for multidisciplinary and international constituency building and knowledge exchange of researchers and practitioners including governments and industry. The portal will not only act as an information point but also as a collaborative environment, where members of the community (i.e., users of the portal) will be able to access the publicly available documents and participate in the various service offers. Moreover, the system to be deployed will also offer various features to the members of the consortium and to the multidisciplinary and international users coming from academia, industry and governments in order to provide them with mechanisms that will increase productivity and facilitate the spread of knowledge.

Citation 4 (Workplan table, pp 7-8)

The eGovPoliNet portal will offer various features to the members of the consortium and to its external users in order to provide them with mechanisms that will increase productivity and facilitate the spread of knowledge. A participative online system, which will facilitate the complete life cycle of the eGovPoliNet project, will evolve to the Knowledge Base system of the project. It will be an interactive, fully state-of-the-art repository which will act as a placeholder for all the relevant knowledge that has to be accessed in order to support online community and

constituency building. During this task partners will develop this system by adding new functionalities and optimize it in order to satisfy the needs of the project. The whole system will support by a web based portal with WEB 2.0 characteristics in order to reach out for the maximum audience.

A database system will be used for storing all the required data which will be linked with the main system through a dedicated database layer which will be used for data optimization and management.

The main system will include various subsystems, in the form of interoperable pluggable modules in order to facilitate the diverse needs of the project, but also to preserve the security amongst the different user groups but also to guarantee the future expandability of the portal and the ease of deployment.

The knowledge Base engine will be fed by various service clusters and tools which will serve function such as data input, data processing and of course data retrieval.

A first cluster of services, called “Initial eGovPoliNet portal including basic functions for community building” comprises various tools, in the form of modules, that are dealing with data entry and analysis, with classification the data based on already established ontologies, with the support of decision making and with the generation of reports based on criteria that the user can select.

The aforementioned cluster is coupled with the cluster called “online services”, which will facilitate the main participative activities which will take place during the implementation of the project. In this context, tools for collaborative work will be installed, together with online consultation and eParticipation technologies. These services will be exposed through the portal through a user-friendly web interface, which will have WEB 2.0 characteristics in order to maximize the project’s exposure to the public and boost participation in the different stages of the project.

The eGovPoliNet portal will, therefore, not only act as an information point but also as a collaborative environment, where users will be able to access the publicly available documents and participate in the various consultation processes to perform the studies and comparative analysis, as well as formulate the roadmap. In this task the eGovPoliNet portal will be implemented to fulfill the basic functions necessary for information providing and sharing among the partners and the members of the eGovPoliNet community.

Citation 5 (Workplan table, pp 11)

To ensure partners and members of eGovPoliNet can work in a common environment not yet exposed to the general public, the portal supports shared spaces with web 2.0 features. This task will ensure that such work spaces are set up and maintained properly.

Citation 6 (Workplan table, pp 14-15)

An iterative process starts involving different online and offline means for consensus building in terms of future R&D demands in the field of ICT for Governance and Policy modelling. A dedicated, large-scale web-based consultation on the proposed grand challenges identified will support constituency building in the field. In a similar way, eGovPoliNet will involve experts in assessing the originality and nature of the identified grand challenges. In particular, comments and contributions will be encouraged that address the nature of the grand challenges and its actual novelty with regard to the state of play.

Citation 7 (PartB, pp 11-12)

eGovPoliNet will provide the necessary technological infrastructure to facilitate discussion, co-operation and knowledge exchange, thereby embarking on innovative media such as social networks, web 2.0 tools, and web 3.0 tools.

10.1.2. Requirements from the DoW Citations

Next, we present in matrix format the mapping of the citations of the DoW to the requirements. The rows of the matrix represent the identified requirements and the columns represent the various citations. The tick in each cell indicates that a citation requires the corresponding requirement..

ID	Requirement	Citation 1	Citation 2	Citation 3	Citation 4	Citation 5	Citation 6	Citation 7
1.	Registration - Profile Management							
1.1	Online Registration							
1.2	Minimum information during registration							
1.3	Support of physical persons, groups and institutions							
1.4	Profile Page Viewing							
1.5	Profile Information Management							
1.6	Establish connections between members		√					
2.	Community Building \ Groups	√		√	√			
2.1	Group Creation							
2.2	Group Viewing							
2.3	Send invitations for registering to groups		√					
2.4	Join Groups							
2.5	Group's File List							
3.	Collaboration Tools	√	√	√	√	√	√	√
3.1	Discussions						√	√
3.2	Blogs						√	√
3.3	Surveys and polls						√	√
3.4	Collaborative authoring						√	√
3.5	Publish results							
3.6	Wiki							
4.	Knowledge Database (Library)	√	√	√	√			
4.1	Support of scientific articles, cases and projects			√	√			

4.2	Add library items				✓			
4.3	Update library items							
4.4	View library items				✓			
4.5	Comment library items				✓			
4.6	Bookmark library items							
4.7	Support of Glossary							
4.8	Review Content Process							
4.9	Mass upload of paper citations							
5.	Conferences / Events		✓					
5.1	Create an Event							
5.2	View Events							
6.	Other Tools							
6.1	Search Engine		✓	✓				
6.2	Connection with social media		✓					✓
6.3	Invitations Sending		✓					✓
6.4	Help Desk							
6.5	Feedback Section							
6.6	Portal's Blog							
6.7	Topics (Discussions)							
6.8	New content section							
6.9	Suggestion of content							
6.10	Notifications about new entries							
6.11	Communication between members							

6.12	Integration with LinkedIn							
6.13	Integration with Mendeley							
6.14	Monitoring of the portals statistics							

Table 1: Mapping of Requirements with Citations from DoW

10.2. ANALYSIS OF POPULAR ACADEMIC AND PRACTITIONER COLLABORATION PORTALS.

A Google search for online community building and collaboration portals was performed. The search terms used were: online collaboration portals for researchers, social networks for researchers, online communities for researchers, and online communities for policy makers. The search results were studied carefully in order to identify portals relevant to our objectives. In particular, the criteria used for selecting the portals for analysis are: (i) their popularity, i.e. number of members, and (ii) their relevance to online community building and collaboration.

Our search resulted in eight online portals: *ResearchGate*, (<http://www.researchgate.net>), a professional network for scientists and researchers; *Academia.edu*, (<http://academia.edu>), an online portal for academics to share research papers; *Ologeez!*, (<http://www.ologeez.org/>), an online portal connecting academic professionals and scholars; *Mendeley*, (<http://www.mendeley.com>), a web portal for managing and sharing research papers and data and collaborating online; *ePractice.eu*, (<http://www.epractice.eu>), a portal by the European Commission for the professional community of eGovernment; *Policy Network*, (<http://www.policy-network.net/>), an international think tank for long-term strategic thinking, policymaking and international best practices; *figshare*, (<http://figshare.com/>), an online portal for researchers to share their work; and *LabSpaces*, (<http://www.labspace.net>), a social network for the scientific community designed to spread scientific news. A detailed presentation of these portals can be found in section 10.2.1.

Next, we registered in each portal, used it and recorded the functions provided. Then, we studied each portal's documentation and user manuals (if any) to complement the recorded functionalities. The requirements extracted from this process are also presented in section 10.2.2.

10.2.1. Presentation of Academic Collaboration Portals

The purpose of this annex is to present popular academic collaboration portals and present and analyze the provided functionality.

10.2.1.1. Research Gate



ResearchGATE (<http://www.researchgate.net>) is the leading social network for scientists. It offers tools and applications for researchers to interact and collaborate. ResearchGate offers a Science 2.0 portal designed for researchers. The portal provides a global scientific web-based environment in which scientists can interact, exchange knowledge and collaborate with researchers of different fields.

A recent calculation of members shows that ResearchGate has so far assembled a user base of over a million researchers from 192 countries.

The electronic services provided by the portal to the members include:

Profile Management

- User can manage his profile by defining his personal information, his relevant science disciplines, research skills and experience, education, etc
- User can add his publications to his profile page
- User can add microarticles (is a full summary of a published peer-reviews article) to his profile page.

- Every profile has a personal blogging function where members can share views, news and results with their network and the whole scientific community
- Suggestions. Semantic matching is used by the portal to support member networking. Through analyzing the information provided by the user on his or her profile page, the portal will suggest groups, other members and literature with similar research interests that the user might be interested in.

Collaboration Tools

Research Gate offers collaboration tools including: groups, forums, methodology discussions and blogs. Those tools are:

- ReStory which allow users to collaborate together with colleagues to write and edit documents.
- ReMeet which let users schedule meetings and conference calls
- ReVote which enable users to create surveys and polls on topics.

Knowledge Sharing

Those tools include:

- Publication database sharing / File-sharing. Members can post publications / files that will be accessible from other members.
- Microarticles. Members can create "microarticles" to provide summaries of published and peer-reviewed articles, highlighting key concepts and findings.

Groups

Joining and managing groups is one of the collaboration tools included in the Researchgate portal. The services under this section include:

- Browse all groups
- Browse groups by category
- Create a group
- Search for discussions in groups
- Join groups
- View methodology discussions
- Post comments on discussions (for group members only)
- Initiate a discussion (for group members only)
- Appointment Scheduler. Group members can create an appointment, spread it to other group members and wait for their confirmation.
- Surveys / Polls. Group members can create surveys on thematic topics which can be answered by other members
- File-sharing tool allowing users to collaborate with colleagues on writing and editing documents.

Publications

The provided services include:

- View a list of publications related to their relevant science disciplines
- Bookmark publications.
- Add new publication or microarticles
- Search for Publications. Search can be performed by keywords, by similar abstracts and by journals.

Conferences

This section provides the following services:

- View a list of all upcoming conferences
- View a list of all upcoming conferences restricted to a category
- Create a Conference
- Follow a Conference

Job Announcements

The provided services include:

- View a list of all research jobs
- View a list of all research jobs restricted to a category
- Post a job announcement
- Search for jobs

Semantic Searching

ResearchGate has developed a semantic search engine (ReFind) that browses internal resources and major external research databases, including PubMed, CiteSeer, arXiv, NASA Library and others to find research papers. The search engine was developed to analyze a larger string of terms than is used in standard keyword searches – it will analyze entire abstracts – with the idea that more terms will allow more precise results.

Apart from papers members can also search for researchers, groups and other objects.

Notification system

Researchgate includes a notification system for its members in order to keep them informed about new entries to discussion groups, file uploads and appointments. Notifications are sent to user's email account.

Research Blog

ResearchBlog is the official blog of ResearchGate. Members can submit postings from their individual profile - blogs to contribute to this larger, official blog. The highest-quality submissions

are then selected and published. Made up of these postings, ResearchBlog is a reputable source for science news, commentary, research and innovation from all academic disciplines.

RSS Feed

The individual ResearchGate blog entries and microarticles can be subscribed to via the newsfeed, enabling members of the network to keep up on their peers' latest entries. An RSS feed is used to publish frequently updated work.

Connection with other social media portals

Researchgate permits connection of the ResearchGate accounts with other social media portals (Facebook, Twitter, Yahoo!, Delicious, Digg, Stumble Upon, Mr. Wong) in order to find researchers and share post and updates.

10.2.1.2. Academia.edu



Academia.edu (<http://www.academia.edu>) is a San Francisco-based portal for graduate students and academics focused on research.

Users can follow each other, upload their papers and stay up to date with their News Feeds. Someone could claim that having an account at Academia.edu is like having your own “academic portfolio”.

Academia has more than 1 million unique visitors per month and more than 100,000 research areas.

More specifically, the services of this portal are:

Profile Management

- User can manage his profile by defining his personal information, his research interests and his education.
- User can upload his books, papers, talks, blog posts, CV or teaching materials (there is a connection with Scribd⁶).
- User can link his homepages on the web with Academia.

