TERMS OF REFERENCE

**For the development of the Official Website
of the Parliament of the Republic of Moldova
(http://www.parlament.md)**

CONTENT

Introduction

This document contains the Terms of Reference for the development of a new version of the official website of the **Parliament of the Republic of Moldova (PRM)** in accordance with **Priority Direction No. 6 – The Internet Portal of the Parliament** included in *The Strategic Plan for the Development of the Integrated Information Space of the Parliament of the Republic of Moldova* approved by Decision no. 13 of 27.07.2011 of the Permanent Bureau of the Parliament of the Republic of Moldova.

Taking into account that the 6 years during which the current version of the official website of the Parliament of the Republic of Moldova is implemented and used, a series of legal initiatives, technological changes and objectives needs related to its actors occurred that cannot be covered by minor adjustments, but require a complete change in the paradigm and architecture development of the website http://www.parlament.md.

The designed and developed software must provide dynamic and accessible solutions that would allow the overall management of the website, from structure to content in an exclusively visual and dynamic manner ensuring integration tools through web services allowing for a partial automated update through future information subsystems developed for the Parliament of the Republic of Moldova.

Therefore, it is timely to design and implement a Content Management System accessible to users with PC operating knowledge (*Microsoft Windows, Microsoft Office, Microsoft Internet Explorer, Mozilla FireFox*, etc.).

Thus, it will be sufficient for the person responsible for the management of the content and structure of the website to have the usual set of computer literacy skills: MS Office and elementary use of the Internet.

The user interface must have 3 linguistic versions: Romanian, English and Russian. The administrator of the web site of the Parliament of the Republic of Moldova shall be able to edit the messages of the interface in all three language versions.

The public interface of the website of the Parliament of the Republic of Moldova accessible to the general public shall be compatible with the most popular Internet browsers: *Microsoft Internet Explorer, Mozilla FireFox, Opera, Google Chrome, and Safari*. For the above mentioned browsers, the website shall have an identical appearance.

The information solution provided shall comply with the requirements of the current fundamental regulations in the Republic of Moldova:

- Technical Regulation "Software Life Cycle Processes" RT 38370656-002:2006; Official Journal No. 95-97/335 of 23/06/2006.

- *Decision of the Government of the Republic of Moldova no. 188 of April 3, 2012 on Official Websites of Public Administration Authorities"* (for the public interface of the information system).

In addition, certain international level recommendations for the development of web applications shall be taken into account, i.e.:

- the recommendations of the World Wide Web Consortium (W3C) (http://www.w3c.org) on the quality of content of a website, correct visualization of information using popular internet browsers and compatibility with various information platforms;

- the recommendations of the WAI (Web Accessibility Initiative) (http://www.w3.org/WAI) on ensuring the use of sites by people with disabilities;

- the recommendations of the WCAG (Web Content Accessibility Guidelines) http://www.w3.org/TR/WCAG20/)

■ the recommendations of the W3C (http://validator.w3.org) on testing websites. All the pages of the web application shall be tested in accordance with these recommendations.

The website www.parlament.md will increase the transparency of the work of the *Parliament of the Republic of Moldova* in general and each subdivision, in particular (citizens can access public information and directly contact public servants or members of the Parliament of the Republic of Moldova) and see the performance of all the subdivisions of the *PRM*.

These Terms of Reference present a conceptual vision on upgrading and operation of the official website of the Parliament of the Republic of Moldova, including the goal and objectives, principles, main features, conceptual functionality and architecture, functional, technical and platform requirements for the information system.

1. Background

The official website of the PRM is an electronic solution the main objective of which is to ensure the transparence of the work of the Parliament of the Republic of Moldova, through efficient dissemination of public information, and to receive requests from Moldovan citizens and Internet users.

The current version of the website of the Parliament of the Republic of Moldova was developed in 2009 by JSV „ENDAVA" LTD and commissioned in 2010. This is due to the events of April 7, 2009 and the lack of technical infrastructure to commission the site at the date of delivery.

Although the official website of the Parliament of the Republic of Moldova is based on a high complexity information solution, its advantages are diminished by its poor user interface and design. Moreover, the latest technological web design trends were not taken into account, which seemingly create the illusion of a very simple web solution and make the navigation of the site difficult.

The website http://www.parlament.md would have had a lot to gain if an ergonomic and intuitive interface and structure would have been implemented. There are also a series of shortcomings related to the posting and management of multimedia information and messaging (ensuring the right of citizens to comment on documents or send messages to decision makers).

Taking into consideration the specialized national and international regulations, the following shortcomings of the website of the Parliament of the Republic of Moldova are defined:

- simple and congested graphic design specific for the period of 2001-2005, which does not take into account the entire brand-book of the PRM;

- a cumbersome, counter-intuitive public user interface with low ergonomics;

- incompatibility of the public interface of the official website of the PRM with the most popular internet browsers (the website does not look the same for the most popular browsers: *Microsoft Internet Explorer, Mozilla FireFox, Opera* and *Safari*);

- lack of a public interface of the website http://www.parlament.md for mobile devices and tablets;

- deficient navigation mechanism consisting of a multitude of references on the left and central segments of the website, which does not allow for a quick localization of information;

- compartments without information (the sessions of the Permanent Bureau of the PRM, Civil Society (public hearings, projects/drafts), the Structure of the PRM, etc.);

- an inefficient search module, which for a simple search of the key words "**Marian Lupu**" shows an error message as the result of the search: "**No Data To Display RO**".

- no English and Russian versions of the website of the Parliament of the Republic of Moldova;

- insufficient or no multimedia information in photo, audio or video format (multimedia archives);

- no access to the video server to watch the sessions of the Parliament or any other multimedia information recorded in the meeting rooms of the Parliament or live video/audio broadcasting;

- no mechanism for the easy reorganization of the content of the official website of the PRM (at structural and compartment levels);

- not possible for people with disabilities to use the resources of the official website of the Parliament of the Republic of Moldova;

- inefficient interaction with citizens (submitting petitions, schedule hearings, etc.);

- lack of a messaging mechanism for the visitors of the official website of the PRM and lack of a monitoring mechanism for messaging such as general feedback, high level decision makers feedback (personalized such as the Speaker of the Parliament, the General Secretary, Heads of Committees, etc.), comments on posted draft laws and documents, etc.

- insufficient decision making transparency, etc.

Some compartments of the official website of the PRM (viewing the agenda, feedback) could be grouped in an interface placed on information terminals standing in the hall of the Parliament or the entrance of the Parliament. In this case, visitors can access these terminals to visualize public information and schedule hearings.

Taking into consideration **Priority Direction No. 6 – The Internet Portal of the Parliament** included in *The Strategic Plan for the Development of the Integrated Information Space of the Parliament of the Republic of Moldova*, it is necessary to upgrade the website of the Parliament of the Republic of Moldova based on the following priority course of action:

- design and implement the new version of the official website of the Parliament of the Republic of Moldova based on acceptable modern technologies;

- post relevant information promoting the activities of the *PRM*;

- ensure access and facilitate search of information on *PRM* activities based on the needs of Moldovan citizens;

- automated take-up of public information about the activities of the *PRM* from other information subsystems of the *Parliament of the Republic of Moldova*;

- increase the efficiency of disseminating information and documents related to the activities of the *PRM*;

- ensure feedback from citizens, companies, *CPAs* and *LPAs* on *PRM* activities (collecting suggestions, questions, petitions from the population, etc.);

- ensure high performance management facilities and the dynamic development of the official website of the PRM.

- ensure controlled access to user data and high accuracy and security of data posted on the official website of the PRM.

To achieve the above-mentioned objectives, the official website of the *Parliament of the Republic of Moldova* shall contain:

- relevant orientation information;

- copies of documents, publications and detailed information related to *PRM* activities;

- relevant multimedia information (in *JPEG, PNG, GIF, EPS, Flash Video, MP3, MPEG, AVI, Quicktime, WMV format*);

- relevant textual information related to activities (in *HTML, PDF, DOC/DOCX, XLS/XSLX, OOD, OOS, ZIP, etc. format*).

- tools to collect information in the area, including questions, unclear matters, specialist opinions and opinions of the general public;

■ references to other web pages with useful information in the area.

The citizens of the Republic of Moldova, mass media, central and local public authorities, companies, public institutions, etc. could benefit from the website services of the Parliament of the Republic of Moldova.

1.1. Terms Used in the Terms of Reference

All acronyms and abbreviations used in this document are defined in Table 1.1.

Table 1.1. Acronyms and Abbreviations used in this Document

No.	Abbreviation/Acronym	Description
1.	CPA	Central Public Authorities
	LPA	Local Public Authorities
2.	DB	Database
3.	ePetition	Information system for petitions management of the Parliament of the Republic of Moldova
4.	KPI	Key performance indicators
5.	MP	Member of Parliament (Deputy)
6.	OLAP	*Online analytical processing* – is a method to process information which contains mechanisms for the definition and dynamic production of reports.
7.	PRM	Parliament of the Republic of Moldova
8.	DMS	Database Management System
9.	IISP	Integrated Information Space of the Parliament
10.	IS	Information system
11.	IT	Information technology
12.	ICT	Information and communication technology
13.	TLS/SSL	The TLS Protocol or its predecessor, SSL Protocol, are cryptographic protocols which assure the secure communication between 2 computer network nodes for such actions as visiting web pages, emails, internet, fax, exchange of instant messages and other data transfers.

All definitions of terms frequently used in this document are presented and explained in table 1.2.

Table 1.2. Definition of terms used in this document

No.	Abbreviation/Acronym	Description
1.	Database	A set of data organized based on the conceptual structure which describes the main features and the relationship between entities.
2.	Credentials	A set of attributes that set the identity and authenticity of users and systems within information systems.
3.	OLAP Cube	An array of data organized and structured in a hierarchic and multidimensional manner. Unlike relational databases, the OLAP

No.	Abbreviation/Acronym	Description
		cube is a multidimensional logic model that can have many dimensions and levels of data.
4.	Data	Elementary information units about people, subjects, facts, events, phenomena, processes, objects, situations, etc. presented in such a form that it allows their notification, commenting and processing.
5.	Personal data	Any information about an individual identified or identifiable (subject of personal data). In this case, an identifiable person is a person that can be identified, directly or indirectly, especially, through an identification number or one or more specific elements, inherent to their physical, physiological, psychological, economic, cultural or social identity.
6.	Electronic document	Information in electronic format created, structured, processed, stored with the help of a computer, other electronic devices or software and hardware, signed with digital signature.
7.	Data integrity	Status of data when these maintain their content and are univocally interpreted in case of random actions. The integrity is considered maintained if data were not altered or deteriorated (deleted).
8.	Logging	The function of recording information about events. Event logs from information systems include details on the date and time, user and actions carried
9.	Metadata	A method of assigning semantic value to data stored in a database (data about data).
10.	Informational object	Virtual representation of existing tangible and non-tangible entities.
11.	Informational resource	Set of information documented in the computer system maintained in accordance with current requirements and legislation.
12.	Computer system	All programs and equipment ensuring the automated processing of data (the automated component of the information system).
13.	Information system	A system for the processing of information together with associated organizational resources such as human and technical resources, which supply and distribute information.
14.	Information and communication technology	Widely used term including all technologies used for information exchange and handling.
15.	Veracity of data	The level to which data stored in the memory of computers or in documents corresponds/coincides with the real condition of objects from the respective area of the system, reflected by these data.

1.2. References and Legal Aspects for the Development of the Official Website of the PRM

The normative and legal basis for the development of the new version of the website of the PRM is the current national legislation, international treaties and European and international recommendations in this area.

The development and operation of the official website of the PRM are regulated by the following legislative and normative acts:

1. *The Report on the Information Needs of the Parliament of the Republic of Moldova* developed with the support of the United Nations Development Program, June 2011.

2. *The Plan for the Strategic Development of the Integrated Information Space of the Parliament of the Republic of Moldova for 2011-2015,* approved by Decision of the Permanent Bureau of the Parliament of the Republic of Moldova no. 13 of 27.07.2011.

3. *Instructions on Secretariat Proceedings,* approved by Decision of the Permanent Bureau of the Parliament of the Republic of Moldova no.7 of 20.03.2013.

4. *Instructions for the Circulation of Draft Legal Acts in the Parliament*, approved by Decision of the Permanent Bureau of the Parliament of the Republic of Moldova no. 30 of 07.11.2012.

5. *The Standard of the Republic of Moldova SMV ISO CEI 15288:2009, "System and Software Engineering. System Lifecycle Processes".*

6. *Technical Regulation "Software Lifecycle Processes" RT 38370656-002:2006*; Official Journal no. 95-97/335 of 23/06/2006.

7. *Law No. 467-XV of 21.11.2003 on Computerization and State Information Resources*, Official Journal no. 6-12/44 of 01/01/2004.

8. *Law no. 264-XV of 15.07.2004 on Electronic Documents and Digital Signature*, *Government Decision* no.132-137/710 f of 6.08.2004.

9. *Law No. 133 of 08.07.2011 on Protecting Personal Data*, Official Journal No. 171-175 of 14.10.2011.

10. Law No. 1069-XIV of 22.06.2000 on Informatics, Official Journal No. 073 of 05.07.2001.

11. Law No. 982-XIV of 11.05. 2000 on Access to Information, Official Journal No. 88 art. 664 of 28.07.2000.

12. Government Decision no. 1123 of 14.12.2010 on Approving Requirements for Ensuring the Security of Personal Data when Processing these within Information Systems of Personal Data, Official Journal No. 254-256 of 24.12.2010.

13. *Government Decision no. 7104 of 20.09.2011 on Approving the Strategic Program for Technological Modernization of Governance (e-Transformation)*, Official Journal No. 156-159 of 23.09.2011.

For the purpose of conceptualizing and developing a new version of the official website of the PRM, it is appropriate to implement the principles defined in the following international guidelines and recommendations:

- World e-Parliament Report 2012, http://www.ictparliament.org/WePReport2012.html

- World e-Parliament Report 2010, http://www.ictparliament.org/wepr2010.html

- World e-Parliament Report 2008, http://www.ictparliament.org/wepr2008.html

- *The Handbook on "Information and Communication Technologies in Parliamentary Libraries"*, Global Centre for Information and Communication Technologies in Parliament, July, 2012), http://www.ictparliament.org/attachements/handbook-libraries/handbook-libraries.pdf

- Michael O. Leavitt, Ben Shneiderman, *Research-Based Web Design & Usability Guidelines*, U.S. Government Printing Office, http://www.usability.gov/guidelines/guidelines_book.pdf

- The recommendations of the World Wide Web Consortium (W3C) (http://www.w3c.org) for the quality of content of web pages, correct visualization of information using popular internet browsers and compatibility with various information platforms;

- The recommendations of the WAI (Web Accessibility Initiative) (http://www.w3c.org/WAI) for ensuring the use of sites by people with disabilities;

- The recommendations of the WCAG (Web Content Accessibility Guidelines) http://www.w3.org/TR/WCAG20/)

- The recommendations of the W3C (http://validator.w3.org) for the testing of websites. All the pages of the web application shall be tested in accordance with these recommendations.

1.3. *The Main Principles of the Official Website of the PRM*

In order to achieve the objectives set for the information solution, and for the purpose of designing, rolling out and implementing the new version of the official website of the Parliament of the Republic of Moldova, the following overall principles shall be taken into consideration:

- **The principle of dividing architecture by levels**: consists of independent design of subsystems of the official website of the PRM in accordance with interface standards for different levels;

- **The principle of implementing open standards**: means to adopt exclusively open standards designed for the conceptualization and operation of the official website of the PRM in accordance with international recommendations and practices for the posting, communication, interoperability and definition of the metadata system of the official website of the PRM.

- **The principle of legitimacy**: designing and using the official website of the PRM in compliance with current national legislation and acceptable international norms and standards;

- **The principle of WYSIWYG** (*what you see is what you get*): using editing tools for the content of the website that display working materials in an identical form or, at least, very close to the form posted on the website.

- **The principle of secure data**: stipulates that data of the official website of the PRM are entered and accessed only through authorized and authenticated channels;

- **The principle of information security**: ensuring an adequate level of integrity, selectivity, accessibility and efficiency to protect data from loss, alteration, deterioration and unsanctioned access.