Social Networking

- Every user can search (either with direct search via search box form or via user's email, Facebook, Twitter or LinkedIn accounts) and “follow” other users.
- Users can post their opinions, ask questions via Q&A feature, follow these questions and comment on posts of other users.

Knowledge Sharing

Users can upload or find their already uploaded by others publications/files that will be accessible for other members of Academia.edu.

⁶ Scribd (<http://www.scribd.com>) is a Web 2.0 based website which allows his users to upload and share with others any kind of document.

Job Board

- User can see a list of jobs.
- User can apply for a job.
- Only users who represent a university can post jobs.
- Jobs are also posted as mini-Ads on profile pages.

Feedback

Academia.edu gives the chance to its members to express their ideas about new features they would like to see in this portal or vote the already posted ideas.

Connection with other social media portals

The user can connect to Facebook, Twitter, LinkedIn in order to find his friends. He can only share links on Facebook and Twitter.

10.2.1.3. Ologeez!



Ologeez! (<http://www.ologeez.org>) is a website build to connect academic and scholars. It was found by Jason Hoyt, a graduate student at Stanford University in 2007. It was pioneer as it was the first social-based service for academics. Members can exchange knowledge, collaborate with others in the same field, create and manage their groups. The most important is that Ologeez! uses a PubMed⁷ interface for better search results, allowing users to rate and discuss each article.

According to statistics, Ologeez! is no so well known outside USA borders because the 86,5% of its visitors are from United States.

The services provided to members are:

Profile Management

User can define his personal and professional information.

Social Networking

- The user can search for other users. He can add them as colleagues and they will appear to his colleagues list after they accept the proposal.
- Users can add private notes with comments and ideas to other profiles.

Collaboration Tools

Ologeez! uses Wikigroups as collaboration tools. Wikigroups are groups created and joined by users. The main purpose of Wikigroups is to promote knowledge. The services of this feature are:

- Calendar with group editing.
- News board.

⁷ PubMed is a free accessing biomedical literature database.

- Publication List.
- Protocols.
- Photo albums.
- Group forums.
- Privacy controls.

Knowledge Sharing

User can create and manage his own Library which includes all the articles uploaded, rated, commented on etc.

Search

- Ologeez! Uses a PubMed interface for advanced search. The PubMed search is designed to provide fast and reliable results.
- Users can browse the abstracts of articles through categories and subcategories menus under top menu.
- User can browse results by choosing one of the top 200 category tags appeared after clicking on Tag at the top menu.

Notification system

Ologeez! includes a page for each user, called “My World”, which gathers all the data from user’s Wikigroups and school seminars.

10.2.1.4. ePractice.eu



ePractice.eu (<http://www.epractice.eu>) is a Web 2.0 community service created by the European Commission. ePractice.eu aims to create a community which, through the exchange of good practices, will contribute to the progress of domains such as eGovernment, eHealth and eInclusion.

The members of ePractice.eu may express their experiences, publish cases, share news, events, documents.

ePractice.eu has more than 145 million members around the world and about 1500 uploaded cases.

The services provided by this portal are:

Profile Management

- Users can create their own profile page by defining their personal and professional information.
- The blog posts and the communities joined by members are appeared to their profile pages.
- User can define his contact data e.g. address, phone numbers etc.

Social Networking

- The user can browse and add to his contacts other members.

- The user can publish his case studies and publications, add comments and rates news, events, videos, cases and publications. Through this, he gains as a reward Kudos. The more Kudos he gains, the more privileges he has. For example, in order to send a message he needs at least 150 Kudos.

Collaboration Tools

ePractice.eu enhances collaboration through Communities and blogs.

- ePractice Communities offers to every user the chance to come in touch with other members with common interests. A member of a community can post to community's blog, share a resource, get information about latest Events and Workshops or new Library entries related to community's interests.
- Except from the separate blogs of Communities there is a main blog where users can share their opinions, ask questions or post news for topics relevant to eGovernment, eHealth and eInclusion.

Knowledge Sharing

Users can share their case studies and publications in Cases and Library section respectively.

Events/Workshops

- In this section, the user can find an online calendar with the upcoming worldwide events related to eGovernment, eHealth and eInclusion.
- He can also add comments or propose his event.

Factsheets

The section Factsheets gives to members the appropriate information about the progress of eGovernment and eInclusion in 35 European countries. The documents shared are updated every 6 months.

ePractice.eu TV

It is a section where members can watch videos related to eGovernment, eHealth and eInclusion, rate and express their opinion on them.

RSS Feed

ePractice.eu enables the RSS Feed in all sections.

10.2.1.5. Mendeley



Mendeley (<http://www.mendeley.com>) is an academic social network which encourages the research and collaboration. It is a desktop and web solution ideal for researchers, scholars, educators, graduate and undergraduate students, librarians and information management professionals. Its desktop application, Mendeley Desktop, is a PDF and reference management application. A Mendeley's user can manage his research papers, share them with others, discover research data and collaborate with other users online.

Mendeley has more than 1 million users and about 100 million added articles.

The services provided by Mendeley Web are:

Profile Management

- User can manage his profile by defining his research interests, some biographical and his contact information.
- User can add his publications to his profile page.
- User can add his awards or grants to his profile page.

Social Networking

- The user can search and add to his contacts other members by sending them a contact request and waiting to be confirmed.
- The user can search and join or follow a group of his interest.
- The user can post his opinion, links and papers, comment or like o post made by another member of a group.

Collaboration Tools

Mendeley encourages collaboration through groups. There are three different type of groups depended on the reason created for:

- Private Groups: These groups are appropriate for private research projects. They can have at most 10 members, when the creator is a free member, and 15 and more for subscribers depended on the subscription paid per month. Each member can add new papers, update already uploads, comment and highlight PDF files. The group is not visible to others except from its members.
- Public Invite-Only Groups: These groups are appropriate for public reading lists or lab's research outputs. Everyone can see and join them.
- Public Open Groups: These groups are appropriate for discussion groups on any subject. Everyone can become a member and contribute to them.

Knowledge Sharing

- The user can upload his papres only using the Mendeley Desktop. A free user has 1Gb space and subscribers at least 7Gb depended on monthly subscription.
- Users can import references and documents from other academic databases, such as Amazon, Wikipedia, Zetoc etc, by using the feature Web Importer.
- The user can manage the uploaded files, add further details about the file and its subject or lookup document details from CrossRef, PubMed, Arxiv and Google Scholar through Mendeley Web. All these can also be done through Mendeley Desktop.

Search

The users can search for papers, people or groups by selecting the appropriate choice from the drop down menu of research box.

Notification system

Mendeley notifies its users about received messages, comments, new entries to groups and the progress of payment (only if they are subscribers).

Statistics

- Mendeley gives the opportunity to its users to take information about general statistics such as most read articles, most read authors etc.
- The user can see his Library statistics.
- Library statistics are displayed on user's profile.

Mendeley Research Blog

Mendeley Research Blog is the official blog of Mendeley. Users can read about Mendeley's news, updates and research topics, add comments and share blog posts to other social media.

RSS Feed

The blog posts and the groups' news can be subscribed to via RSS newsfeed.

Connection with other social media portals

Mendeley allows its user to connect via his facebook account, share papers to Facebook and Twitter and invite his colleagues via his AOL, Gmail, Windows Live, Yahoo! And LinkedIn account.

10.2.1.6. Policy network



Policy Network (<http://www.policy-network.net/>) is a leading thinktank and international political network. It seeks to promote strategic thinking on progressive solutions to the challenges of the 21st century and the future of social democracy, impacting upon policy debates in the UK, the rest of Europe and the wider world.

Policy Network organise debates and conduct research on policy and political challenges that present all governments and political parties with urgent dilemmas, either because sustainable solutions remain elusive, or because there are political barriers to their implementation.

The services provided by Policy Network are:

Knowledge Sharing

- The user can view and download articles, opinions and publications on policy-related issues.
- User can comment on articles, opinions and publications.

Search

Users can search the database using multiple criteria

Connection with other social media portals

The portal allows users to connect via facebook and twitter accounts.

10.2.1.7. Figshare



Figshare (<http://figshare.com/>) allows researchers to publish all of their research outputs in seconds in an easily citable, sharable and discoverable manner. All file formats can be published, including videos and datasets that are often demoted to the supplemental materials section in current publishing models.

The functionalities provided are:

Profile Management

- Users can create their own profile page by defining their personal and professional information.
- Users can send invitations to other interested parties

Knowledge Sharing

- The user can view and download figures, datasets, media files, papers, posters or filesets
- User can upload his own library items
- User can comment on library items.

Search

Users can search the database using multiple criteria

Statistics

The portal gives the opportunity to its users to take information about general statistics such as most read articles, most read authors etc.

Collaboration Tools

- Figshare Blog

In the future figshare schedules to add Collaborative functionalities to the portal.

10.2.1.8. LabSpaces



LabSpaces.net (<http://www.labspace.net>) is a social network for the scientific community designed to spread scientific news, maintain and create friendships, and harbor collaboration through the internet. The site serves as a web profile for researchers and labs, and is also a community for active communication in the sciences.

Current Features include:

Collaboration Tools

- Users can participate in discussions
- Users can initiate discussions
- Users can post on the portal's blog

Knowledge Sharing

- Users can view and upload scientific news
- Users can comment on scientific news
- The portal includes a Science News feed updated daily with news articles etc

Groups

- User can join thematic groups

10.2.2. Requirements from existing academic collaboration portals

Next, we present in matrix format the mapping of the academic and practitioner portals' functionality to the portal requirements. The rows of the matrix represent the identified requirements and the columns represent the various academic portal. The tick in each cell indicates that a portal satisfies the corresponding requirement.

ID	Requirement	Research Gate	Academia	Ologeez!	ePractice	Mendeley	Policy Network	figshare	LabSpaces
1.	Registration - Profile Management								
1.1	Online Registration	✓	✓	✓	✓	✓		✓	✓
1.2	Minimum information during registration	✓	✓	✓	✓	✓		✓	✓
1.3	Support of physical persons, groups and institutions	✓	✓	✓	✓	✓		✓	
1.4	Profile Page Viewing	✓	✓	✓	✓	✓			
1.5	Profile Information Management	✓	✓	✓	✓	✓		✓	✓
1.6	Establish connections between members	✓	✓	✓	✓				
2.	Community Building \ Groups								
2.1	Group Creation	✓		✓	✓	✓			✓
2.2	Group Viewing	✓		✓	✓	✓			✓
2.3	Send invitations for registering to groups	✓		✓	✓	✓			
2.4	Join Groups	✓							✓
2.5	Group's File List	✓		✓	✓	✓			
3.	Collaboration Tools								
3.1	Discussions	✓	✓	✓		✓			✓
3.2	Blogs			✓	✓				✓
3.3	Surveys and polls	✓							
3.4	Collaborative authoring	✓				✓			

3.5	Publish results								
3.6	Wiki								
4.	Knowledge Database (Library)								
4.1	Support of scientific articles, cases and projects	✓ (only articles)		✓ (only articles)	✓	✓ (only articles)	✓	✓	
4.2	Add library items	✓		✓	✓	✓		✓	
4.3	Update library items							✓	
4.4	View library items	✓		✓	✓	✓	✓	✓	
4.5	Comment library items	✓		✓	✓	✓	✓	✓	
4.6	Bookmark library items	✓							
4.7	Support of Glossary								
4.8	Review Content Process								
4.9	Mass upload of paper citations								
5.	Conferences / Events								
5.1	Create an Event	✓			✓				
5.2	View Events	✓			✓		✓		
6.	Other Tools								
6.1	Search Engine	✓	✓	✓	✓	✓	✓	✓	✓
6.2	Connection with social media	✓	✓			✓	✓		✓
6.3	Invitations Sending	✓						✓	
6.4	Help Desk		✓						

6.5	Feedback Section		✓						✓
6.6	Portal's Blog	✓			✓			✓	✓
6.8	New content section	✓	✓	✓	✓	✓	✓		✓
6.9	Suggestion of content	✓	✓						
6.10	Notifications about new entries	✓				✓	✓		✓
6.11	Communication between members								
6.12	Integration with LinkedIn								
6.13	Integration with Mendeley								
6.14	Monitoring of the portals statistics								

Table 2: Mapping of Requirements with Popular Academic Portals

10.3. GATHERING OF USAGE SCENARIOS FROM THE PROJECT PARTNERS

In total 17 usage scenarios were gathered. The scenarios are presented in 10.3.1. From these scenarios, we extracted the requirements contained in them. Those requirements are also presented in 10.3.2.