- **The principle of accessibility of public information**: implementing procedures for ensuring the access of Moldovan citizens to public information supplied by the official website of the PRM;

- **The principle of transparency**: designing and rolling out the official website of the PRM using the modular principle, using transparent standards on information and telecommunication technologies;

- **The principle of extension**: provides for the possibility to regularly extend and supplement the official website of the PRM with new functions or improve existing ones;

- **The principle of priority of the first person / of the single center**: means there is a high level person in charge with sufficient rights to make decisions and coordinate activities in order to create and operate the official website of the PRM;

- **The principle of scalability**: ensure a similar performance of the information solution for a small amount of data and accesses and large amounts of data and accesses to the official website of the PRM;

- **The principle of integration with existing systems:** it is possible for the information solution to be integrated and to interact with existing computer systems of the PRM and the interoperability platform of the Government of the Republic of Moldova (MCloud);

- **The principle of simplicity and convenience of use**: designing and using all applications, technical tools and programs accessible to the users of the official website of the PRM, based on exclusively visual, ergonomic, logical and intuitive principles from a conceptual point of view;

- **The principle of adjusting the interface to the preferences of users**: conceptualizing the interface in such a way that it adjusts to the particular configuration of the device from which the official website of the PRM is accessed (responsive design).

In particular, the following primordial principles for the architecture of the official website of the PRM must be observed:

- implement a SOA-based client-server multi-level solution (service-oriented architecture);

- develop a solution based on portable software solutions;

- ensure adequate security for the system in order to protect information and component subsystems against unauthorized use or disclosure of classified information;

- ensure the possibility to easily integrate front-office interface of electronic services provided by information systems used by the PRM (*for example, ePetition*);

- design web services that will be able to interact with external information systems;

- minimize the number of technologies and products offering the same functionalities or similar areas;

- develop a high performance solution for searching for information posted on the official website of the PRM based on intuitive guidance principles for users to be able to rapidly find relevant information and formulate suggestive global search queries taking into account the morphology of Romanian, Russian and English languages;

- ensure high speed for processing the queries of users;

- it must be possible to restore the official website of the PRM after calamities (ensure physical safety of the system) as a component part of the implementation plan.

1.4. The Goal, Objectives and Tasks of the 0fficial Website of the PRM

The upgrading of the official website of the Parliament of the Republic of Moldova (http://www.parlament.md) shall allow the full implementation of the **Priority Direction no. 6** of the *Plan for the Strategic Development of the Integrated Information Space of the PRM for 2011-2015*.

Based on what was said above, the implementation and use of the information system shall bring the following benefits:

- increased efficiency and transparency of activities of the *Parliament of the Republic of Moldova*;

- aligning the website to relevant national and international requirements;

- increasing ergonomics and user interface of the website of the Parliament of the Republic of Moldova;

- automating information posting and dissemination processes;

- excluding redundant information production and dissemination processes (once a piece of information is entered in the computer system of the PRM, it shall be published automatically on the official website of the *PRM*);

- decreased time and expenditures for the management of the content of the website;

- indexing the entire content of the official website of the Parliament of the Republic of Moldova (http://www.parlament.md);

- ensuring high speed and accuracy for finding documents and information published on the official website of the PRM;

- ensuring access to public information through web services provided by information systems of the PRM;

- generating reports, statistics and KPI indicators related to the informational content of the official website of the PRM;

- ensuring feedback from citizens, firms, CPA and LPA on the activities of the *PRM* (collect online suggestions, questions, petitions from the general public, etc.);

- ensuring socialization of the official website of the PRM through an automated interaction with the most popular social networks in the Republic of Moldova (*Facebook, Twitter, Odnoklassniki*, etc.);

- ensuring an efficient tool to generate analytical reports on the operation of the official website of the Parliament of the Republic of Moldova.

Designing and launching a new version of the official website of the Parliament of the Republic of Moldova shall contribute to the development of institutional capacities of the *Parliament* to promote and enforce citizens' rights as well as for authorized users within the *PRM* to access:

- public information;

- the decision making process.

The official website of the Parliament of the Republic of Moldova shall allow decreasing the time necessary for the process of finding, viewing and extracting relevant documents related to the activities of the *PRM*. This objective will be achieved by automating content information collection, posting and dissemination processes, including by integrating services provided by other information subsystems of the PRM.

The direct beneficiaries of the website www.parlament.md could be:

- Citizens of the Republic of Moldova;

- The members of the Parliament of the Republic of Moldova*;*

- Mass-media;

- The public servants of the *PRM;*

- *The Government of the Republic of Moldova;*

- *Central and Local Public Authorities.*

2. Stakeholders and their Roles of the Official Website of the PRM

2.1. Business Roles of the Official Website of the PRM

The following entities are interested or must be involved in the process of designing or using the new version of the official website of the PRM:

- **Information Technologies Division of the PRM** as the entity that will ensure the environment for the good operation and management of computer systems. Also, this subdivision of the *Parliament of the Republic of Moldova* shall be responsible for the monitoring of the developing and upgrade of the website www.parlament.md. *The System Administrator* of the official website of the PRM shall be an employee of the *Information Technologies Division of the PRM.*

- **The General Department of Parliament Documentation** as the key entity to prepare and post the content on the official website of the Parliament of the Republic of Moldova. This Department shall have users with *Content level Administrator* access that will directly post documents on the official website of the PRM through the *Content Management System*.

- **Communication and Public Relations Department** as the key entity in charge of preparing and posting documents related to public relations and mass media relations (press releases, events, etc.). This Department shall have users with *Content level Administrator* access that will directly post documents on the official website of the PRM through the *Content Management System*.

- **The General Legal Department** as the key entity responsible for the preparation and posting of documents related to the legislative activities of the Parliament of the Republic of Moldova. This Department shall have users with *Content level Administrator* access that will directly post documents on the official website of the PRM through the *Content Management System*.

- **Petitions and Hearings Departments** as the key entity in charge of processing messages, comments and petitions submitted to the Parliament of the Republic of Moldova through the Feedback mechanism of the official website of the Parliament of the Republic of Moldova.

- **Public Procurement Service** as the key entity in charge of preparing and posting documents related to public procurements conducted by the Parliament of the Republic of Moldova. This Service shall have users with *Content level Administrator* access that will directly post announcements and documents related to public tenders on the official website of the PRM through the *Content Management System*.

- **Human Resources Department** as the key entity in charge for preparing and posting information related to the staff of the Parliament and the composition of the body of members of Parliament.

- **Electronic Governance Center** as the body authorized to develop and implement the *e-Transformation* policy in the Republic of Moldova and the *MCloud* solution (if the website is to be hosted by the *MCloud*).

- **The Ministry of Information and Communication Technologies** as the main body responsible for policies and norms for the design and implementation of state information resources.

- ■ **Internet users** as the direct beneficiaries of the content of the official website of the *Parliament of the Republic of Moldova* (http://www.parlament.md).

2.2. The Owner of the Official Website of the PRM

The owner of the official website of the PRM is the *Parliament of the Republic of Moldova*. The role of the owner of the system reflects the administrative aspects related to all the competences/powers held by the *Parliament of the Republic of Moldova* necessary for the ongoing administration and development of the website.

As the owner of the official website of the PRM, *the Parliament of the Republic of Moldova* shall be able to assign to its employees roles and access rights for the user interface and data depending on their job duties.

2.3. The Holder of the Official Website of the PRM

The holder of the information solution is responsible for the technical aspects, which is the competence of the *Parliament of the Republic of Moldova*. In this case, the technological aspects related to the official website of the Parliament of the Republic of Moldova shall be administered by the *Information Technologies Division*.

It is not excluded that the official website of the PRM shall be hosted outside the data center of the PRM. A solution could be the *MCloud* platform (and the role of the holder shall be assigned to *"Center for Special Telecommunications"*).

2.4. The Buyer of the Official Website of the PRM

The official website of the Parliament of the Republic of Moldova shall be purchased by the *UNDP-Moldova Project "Improving the Quality of Moldovan Democracy through Parliamentary and Electoral Support"*. As the buyer, the *UNDP-Moldova Project "Improving the Quality of Moldovan Democracy through Parliamentary and Electoral Support"* together with the *Information Technologies Division* of the *General Informational-Analytical Department* within the Secretariat of the Parliament of the Republic of Moldova shall supervise all the design and implementation activities related to the official website of the PRM and shall monitor its operation.

2.5. The Administrator of the Official Website of the PRM

The administration of the official website of the PRM shall be shared by the *System Administrators* (employees of the *Information Technologies Division*) for system-related matters and the *Content Managers* (employees of the *Subdivision of the Secretariat of the PRM* responsible for the preparation and posting of content information on the official website of the PRM) for content related matters.

System Administrators will have full access to all the functionalities of the system, files and databases in the system, software applications that ensure data security of the official website of the PRM.

The responsibilities of *System Administrators* of official website of the PRM are:

- ■ ensure the normal operation of the computer system guaranteeing accessibility, security and integrity of data;

- ■ monitor the activity of system users;

- ■ at the request of decision makers from the *PRM*, administrators make changes to the functionalities of the official website of the PRM (within the limits of the technical parameters of the information solution) etc.;

- technical administration of the infrastructure of the official website of the PRM.

- manage the content and metadata of the website www.parlament.md.

2.6. Types of Users and their Roles within the Official Website of the PRM

The roles of human actors and systems that interact with the official website of the Parliament of the Republic of Moldova are presented in Figure 2.1.
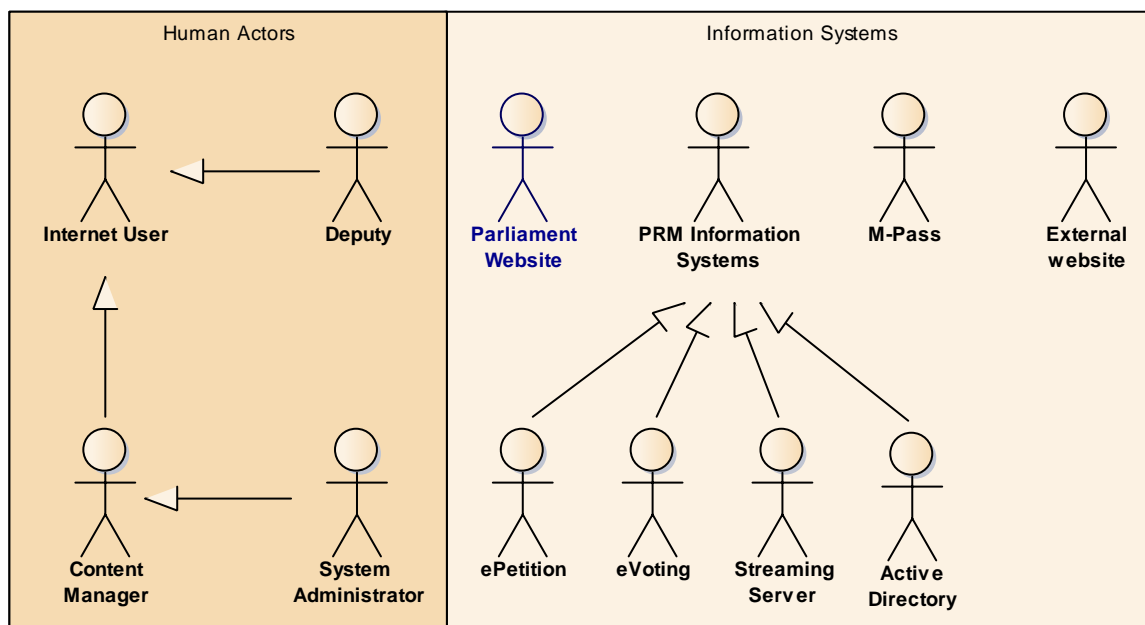
Table 2.1. All actors of the official website of the Parliament of the Republic of Moldova.

Internet user – human actor that accesses the public interface of the PRM website to browse through public information posted on the official website of the PRM. These actors have the following clear roles:

- access the official website of the PRM to view and download public documents;

- navigate through the content of the official website of the PRM;

- post comments to documents posted on the official website of the PRM;

- submit requests and petitions to the PRM;

- extract reports and statistical data containing public information.

Deputy – a human actor that accesses the specialized interface designed for their work related to plenary sessions of the PRM and committees. This category of actors has the following clear roles:

- have access to all functionalities available to *Internet users*;

- manage and access events on their personal agenda;

- access the schedule of their committee and related documents;

- access the agenda of the plenary sessions and related documents;

- view statistical data on voting during plenary sessions of the PRM;

- enter comments on documents posted in the agenda of the meeting of the committee or plenary session of the PRM;

■ receive notifications related to relevant events on the agenda.

Content Manager – human actor authorized to manage the content of the official website of the PRM. This category of actors has the following clear roles:

■ have access to all functionalities available to *Internet users*;

■ unconditionally use all content administration functionalities for the official website of the PRM;

■ administer the content of fields of the website http://www.parlament.md for which the *System Administrators* defined access;

■ manage all comments and messages received from *Internet users*.

System Administrator – a human actor authorized to classify the users of the website, the configuration of the site http://www.parlament.md as well as initiating system components. If the technological environment of the official website of the PRM has sufficient capabilities to fulfill administration work, then their inclusion on the system shall be optional. This category of actors has the following clear roles:

■ unconditionally use all functionalities of the information system;?

■ view any entry in the database;

■ configure the structure, functional parameters and the rules for presentation of the official website of the PRM;

■ administer the building of the database;

■ administer user profiles;

■ administer the systems of nomenclature and metadata;

■ make backup copies of the database;

■ monitor the activities and behavior of users.

Parliament website (www.parlament.md) – the official website of the Parliament of the Republic of Moldova, which is the object of development and deployment through these documents.

PRM Information Systems – all the internal information systems of the Parliament of the Republic of Moldova with which the website www.parlament.md is to be integrated. The official website of the PRM shall provide the web service of being integrated with other systems; first, the website shall be integrated with the following systems:

■ *ePetition* – information system of the PRM designed to review petitions submitted to the PRM;

■ *eVoting* – information solution set up at the PRM designed to automatize the voting process during plenary sessions of the PRM (electronic voting through voting terminals set on the work desks of the members of the Parliament);

■ *Streaming Server* – a software and hardware solution designed to film and register the plenary sessions of the PRM, which is to be integrated with the official website of the PRM in order to live broadcast the plenary sessions and ensure access to the video archive of previous sessions;

- ■ ***Active Directory*** – a solution set up and configured at the PRM, which is to be integrated with the official website of the PRM in order to implement the authentication procedures (authentication in the *Active Directory* shall provide authorized users automatic access to the administration functionalities for the official website of the PRM).

M-Pass – the information subsystem of the *Center for Special Telecommunications* designed for authentication using digital certificates, using and verifying the validity of electronic signature (used for authentication in case of having such a certificate);

External Webites – all external sites that will take up and post information from the website www.parlament.md through the *Widget* module.

3. The Architecture of the Official Website of the PRM

3.1. *The Main Components of the Official Website of the PRM*

The functionality of the official website of the PRM shall contain interactions between several components and actors presented in Figure 3.1 (except the connections of the official website of the PRM with external computer systems for the delivery/receipt of data).
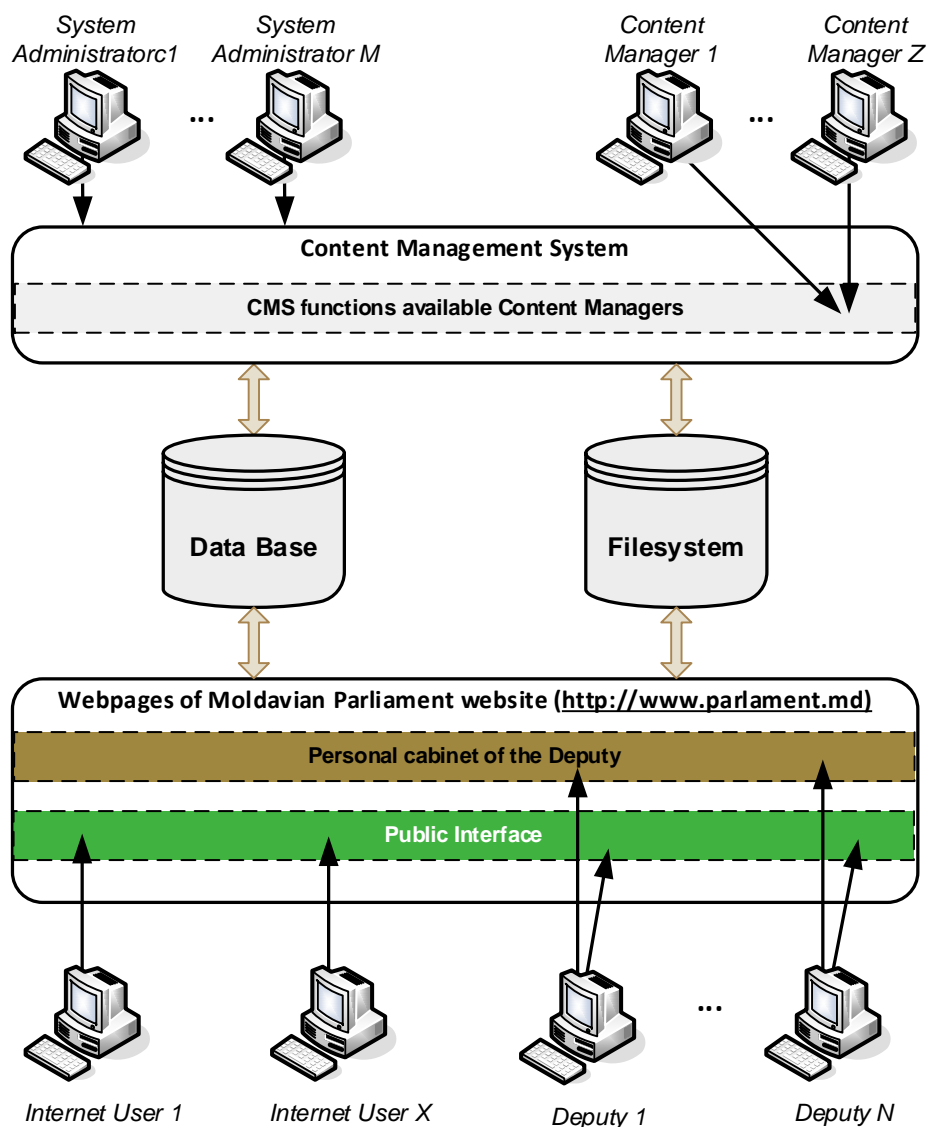
Table 3.1. The overall structure of the official website of the PRM.