10.3.1. Presentation of Usage Scenarios

10.3.1.1. Scenario 1: Introducing a new member to a team

A PoliNet member introduces a new member to work on a PoliNet team

Igor (a member of PoliNet) sees that some people S1 and S2 are working on problem P2. Igor knows that someone R2 in his institution is working on the same problem but R2 is not registered on the portal.

Igor requests that R2 be registered in the portal. Once R2 is registered, they're directed to S1 and S2 and they decide if they want to collaborate on problem P2.

10.3.1.2. Scenario 2: Finding a partner

Finding someone to work on a problem

Scenario for one member of PoliNet to find another member to work on a problem

Researcher R1 wants to collaborate with someone in PoliNet to work on problem P1. This may be a problem of how to create a policy or a domain problem like some energy problem. R1 posts the problem description of the eGovPoliNet portal with keywords. The portal searches other researcher interests based on the keyword and finds researchers with similar interests. The portal notifies R1 of these researchers and also let them know that R1 has similar interests. R1 then contacts the other researchers and initiates collaboration with them.

10.3.1.3. Scenario 3: Search for experts in a particular area.

The practitioner should be able to search for experts in a particular area.

This would allow The Policy Community to support an expanded set of experts for speaking engagements, news related articles, conference keynotes, or other community engagement type activities. This would provide value added to members who join the network.

10.3.1.4. Scenario 4: Profile Management

The researchers, practitioner, policy maker, should be able to set up contact information for themselves, which they can establish, edit, and maintain on their own, in addition to adding their own connections, keywords, expert areas. Whether this is built in the portal or an add-on from something like Linked in or another social networking site, this would be helpful. The portal's function here would be to facilitate the social networking of The Policy Community among interested people whether building or reusing existing social networking capabilities out there.

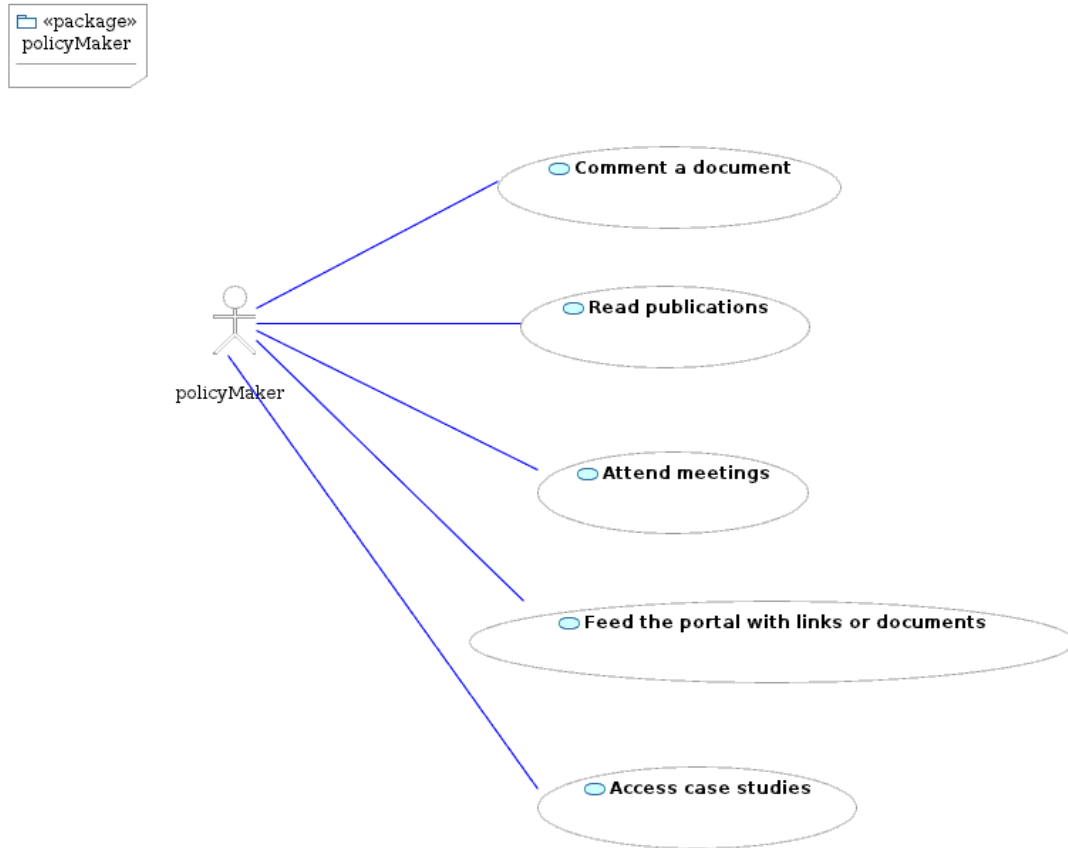
10.3.1.5. Scenario 5: Project Publishing and Management

The practitioner, policy maker, and researcher should be able to add, search, and edit current (or pending) projects that they would like to make known to other people. They should be able to receive updates easily. The portal's function would be to create a knowledge base.

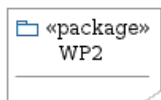
10.3.1.6. Scenario 6: Event Management

The practitioner, policy maker, and researcher should be able to add to a calendar of events, to promote their own events to continue to bring the community together with other communities.

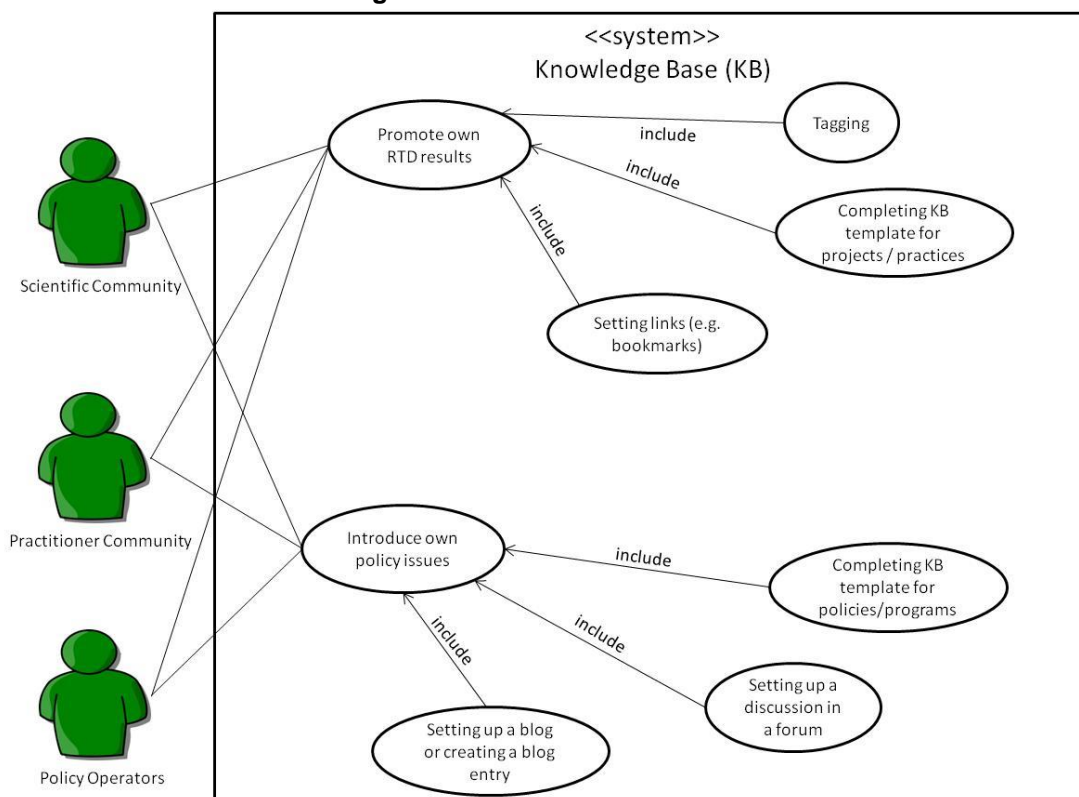
10.3.1.7. Scenario 7: Functionalities for Policy Makers



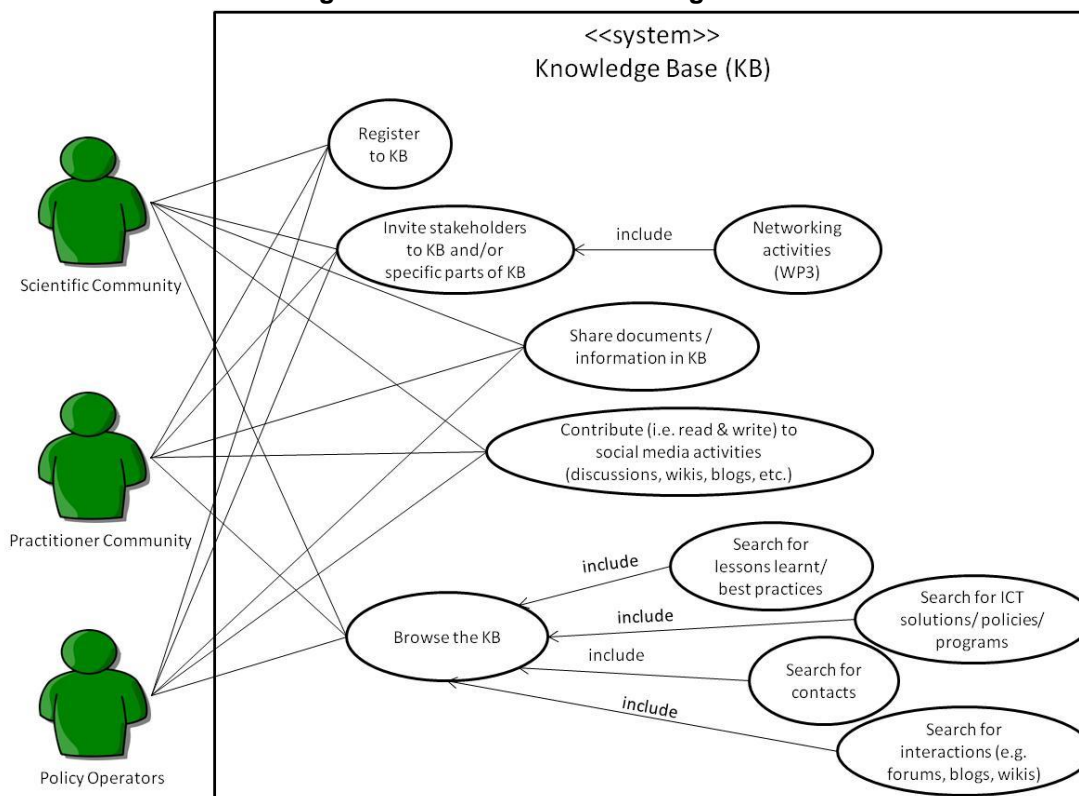
10.3.1.8. Scenario 8: Functionalities for Researchers



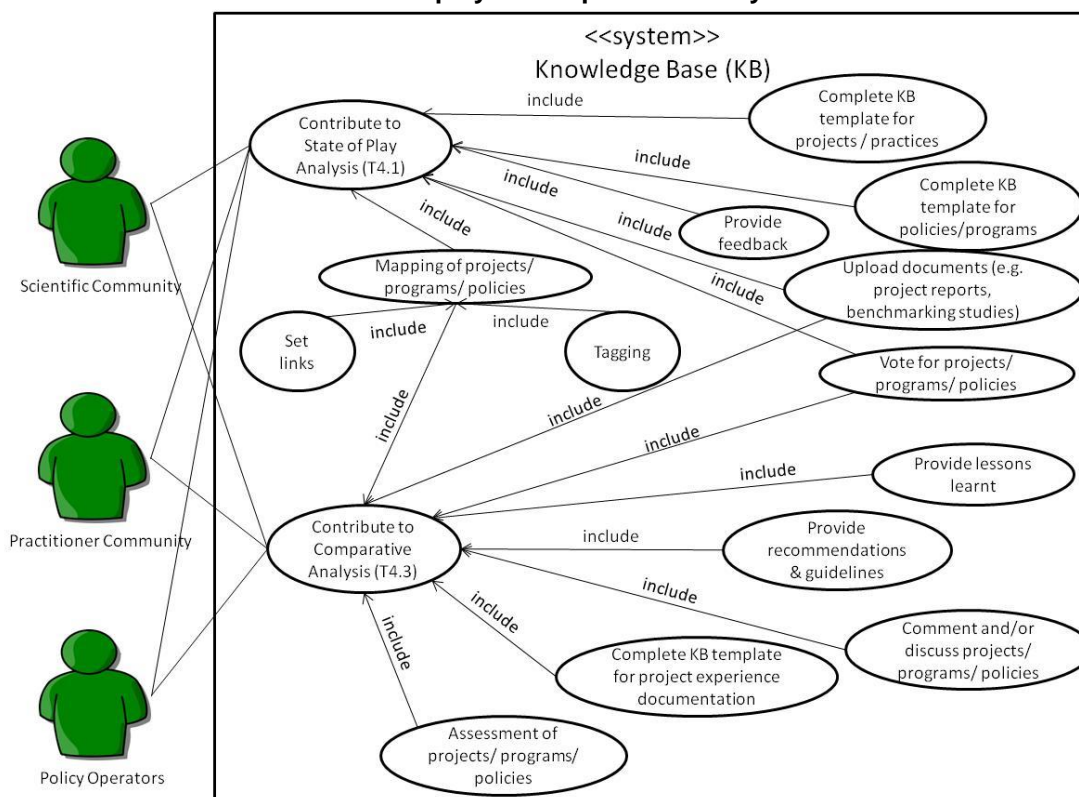
10.3.1.9. Scenario 9: Promoting own Results



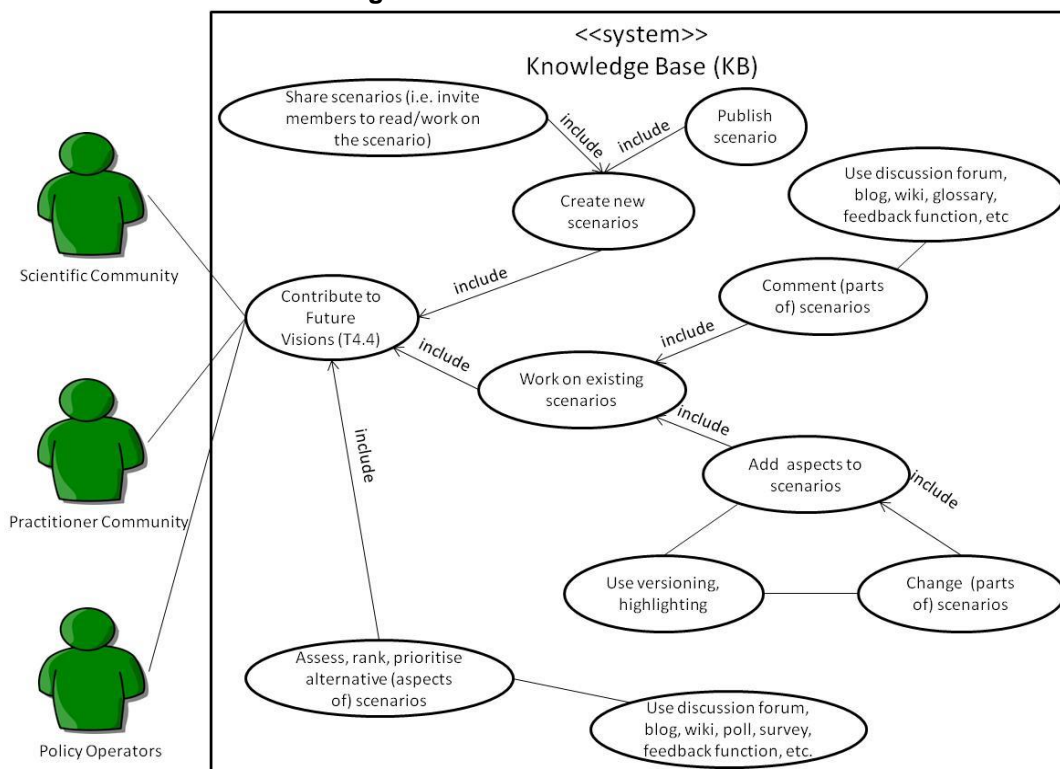
10.3.1.10. Scenario 10: Register & Browse the Knowledge Base



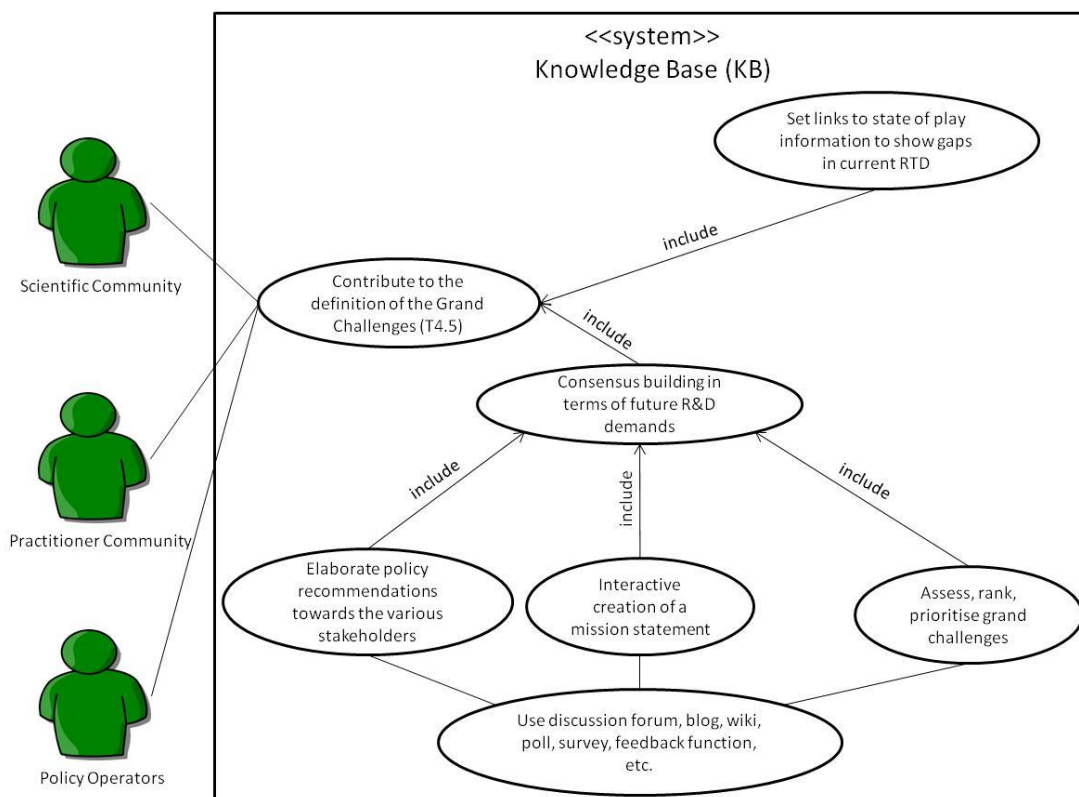
10.3.1.11. Scenario 11: State – of – play & Comparative Analysis



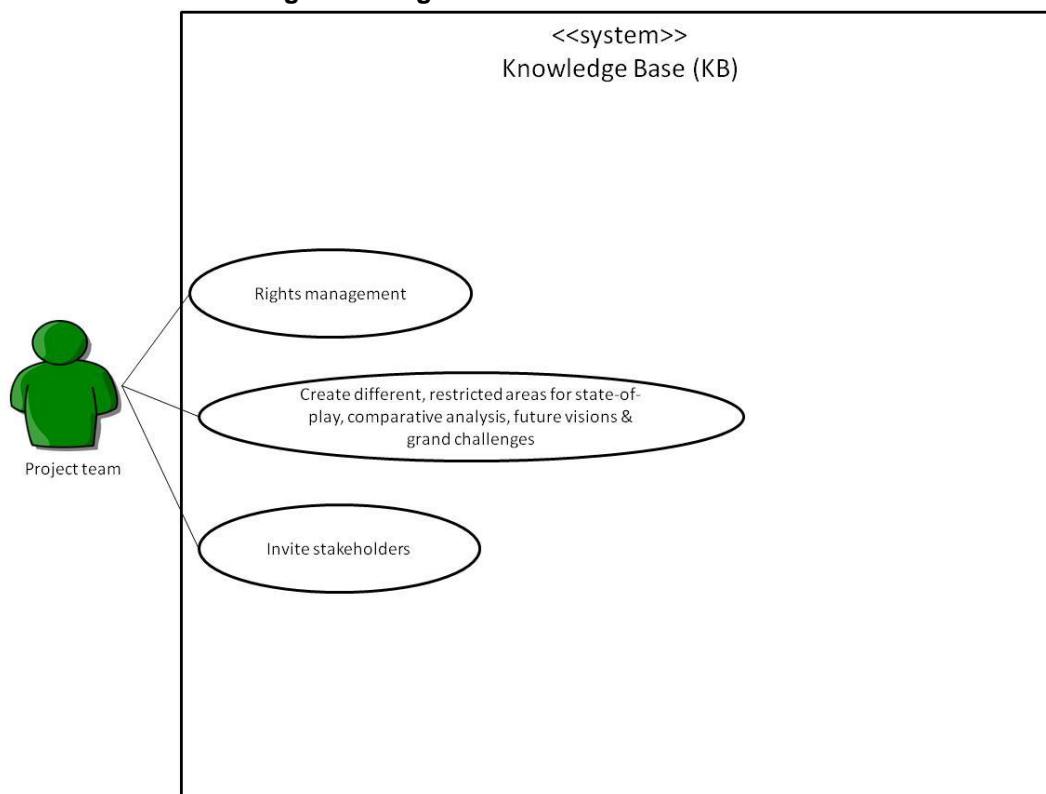
10.3.1.12. Scenario 12: Sharing and Contributions