As shown in Figure 3.1, functionally, there will be the following main components to the official website of the PRM designed to meet the queries of visitors:

- ■ **The database** designed to store the informational content of the website, except large external documents (non *HTML*) in *PDF, DOC/DOCX/ODT, PPT/PPTX/ODP, XLS/XLSX/ODS, RTF, ZIP*, etc. format. The database shall contain only hypertext localization references for the aforementioned large documents;

- ■ **The File System** designed to store large external documents (non HTML) in *PDF, DOC/DOCX/ODT, PPT/PPTX/ODP, XLS/XLSX/ODS, RTF, ZIP*, etc. format;

■ **Content Management System** with facilities to rapidly modify the structure of the website of the PRM, the information on the web pages and the appearance of the site;

■ **Public Interface** designed to intermediate access of *Internet users*, including of administrators and operators as visitors, to the public part of the official website of the Parliament of the Republic of Moldova.

■ **Web Pages** – pages generated through the Public Interface at the request of *Internet users* and shown to them. These pages are used by visitors to access informational resources of the website. A sub-category of web pages is the cabinets of the members of Parliament (with authenticated and authorized access);

■ **System Administrators** – personnel holding all the functions and rights to maintain the website using the facilities of the *Content Management System*;

■ **Content Managers** – personnel with partial duties to update the content of webpages of the site using the facilities of the *Content Management System;*

■ **Internet Users** – personnel responsible for using the public interface of the official website of the Parliament of the Republic of Moldova.

The connections between these components are described in Figure 3.1. Thus, it can be seen that *System Administrators* have access to all functionalities of the *Content Management System,* while *Content Managers* have access only to a part of these functionalities.

Public web pages are generated through the interaction of the Public Interface, the Database and the File System of the website, and the web pages of the interface for the members of the Parliament – through the interaction of the cabinet of the MP, the Database and the File System of the website.

Figure 3.1 shows that Internet users have access only to public interface pages.

3.2. The Architecture of the Official Website of the PRM

For the information solution to achieve its objectives, the design, roll out and usage of the official website of the PRM shall take into account the architecture described in Figure 3.2. Thus, the computer systems shall contain 7 layouts that mutually interact:

■ **The space of the technical infrastructure of the PRM site** which includes all hardware equipment hosting the official website of the PRM.

■ **The space of the authenticated user** which contains the computer infrastructure of all authenticated users (*System Administrators, Content Managers* or *members of the Parliament*) who use or administer the authorized compartments of the official website of the PRM.

■ **The space of the internet user** which includes the computer infrastructure of all anonymous users (*Internet users*) that use the public compartments of the official website of the PRM.

■ **The space of the Center for Special Telecommunications** which includes the *MCloud* platform to provide the authentication mechanism through the digital certificate or mobile identity provided by *M-Pass.*
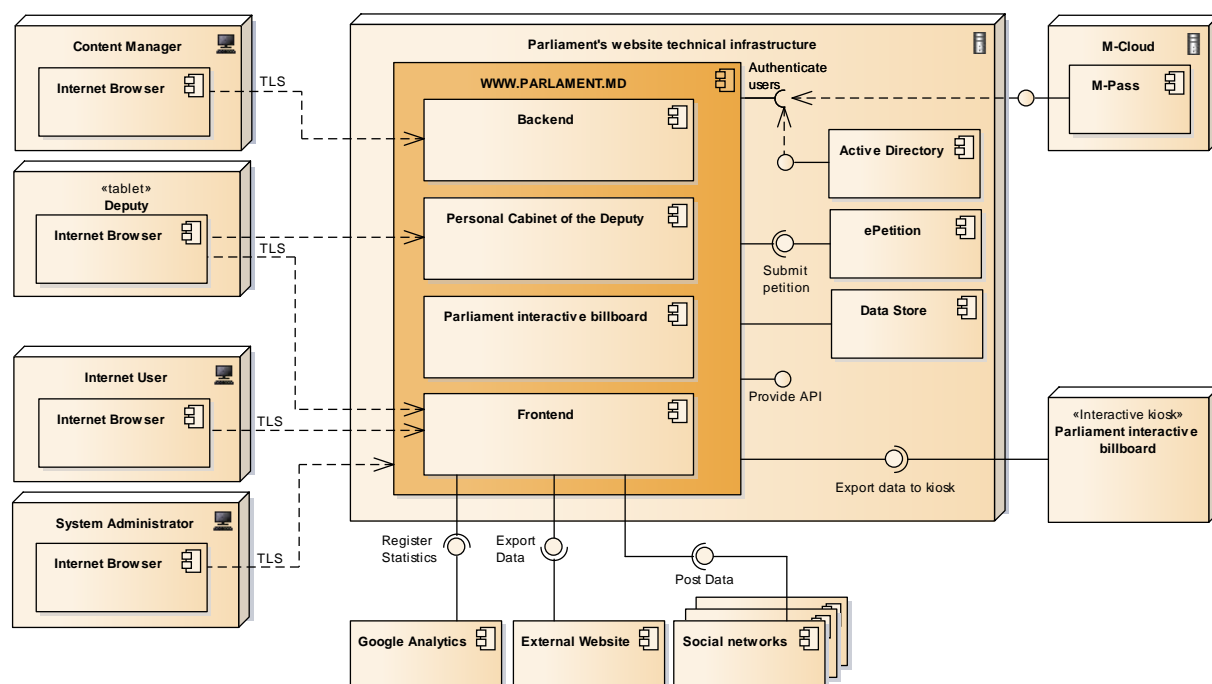
Table 3.2. The architecture of the official website of the PRM.

- **The space of external information systems (external websites)** to automatically post public information supplied by the official website of the PRM through a specialized web service.

- **The space of social networks** that will provide web services of publishing content from the official website of the Parliament on the most popular social networks.

- **The space of Google Analytics** providing a web service collecting statistical information on the operation of the public interface of the official website of the PRM.

As seen in Figure 3.2, the official website of the PRM consists of 4 main components:

- **Backend** – administrator interface of the official website of the PRM through which administrator users have access to the functionalities necessary for the administrative processes related to their powers.

- **Cabinet of Deputy** – personalized interface for *Deputies* through which they have access to information on their activities at the PRM (access to agendas of events related to each deputy and a mechanism for commenting on documents placed in the agenda).

- **PRM interactive board** – interface for information kiosk-type terminals providing information to the general public, and accessed from the respective terminals located in the public areas of the PRM.

- **Frontend** – user interface for the access of the public users to the informational content of the official website of the PRM and to services provided by it.

Any category of users shall use a secure connection to be able to use the official website of the PRM. The authentication and authorization of users shall be done through digital certificates, mobile identity or user name+passworld+IP_access_address. The system must be based on authentication and authorization, logging and data storing services.

The administration of the components of the system shall be conducted through remote connection from the computers of the administrators following the authentication and authorization of the latter.

In order to provide all its functionalities, the official website of the PRM shall use a series of interfaces supplied by external information services and systems such as:

- **Authenticate users** in order to implement user authentication procedures such as *System Administrators, Content Managers* and *Deputies* through external means (active directory, digital certificate or mobile identity).

- **Submit petitions** to interact with the information system *ePetitions* used by the PRM to submit petitions online and verify their traceability.

- **Post data on social networks** for the purpose of interacting with the most popular social networks and post documents from the official website of the PRM on the sites of the most popular social networks.

- **Register statistics** for the purpose of integrating with *Google Analytics* as a key mechanism for collecting statistical data and generating reports and KPI indicators for the popularity of the *Frontend* component of the official website of the PRM and its particular components.

In accordance with Figure 3.2, the official website of the PRM posts a series of interfaces designed to interact with external information systems as follows:

- **Provide API** for the purpose of integrating the official website of the PRM with other information systems of the PRM to be designed and implemented subsequent to the implementation of the new version of the official website of the PRM. This service will help design compartments of the official website of the PRM where the content shall be taken up from the information systems of the PRM.

- **Export data to terminals** for the purpose of exporting data to interactive kiosk type terminals for PRM visitors to be able to access public information from public areas of the PRM.

- **Export data** for the purpose of exporting the content of the public interface of the official website to external websites which are, usually, held by public authorities from the Republic of Moldova.

4. The Functional Model of the Official Website of the PRM

4.1. General Description of the WEB 2.0 Concept

In accordance with *The Handbook on "Information and Communication Technologies in Parliamentary Libraries"*, Parliament websites must be conceived on the basis of WEB 2.0 technologies. Thus, the new version of the official website of the PRM must be conceived based on this ideology.

The term "WEB 2.0" was first used in August 2004 by *Dale Dougherty* from the *O'Reilly Media* in a conversation with *Craig Cline* from *MediaLive* during the preparation of a conference. He suggested that the web was going through a rebirth or a mutation based on a change of paradigms and an evolution of business models.

Dougherty gave an example instead of a definition „*Double-click was WEB 1.0. Google AdSense is WEB 2.0*". Later, *O'Reilly Media, Battelle* and *MediaLive* launched the first WEB 2.0 conference in October 2004.

O'Reilly and *Battelle* name the following key principles of WEB 2.0 applications:

- WEB as a platform;
- data as *"implicit knowledge"*;
- network effects triggered by "*architecture by participation*" resulting from an amalgamation of distributed and independent systems and web pages;
- business models with content and service syndication;
- the end of software releases ("*perpetual beta*").

The infrastructure of WEB 2.0 is complex and constantly changing, but always contains:

- server side software;
- content syndication;
- messaging protocols;
- navigation standards;
- various client applications (non-standard plugins are usually avoided).

These complementary visions provide WEB 2.0 with strong storage, creation and dissemination capabilities.

A web page can be considered relevant from a WEB 2.0 viewpoint, only if it predominantly uses the following technologies:

- CSS, semantically valid XHTML tagging;
- wide usage of AJAX technology;
- content syndication and aggregation – RSS/Atom;
- tagging and classifying documents;
- adequate use of URL references;
- REST architecture or web XML services.

For the upgraded version of the official website of the Parliament of the Republic of Moldova the focus shall be placed on the following WEB 2.0 related technologies:

- service-oriented architecture (SOA);
- active use of AJAX;
- web syndication;

- tagging;
- website socializing mechanisms;
- adjustment of graphic design.

WEB Services (WEB API)

Web services are information solutions that can be accessed through web technologies (HTTP, HTTPS protocols) and the exchange of data is conducted through *XML* and *JSON* formats. One of the most usual architectural technologies for the design of applications is used for designing web services: *RPC*, *SOAP* or *REST*. Therefore, software shall use web services and not need sophisticated functional implementation.

Unlike common dynamic libraries, such an approach ensures a series of advantages such as:

- the web service is hosted on the server of the owner of the information resource. Due to this fact, users of the web service shall always have updated data and not need to conduct hardware and software upgrades necessary to perform operations provided by the web service.
- any modern programming language has tools to work with *HTTP* and *XML* and thus, web services can be considered independent platform solutions.

AJAX

Asynchronous JavaScript and XML – is a way to design a user interface for web application, which does not require for the entire page to load in order to refresh data areas (the data that need to be updated are loaded asynchronously). *AJAX* became popular after *Google* started to actively use *AJAX* for the development of its own web applications (for example: *Gmail* and *Google Maps*). Often *AJAX* is considered a synonym for the WEB 2.0 concept, which is not true, since the WEB 2.0 concept is not associated with a specific technology.

The asynchronous update of page content was possible back in 1999 using the *Flash 4* technology.

WEB SYNDICATION

Web content syndication is a form of syndication when a part of a web page is accessible on other web pages. This is possible due to the delivery of a license for the users of the web page. Often, syndication consists of providing a *RSS* feed that will supply the heading of the documents recently added to the web page and a URL reference to the content of the entire document (for example, the most recent news or the last posting on the forum). Initially, this technology was used by news websites and blogs, but later it migrated to other areas as well.

Currently, there are 2 technologies that allow WEB syndication: *RSS* and *Atom*.

MASH-UP

The *mash-up* principle is used for the design of hybrid web applications combining client and/or server level content coming from multiple sources (webpages), providing a new functionality/experience. As a result, such a service can, in turn, become a new source of information for other *mash-up* services. Thereafter, a network of interdependent information resources is formed which interact reciprocally.

For example: a web resource for searching for real estate integrated with *Google Maps* deliver a new service, which is much more comfortable, giving potential clients the opportunity to instantly see the location of the real estate on the map.

TAGS

Are the key words describing the object and assigning the object to a thematic category. A tag is given to an information object to give it a specific place among information entities of a website. The term "tag" is often used together with "*Folksonomy*", a term that became widespread together with the expansion of such WEB 2.0 services as *Flickr*, *del.icio.us* and later - *Wink*.

The emergence and popularity of blogs is also attributed to WEB 2.0 concept as a consequence of the fact that is creates the so-called *writable web*.

Tagging documents with key words is used in HTML language as well (applicable to concepts prior to WEB 2.0), but this technique was compromised due to its abusive use by spammers of search engines.

SOCIALIZATION OF THE WEBPAGE

WEB 2.0 is defined by the implementation of developments that allows creating communities related to the website:

- the term "*socialization*" can include the possibility of customizing the principles of viewing the website and delivering a personal cabinet to an internet user (personal files, images, video, blogs) so that users feel unique.

- encourage, support and trust the "collective judgment".

- when a community is created, competitivity, reputation or Karma is decisive for the community to be able to self-regulate and to create additional stimuli for users to be present on the website.

WEB 2.0 DESIGN

The WEB 2.0 concept is reflected in the graphic design of websites.

Round shapes, imitation of convex surfaces or glossy plastics of modern *hi-end* devices (*for example: iPods*) are preferred. Overall, the general image of a website designed in such a manner is much more pleasant.

The graphics of these websites requires more space as compared to an ascetic design. Partially, this trend in web design coincided with the emergence of new versions of software, which implemented similar ideas in their user interface.

In addition to graphics, in WEB 2.0, there is the trend to considerably increase the size of the text or space depending on the content (especially, for the text of headings), in order to emphasize the comparative text with elements of design on the website.

However, the homogeneity of such websites proved to be evident and lately, the classic WEB 2.0 design is considered obsolete and non-creative. This approach is emphasized by the current trends in designing informative websites where the main objective for the user interface is simplicity, elegance, moderate graphics and usability.