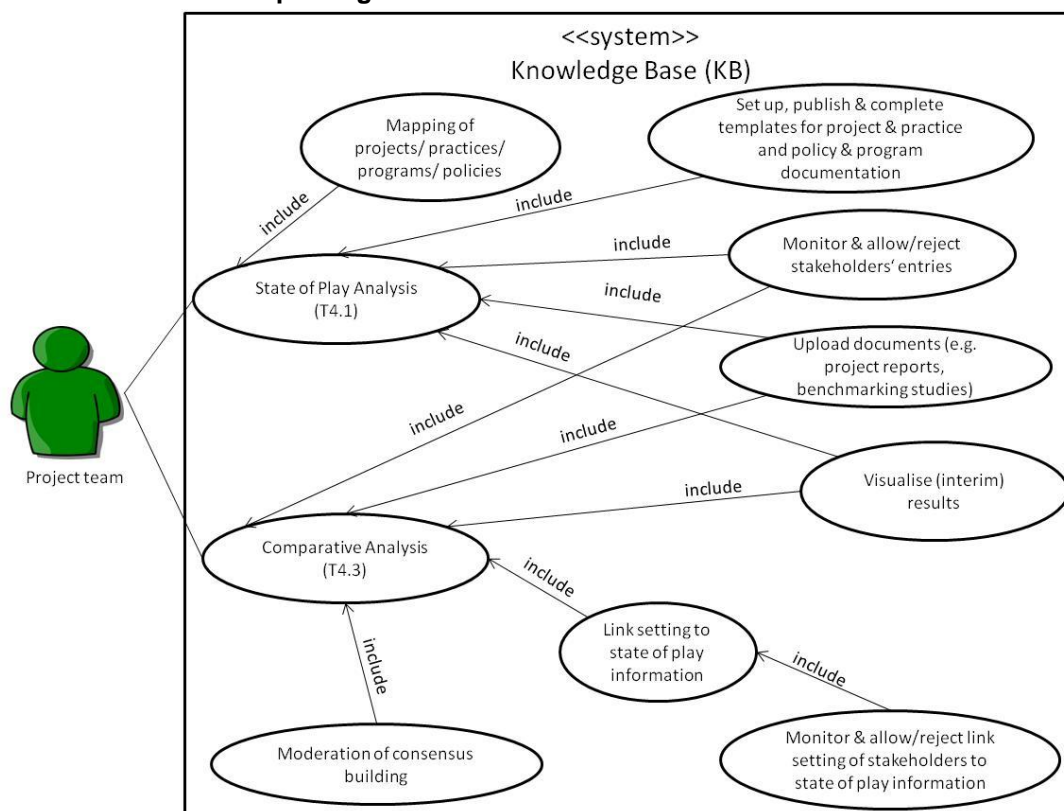
10.3.1.13. Scenario 13: Contributions and Elaborations



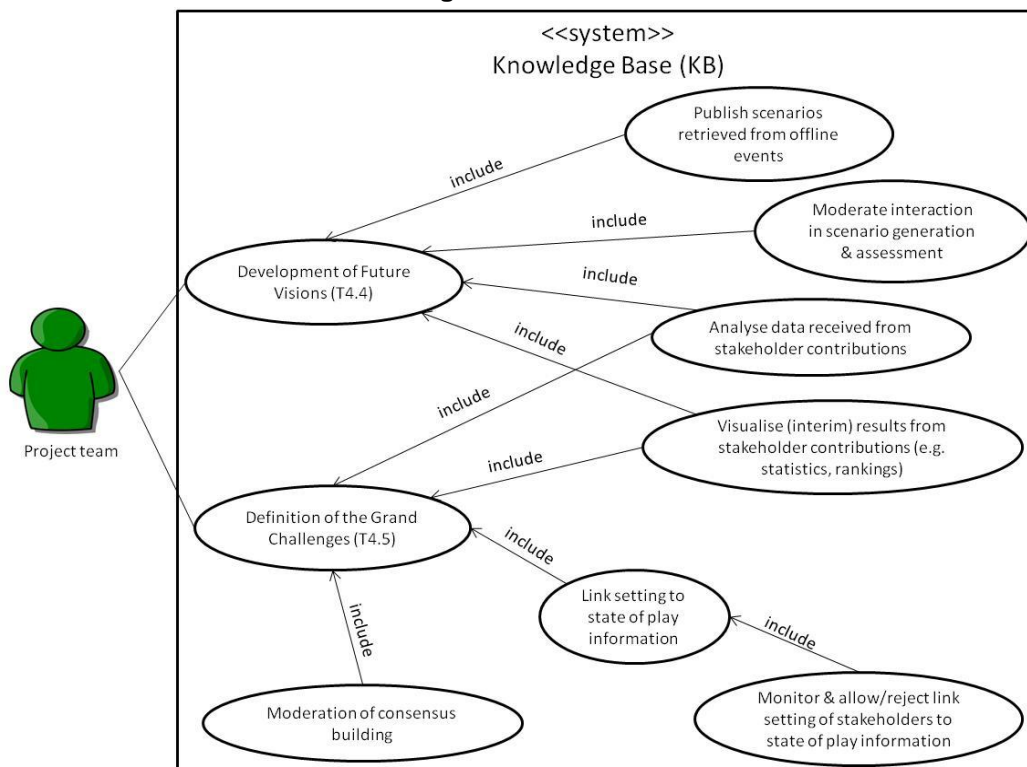
10.3.1.14. Scenario 14: Rights Management



10.3.1.15. Scenario 15: Updating Content



10.3.1.16. Scenario 16: Grand Challenges & Future Visions



10.3.1.17. Scenario 17: Setting – up a collaboration network

‘Res’ is a researcher in the field of electronic government. She has done a PhD on back-office integration, for which she participated in a collaborative project with other research institutes and a number of government organizations in her country. Based on this project she knows quite a number of people in her country, both from practice and academia. After graduation, she started in a international research project that involves research institutes, companies and government agencies of different countries. She has a LinkedIn profile in which all the people she knows from these projects are added as contacts. Also, people she knows from the international conferences are connections on LinkedIn. Two things struck her in the course of her academic career. One is that in the domain of e-government, the number of multi-country comparative research projects is limited. The other is that the relationships between policy and researcher often resemble a sort of contract relationship, in which the government actors are often considered some kind of customer of the research. At the same time, she noticed that these government organizations have to be actively involved and real collaboration between policy and academia is required to understand the issues at play and to bring them to a solution.

Based on these two issues, ‘Res’ is now looking for a way to identify colleagues abroad that have a similar or complementary background and are also willing to collaborate in a cross-border comparative research project. Furthermore, she wants to identify government parties that are willing to play an active role in such a project and can offer access to organisations to study. For enabling comparison, it is necessary that a proper insight be given in the types of organisations that are willing to participate and the sort of issue they would like to contribute to studying. If possible, she would like to respond to a request already made by one or a number of actors in the field, to maximise real world usefulness.

Typically, ‘Res’ has to go to different places, both online and offline, to get into contact with government organisations and researchers from various backgrounds. The process of selecting cases is often troublesome. She would like to use a portal in which all of the functions are combined and both types of actor groups can be involved. The LinkedIn website offers the network, but only offers limited discussion facilities and almost no functionalities to share cases and collaboratively work on setting up a new research venture. She is willing to create a new profile on a new portal, but only if that is an active community in which the same connections she already has might also be willing to participate.

10.3.2. Requirements from usage scenarios

Next, we present in matrix format the mapping of the scenarios to the portal requirements. The rows of the matrix represent the identified requirements and the columns represent the various scenarios. The tick in each cell indicates that a scenario requires the corresponding requirement

ID	Requirement	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10	Scenario 11	Scenario 12	Scenario 13	Scenario 14	Scenario 15	Scenario 16	Scenario 17
1.	Registration - Profile Management																	
1.1	Online Registration	✓																
1.2	Minimum information during registration																	
1.3	Support of physical persons, groups and institutions																	
1.4	Profile Page Viewing								✓									
1.5	Profile Information Management				✓													
1.6	Establish connections between members		✓	✓														✓
2.	Community Building Groups																	
2.1	Group Creation		✓							✓			✓	✓	✓	✓	✓	✓
2.2	Group Viewing																	
2.3	Send invitations for registering to groups	✓	✓												✓			✓
2.4	Join Groups	✓	✓												✓			
2.5	Group's File List												✓	✓		✓	✓	

3.	Collaboration Tools		✓															
3.1	Discussions		✓					✓	✓	✓		✓	✓					✓
3.2	Blogs		✓						✓	✓		✓	✓					✓
3.3	Surveys and polls		✓									✓	✓					
3.4	Collaborative authoring		✓							✓		✓	✓		✓	✓	✓	
3.5	Publish results											✓	✓		✓	✓		
3.6	Wiki																	
4.	Knowledge Database (Library)																	
4.1	Support of scientific articles, cases and projects			✓		✓		✓	✓	✓								
4.2	Add library items			✓		✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	
4.3	Update library items											✓	✓	✓		✓	✓	
4.4	View library items			✓		✓		✓	✓		✓	✓	✓	✓				
4.5	Comment library items							✓			✓	✓	✓	✓				
4.6	Bookmark library items									✓								
4.7	Support of Glossary																	
4.8	Review Content Process																	
4.9	Mass upload of paper citations																	
5.	Conferences / Events																	

5.1	Create an Event						√											
5.2	View Events						√											
6.	Other Tools																	
6.1	Search Engine		√	√		√			√		√							√
6.2	Connection with social media				√						√							√
6.3	Invitations Sending	√																√
6.4	Help Desk										√							
6.5	Feedback Section																	
6.6	Portal's Blog		√							√								
6.7	Topics (Discussions)									√								
6.8	New content section					√	√											
6.9	Suggestion of content					√	√											
6.10	Notifications about new entries																	
6.11	Communication between members		√															√
6.12	Integration with LinkedIn																	
6.13	Integration with Mendeley																	
6.14	Monitoring of the portals statistics																	

Table 3: Mapping of Requirements with Usage Scenarios, provided by the Consortium

10.4. REQUIREMENTS GATHERING DURING PROJECT'S MEETING AND TELECONFERENCES

During regular project meetings and teleconferences, the requirements have been extensively discussed. Project partners agreed to include some extra requirements necessary for facilitating project's objectives. From this activity we gathered 7 new requirements, i.e. Support of Wiki, Support of Glossary, Review Content Process, Integration with LinkedIn, Integration with Mendeley, Monitoring of the portals statistics and Mass upload of paper citations.

10.5. REQUIREMENTS DOCUMENTATION

Next, we documented the identified requirements in list format. Each requirement includes an ID, the Requirement and its description.

Apart from the requirements, we also documented the stakeholders, their roles and their access rights to the functionalities provided by the eGovPoliNet portal.

10.5.1. Requirements List

Next, we present the requirements list resulting from the aforementioned activities.

ID	Requirement	Description
1.	Registration - Profile Management	The registered members will have a profile page displaying their personal and professional details
1.1	Online Registration	The system provides an online registration form.
1.2	Minimum information during registration	The system should require minimum set of information during the registration process. The proposed registration information is: name, institution, email and interests.
1.3	Support of physical persons, groups and institutions	Except from physical persons, groups and institutions can register to the portal.
1.4	Profile Page Viewing	Users can view profile pages of other members.
1.5	Profile Information Management	The member can add additional information to his profile: education, research and professional experience, current position, contact details. Additionally, they have publications list, case list etc, according to their library entries.
1.6	Establish connections between members	The members can establish connections between them.
2.	Community Building \ Groups	The system should support group building. Groups will be created in order to form communities and collaborate on various topics.
2.1	Group Creation	The registered users can create groups. The creator can define the group name, the group's control list, the collaboration tools to be used etc.
2.2	Group Viewing	Users can browse all thematic groups, or browse groups by category.
2.3	Send invitations for registering to groups	The group creator and the group members can send invitations to users for registering to a group.
2.4	Join Groups	Users can register to groups.
2.5	Group's File List	The system should support the creation of a file list for a group. The file list is created by documents uploaded by group members.