4.2. Information Objects of the Official Website of the PRM

Following an analysis of upgrading the website of the Parliament of the Republic of Moldova, the information objects that need to be considered for the design of the information system can be defined. Figure 4.1 shows the information objects that are to be used as the foundation for the design of the new version of the official website of the Parliament of the Republic of Moldova.
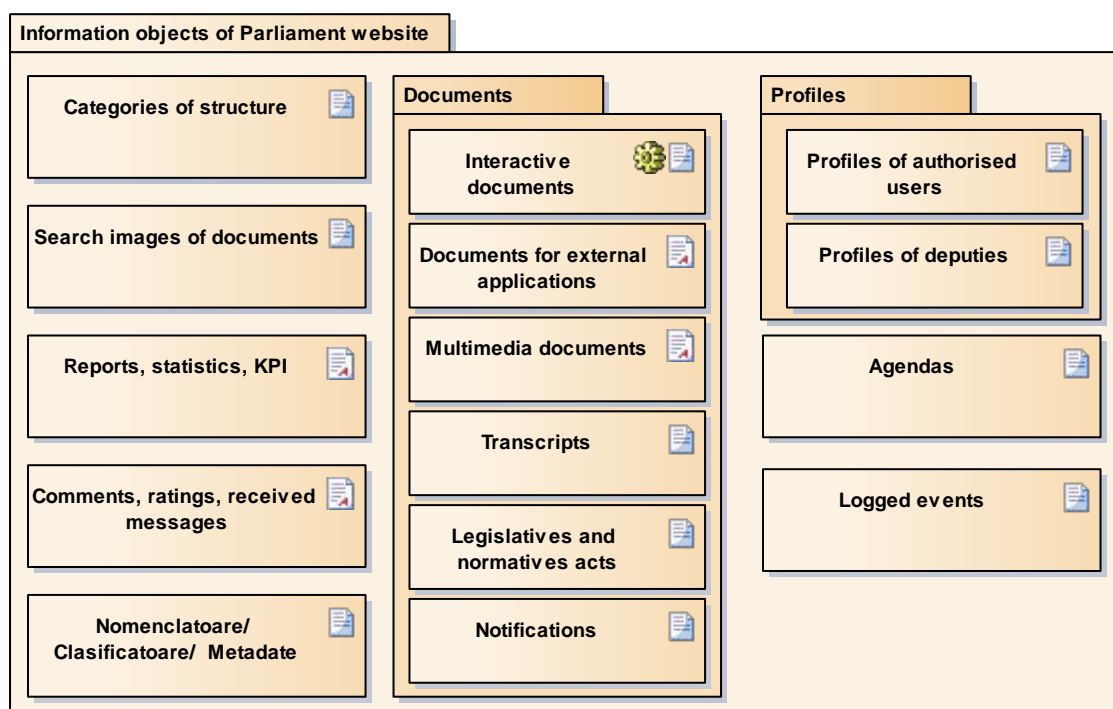
Table 4.1. Information objects of the official website of the PRM.

As shown in Figure 4.1, there are 9 categories of information objects that shall be included in the design of the official website of the PRM, among which the most important are: *Categories of structure of the official website of the PRM, Documents, Agendas, Search images of documents, Reports, statistics, KPI, Comments, ratings and messages received, Profiles, Nomenclatures/Classifiers/Metadata, Logged events.*

1. Categories of structure of the official website of the PRM.

The future system shall allow the administrators of the official website of the PRM to dynamically change the structure, appearance and content of the site using only visual tools.

Also, the *System Administrators* shall not be limited by the number of categories or the depth of the structure tree as well as the number of context documents, graphic images or videos inserted in the text, etc. (within the limits of memory reserved on the server).

We believe that it is adequate to make the content administration procedure for the official website of the PRM universal by developing universal stereotypes (templates) for the administration and presentation of information on content pages, which would deliver the entire set of information administration and visualization tools taking into account the functionalities of the administrator interface.

These templates shall be attached to categories of structure of the official website of the PRM (the *System Administrators* will be able to attach to each category of the official website of the PRM a relevant template and eventually, a graphic design that needs to be shown when extracting the content of the category, activating/deactivating comments and ratings, thematic blocks attached to each category, etc.).

Information categories shall be only leaf categories of the structural tree of the official website of the PRM. Intermediary categories shall not have content information, only generic information, and shall be mostly structural then content elements. After being activated, these categories will show the sub-categories that they contain and eventually, the generic information.

Tentatively, we can define the following templates that must be implemented in the *Content Management System* of the official website of the PRM:

- **Template „Category"** is a non-information stereotype used only as a structural element to indicate intermediary (high level) categories for leaf categories with content information. Nevertheless, the *Content Management System* of the official website of the PRM will allow the configuration of data packs for the information shown in the content, placing banners in the content of categories, defining content text to be displayed when the category is activated, if it contains sub-categories.

- **Template „Content Document"** is a stereotype for displaying events, news, announcements, publications and other relevant documents, etc. This stereotype is the most universal, which allows entering information of any kind and can be used for categories where information shall be displayed in the form of list with pages or alphabetic index. Each document will be represented through: *date of publication, title, summary, requisites, generic image, generic video, photo gallery and hypertext reference for accessing the document*. After years and months, archive references will be created automatically (automatically in accordance with documents existing in the database) and the option for new document shall be displayed, if the document is more recent that the value of a variable set in the *Content Management System* of the official website of the PRM. If the option of displaying the date of the document is deactivated, the list of documents will be shown in FIFO order, and archive references will not be displayed. The content of the document will be edited in a visual manner (WYSIWYG editor), allowing dynamic insertion of images, videos, tables, and hypertext references in the document. The official website of the PRM will allow attaching files, films and photo galleries to documents (ensuring their uploading on the server). Also, visitors will be able to post comments to each document and rate the categories of the site where this functionality was activated. After it was posted, a comment will be saved in the database and a notification will be automatically sent to the administrator. Only after authorization by an administrator, it is published on the site. For each category, it will be possible to post news in RSS format. The administrator will be able to activate or deactivate the regime for export in RSS format.

- **Template „Legislature"** is a stereotype that defines the set of peculiarities of a deputy from the Republic of Moldova and how these are posted in the content of the website. Thus, displaying shall be made by indexed values (alphabetic index, fractions, committees, etc.), lists and other comfortable and intuitive tools.

- **Template „Normative/legislative act"** is a stereotype which defines the set of peculiarities of administrating and displaying normative and legislative acts on the official website of the PRM. Details on normative/legislative acts shall be displayed and links to authors, committees where they were discussed, versions and other peculiarities are created.

- **Template „Agenda"** is a stereotype allowing organizing content documents on the official website of the PRM depending on the target group (committee, plenary session, Permanent Bureau) and the date of review/occurrence.

- **Template „Feedback"** is a mechanism for standard feedback. There will be a TURING verification test for online questions or posting suggestions to check if the message was placed by a human or a robot. This stereotype shall allow only sending messages (questions, suggestions, etc.) without displaying them. After being sent, the message will

be stored in the database and a copy will be sent to the email address of the person in charge.

When designing the templates described in this section, a series of general considerations (options administered visually by the administrators of the official website of the PRM) shall be taken into consideration:

- **Attaching a generic image** – for the stereotypes *Content Document, Agenda, Normative/legislative act, Legislature,* it will be possible to attach a generic image to each document (for example, the cover of the document, photograph from the event, etc.). The system will automatically adjust the size of the image and display it together with the document, if the content of this category is displayed;

- **Posting comments** – for the stereotypes *Content Document, Agenda, Normative/legislative act),* it will be possible to activate/deactivate the option of posting comments by site visitors;

- **Referencing documents** – for the stereotypes *Content Document, Agenda, Normative/legislative act,* it will be possible to visually insert in the content of the documents (in a special field of the document) references to other relevant documents on the official website of the PRM or other sites (or attach semantic tags). The usage principle is similar to the principle used for reference batches to the generic information of the stereotype *Category*.

- **Automatically generate RSS** – for the stereotypes *Content Document, Agenda, Normative/legislative act,* it will be possible to activate/deactivate export of information in RSS format.

- **Post banners** – for the stereotypes *Content Document, Agenda, Normative/legislative act, Feedback, Legislature,* it will be possible to define the principles for posting advertising banners. The website will have its own banner posting system and, in each category, the option to display banners will be activated/deactivated or the principles of displaying them will be defined.

In addition to the templates described above, templates that automatically display information, without the intervention of the administrator, will be implemented on the public interface:

- **Site map** – allowing automatic dynamic or partial generation of the site map taking into account the structure defined by the administrator;

- **Print version** – allowing all HTML pages to be reformatted in A4 format with minimum graphic design to be printed;

- **WIDGET** – allowing the export of the content of the official website of the PRM to the pages of other informational resources (external websites);

- **Search** – allowing search using key words in the entire content of the official website of the PRM and displaying results of queries in order of their relevance. Also, users will be able to set advanced search criteria (define criteria to refine search in specific categories of the official website of the PRM, types of documents, date of publication, etc.).

2. Documents from the content of the official website of the PRM.

A complex information object which forms the content of the official website of the PRM. Depending on the scope and use of the document, there are 5 categories of documents as follows:

2.1. Interactive document.

It is an information object specific for most of the information content of the official website of the PRM, which is administered and displayed based on the „*CONTENT DOCUMENT*" template. The distinct feature of this type of document is the fact that it is dynamically generated at each access based on metadata and data from the database. This category of documents can be contained in other types of complex information objects (agenda), but also separately, if certain categories of general information based on „*CONTENT DOCUMENT*" template are defined on the official website of the PRM. It will contain the following data and metadata:

- data about issuer;
- data about document location (URL of the document);
- start date;
- end date;
- title;
- references to the origin of the document;
- summary;
- suggestive image;
- content;
- images inserted into the content;
- attached photo gallery;
- attached video gallery;
- attached files.

2.2. Documents for external applications.

This represents all documents posted in the content of the official website of the PRM (documents in DOC, RTF, PDF, XLS format inserted in the content of the official website of the PRM), which require a specialized application to be read. This category of documents is usually used when the information posted in the content of the official website of the PRM cannot be posted using the „*CONTENT DOCUMENT*" template (interactive document), because of the large size of the document or the complexity of formatting such a document (complicated design, images, tables, other complex graphic elements). In this case, it is reasonable to keep the documents in their original formats (PDF, XLS, DOC) and insert a URL reference in the content of the official website of the PRM to allow users to download it and open it with the relevant external application.

This category of information objects include document files the reference to which is placed in the content of interactively generated documents, normative and legislative acts, etc.

This kind of documents cannot be included in the database, but will be saved in specific files of the official website of the PRM or on external sources of data. Only the file access URL shall be stored in the database.

2.3. Multimedia document

It is the group of documents in multimedia format (AVI, FLV, MP3, MP4, etc.) references to which are placed in the content of the official website of the PRM. It will be possible to place references to this kind of documents in the content of interactively generated documents for the purpose of displaying information in video format.

These documents will not be stored in the database, but will be saved in specific files of the official website of the PRM or on external sources of data (the database shall contain only the physical access path to the file). The official website of the PRM will automatically detect from the reference, the type of the multimedia file and will provide a specific mechanism for its display regardless of its nature (video or audio).

A part of the multimedia information shall be taken up officially from the video server of the PRM. In this case, the video server will deliver the corresponding interfaces for the browsing of video archives or for accessing live video broadcasts.

2.4. Transcript

It is a specific information object, which in accordance with *The Strategic Plan for the Development of the Integrated Information Space of the Parliament of the Republic of Moldova* approved by Decision no. 13 of 27.07.2011 of the Permanent Bureau of the Parliament of the Republic of Moldova represents a hybrid between traditional documents and multimedia documents (to allow searches in the content of video files with dynamic display of the video shots relevant for the query).

These Terms of Reference require only the administration of the textual component of transcripts.

2.5. Normative/Legislative act

It is an informational object specific for the work of the Parliament of the Republic of Moldova supplying all data necessary for the identification and processing of legislative and normative acts for the business processes of the PRM. Depending on the character of the act, it will be reviewed by the Secretary of the Parliament or the Parliament Committee or the Permanent Bureau of the PRM or the plenary session of the PRM.

The following data are related to this information object:

- identification data for the normative/legislative act (title, registration number, registration date, etc.);
- status of document;
- data about authors;
- data about agendas in which the document was included;
- data about reviewing the document;
- data about opinions on documents;
- data about discussing the document;
- data about approving the document;
- versions of the document;
- reference to the approved document (http://lex.justice.md).

2.6. Notifications.

These information objects are components of the notification mechanism implemented on the official website of the PRM. A notification can be considered an official document which the official website of the PRM displays on the authorized user interface or deputy interface in case of business events related to the activity of users.

The official website of the PRM will send notifications to authenticated users due to the following categories of events:

- notifications informing about certain events (receiving feedback messages, comments, new or updated content for approval, etc.);

- notifications related to events included in the PRM agenda;

- system notifications (which inform *System Administrators* about occurrence of phenomena that can disturb the good operation of the official website of the PRM).

Notifications will be automatically generated by the official website of the PRM and sent by email to their recipients. A copy of the notification will be placed in a special area of the user interface or the cabinet of the deputy.

It will be possible to configure the way and format of receiving notifications by the authorized user through the facilities offered by their personal cabinet.

3. Agenda.

It is a complex information object which allows grouping events and content documents of the official website of the PRM into uniform groups (agendas for groups of special users). The following categories of agendas configured on the official website of the PRM are defined:

- *The agendas of the plenary sessions of the PRM*. Include all events and documents grouped by plenary sessions of the PRM and their dates.

- *The agendas of the meetings of Parliament Committees*. Include all events and documents grouped by meetings of Parliament Committees and their dates.

- *The agendas of the ad-hoc groups or committees*. Include all events and documents grouped by ad-hoc groups or committees and their dates.

- *The agendas of the Permanent Bureau of the PRM*. Include all events and documents grouped by meetings of the Permanent Bureau of the PRM and their dates.

- *The agendas of a deputy*. Include all events and documents related to a deputy (generated based on events on all agendas where a deputy is included and events of such a deputy).

- *The agendas of the PRM*. It is a compilation of events and documents from all agendas (plenary sessions, meetings of Parliament Committees, Permanent Bureau) and grouping them by their dates.

4. Search images of documents.

It is a system technological image generated by the corresponding modules of the official website of the PRM as a result of indexing the content of the document published on the official website of the PRM. Following the indexation of the full content of the document, a search image of the document is created to be used in the process of finding information and displaying results in accordance with their relevance for the query formulated by users.

5. Reports, statistics and KPI indicators.

They are a set of (physically incorporated) standard reports provided by the public interface and the *Content Management System* of the official website of the PRM. The most frequent reports and statistics are statistical reports about the work of a deputy, the legislative activity of the PRM, the voting mechanism, etc.

A special category of reporting is statistics. Statistical reports include reports extracted through *Google Analytics* and the internal statistical system of the popularity of the official website of the PRM.

6. Comments, ratings and received messages.

A category of information objects including all documents reflecting the inverted connection placed by the visitors of the official website of the PRM and covering:

- comments of deputies to normative/legislative acts;
- messages sent through feedback forms;
- comments to the content posted in the content of the official website of the PRM;
- rating of the content posted in the content of the official website of the PRM.

They contain the following metadata:

- the moment of posting the message/comments/ratings;
- data identifying the sender;
- data identifying the addressee;
- message/comments/value rating.

7. Nomenclatures/classifiers/metadata.

It is an informational object consisting of all metadata related to the official website of the PRM. They will contain national classifiers (relatively static) managed by the *National Bureau of Statistics* and the internal lists of the information system to be developed and updated after the use of the information system. The *Content Management System* of the official website of the PRM will allow the configuration of special sets of metadata, classifiers and lists related to the collection of documents of the *Parliament of the Republic of Moldova*.

Moreover, all messages of the user and administrator interface of the official website of the PRM shall be edited in all 3 languages (Romanian, English and Russia) are also metadata.

8. Profiles.

It is a complex information object consisting of all data related to authorized users of the official website of the PRM. Therefore, 2 categories of profiles are defined:

8.1. Administrator Profile.

It is an informational object which contains all data related to the authorized users of the official website of the PRM that have the right to change content regardless of the roles that they have for the official website of the PRM (both *Content Managers and System Administrators*).

That is why this informational object will contain the following categories of information:

- identification data of a user;
- authentication data of a user;

33

- contact data (mail address, phone, email, etc.);
- preferences for configuring the administration interface;
- roles on the official website of the PRM;
- access rights to various compartments of the official website of the PRM.

8.2. Deputy Profile.

It is an informational object which contains all data related to deputies of PRM who have authorized access to their personal cabinets offered by the official website of the PRM.

This informational object will contain the following categories of information:

- identification data of a user;
- authentication data of a user;
- contact data (mail address, phone, email, etc.);
- preferences for configuring the administration interface;
- roles on the official website of the PRM;
- access rights to various compartments of the cabinet (*Agenda of the plenary meetings, Agenda of the Parliament Committee, Agenda of the meetings of the Permanent Bureau of the PRM*) with the right to comment on events.
- CV of the deputy;
- Legislatures in which they were elected;
- The positions held within each legislature;
- Parliament fractions the deputy was a part of;
- Parliament Committees in which the deputy worked in each legislature;
- Legislative drafts and initiatives related to the deputy in each legislature;
- Parliament diplomacy activity in each legislature;
- Statements.

9. Logged events.

They are complex informational objects for conducting IT audit and implementing information security policy. Any sensible business event (creation, modification, removing registration etc.) or activity of authenticated users must be registered in special logs (log files) showing the time, details of the actions and about the user, which generated the business event.

4.3. The Main Functionalities of the Official Website of the PRM

The package of functionalities delivered by the official website of the PRM, the actors that benefit from them are shown in Figure 4.2.

In accordance with the graph in Figure 4.2., the actors of the official website of the PRM have access to 26 use cases which provide the following functionalities:
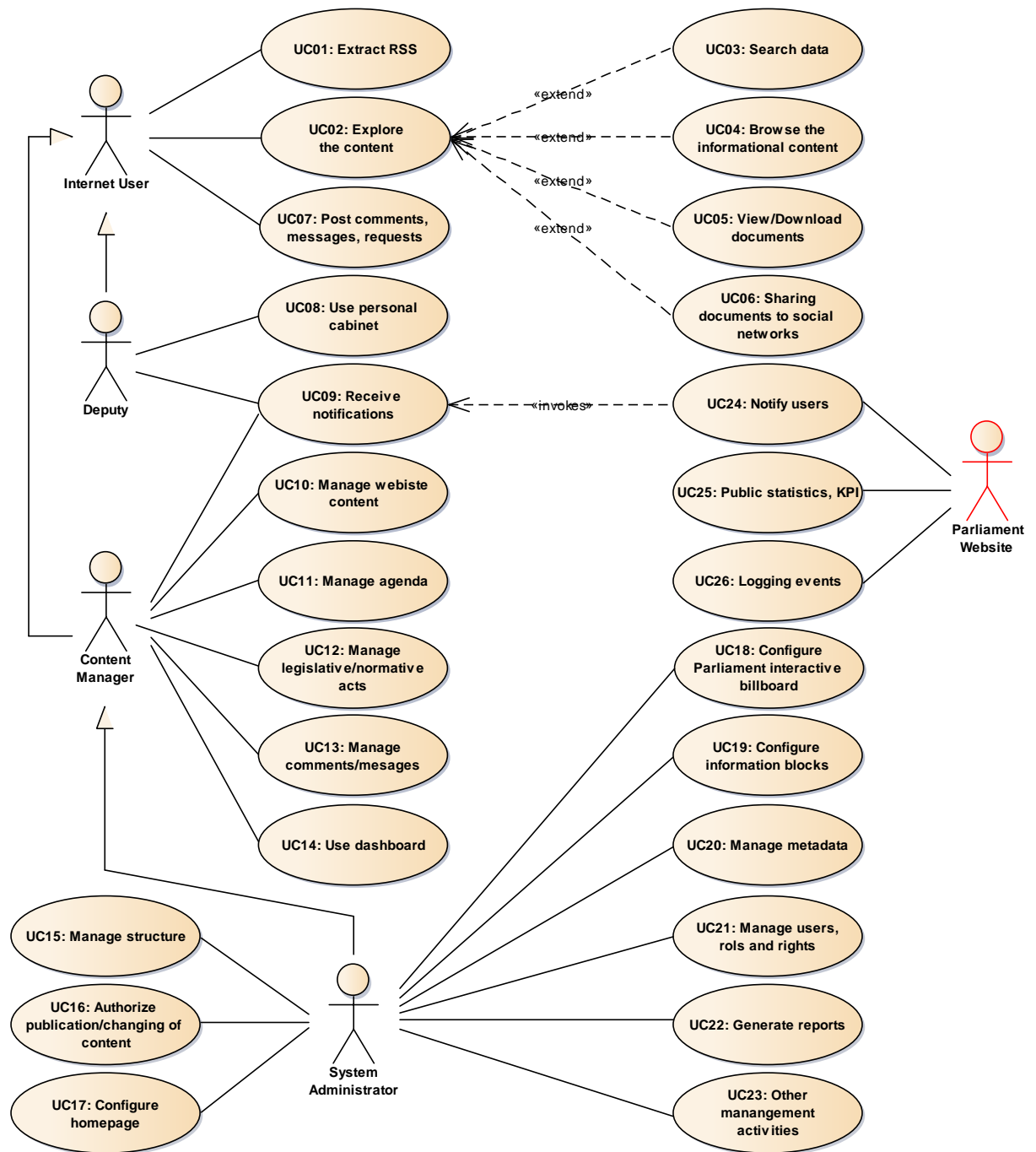
Table 4.2. The main functionalities of the official website of the PRM.

UC01: Extract RSS

It is a use case accessible to *Internet Users* which allows subscribing to and receiving *RSS* feeds. The official website of the PRM will have an advanced mechanism for configuring *RSS* feeds allowing their aggregation or detailing taking into account the metadata structure and system of the official website of the PRM.

UC02: Explore content

It is one of the most complex use cases of the public interface of the official website of the PRM available to *Internet Users,* which includes all navigation procedures for the content of the official website of the PRM, viewing and downloading information relevant to the needs of Internet Users and access services provided by anonymous users.

Taking into account that the *System Administrators* of the official website of the PRM will give a corresponding information administration and display template to each category of the structure of the website, the *Internet User* interface will globally and specifically represent the content of each category taking this metadata into account. Thus, for example, depending on the used template, a certain graphic design shall be used, archives will be activated or hidden, information will be displayed as a list or category, etc.

The user interface will create a URL for downloading information for each information component.

UC03: Search data

Use case provided by the public interface of the official website of the PRM, which provides all functionalities necessary for users to search for relevant information.

It is the process of searching in the entire content of the official website of the PRM based on a query defined by a user. The user shall insert a sequence of text in a special field and later, if necessary, will search and formulate in advanced search options rules for decreasing the scope of search (*for example: time interval; compartments of the official website of the PRM, specific tags, etc.)*.

UC04: Browse informational content

Use case provided by the public interface of the official website of the PRM, which supplies all the functionalities necessary to navigate the content of the official website of the PRM in order to find relevant information. It is a strategy for browsing the official website of the PRM based on the tree structure of the site (browsing the categories of the tree structure of the official website of the PRM). In this case, relevant information will be displayed in the leaf categories of this tree.

UC05: View/download documents

Use case provided by the public interface of the official website of the PRM, which offers users all functionalities necessary to access and extract documents posted in the informational content of the official website of the PRM, regardless of their nature (documents for external applications, multimedia documents or dynamically generated documents).

UC06: Sharing documents to social networks

Use case provided by the public interface of the official website of the PRM, which allows *Internet Users* to automatically post documents from the official website of the PRM (share documents, press releases, events from the agenda, etc.) on the most popular social networks.

UC07: Post comments, messages, requests

It is a procedure for *Internet Users* to interact with the people in charge of the official website. There are two ways to do it: in the form of a survey or in the form of comments or ratings for the publications placed on the official website of the PRM.

Messages are saved in the database and accessed by the *Content Managers* or *System Administrators* from the administrative area of the official website of the PRM. A copy of the message is sent by email to the respective person in charge.

UC08: Use personal cabinet

Use case providing all functionalities related to the personal cabinet of a *Deputy,* which allows convenient access to information related to their work and/or allows timely fulfilment of job duties.

Based on the graph in Figure 4.3, the personal cabinet of a deputy will have 6 categories of functionalities.
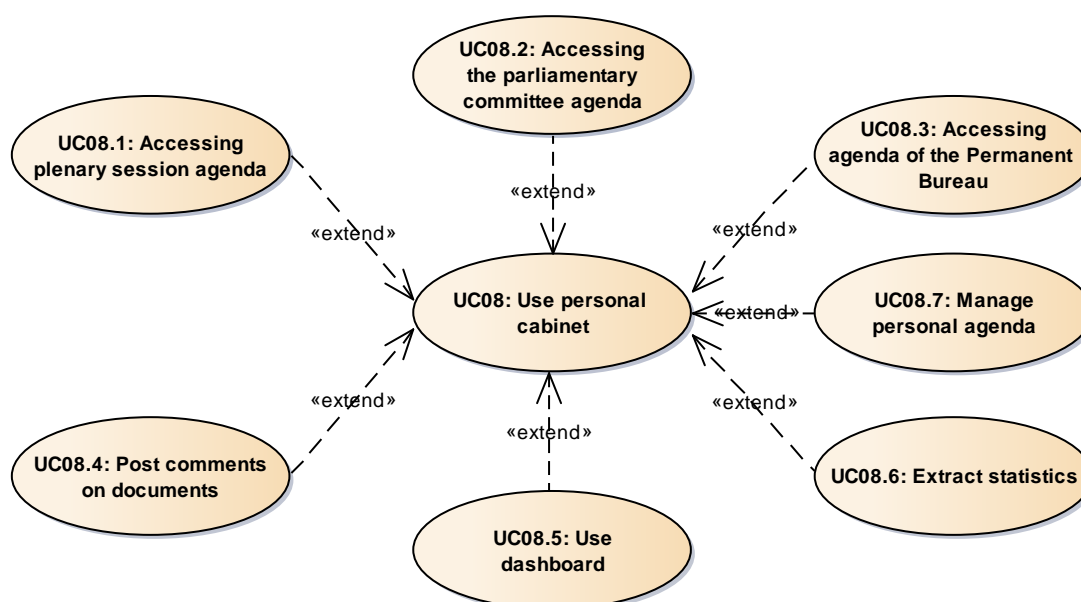
Table 4.3. The options offered by the cabinet of a deputy provided by the official website of the PRM.

- **UC08.1: Accessing plenary session agenda.** It is a functionality that allows *Deputies* to access the agenda of the plenary sessions, which will contain all events related to the plenary sessions (draft laws, planned speeches, planned events, etc.). The deputy will be able to access the agenda and read/download all related documents.

- **UC08.2: Accessing parliamentary committees' agenda.** It is a functionality that allows *Deputies* to access the agenda of the meetings of a Parliament Committee, which will contain all events related to these meetings (draft laws, planned speeches, planned events, etc.). The deputy will be able to access the agenda and read/download all related documents.

- **UC08.3: Accessing the agenda of the Permanent Bureau.** It is a functionality that allows *Deputies* to access the agenda of the Permanent Bureau of the PRM, which will contain all events related to these meetings (draft laws, planned speeches, planned events, etc.). The deputy will be able to access the agenda and read/download all related documents.

- **UC08.4: Post comments to documents.** It is a functionality that allows *Deputies* to post comments, notes, amendments, proposals on the documents included in their work agendas.

- **UC08.5: Use dashboard**. It is a functionality that will draw the attention of *Deputies* and allow to rapidly accessing all business events related to their interactions with the official website of the PRM (notifications on planned events from the agendas of a *Deputy*). Also, it will allow access to the most used functionalities. The homepage of the personal cabinet where all elements and notifications of a *Deputy* will be placed will serve as a Dashboard.

- **UC08.6: Extract statistics.** It is a complex use case which offers all functionalities for extracting statistical data about the work of the PRM in general, and a *Deputy* in particular.

- **UC08.7: Manage personal agenda.** It is a functionality that allows *Deputies* to enter events in the personal agenda (meetings, work visits, other events), which are not part of other agendas and to view all events related to their work (consolidate in a single agenda all events related to one deputy). The deputy will be able to access the agenda and read/download all related documents.

UC09: Receive notifications

A use case not included in this tender dossier allowing *Deputies* to receive notifications sent by the official website of the PRM by email. The official website of the PRM will generate and send notifications related to the agenda of *Deputies* by email. *Deputies* will individually configure their preferences for receiving notifications.

UC10: Manage website content

A use case for the *Content Managers* to manage the informational space of the official website of the PRM to which they received access rights. This space covers the management of informational content (placing/removing content postings, reorganizing the content of the official website of the PRM, managing messages and comments received, defining rules for displaying information content, etc.).

UC11: Manage agenda

A use case which supplies to the *Content Manager* all functionalities necessary for the management of agendas and placing these documents in the content of the official website of the PRM (press releases, legislative acts, normative acts, etc.).

Depending on the access rights to the functionalities of the *Content Management System* and the fields of the official website of the PRM, *Content Managers* will manage the following types of agenda:

- agendas of deputies;

- agendas of Parliament Committees;

- agendas of working groups or ad-hoc committees;

- agendas of plenary sessions;

- agendas of the Permanent Bureau of the PRM.

UC12: Manage legislative/normative acts

A use case through which a *Content Manager* manages all legal and normative acts reviewed by the PRM. Unlike other content documents, these documents are defined by special metadata and require implementing specific work flows allowing modification of the status/condition and content during the process of review by the PRM.

UC13: Manage comments/messages

A use case that offers users with administration roles all the functionalities they need to access and manage all comments and feedback messages received from *Internet Users* through the official website of the PRM.

UC14: Use dashboard

A use case accessible to all administrator users of the official website of the PRM (*Content Managers* and *System Administrators*) through which they have rapid access to business events of the official website of the PRM related to their activities on the official website of the PRM.

Depending on the specific user, the Dashboard will display summary statistics or a list of critical events related to the administrator user through which they will be notified and rapidly access all functionalities and tasks related to their job duties.

UC15: Manage structure

It is a complex use case providing *System Administrators* all functionalities necessary to manage the entire structure of the official website of the PRM, which consist of the following categories of functionalities:

- defining the structure of the official website of the PRM;

- reorganizing the structure of the official website of the PRM;

- defining the rules for presenting information content of the official website of the PRM.

All actions performed on the structure and information content of the al official website of the PRM will be using only visual tools.

UC16: Authorize publication/changing of content

A use case accessible to *System Administrators* which ensures access to all functionalities designed for the rapid access of content of the official website of the PRM proposed for publication/posting, authorization or rejection of posting content.

UC17: Configure homepage

It is a complex use case that provides *System Administrators* all the functionalities necessary to manage the appearance of the homepage of the official website of the PRM, which includes the following categories of functionalities:

- defining design styles for marking events;

- defining the principles for displaying the design for regular days;

- defining modules posted on the homepage (questionnaires, banners, etc.) and the order of posting them;

- configuring and posting KPI;

- configuring and posting dynamic areas with information.

All actions related to the appearance and composition of the homepage of the official website of the PRM will be conducted using exclusively visual tools.

UC18: Configure PRM interactive billboard

A use case accessible to *System Administrators* to configure the appearance and information content of the user interface of the interactive billboard. Based on rules defined by *System Administrators,* the official website of the PRM will generate the user interface and the content for interactive billboards located in the public spaces of the PRM.

UC19: Configure information blocks

It is complex use case which provides *System Administrators* all the functionalities necessary to configure and publish information blocks of the official website of the PRM containing the following categories of functionalities:

- definition of information block;

- definition of design principles for the information blocks;

- entering content into information blocks (define principles for the automated entering or explicit placement of content);

- define principles for displaying content of elements of information blocks;

- define principles for sequencing elements in an information block;

- placing an information block on homepage or information categories of content.

All actions related to configuring information blocks of the official website of the PRM shall be made using only viewing tools.

UC20: Manage metadata

A use case providing *System Administrators* all the functionalities necessary to administer all nomenclatures, classifiers and metadata related to the information system (including user interface of the information system).

UC21: Manage users, roles and rights.

A use case providing *System Administrators* all the functionalities necessary to administer the list of roles and associated rights and subsequently assign them to users authenticated with the role of administering the content of the official website of the PRM.

These categories of users are *Content Managers* who, based on the roles and rights they hold, shall manage the information on the official website of the PRM.

UC22: Generate reports

It is a functionality accessed by *System Administrators* allowing generation of pre-defined and ad-hoc reports on the information content of the information system and the activity of users (taking into account user rights to access information).

These reports are useful for the analysis of the informational base of the system, the performance of authorized users, in particular, deputies, allowing anticipation of issues related to information security or identification of prospective developments of the official website of the PRM.

UC23. Other management activities

A use case for *System Administrators* which describes all functionalities accessible to System Administrators for the management and audit of the official website of the PRM: maintaining a list and integrity of credentials of users with access to administrative functions, generating reports using system logs for the purpose of analyzing and identifying potential logic and physical security issues for the official website of the PRM, etc.

System Administrators will have a mechanism for configuring and assigning roles to all categories of users involved in the administration and operation of the information system. This mechanism will allow definition of access parameters for interface, services, files and content of the database.

A use case for the management of the official website of the PRM to implement all the functionalities ensuring the viability and integrity of the information system.

UC24: Notify users

A use case providing all functionalities to send notifications to all authenticated users of the official website of the PRM. Notifications will be stored on the dashboard of *Content Managers* or the personal cabinet of the *Deputy*. Also, notifications will be sent through email.