3.	Collaboration Tools	The system should support various collaboration tools
3.1	Discussions	The system should support discussions. In particular, it should support the initiation of a discussion and the possibility for members to post comments on discussions.
3.2	Blogs	The system should support the creation of blogs. The blog can be updated from group members
3.3	Surveys and polls	The system should support the creation of surveys and polls, the spread of it to the members and the possibility for members to answer to polls.
3.4	Collaborative authoring	The system should support collaborative authoring, i.e. write and edit documents in collaboration with other members
3.5	Publish results	The system should support the publishing of results created via the collaboration tools (e.g. joint authoring)
3.6	Wiki	The system should support a wiki where users can collaboratively add information related to policy making
4.	Knowledge Database (Library)	The system should support a knowledge database
4.1	Support of scientific articles, cases and projects	Library items can be: scientific articles, cases, projects and policies / programmes on policy making / modeling
4.2	Add library items	Users can add new items according to pre-defined templates for each item category. Additionally, users can tag a library item and define links to other items.
4.3	Update library items	Users can add additional information to the library items, e.g. to add new documents, new links, update some of its information etc.
4.4	View library items	Users can view the library items (articles, cases, projects and policies) contained in the knowledge database
4.5	Comment library items	Users can comment on library items and rate them
4.6	Bookmark library items	Users can bookmark library items. In this way, users create a favourites list in their main page.
4.7	Support of Glossary	Library should contain a policy-making glossary that contains definition of terms related to policy-making
4.8	Review Content Process	The system should support a review content process where reviewers check the submitted content to the portal before publishing it

4.9	Mass upload of paper citations	Users can massively upload papers citations to the knowledge portal.
5.	Conferences / Events	The system should support the creation of events
5.1	Create an Event	Users can create new events according to a pre-defined event template
5.2	View Events	Users can browse all upcoming events or browse events by category.
6.	Other Tools	
6.1	Search Engine	The system should support search for researchers, groups, discussions or blogs, events and library items by keywords or by similarity.
6.2	Connection with social media	The system should support connection with other social media portals (Facebook, Twitter etc), in order to disseminate user's activity on the portal.
6.3	Invitations Sending	The system should allow users to send invitations to people in order to join the portal
6.4	Help Desk	The systems should include a section, where users can post questions to the portal's administrator
6.5	Feedback Section	The systems should include a New Ideas Section, where users can post their suggestions about the portal
6.6	Portal's Blog	The portal should include a blog, accessible from all members, where all can post.
6.7	Topics (Discussions)	The portal should include a section that various topics will be discussed.
6.8	New content section	The system should provide new content entries to the main page
6.9	Suggestion of content	The system should provide suggestion of content entries to the main page, according to user interests.
6.10	Notifications about new entries	The systems should send notifications about new entries to the group members
6.11	Communication between members	The systems should support communication Facilities between members
6.12	Integration with LinkedIn	The system should support integration with LinkedIn by publishing through the portal the most popular posts from the related LinkedIn group
6.13	Integration with Mendeley	The system should support integration with Mendeley by showing the most popular publications related to policy making

6.14	Monitoring of the portals statistics	The system should support monitoring of the portals statistics, i.e. monitor the page views, the unique visitors etc. using Google analytics
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Table 4: Requirements List of the eGovPoliNet Portal

10.5.2. Stakeholders and Roles

Together with the requirements, the identification of the portal's user roles is also performed. Portal users can be researchers on policy modeling, practitioners, policy makers and other groups interested in policy modeling. Users within a group can play different roles. This section presents the main user groups of the eGovPoliNet portal, their roles and how the roles can be assigned to the users.

10.5.2.1. User Groups

The main user groups are presented in the next table. The source for the stakeholder identification is the DoW.

ID	User Group	Description
1.	Researchers	Researchers on policy modeling, who share research results, obtain insights on the policy modeling field and contribute to the advancement of the field.
2.	Practitioners	Practitioners on policy modeling, e.g. ICT industry, highly specialized policy consulting firms, who share cases and obtain insights on the policy modeling field and contribute to the advancement of the field.
3.	Policy - makers	Policy operators and governance experts, who share cases and policies, obtain insights on the policy modeling field and contribute to the advancement of the field.
4.	Others	Other stakeholders with strong interest in the policy modeling field, e.g. students, who obtain insights on the policy modeling field.

Table 5: Users of the eGovPoliNet Portal

Except from physical persons (researchers, practitioners, and policy makers), teams (e.g. project teams, research teams) or organizations will be able to join the portal.

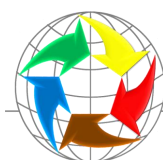
10.5.2.2. Roles

The proposed roles for the various user groups are:

ID	Roles	Description
1.	Guest	Guests who have not registered to the portal. A Guest can register to the portal and gain registered member's access rights. The user has to fill – in a Registration Form in which he will provide a minimum set of information
2.	Register Member	Registered members, who have full rights to initiate groups, events, etc.
3.	Reviewer	Registered members, who have rights to review content uploaded by other members and publish it to the portal.
4.	Administrator	Portal's Administrator.

Table 6: Roles of the eGovPoliNet Portal

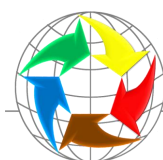
In particular the rights of each role are listed below:



ID	Requirement	Guest	Registered Member	Reviewer	Administrator
1.	Registration - Profile Management				
1.1	Online Registration	√			
1.2	Minimum information during registration				
1.3	Support of physical persons, groups and institutions				
1.4	Profile Page Viewing	√ (view public information)	√	√	√
1.5	Profile Information Management		√	√	√
1.6	Establish connections between members		√	√	√
2.	Community Building \ Groups				
2.1	Group Creation		√	√	√
2.2	Group Viewing	√ (view public information)	√	√	√
2.3	Send invitations for registering to groups		√	√	√
2.4	Join Groups		√	√	√
2.5	Group's File List		√	√	√
3.	Collaboration Tools				
3.1	Discussions		√	√	√
3.2	Blogs		√	√	√
3.3	Surveys and polls		√	√	√
3.4	Collaborative authoring		√	√	√
3.5	Publish results		√	√	√
3.6	Wiki		√	√	√
4.	Knowledge Database (Library)				
4.1	Support of scientific articles, cases and projects				

4.2	Add library items		√	√	√
4.3	Update library items		√	√	√
4.4	View library items	√ (view public information)	√	√	√
4.5	Comment library items		√	√	√
4.6	Bookmark library items		√	√	√
4.7	Support of Glossary				√
4.8	Review Content Process			√	√
4.9	Mass upload of paper citations		√	√	√
5.	Conferences / Events				
5.1	Create an Event		√	√	√
5.2	View Events	√ (view public information)	√	√	√
6.	Other Tools				
6.1	Search Engine	√	√	√	√
6.2	Connection with social media		√	√	√
6.3	Invitations Sending		√	√	√
6.4	Help Desk		√	√	√
6.5	Feedback Section		√	√	√
6.6	Portal's Blog	√ (view public information)	√	√	√
6.7	Topics (Discussions)	√	√	√	√
6.8	New content section	√	√	√	√
6.9	Suggestion of content		√	√	√
6.10	Notifications about new entries		√	√	√
6.11	Communication between members		√	√	√
6.12	Integration with LinkedIn				
6.13	Integration with Mendeley				
6.14	Monitoring of the portals statistics				√

Table 7: Access Rights for each Role



1.6	Establish connections between members		√
2.	Community Building \ Groups		
2.1	Group Creation		√
2.2	Group Viewing		√
2.3	Send invitations for registering to groups		√
2.4	Join Groups		√
2.5	Group's File List		√
3.	Collaboration Tools		
3.1	Discussions		√
3.2	Blogs		√
3.3	Surveys and polls		√
3.4	Collaborative authoring		√
3.5	Publish results		√
3.6	Wiki	√	
4.	Knowledge Database (Library)		
4.1	Support of scientific articles, cases and projects	√	
4.2	Add library items	√	
4.3	Update library items	√	
4.4	View library items	√	
4.5	Comment library items	√	
4.6	Bookmark library items		√
4.7	Support of Glossary	√	
4.8	Review Content Process	√	
4.9	Mass upload of paper citations	√	
5.	Conferences / Events		
5.1	Create an Event	√	
5.2	View Events	√	
6.	Other Tools		
6.1	Search Engine	√	
6.2	Connection with social media	√	
6.3	Invitations Sending		√
6.4	Help Desk		√
6.5	Feedback Section	√	
6.6	Portal's Blog		√
6.7	Topics (Discussions)		√
6.8	New content section	√	
6.9	Suggestion of content		√
6.10	Notifications about new entries	√	



6.11	Communication between members		√
6.12	Integration with LinkedIn	√	
6.13	Integration with Mendeley	√	
6.14	Monitoring of the portals statistics	√	

Table 9: Prioritized Requirements List

10.7. REQUIREMENTS VALIDATION

Finally, we circulated the requirements list and the stakeholders' roles to the project Consortium. The requirements as well as the stakeholders' roles lists have been refined according to feedback provided by the Consortium.

11. APPENDIX III: PORTAL DESIGN

11.1. THE DESIGN PROCESS

Following the conceptual design methodology presented previously, we first identified the concepts (i.e. entities and functions) of the eGovPoliNet portal. The traceability among the identified entities and functions and the requirements are depicted in the next tables. It is noted here that during this process we took into account only requirements with high priority. Then, the conceptual models of the domain, i.e. the entities and the functions models, were developed.

Next the traceability matrices are presented. It is noted here that especially in the entities' traceability matrix the entities related to stakeholders and their respective roles are not presented. The reason is that the stakeholders and their roles are not documented in the requirements list but separately. Therefore they are not included in the traceability matrix.

It is worth noting at this point that the work reported in the Appendices I, II and III has been presented in the "Transforming Government (tGov1012) Workshop"⁹. An extended version of this initial publication has been published in the "*Transforming Government: People, Process and Policy*" journal"¹⁰.

⁹ Full Citation: E. Kaliva, E. Panopoulou, E. Tambouris and K. Tarabanis, "A domain model for community building and collaboration in e-government and policy modeling", In proceedings of the "tGovernment Workshop 2012" (tGov2012), London, UK, May 2012.

¹⁰ Full Citation: E. Kaliva, E. Panopoulou, E. Tambouris and K. Tarabanis, "A domain model for online community building and collaboration in e-government and policy modeling", *Transforming Government: People, Process and Policy*, Vol. 7 Issue 1, pp.109 – 136, 2013.

	Stakeholder	Role	Guest	Registered User	Reviewer	Thematic Domain	Resource	Project	Scientific Article	Case	Event	Glossary
Registration - Profile Management												
Online Registration	√	√	√	√								
Minimum information during registration		√		√								
Support of physical persons, groups and institutions		√		√								
Collaboration Tools												
Wiki												
Knowledge Database (Library)												
Support of scientific articles, cases and projects						√	√	√	√	√		
Add library items				√								
Update library items				√								
View library items			√	√								
Comment library items				√								
Support of Glossary							√					
Review Content Process					√							√
Mass upload of paper citations												
Conferences / Events												
Create an Event											√	
View Events											√	

Other Tools												
Search Engine												
Connection with social media												
Feedback Section												
New content section												
Notifications about new entries to groups												
Integration with LinkedIn												
Integration with Mendeley												
Monitoring of the portals statistics												

Table 10: Traceability table between the eGovPoliNet portal's entities and the requirements.