The official website of the PRM will generate and send automatic notifications on any event of placing content on the site (adding/modifying/deleting documents, agendas, events on the agenda, etc.).

UC25: Publish statistics, KPI

A use case providing all the functionalities necessary for the generation, export and publication of public statistical information on the operation of the official website of the PRM.

This information is a category of KPI indicators automatically supplied by the system. The official website of the PRM will have functions of periodically distributing various information about the system which include:

- system messages attesting the viability of the system to monitoring and administration services;

- values of performance indicators of PRM (legislative activity, voting, etc.);

- detailed open data.

UC26: Logging events

The official website of the PRM will contain all functionalities allowing the configuration of operational principles and generating events that will be logged as well as definition of strategies for collecting logged events.

4.4. *Information Flows of the Official Website of the PRM*

To ensure the operation of the official website of the Parliament of the Republic of Moldova it is necessary to implement 9 primordial categories of information flows available to various categories of users of the information system:

- **Managing the structure of the website**. It is the information flow used by *System Administrators* to define the structure of the official website of the Parliament of the Republic of Moldova and to configure the parameters for displaying information placed in various categories of the official website of the PRM.

- **Reorganizing the content of the website**. It is the information flow used by *System Administrators* to quickly reorganize either the structure of the official website of the PRM (moving content subcategories from one category to another) or information content of the official website of the PRM (moving documents from one category to another).

- **Managing the content of the website**. It is the information flow used by *Content Managers* to edit and post documents on the official website of the PRM which consists of editing documents, filling in metadata related to documents, attaching an image, film or photo gallery related to documents, defining parameters for posting documents on the official website of the PRM.

- **Managing multimedia documents**. It is the information flow used by *Content Managers* to edit and post explicit categories of multimedia documents (photo galleries, video galleries) on the official website of the Parliament of the Republic of Moldova (which will not be taken up from the resources of the Media Center).

- **Managing agendas**. It is the information flow used by *Content Managers* to edit and post the agendas of the sessions (plenary sessions, specialized committees, Permanent Bureau) or PRM events. The functionalities supplied by the *Content Management System* of the official website of the PRM will allow editing events included in the agenda, inserting documents in the agenda (content documents, legislative acts, normative acts), ordering them and specifying access (public or restricted).

- **Managing normative/legislative acts**. It is the information flow used by *Content Managers* to edit and post all legislative and normative acts developed or passed by the PRM. They have certain lifecycles and metadata that will be administered through the facilities provided by the *Content Management System* of the official website of the PRM. They will supply the site with data on the traceability of a normative/legislative act and

generate statistics on deputies that contributed to their development (proposed the document or provided amendments).

- **Searching for information**. It is the information flow used by *Internet Users* to formulate search queries and extract documents relevant for their needs.

- **Extracting reports and statistical data**. It is the information flow used by *System Administrators and Deputies* allowing access to and generation of statistical data on the activities of users authorized in the *Content Management System* of the official website of the PRM or the interaction between *Internet Users* with the public interface of the website www.parlament.md.

- **Managing the Feedback mechanism**. It is the information flow used by *Internet Users* and *Content Managers* containing all functionalities for their mutual interaction (from posting comments or sending a message through the official website of the PRM prior to their review and processing).

4.5. The User Interface of the Official Website of the PRM

4.5.1 Overall Considerations for the Design of Content Pages

Displaying and administering the content of the official website of the PRM will be based on mainly using interactive pages, which will ensure the dynamic building of the structure of the official website of the PRM and the easy administration of its content.

System Administrators of the official website of the PRM will be able to easily define and modify the structure of the site by dynamically adding/removing fields, thematic HTML pages and attaching documents in *PDF*, *DOC/DOCX/ODT, PPT/PPTX/ODP, XLS/XLSX/ODS, RTF, ZIP, MP3, FLV*, etc. format. Also, for specific categories of information or specific documents, the administrators will be able to define and modify packages of information, advertising banners, etc.

The graphic design of the website will consist of colors mainly from the brand-book of the Parliament of the Republic of Moldova in an attractive and pleasant combination for internet users in compliance with the principles of WEB 2.0. Additionally, the system will have minimum 5 sets of various colors different from the basic one, which visitors will be able to request.

It is adequate to use images related to the scope of activity of the Parliament of the Republic of Moldova, state symbols as elements of design. The information system shall have several graphic design themes (heading and footer) which the administrators will attach dynamically to the respective categories of information (or the public interface will display them in a random manner).

However, the main emphasis should be placed more on content than on graphics using mainly work with text styles (to ensure a higher speed of page download). The design of the official website of the PRM must be responsive and automatically adaptable to the resolutions and facilities of any computer device (desktops, laptops, netbooks, smartphones, tablets).

The Homepage will contain the most recent events of the Parliament of the Republic of Moldova, the latest documents related to the work of the PRM. However, the modules used on the start page will not visually overload information packages. The administrator will be able to add and dynamically configure blocks of information. There are three types of such packages of information:

- **static** – when specific documents that must always be displayed in the information block are shown;

- **dynamic** – when the number of recent documents that must be displayed is indicated (for example, the last five documents from a category, etc.);

- **combined** – when static and dynamic information is extracted in the information block.

References on web pages will be formatted visually using underlined text. The underlined text will not be used for formatting other elements. It should be attempted to keep the color of references as close as possible to the implicit brand color of the beneficiary.

Italic font is to be avoided in titles.

The set of fonts from computers with various versions of the software Windows 2000/XP/Vista/7, Linux, Mac OS X will be used. These fonts are: *Arial, Helvetica, Sans-Serif (MS Sans Serif), Courier (Courier New), Times New Roman, Tahoma, Verdana*.

4.5.2 The Public User Interface of the Official Website of the PRM

The public interface is the interface with unauthenticated access to the official website of the PRM for the general public. Using this interface, Internet users will be able to navigate de content, download files, view multimedia files, conduct searches, post comments, messages, etc.

The public interface will be based on a convenient navigation system so that visitors can easily and quickly find the necessary information. The flexible configuration system of the Homepage will allow administrators to draw the attention of visitors to the most interesting information on the site.

The public interface will be developed on the basis of a responsive design adaptable to the resolution and facilities of the device used (desktop computer, laptop, netbook, smartphone, tablet), taking into account the requirements enunciated above.

The content of the site will be entered and displayed in Unicode format (UTF-8), which will allow simultaneously displaying text in Latin and Cyrillic characters.

The Content Management System will allow editing the metadata of pages so that each page of the public interface will have the following tags:

- <meta name="Title (value to be extracted from the title of the document)">
- <meta name="Description">
- <meta name="KeyWords">.

Visitors will be able to access three navigation menus:

- The main menu of the site located on the left or header of the page;
- Quick menu accessing level 1 categories of the structure of the site located at the bottom of the page:
- Static menu bar where it will be possible to access languages, site map, contact address and homepage.

It will be possible to enter and to display the following metadata for any documents entered into the system:

- the date of posting the document;
- the title of the document;
- explicit summary of the document;
- key words for the document;
- bibliographic data of the document (author, issue/version, issuer, etc.);

- content for the document (in HTML format, attached file in DOC, ODT, ODS, RTF, PDF, XLS, ZIP, RAR format or URL reference to an internal document or external site). The system will automatically create the URL of the document;

- context image of the document;

- context video of the document;

- photo gallery of the document.

Implicitly, if the document is entered in HTMP format and the explicit summary of the document does not exist, the system will extract the first 40 words from the content of the document to serve as a summary. All images attached to documents will be adjusted automatically to the standard sizes of the design of the site through the GD graphic library.

Perfect compatibility of the appearance of the site with internet browsers *Microsoft Internet Explorer, Mozilla FireFox, Safari, Google Chrome* and *Opera* will be taken into account when developing the public interface.

4.5.3 The Public Interface of the Official Website of the PRM Adjusted to other Devices

Taking into consideration that the official website of the PRM will be accessed from various devices (not always from personal computers or laptops), it is necessary to develop several versions of the public interface for *Internet Users*.

Therefore, it is necessary to design (through responsive design) the following additional versions of the visitor interface for the following devices:

- **Smartphone** – optimized for Android and iOS operating systems and standard resolutions of modern cell phones. The interface is to be adjusted to small resolution and ergonomics of touch screens will be increased.

- **Tablet** – optimized for Android and iOS operating systems and standard resolutions of tablets (usually, a standard resolution with a maximum width of 1024 pixels is enough). The interface is to be adjusted to increase the ergonomics of using touch screens on these devices.

- **Information Kiosk** – optimized for information devices placed in the hallway of the Parliament or the street. For these devices, the interface is to be adjusted to increase the ergonomics of using touch screens.

4.5.4 The User Interface of the Homepage of the Official Website of the PRM

The Homepage is the key component of the official website of the PRM through which users will rapidly find the information they need. The Homepage must be configurable to ensure quick updating, including updating its structure. The administrator will be able to hide or display in a visual manner references to available languages. Also, it will be possible to define standard elements: announcements, events, generic text on the first page (hiding/displaying/defining the order of posting or categories where information can be extracted) and dynamic elements.

The Homepage must contain news, recent events of the PRM, dynamic information blocks, advertising banners, access to electronic services of the official website of the PRM. The dynamic elements of the Homepage will constitute information blocks. Administrators will be able to dynamically define information blocks (create, remove, indicate elements of style), specify information to be included in the block, define information to identify blocks of information and the order of displaying them.

Effectively, this page will contain the following blocks of information and navigation elements: *Heading/Logo, Footer, Available languages, References for direct navigation, Navigation menu, References to levels, Search engine, Questionnaire, Advertising banners, Dynamic information blocks, Electronic Services, Bottom Menu*.

The Heading, with graphic elements relevant for the PRM brand-book, will be located on the upper part of the page for the whole width of the page. State symbols and the relevant symbols of the Parliament of the Republic of Moldova (if necessary) will be located on the left. The remaining space will be filled in with a graphic collage about the activities of the PRM, which will be different depending on the field of the site.

The footer will be located at the bottom of the page for the entire width of the page and will contain the main contact information: *address, phone number, facsimile, email; note on copyrights and republishing information from the site; the date of the last update of the site (for any type of information that was updated), number of visitors from a certain date.*

Available languages (for a possible future development). References will be made in the text. The field for selecting languages will be visually emphasized to be easy to find, but, at the same time, will not contain a background or color upsetting to the eye.

References for direct navigation:

- FIRST – reference to Homepage;

- CONTACT – reference to contact email address;

- MAP – reference to the map of the official website of the PRM;

- RSS – subscription to RSS feeds;

- SEARCH – how to enter a search query;

- MENU – names of higher level categories of the navigation menu and hypertext references located at the footer of each page.

Navigation menu. The options on the menu will be located vertically on the left and preference will be given to a tree structure, the categories of which will open/close when clicked. Implicitly, the tree will be closed and the categories of the root level will be displayed.

References to levels will be located under the Heading on each page of the site and will show the hierarchical location of the document; for example: First/Legislation/Law on copyright.

Press releases/events – pack of information containing a definite number of latest events, news, extracts from various categories of the official website of the PRM and displayed in descending order of dates of their posting.

Agenda – module allowing rapid access to the agenda of current and future activities of the Parliament of the Republic of Moldova.

Search engine will include advanced search options. It will represent a search box and a start button for the search process and a configuration version for advanced search parameters on the official website of the PRM.

Questionnaire used to conduct online surveys. It will contain voting options and a reference to the archive of the survey. The system will automatically generate an archive of surveys.

Advertising banners – it will be possible to place them in any field of the Homepage between Header and Footer and will contain references to certain websites (or documents on the official

website of the PRM). At the same time, the *Content Management System* will allow placing banners in any field of the page.

USEFUL TOOLS – it will be a modal window ensuring rapid and convenient access to all electronic services provided by the website www.parlament.md.

Blocks of information – they will contain materials from the content of the category of the site with recent publications, latest data, announcements, photo galleries, text, etc. that the administrator will be able to dynamically define in the 3 segments of the site: left, center or right. Blocks of information will be based on 3 principles: static – when specified documents are always displayed, dynamic – when the last N documents are displayed and combined – using dynamic and static elements together. Also, it will be possible to divide blocks of information from the central segment of the site into several columns.

Full text will be displayed optionally, when posting the full text on the Homepage (in the area of blocks of information). Thus, important announcements/notifications, congratulations etc. will be posted.

Bottom menu. For the purpose of ensuring an increased ergonomics of the interface, a navigation menu with references to all level 1 options of the navigation menu should be located before the footer of the page.

The Homepage will have a special area for notifications/announcements defined only for the Homepage (it will not be possible to find them in any category of the Navigation Menu).

The module for administering the *Content Management System* will allow modification, if necessary, of the way information is presented on the Homepage, i.e.:

- displaying/hiding menu options;

- displaying/hiding available linguistic versions;

- defining the number of the latest events displayed on the Homepage;

- posting/hiding announcements, seminars, extremely important events;

- defining/hiding/deleting blocks of information, etc.

4.5.5 The User Interface of the Content Management System of the Official Website of the PRM

The management of content and administration of the official website of the Parliament of the Republic of Moldova will be carried out by *Content Managers*, using the facilities of the *Content Management System*, accessible through the Administrator Interface of the official website of the PRM.

The Content Management System will allow changing the structure, content and appearance of the official website of the PRM. This component will be accessed by URL and will be available only to *Content Managers* authorized through user name, password and IP address of explicitly specified computers or digitally certified computers.

Based on an analysis of existing and potential requirements for the operation of the official website of the Parliament of the Republic of Moldova under reasonable conditions, it should be concluded that the user interface of the *Content Management System* must contain the following main modules in various stereotypes:

1. **Administering the structure of the official website of the PRM** used by the beneficiary to define and dynamically administer the structure of the official website of the PRM. Thus, categories and sub-categories will be defined (including their reorganization: moving

subcategories and their content from one category to another, reorganizing lists, etc.). Also, it will be possible to define rules of presenting and administering options in the overall/general navigation menu.

2. **Administering the content of the official website of the PRM**. It will be possible to add an unlimited number of content elements to each option on the Navigation Menu taking into account the nature of templates used. The User Interface will have a WYSIWYG based editor for the management of text content. The administration of content means having a user interface for the administration of the content of the following types: *text documents, media document (video FLV, audio MP3), traditional files (PDF, DOC, XLS, etc.), photo gallery, agenda, normative/legislative documents, profiles of deputies, etc.*

3. **Administering dynamic blocks** to define and manage all dynamic blocks of information located on the Homepage of the official website of the PRM and its content pages. In particular, the title of the block, its design style, location and content (either extracted automatically, or explicitly indicated), the principles for displaying details of the content etc. will be defined.

4. **Management of Homepage** used to configure the appearance of the Homepage: define automated elements of presentation, dynamic definition of blocks of information and their content, defining the order of displaying elements, defining principles for displaying the site in various languages, the design style etc.

5. **Questioning users** allowing online surveys. This functionality will allow dynamically adding questionnaires and options for answers for each questionnaire.

6. **Managing comments** will allow storing comments posted by *Internet Users* or *Deputies* on documents posted on the official website of the PRM. Administrators will be able to remove, hide, answer or post comments.

7. **Banner management** will be used by *Content Managers* to set the principles for posting and displaying advertising banners (not commercial advertising, but advertising for events and content from the official website of the PRM) on the official website of the PRM. It will be possible to define static posting and variable posting of advertising on the Homepage and the categories of content of the official website of the PRM.

8. **Managing feedback messages** will allow the visitors of the official website of the PRM to send online questions through the website, as well as appeals that subsequently will be read and processed by the authorized *Content Managers*.

9. **The Dashboard** will allow notifying *Content Managers* that have the right to give the final approval for posting information received for processing and approving new entries into the system (documents, pages, comments) entered by Content Managers and posted by Internet Users. The administrator will be able to directly access the document from the *Dashboard,* and edit, remove, hide or post accessed items.

10. **Monitoring the traffic on the official website of the PRM** providing statistical data about the use of the *Frontend* component to *Google Analytics* for the purpose of using sets of statistical data, reports and KPI supplied by *Google Analytics.*

11. **Global configuration of the official website of the PRM** allowing configuration of overall operational parameters of the site (content of meta tags, number of elements displayed on a page, contact email address, access pathways, operational parameters, design specifications, etc.).

12. **Regionalization of the official website of the PRM** allowing editing messages of the user interface of the official website of the PRM in all existing languages (Romanian, English and Russian).

13. **User management** allowing management of access to the *Content Management System* of the official website of the PRM and the information space reserved for *Content Managers* from the subdivisions of the PRM Secretariat.

14. **WIDGET generation** to export content information provided by the official website of the PRM (news, press releases, documents, agendas, etc.) to external sites.

15. **Rapid access to service** to configure a special field of the official website of the PRM accessible from any compartment of the site to directly and rapidly access the most popular or important functionalities of the official website of the PRM (*for example: Petitioning, Plenary session agendas, Committees' agenda, the agenda of the Permanent Bureau of the PRM etc.*).

16. **System facilities** – all functionalities helping to administer the official website of the PRM (create back-up copies, monitor performance, etc.).

4.5.6   User Interface for Deputies

Taking into account that the official website of the PRM will contain all the information related to the agenda of deputies, it is necessary to develop an interface with authorized access for the deputies to their personal cabinets, where all the information related to their activities posted on the official website of the PRM is gathered and adjusted to be used on such devices as tablets and smartphones.

Depending on the configuration of the profiles of deputies (positions held in the PRM), this interface will provide access to:

- **The agenda of the deputy** – containing all events specific for the work of deputies (meetings, visits etc.).

- **The agenda of plenary sessions** – containing events of the agenda of the plenary meetings of the PRM. Deputies will be able to access the agenda they need on any event on the agenda, to download and comment on documents related to events included in the agenda;

- **The agenda of committee meetings** – containing events on the agenda of meetings of specialized committees. Deputies will be able to access the agenda they need and any event on the agenda, to download and comment on documents related to events included in the agenda;

- **The agenda of the meetings of the Permanent Bureau of the PRM** – organizing the events in the agenda of the meetings of the Permanent Bureau of the PRM. Deputies will be able to access the agenda they need on any event on the agenda, to download and comment on documents related to events included in the agenda.

- **Statistical data about deputies** – showing reports, statistical data and KPI about the work of each deputy of the PRM and also access documents related to their work at the PRM.

4.6.   *Reporting, Audit and Statistics for the Official Website of the PRM*

The official website of the PRM will have functionalities ensuring the audit/logging widely used in the industry. The website will be configurable to log technical and business events.

The information system will generate automatically documents based on pre-defined templates. Certain types of web documents, which will be configurable depending on the peculiarities of usage, will be associated with certain pre-defined templates. When such a document is created, the user of the information system must be able to specify certain information and the system will automatically fill in the template corresponding to the type of document.

The official website of the PRM will distinguish 6 categories of reports:

- **Thematic information categories** – depending on the stereotype used (the template attached to the category), the official website of the Parliament of the Republic of Moldova will extract information from the database and will generate the document presenting this information as well as presenting metadata related to documents and ensuring access to search and navigation tools in the document displayed to the *Internet User*;

- **Performance of deputies** – that will contain statistical data on the work and activities of deputies in the PRM (legislative initiatives, voting, amendments, etc.) allowing itemization of KPI displayed up to specific information object level related to the indicator;

- **Monitoring reports** – a category of reports for decision makers from the *Parliament of the Republic of Moldova* used to determine the way authorized users should interact with the *Content Management System* of the website www.parlament.md. This category of reports will organize and display the content of log files used to analyze and anticipate the vulnerabilities of the information system;

- **Internal statistical reports –** contain internal statistical data for analyzing the population of the official website of the Parliament of the Republic of Moldova (frequency of access, geographic distribution of *Internet Users,* platforms used by *Internet Users*, etc.);

- **Performance reports** – it is a type of static reports (usually physically implemented in the content of the information system) used for the audit and analysis of the information content of the official website of the Parliament of the Republic of Moldova (*for example: brief reports on categories of documents stored on the official website of the PRM, report on the popularity of categories or documents from the official website of the PRM,* number of comments and messages sent by *Internet Users,* etc.).

- **Reports generated using the public interface** – it is a category of reports implemented to ensure transparency of the *Parliament of the Republic of Moldova. Internet Users* will be able to use a mechanism to generate certain types of reports through the public web interface of the *PRM* for the purpose of assessing legislative activities of deputies: legislative initiatives, attendance, etc.; the work of Parliamentary fractions: legislative initiatives, attendance, voting statistics; the activities of the entire legislature, etc.).

Taking into account the strong mechanisms provided by *Google,* we believe it is adequate to integrate *Google Analytics* at the same time as the internal statistical analysis system for the interaction of *Internet Users* with the official website of the PRM. This will provide strong alternatives of generating statistical data on the use of the resources of the website (http://www.parlament.md).

5. Requirements for the Information System

5.1. Functional Requirements for the Information System

5.1.1 UC01: Extract RSS feeds

The functional requirements related to extracting RSS feeds from the content of the official website of the PRM are defined in Table 5.1.

Table 5.1. The functional requirements for the use case UC01

Identifier	Obligatoriness	Description of functional requirements
FR 01.01.	M	The system shall have a mechanism for extracting RSS feeds from the content of the official website of the PRM.
FR 01.02.	M	Users will have a mechanism for configuring RSS feeds.
FR 01.03.	M	The structure classifier of the official website of the PRM will be used to define the principles of extracting RSS feeds.
FR 01.04.	M	Users will be able to choose the degree of aggregation of RSS feeds (in case of choosing a general category from the classifier, all feeds of subordinated categories will be sent).
FR 01.05.	M	Any structural page of the official website of the PRM will contain a reference to the RSS feed configured for the category of list to which the page corresponds.

5.1.2 UC02: Explore content

The functional requirements related to exploring the content of the official website of the PRM are defined in Table 5.2.

Table 5.2. Functional requirements for the use case UC02

Identifier	Obligatoriness	Description of functional requirements
FR 02.01.	M	The official website of the PRM will provided users with an interface for the exploration of open and restricted fields based on WEB 2 principles.
FR 02.02.	M	The official website of the PRM will provide a responsive interface to explore the content of the official website of the PRM, which will take into consideration the resolution and equipment on which it is accessed.
FR 02.03.	M	The official website of the PRM will make suggestions to exploring its content (emphasize) depending on the rating and popularity of its compartments.
FR 02.03.	M	The official website of the PRM will provide mechanisms for interactively filtering content by metadata values and array of characters.

5.1.3 UC03: Search data

The functional requirements related to searching for data in the content of the official website of the PRM are defined in Table 5.3.

Table 5.3. Functional requirements for the use case UC03

Identifier	Obligatoriness	Description of functional requirements
FR 03.1.01.	M	The official website of the PRM will have the functionality of general search in its content.
FR 03.1.02.	M	General search means there is a formulation of a search query in a special field.
FR 03.1.03.	M	The general search module will be displayed on any content page with public access to the official website of the PRM.
FR 03.1.04.	M	When defining the criterion for general search, users will be able to use logical expressions with searched terms (AND, OR, NOT, LIKE).
FR 03.1.05.	M	The general search module will use morphologic processing of searched items.
FR 03.1.06.	M	The general search module will contain tools to reduce the scope of the search using the metadata system of the official website of the PRM (including the structure).
FR 03.1.07.	M	The results of a general search will be arranged depending on the nature of information found and the parameters configured in the *Content Management System*.
FR 03.1.08.	M	Users will be able to define principles for re-arranging results (for example: alphabetically descending/ascending order, ascending/descending rating etc.).
FR 03.1.09.	M	The official website of the PRM will attach an icon suggestive of the results found depending on their category (legal act, normative act, event in the agenda, PDF, XLS, DOC, HTML, XML document, etc.).
FR 03.2.01.	M	The official website of the PRM will have the functionality of assisted search for its content.
FR 03.2.02.	M	Assisted search will use only visual tools without needing to use the keyboard.
FR 03.2.03.	M	The assisted search principle will be based on the metadata system of the official website of the PRM.
FR 03.2.04.	M	The assisted search is activated by activating the option buttons which will display further options for refining the search (either the button of the option is clicked or the YES/NO option of search is selected).
FR 03.2.05.	M	The official website of the PRM will display scenarios of assisted search depending on the type of metadata selected by the user.
FR 03.2.06.	M	For each stage of refining results, in addition to buttons for assisted search options, the button "ALL RESULTS" will be displayed.
FR 03.2.07.	M	Assisted search will have a visual mechanism for defining the calendar interval of the search, except the calendar or typing the date (a time bar with markings for the beginning and end of the interval that can be visually moved will be used).
FR 03.2.08.	M	For all search regimes, the information system will have a tool for automatically showing a certain number of results on a page, with the option to select the number of items displayed on a page from a pre-defined list.

5.1.4 UC04: Browse information content

The functional requirements related to browsing the information content of the official website of the PRM are defined in Table 5.4.

Table 5.4. Functional requirements for the use case UC04

Identifier	Obligatoriness	Description of functional requirements
FR 04.01	M	The official website of the PRM will have a navigation tool for structural categories for the purpose of quickly finding relevant documents.
FR 04.02.	M	After accessing the structural navigation categories, the official website of the PRM will show a navigation tool similar to a search directory (where the structure tree corresponds with the structure of the official website of the PRM).
FR 04.03.	M	Content documents will be located in the leaf categories of the structure tree of the official website of the PRM.
FR 04.04.	M	The official website of the PRM will display structure references to show the current hierarchical level of the site.
FR 04.05.	M	Structure references will have hypertext references allowing navigation to hierarchically superior levels to the current category.

5.1.5 UC05: View/download documents

The functional requirements related to viewing or downloading documents posted on the official website of the PRM are defined in Table 5.5.

Table 5.5. Functional requirements for the use case UC05

Identifier	Obligatoriness	Description of functional requirements
FR 05.01	M	The official website of the PRM will allow viewing multimedia documents in FLASH, VIDEO, AUDIO, IMAGINI GRAFICE format.
FR 05.02	M	For traditional documents in DOC/DOCX, PDF, XLS/XLSX, etc. format, the official website of the PRM will have downloading tools.
FR 05.03	M	For all dynamically generated documents in HTML format, the official website of the PRM will provide a print version adjusted to A4 format.

5.1.6 UC06: Sharing documents to social networks

The functional requirements related to sharing documents posted on the official website of the PRM to social networks are defined in Table 5.6.

Table 5.6. Functional requirements for the use case UC06

Identifier	Obligatoriness	Description of functional requirements
FR 06.01	M	The official website of the PRM will allow posting automatically any content on the most popular social networks in the Republic of Moldova (Facebook, Twitter, Google+, Linkedin, Odnoklassniki).

Identifier	Obligatoriness	Description of functional requirements
FR 06.02	M	It will be possible to post dynamically generated documents, categories, documents posted in the content, agendas and events from the agendas, etc. from the official website of the PRM.
FR 06.03	M	The design of postings to social networks will be conceived in such a way as to ensure their differentiation and good perception.

5.1.7 UC07: Post comments, messages, queries

The functional requirements related to feedback from visitors to the official website of the PRM are defined in Table 5.7.

Table 5.7. Functional requirements for the use case UC07

Identifier	Obligatoriness	Description of functional requirements
FR 07.01	M	*Internet Users* will be able to comment on any document contained in a category for which the option to post comments is activated.
FR 07.02	M	A comment is a text message that an authenticated user can post using the comment tool located in content categories of the official website of the PRM for which the option to post comments is activated.
FR 07.03	M	Depending on the information space to which the commented content element of the official website of the PRM belongs, the *Content Manager* of the respective space and the *System Administrator* will have access to the comment.
FR 07.04	M	*The System Administrator* will have access to any comment posted in any content category of the official website of the PRM.
FR 07.05	M	A copy of the comment can be sent automatically to the email address of the *Content Manager* (each *Content Manager* will configure their email address for receiving comments) in case of configuring this preference.
FR 07.06	M	The official website of the PRM will inform users with category administration roles about posted comments.
FR 07.07	M	The notification about receiving a new comment for review will be displayed on the dashboard of the *Content Manager*.
FR 07.08	M	A comment posted by an authenticated user will contain the following categories of data and metadata: ■ date of posting comment; ■ identification data of the commenter; ■ email address of the commenter; ■ physical location (IP address and geographical position) from which the comment was sent; ■ identification data of the addressee of the comment; ■ commented content element; ■ URL reference to the commented content element; ■ the comment.

Identifier	Obligatoriness	Description of functional requirements
FR 07.09	M	*Internet Users* will have feedback forms to send suggestions (for the categories where this template is to be applied).
FR 07.10	M	The official website of the PRM will save the feedback message and will automatically send an email notification to the relevant *Content Manager*.
FR 07.11	M	Depending on the information space to which the feedback form belongs, the *Content Manager* will have access to this message.

5.1.8   UC08: Use personal cabinet

The functional requirements related to using personal cabinets of *Deputies* on the official website of the PRM are defined in Table 5.8.

Table 5.8. Functional requirements for the use case UC08

Identifier	Obligatoriness	Description of functional requirements
FR 08.01	M	The interface of the personal cabinet of a *Deputy* will be optimized to be accessed from tablets or smartphones with touch screens.
FR 08.02	M	Authentication is necessary to access the personal cabinet of a *Deputy*.
FR 08.03	M	The system will allow authentication of *Deputies* through the *M-Pass service*, active directory and user_name+password.
FR 08.04	M	The official website of the PRM will have a search/filtering tool in all compartments of a personal cabinet.
FR 08.05	M	*Deputies* will be able to extract the content of any data grid of the compartments of the personal cabinet in an external file in PDF, XLS or CSV format.
FR 08.06	M	The official website of the PRM will ensure *Deputies* with the functionality of configuring preferences for their personal cabinets.
FR 08.07	M	*Deputies* will be able to display, hide, and order the compartments of their personal cabinets.
FR 08.08	M	*Deputies* will be able to configure the strategy for receiving email notifications.
FR 08.09	M	*Deputies* will be able to configure events for which to receive email notifications.
FR 08.10	M	*Deputies* will be able to define the time interval during which they want to receive notifications (including the time zone).
FR 08.1.01	M	*Deputies* will be able to access the agendas of the plenary sessions of the PRM through their personal cabinet.
FR 08.1.02	M	The events of the plenary sessions of the PRM will be grouped by session and calendar date.
FR 08.1.03	M	*Deputies* will be able to view and access events of plenary sessions from a tabular list with sorting and filtering options or from a calendar.

Identifier	Obligatoriness	Description of functional requirements
FR 08.1.04	M	After accessing an event on the agenda of a plenary session, the system will provide options for viewing / downloading related documents (provided that there are corresponding access rights).
FR 08.1.05	M	The agenda of the plenary sessions included in the personal cabinets of deputies will have an area were all events close to the current date and hour will be displayed (the interval of time can be configured).
FR 08.2.01	M	The personal cabinets will provide *Deputies* access to the agenda of the meetings of parliament committees of which they are members.
FR 08.2.02	M	The events of the agendas of Parliament Committees will be grouped by committee (if a deputy is a member of several committees), meetings and calendar date.
FR 08.2.03	M	*Deputies* will be able to view and access the events on the agenda of committees from a tabular list with sorting and filtering options or from a calendar.
FR 08.2.04	M	After accessing an event on the agenda of a parliament committee, the system will provide options for viewing / downloading related documents (provided that there are corresponding access rights).
FR 08.2.05	M	The agenda of the meetings of the parliament committees included in the personal cabinets of deputies will have an area where all events close to the current date and hour will be grouped and displayed (the interval of time can be configured).
FR 08.3.01	M	The personal cabinets will provide *Deputies* access to the agenda of the meetings of the Permanent Bureau of the PRM (if they are members).
FR 08.3.02	M	The events on the agenda of meetings of the Permanent Bureau of the PRM will be grouped by meetings and calendar dates.
FR 08.3.03	M	*Deputies* will be able to view and access the events on the agenda of the meetings of the Permanent Bureau of the PRM from a tabular list with sorting and filtering options or from a calendar.
FR 08.3.04	M	After accessing an event on the agenda of the Permanent Bureau of the PRM, the system will provide options for viewing / downloading related documents (provided that there are corresponding access rights).
FR 08.3.05	M	The agenda of the meeting of the Permanent Bureau of the PRM included in the personal cabinets of deputies will have an area where all events close to the current date and hour will be displayed (the interval of time can be configured).
FR 08.4.01	M	The system will provide to *Deputies* the option to post comments to documents related to events in the agendas.
FR 08.4.02	M	*Deputies* will be able to post 2 categories of comments to documents related to events in the agendas: ■ internal use note visible only to the deputy that posted it; ■ comments visible to all deputies with access to the respective agenda;

Identifier	Obligatoriness	Description of functional requirements
FR 08.4.03	M	The system will provide the functionality of removing comments. Only the author of the comment and the *System Administrator* will be entitled to remove a comment.
FR 08.5.01	M	*Deputies* will be able to configure the compartments and content of the dashboard (extracting compartments of personal cabinet and define the number of displayed elements, etc.).
FR 08.5.02	M	The official website of the PRM will allow using the homepage of the personal cabinet of a *Deputy* as a dashboard.
FR 08.5.03	M	The dashboard will display information from the compartments requested by users (in the option of configuring personal cabinets).
FR 08.5.04	M	The dashboard will contain a compartment implicitly designed to display alerts on critical events (*for example: an event from the agenda will happen soon*).
FR 08.5.05	M	The dashboard will supply a reference for direct access to the details of elements of the compartments of the personal cabinet displayed on the dashboard.
FR 08.5.06	M	The dashboard will allow viewing notifications received by a *Deputy* and sent by the official website of the PRM.
FR 08.5.07	M	All notifications related to a *Deputy* will be stored in their personal cabinet.
FR 08.5.08	M	*Deputies* will be able to filter, order and view notifications.
FR 08.6.01	M	The personal cabinet of a *Deputy* will provide a tool for generating statistical reports related to the work of the *Deputy*.
FR 08.6.02	M	*Deputies* will be able to generate summary reports on their work at the PRM at present or in the past.
FR 08.6.03	M	*Deputies* will be able to generate analytical reports on agendas of their activities.
FR 08.6.04	M	The bidder will configure up to 10 reports for the activities of *Deputies* defined by the Beneficiary.
FR 08.7.01	M	The personal cabinet will provide *Deputies* with access to the agenda of their events.
FR 08.7.02	M	Personal events will be grouped depending on date of occurrence.
FR 08.7.03	M	The personal agenda of a deputy will include events from all agendas defined on the official website of the PRM where the deputy is included and all personal events of a deputy.
FR 08.7.04	M	*Deputies* will be able to edit personal events.
FR 08.7.05	M	It will be possible to define the metadata of each personal event, to attach images and files.
FR 08.7.06	M	*Deputies* will be able to view and access events from personal agendas from a tabular list with sorting and filtering options or from a calendar.
FR 08.7.07	M	After accessing an event on the personal agenda of a deputy, the system will provide options for viewing / downloading related

Identifier	Obligatoriness	Description of functional requirements
		documents (provided that there are corresponding access rights).
FR 08.7.08	M	The agenda of the meetings of a deputy will have an area where all events close to the current date and time will be displayed and grouped (the interval of time can be configured).