	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11	UC12
Registration - Profile Management												
Online Registration	√											
Minimum information during registration	√											
Support of physical persons, groups and institutions	√											
Collaboration Tools												
Wiki										√	√	
Knowledge Database (Library)												
Support of scientific articles, cases and projects		√			√							
Add library items							√					
Update library items							√					
View library items					√							
Comment library items						√						
Support of Glossary				√								
Review Content Process								√				
Mass upload of paper citations							√					
Conferences / Events												
Create an Event							√					
View Events			√									
Other Tools												
Search Engine					√							
Connection with social media									√			

Feedback Section	√											
New content section							√					
Notifications about new entries							√					
Integration with LinkedIn									√			
Integration with Mendeley									√			
Monitoring of the portals statistics												√

Table 11: Traceability table between the eGovPoliNet portal's functions and the requirements

11.2. ENTITIES' MODEL

The domain's entities model including the relationships between entities is presented in Figure 33. The modeling notation used is UML's class diagram, (OMG, 2011).

In order to explicitly define the identified entities we constructed the entities lexicon. It should be noted that our aim is not to provide general-purpose definitions of the entities, but to present their specific meaning within the eGovPoliNet context.

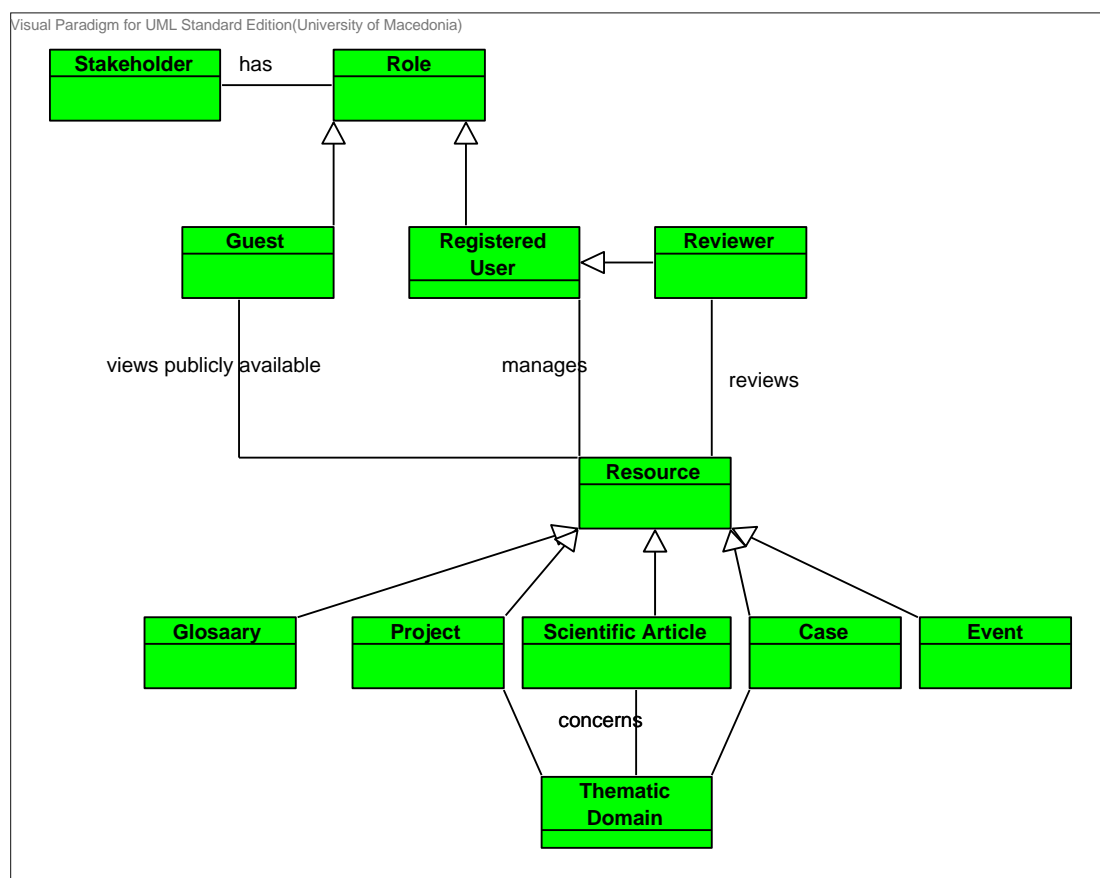


Figure 33: The entities' model of the eGovPoliNet Portal as a UML class diagram

The table below presents the definitions adopted for designing the eGovPoliNet portal.

Entity	Definitions
Stakeholder	Parties with an interest in the domain under investigation.
Role	The groups of stakeholders as users of the online community building and collaboration portal. These groups are classified according to the privileges of each group to the portal.
Guest	An unregistered user of the online community building and collaboration portal.
Registered User	A registered user who has privileges to upload content.
Reviewer	A registered user who has extended privileges to review uploaded content before publication/

Resource	Any informative source relevant to eGovernment and policy modelling.
Project	R&D projects relevant to eGovernment and policy modelling.
Case	Real cases relevant to eGovernment and policy modelling.
Scientific Article	Scientific articles on eGovernment and policy modelling.
Event	Public events, e.g. conferences and workshops, relevant to eGovernment and policy modelling.
Glossary	The Glossary that contains terms relevant to policy modelling
Thematic Domain	The thematic domain which characterises a resource item.

Table 12: Definition of the eGovPoliNet portal's entities

11.3. FUNCTIONS' MODEL

The domain function's model including relationships between functions is presented in Figure 34. The modeling notation used is UML's use case diagram (OMG, 2011). Furthermore, for the detailed description of each use case we use the use case template defined by Dennis et al (2005).

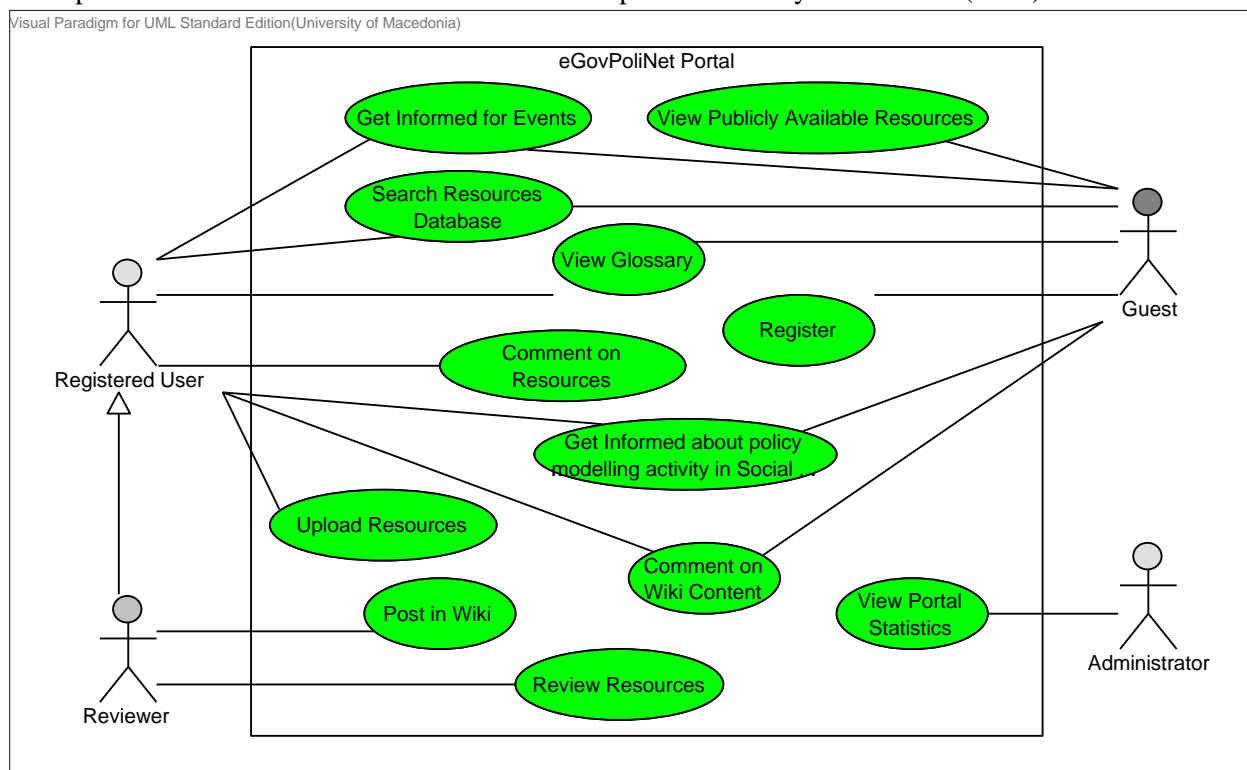


Figure 34: The functions' model of the eGovPoliNet Portal as a UML class diagram

The use case description forms are presented next. We used the use case template defined by Dennis et al. (2005).

Name	Register	ID	1
Primary Actor	Guest	Secondary Actors	-



Brief Description	The registration procedure to the eGovPoliNet Portal
Preconditions	-
PostConditions	-
Results	The user can now use all the services that the portal provides to registered users
Normal Flow	
1	The user selects the registration hyperlink
2	He fills-in the registration form. The registration form includes a required and an optional set of information. The required set of information is minimal and contains: name, user category (physical person, group or institution), institution, e-mail and science disciplines. The optional information set includes education, research and professional experience, current position, contact details.
3	The user submits the form.
4	The user receives an email to his mail-account informing him that his account has been activated.
Exceptional Flows	
5.1	In case the user wants to provide feedback about the portal, he can communicate with the administrators via the Feedback section

Name	View Publicly Available Resources	ID	2
Primary Actor	Guest	Secondary Actors	-
Brief Description	The guest views information about resources that are available for unregistered users		
Preconditions	-		
PostConditions			
Results	The user views publicly available information		
Normal Flow			
1	The user browses the various resource categories		
2	He selects an item and he views the detailed item’s page.		

Name	Get informed for Events	ID	3
Primary Actor	Registered User, Guest	Secondary Actors	-
Brief Description	The user wants to get informed about upcoming events		
Preconditions	-		
PostConditions	-		
Results	The user views the details of events that interest him		
Normal Flow			
1	The user enters the events' section		
2	He views a list of the upcoming events		
3	He selects an event and he views the detailed event page		

Name	View Glossary Item	ID	4
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Primary Actor	Registered User, Guest	Secondary Actors	-
Brief Description	The user wants to view a glossary item		
Preconditions	-		
PostConditions	-		
Results	The user views the definition of a glossary item		
Normal Flow			
1	The user enters the Glossary section		
2	He views a list of the items contained in the glossary in alphabetical order		
3	He selects an item and he views the detailed page		

Name	Search Knowledge Database	ID	5
Primary Actor	Registered User, Guest	Secondary Actors	-
Brief Description	The user wants to find material (publications, cases, projects) relevant to policy modeling issues		
Preconditions	-		
PostConditions			
Results	The user views and downloads items relevant to the search terms		
Normal Flow			
1	The user selects the search option		
2	He fills in the search terms		
3	He views a list of the library items relevant to the search term		
4	He selects an item and he views the detailed item’s page.		
SubFlows			
4.1	He can download related documents		
4.2	He can comment or rate the item		
4.3	He can bookmark the item		

Name	Comment on Knowledge Resources	ID	6
Primary Actor	Registered User	Secondary Actors	-
Brief Description	The procedure according to which, an interested party comments on Knowledge Resources		
Preconditions	-		
PostConditions	-		
Results	The comment is posted to the selected knowledge resource		
Normal Flow			
1	The user selects a knowledge resource and views its detailed page.		
2	He selects to comment on the knowledge resource.		
3	He writes the comment and selects to publish it.		
4	The comment is posted.		



Name	Upload Resources	ID	7
Primary Actor	Registered User	Secondary Actors	
Brief Description	The user wants to publish his work concerning: scientific articles, projects, cases etc		
Preconditions	-		
PostConditions			
Results	New articles, cases, projects, events are uploaded to the portal		
Normal Flow			
1	The user selects to add an item to the knowledge database		
2	He fills-in the item template		
3	The item awaits for approval before get published on the portal		
SubFlows			
2.1	User can add new publications according to a pre-defined publication template containing information about authors, abstract, journal, attached document, category etc		
2.2	Users can add new cases according to case template containing information about abstract, description, legal framework, approach, impact, results, attached documents, category etc		
2.3	Users can add new projects according to project template containing information about abstract, description, approach, results, deliverables, partners, category etc		
2.4	Users can add events according to policy template containing information about event details		
2.5	Users can massively upload paper citations by choosing the respective functionality		

Name	Review Resources	ID	8
Primary Actor	Reviewer	Secondary Actors	-
Brief Description	The procedure according to which, an uploaded item get published to the portal		
Preconditions	-		
PostConditions	The “Upload Resources” Use Case is executed		
Results	New articles, cases, projects, events are posted to the portal		
Normal Flow			
1	The reviewer selects an uploaded item from the list		
2	He reviews it		
3	He selects to publish it to the portal		
4	The item is presented in the new content section and notifications about new entries are sent to selected users.		
Exceptional Flows			
3	He selects not to publish it to the portal		

Name	Get Informed about policy modelling activity in Social Media	ID	9
Primary Actor	Guest, Registered User	Secondary Actors	-



Brief Description	The user wants to get informed about activity in policy modeling from LinkedIn and Mendeley
Preconditions	-
PostConditions	-
Results	The user gets informed about activity in policy modeling from LinkedIn and Mendeley
Normal Flow	
1	The user enters the portal.
2	In a dedicated area we can see the latest entries about policy modeling from LinkedIn and Mendeley

Name	Post in Wiki	ID	10
Primary Actor	Reviewer	Secondary Actors	-
Brief Description	The user wants to post an entry to the portal’s wiki		
Preconditions	-		
PostConditions	-		
Results	The user’s post get published to the portal’s wiki		
Normal Flow			
1	User enters the wiki’s area		
2	He enters his post		
3	He selects to publish his post		

Name	Comment on wiki content	ID	11
Primary Actor	Registered User, Guest	Secondary Actors	-
Brief Description	The user wants to comment on a wiki’s post		
Preconditions	-		
PostConditions	-		
Results	The user’s comment get published to the portal’s wiki		
Normal Flow			
1	User enters the wiki’s area		
2	He selects the content he want to comment		
3	He enters his comment		
4	He selects to publish his comment		

Name		View Portal Statistics	ID	12
Primary Actor		Administrator	Secondary Actors	-
Brief Description		Administrator wishes to view portal's statistics		
Preconditions		-		
PostConditions		-		
Results		User views portal statistics		
Normal Flow				
1	User selects to view portal statistics			



2	He views the statistics, i.e. page views, unique visitors etc.
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12. APPENDIX IV: COMPARISON OF EGOVPOLINET'S SPECIFICATIONS AGAINST CROSSOVER PORTAL FUNCTIONALITY

Following the portal development methodology presented previously, we next compared the Crossover portal against the eGovPoliNet's requirements, entities and functions. The purpose of this activity is to identify which requirements and concepts the Crossover portal already covers and to reveal the additional functionality that is required to be developed by eGovPoliNet.

Along this axis, we compared the Crossover portal's functionality against the eGovPoliNet's requirements and concepts (i.e. entities and functions). First, we examined to what degree the eGovPoliNet's requirements list is supported by the Crossover portal. The results of this activity are depicted in Table 7. The 'tick' symbol indicates if the requirement is 'supported', 'not supported' or 'partially supported' by the Crossover portal. In this exercise, we took into consideration only the requirements with high priority, and only entities and functions that resulted from high priority requirements.

Requirement	Supported	Partially Supported	Not Supported
Registration - Profile Management			
Online Registration	√		
Minimum information during registration	√		
Support of physical persons, groups and institutions	√		
Collaboration Tools			
Wiki			√
Knowledge Database (Library)			
Support of scientific articles, cases and projects	√		
Add library items		√	
Update library items			√
View library items	√		
Comment library items	√		
Support of Glossary			√
Review Content Process			√
Conferences / Events			
Manage Events			√
View Events	√		
Other Tools			
Search Engine	√		
Connection with social media		√	



Feedback Section	√		
New content section	√		
Notifications about new entries			√
Integration with LinkedIn			√
Integration with Mendeley			√
Monitoring of the portals statistics			√

Table 13: Comparison of the eGovPoliNet Requirements against the Crossover portal

Furthermore, we examined if the eGovPoliNet's entities and functions list are supported by the Crossover portal. The results of this activity are depicted in Tables 7 and 8 correspondingly. The 'tick' symbol in these tables indicates if the concept (entity or function) is 'supported' or 'partially supported' by the Crossover portal.

Entity	Supported	Not Supported
Stakeholder	√	
Role	√	
Guest	√	
Expert	√	
Reviewer		√
Knowledge Resource	√	
Project	√	
Case	√	
Scientific Article	√	
Event	√	
Glossary		√
Thematic Domain	√	

Table 14: Comparison of the eGovPoliNet Entities against the Crossover portal

Function	Supported	Not Supported
Register	√	
View Publicly Available Resources	√	
Get Informed for Events	√	
Search Resources Database	√	
Comment on Resources	√	
Upload Resources	√	
Get Informed about policy modeling activity in Social Media		√

Post in Wiki		√
Comment on wiki content		√
View Glossary		√
Review Resources		√
View Portal Statistics		√

Table 15: Comparison of the eGovPoliNet Functions against the Crossover portal

Figures 9 and 10 diagrammatically depict which of the eGovPoliNet's entities and functions are supported or partially supported by the Crossover portal. In particular, if the concept is coloured green then it is supported and if it is coloured gray then it is not supported by the Crossover portal.

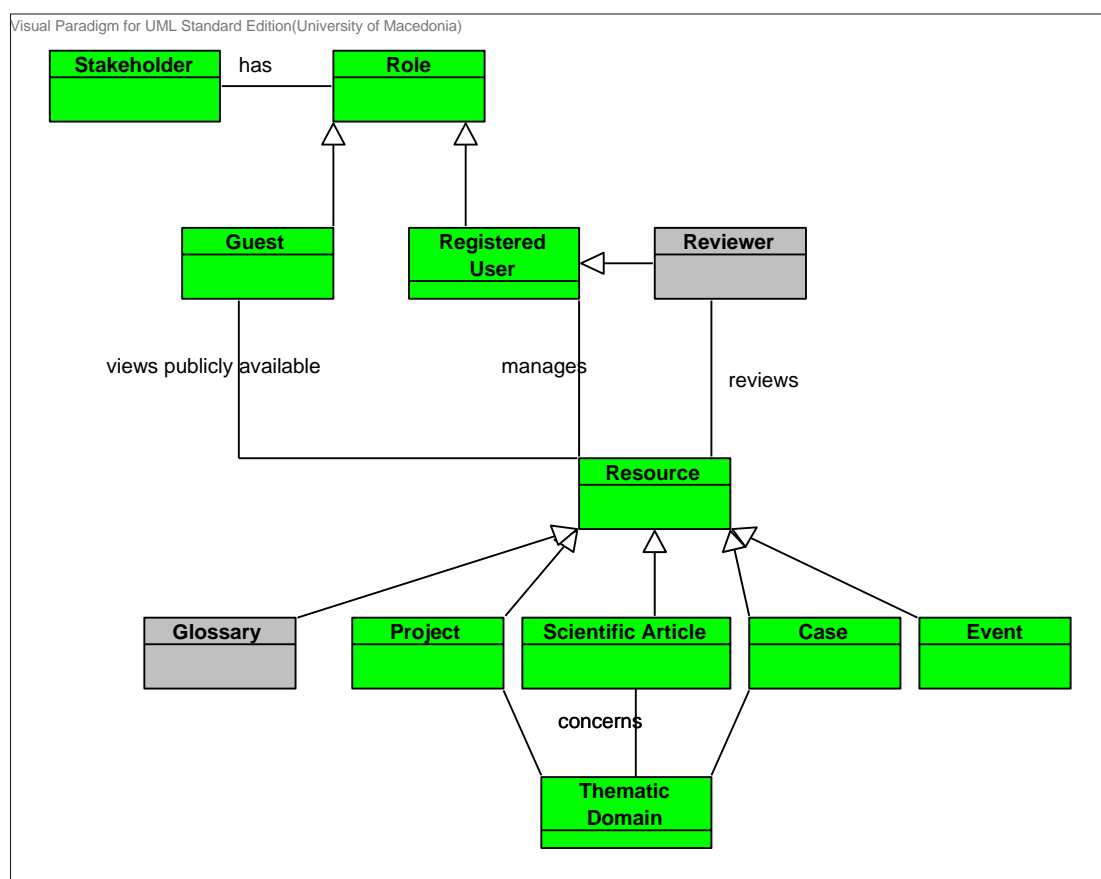


Figure 35: Entities supported / not supported by the Crossover portal

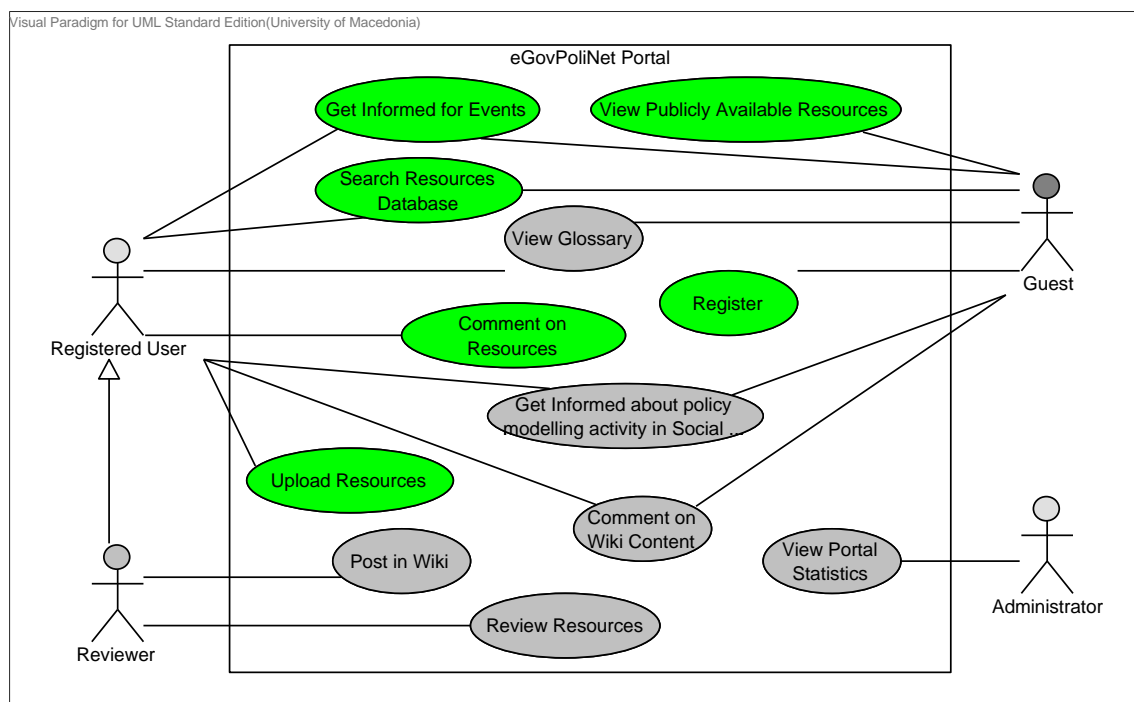


Figure 36: Functions supported / not supported by the Crossover portal