5.1.9 UC09: Receive notifications

The functional requirements related to receiving notifications sent by the official website of the PRM to *Authenticated Users* are defined in Table 5.9.

Table 5.9. Functional requirements for the use case UC09

Identifier	Obligatoriness	Description of functional requirements
FR 09.01.	M	*Authenticated Users* will receive email notifications to the address indicated in their profiles from *M-Pass, Active Directory* or the official website of the PRM.
FR 09.02.	M	*Deputies* will receive notifications depending on the parameters configured in the personal cabinet.

5.1.10 UC10: Manage website content

The functional requirements related to the mechanism of managing the informational content of the official website of the PRM are defined in Table 5.10.

Table 5.10. Functional requirements for the use case UC10

Identifier	Obligatoriness	Description of functional requirement
FR 10.01	M	It will be possible to post content information in the leaf categories of the structural tree of the menu of the official website of the PRM
FR 10.02	M	Based on the template defined by the *System Administrator* for the structure category, the system will have the functionality of administering and posting its content.
FR 10.03	M	Prior to the posting of a content category, its URL for the public interface of the official website of the PRM could be accessed only by authenticated users with roles and rights of administrators.
FR 10.04	M	*The Content Manager* will be able to add, remove, hide, post content documents in content categories.
FR 10.05	M	Only authorized users with roles and rights will be able to access a document with a „hidden" status (not posted) which is being edited.
FR 10.06	M	For any content document, the official website of the PRM will allow attaching a generic image, files, photo galleries, multimedia galleries.
FR 10.07	M	Exclusively visual tools based on WYSIWYG type editors will be used to edit the content documents.
FR 10.08	M	The WYSIWYG editor will allow visual formatting of the text, defining hypertext references, editing tables, downloading and inserting images, downloading and inserting hypertext references to files, etc.

Identifier	Obligatoriness	Description of functional requirement
FR 10.09	M	The official website of the PRM will have the visual functionality of moving one content document with all its related information from one category to another.
FR 10.10	M	The official website of the PRM will suggest compatible categories (depending on their templates) where the relevant document can be moved.

5.1.11 UC11: Manage agendas

The functional requirements related to managing agendas posted or used on the official website of the PRM are defined in Table 5.11.

Table 5.11. Functional requirements for the use case UC11

Identifier	Obligatoriness	Description of functional requirements
FR 11.01	M	The official website of the PRM will have a dynamic tool for managing agendas.
FR 11.02	M	4 categories of agendas will be posted on the official website of the PRM: ■ agendas of deputies; ■ agendas of plenary sessions; ■ agendas of parliament committees; ■ agendas of ad-hoc committees or working groups; ■ agendas of the Permanent Bureau of the PRM; ■ agendas of the PRM (compilation of all events from the agendas listed above).
FR 11.03	M	The official website of the PRM will allow for the agendas of parliamentary committees to be dynamically configures for as many agendas as there are committees (including special committees).
FR 11.04	M	The official website of the PRM will allow defining all users authorized with full access to the content of each agenda.
FR 11.05	M	An agenda can be administered by a *System Administrator* or a *Content Manager* who received this right.
FR 11.06	M	An officer of the entity of the agenda can serve as an agenda content manager (*for example, an officer of the PRM Secretariat who is a member of the committee*) or a deputy that works in the entity for which the agenda was prepared. The system will allow several users with the role of agenda administrators.
FR 11.07	M	An agenda can contain events inserted explicitly in the agenda (defined only for the agenda) or taken up from the content of the official website of the PRM.
FR 11.08	M	The following can be taken up from the content of the official website of the PRM: press releases, normative acts, legislative acts, other types of documents.
FR 11.09	M	Taking up documents from content means the automated creation

Identifier	Obligatoriness	Description of functional requirements
		of a link to them (ensuring direct access from the event on the agenda). However, additionally, a formula for entering an event specific only for the agenda will be developed.
FR 11.10	M	Once a normative or legislative document is placed on an agenda, it will automatically change its status (for example: when including a draft law on the agenda of plenary sessions, it will change status from "reviewed by committee X" to „reviewed by the plenary session of the PRM").
FR 11.11	M	The official website of the PRM will allow defining the status of an event included in the agenda as public of private.
FR 11.12	M	Only authorized users attached to the agenda have access to private events (*for example: only deputies of a parliament committee*).
FR 11.13	M	Only "public" status agendas and events will be posted on the official website of the PRM.
FR 11.14	M	The system will allow publishing general details about the agendas or events with restricted access (general information about the agenda and its events) for users with public access.
FR 11.14	M	After an agenda is posted or a previously posted agenda is updated, the official website of the PRM will automatically notify authorized users related to the agenda.
FR 11.15	M	The official website of the PRM will use events from agendas of PRM plenary sessions, parliament committee and Permanent Bureau meetings to generate a consolidated agenda of the PRM and post it on the public access interface (*frontend*), which will provide a calendar, search/filtering tools necessary to rapidly find and access relevant events.

5.1.12 UC12: Manage legislative/normative acts

The functional requirements related to managing normative or legislative documents reviewed or passed by the PRM are defined in Table 5.12.

Table 5.12. Functional requirements for the use case UC11

Identifier	Obligatoriness	Description of functional requirements
FR 12.01	M	The official website of the PRM will have a separate tool for managing legislative and normative acts reviewed by the PRM.
FR 12.02	M	All metadata of the current version of the official website of the PRM will be used to define these categories of documents.
FR 12.03	M	Normative and legislative documents will be managed through specific work flows.
FR 12.04	M	Work flows will define how an act goes through various stages (*for example: from the Parliament Committee to the Plenary Session*) or the steps of the same technological stage (development of new version of the document).
FR 12.05	M	The official website of the PRM will contain a tool for the management of various versions of normative and legislative acts.

Identifier	Obligatoriness	Description of functional requirements
FR 12.06	M	The system will save and display all actions related to updating normative and legislative acts, ensuring traceability.
FR 12.07	M	The system will allow defining public or restricted access to the legislative or normative acts reviewed by the PRM.
FR 12.08	M	Acts with the status of restricted access will be accessible only through personal cabinets of deputies.
FR 12.09	M	Acts with public status will be displayed automatically on the public interface of the official website of the PRM.
FR 12.10	M	Normative and legislative acts reviewed by the PRM will be conceptualized in the form of a file where several documents will be inserted (versions, opinions, minutes, etc.).
FR 12.11	M	The official website of the PRM will allow inserting references to passed legislative acts from the site http://lex.justice.md.

5.1.13 UC13: Manage comments/messages

The functional requirements related to processing comments received from the users of the official website of the PRM are defined in Table 5.13.

Table 5.13. Functional requirements for the use case UC13

Identifier	Obligatoriness	Description of functional requirements
FR 13.01	M	The official website of the PRM will notify users with administrative roles about all new comments and messages sent by *Internet Users*.
FR 13.02	M	The official website of the PRM will place in the administration space of each user with an administrative role the comments related to the information managed by such administrator and sent by *Internet Users*.
FR 13.03	M	Users with administrative roles of the official website of the PRM will have a convenient tool to access the list of comments sent to their address.
FR 13.04	M	A comment on the official website of the PRM can have 2 statuses that the user with administrative role can change (change it from one to the other): ■ new comment; ■ processed comment.
FR 13.05	M	Initially, all comments posted through the official website of the PRM have the status "*New comment*".
FR 13.06	M	The official website of the PRM will notify administrative users through the *Dashboard* about new comments or unprocessed comments.
FR 13.07	M	Administrative users receiving a comment will have options to remove the comment.

Identifier	Obligatoriness	Description of functional requirements
FR 13.08	M	The management of a comment consists of the following: administrative user accesses the comments, reads it, removes it or changes its status (in „*Posted comment*").
FR 13.09	M	A comment can be considered processed if it was removed or when administrative users changed its status to „*Processed Comment*".
FR 13.10	M	The administrative user receiving the comment will have options to edit and send an email reply (by activating the reference with the email address of the sender of the comment, a form for writing and sending an email message will be activated).
FR 13.11	M	Administrative users shall be able to configure the email address to which all new comments will be sent automatically.

5.1.14 UC14: Use dashboard

The functional requirements related to the dashboard for administrative users of the official website of the PRM are defined in Table 5.14.

Table 5.14. Functional requirements for the use case UC14

Identifier	Obligatoriness	Description of functional requirements
FR 14.01	M	The component *Backend* of the official website of the PRM will provide administrators with a *Dashboard* through which they will be notified about the important business events and rapidly access their details.
FR 14.02	M	The following categories of business events will be listed on the *Dashboard*: ■ system notifications; ■ unprocessed comments; ■ content information waiting approval for posting.
FR 14.03	M	*The Dashboard* of users with *Content Manager* role will display only business events related to the space administered by each Content Manager and notifications.
FR 14.04	M	*The Dashboard* of *System Administrators* will display business events related to the official website of the PRM and their notifications.
FR 14.05	M	*The Dashboard* will group business events and display them in the form of indicators with aggregated values (*for example: System notifications unread -20; New comments – 41; Events from the agenda to be approved – 25*) containing hypertext references to access details.
FR 14.06	M	When accessing hypertext references related to aggregated values of the business events categories, the official website of the PRM will supply a list of the respective events and their processing functionalities.
FR 14.07	M	The official website of the PRM will have the functionality of configuring the appearance and content of the *Dashboard*.

5.1.15 UC15: Manage structure

The functional requirements related to the mechanism of managing the structure of the official website of the PRM are defined in Table 5.15.

Table 5.15. Functional requirements for the use case UC15

Identifier	Obligatoriness	Description of functional requirements
FR 15.01	M	The official website of the PRM will contain a mechanism for defining and managing structural categories (create, modify, post, hide, remove).
FR 15.02	M	A structural category can contain an unlimited number of subordinated categories.
FR 15.03	M	It will be possible to divide the content of each category into three segments.
FR 15.04	M	The left and right segments are reserved for dynamic information and banners. The central segment – for content information.
FR 15.05	M	If the information located in the left segment is not defined, the central segment will be extended over the left segment. If the information located in the right segment is not defined, the central segment will be extended over the right segment. If the information located in the left and right segments is not defined, the central segment will be extended over the entire page.
FR 15.06	M	The official website of the PRM will have a tool to reorganize its structure.
FR 15.07	M	Reorganizing the structure of the official website of the PRM will be based on exclusively visual mechanisms of moving subcategories with their entire content into other categories.
FR 15.08	M	The official website of the PRM will suggest compatible categories (depending on their templates) to which a relevant sub-category can be moved.
FR 15.09	M	*The System Administrator* will be able to define the design preferences in case of displaying the content of a category on the public interface of the official website of the PRM *(for example: at least the color range and the style of display)*.
FR 15.10	M	For any category of content, the *System Administrator* will be able to activate/deactivate generation of RSS feeds, activate/hide the form for posting comments, activate/hide generation of an alphabetized index of the content, activate/hide generation of archive references, activate/hide the option of assigning a rating, activate/hide the display of the date of posting and bibliographic elements, etc.
FR 15.11	M	It will not be possible to delete a category of content if it contains at least one content document.
FR 15.12	M	The official website of the PRM will have a tool for creating groups of banners.
FR 15.13	M	It will be possible to indicate images, suggestive text, an URL reference for each banner from the group.
FR 15.14	M	The mechanism for managing groups of banners will allow defining the principles of presenting banners in a group (all in the mentioned

Identifier	Obligatoriness	Description of functional requirements
		order, number N from M randomly, number M from N with automated replacement after a certain period of time).
FR 15.15	M	*The System Administrator* will be able to post groups of banners in the entire content of the official website of the PRM (dynamic blocks on the homepage, specific categories and subcategories with content, etc.).

5.1.16 UC16: Authorize publications/changing content

The functional requirements related to the mechanism of approving publication of content by administrator users of the official website of the PRM are defined in Table 5.16.

Table 5.16. Functional requirements for the use case UC16

Identifier	Obligatoriness	Description of functional requirements
FR 16.01	M	Any document, agenda, information content must go through an approval procedure in order to be published/posted regardless of the user who created the content (the user that posts the content can also have the right to approve it).
FR 16.02	M	The official website of the PRM will display only content approved for publishing on the public interface.
FR 16.03	M	Only *Content Users* with specific rights have the right to authorize publishing of information in the content of the official website of the PRM (including their own content).
FR 16.04	M	The official website of the PRM will allow the right to approve content for posting to specific users of the *Content Managers* group.
FR 16.05	M	Content proposed for publishing can be accessed from the public interface of the official website of the PRM only by administrator users of the respective information space and by all users with System Administrator roles.
FR 16.06	M	Users having the right to approve posting of content shall have in the administration space of the official website of the PRM an area where the number of content documents submitted for approval of posting will be displayed depending on their type (*for example: 10 legislative acts, 40 content documents etc.*).
FR 16.07	M	By accessing the number of documents proposed for posting, the user with the right to approve posting of documents will see the list of all documents proposed for posting with the option of previewing and approving/rejecting their posting.
FR 16.08	M	Approval for publication consists of changing the status of the content proposed for publishing (by activating a special checkbox).
FR 16.09	M	Rejecting the posting consist of changing the status of the proposed content (by activating a special checkbox), with the possibility to insert the reason for rejection.
FR 16.10	M	The official website of the PRM will register the user who approved the posting of each approved content.

Identifier	Obligatoriness	Description of functional requirements
FR 16.11	M	The official website of the PRM will notify the issuer of the content proposed for posting about the authorization to publish or reject the content.

5.1.17 UC17: Configure Homepage

The functional requirements related to the mechanism of configuring the Homepage of the official website of the PRM are defined in Table 5.17.

Table 5.17. Functional requirements for the use case UC17

Identifier	Obligatoriness	Description of functional requirements
FR 17.01	M	The official website of the PRM will have a mechanism for configuring the appearance of the homepage.
FR 17.02	M	*The System Administrator* will have a tool to activate/deactivate the language of the official website of the PRM.
FR 17.03	M	*The System Administrator* with have a tool to define the elements (display/hide/order) posted on the homepage (voting questionnaires, dynamic groupings, KPI, banners, etc.).
FR 17.04	M	The official website of the PRM will allow defining the areas for posting elements (left segment, central segment and right segment). Implicitly, only the central segment will be used.
FR 17.05	M	*The System Administrator* will have a tool to configure and post/hide voting questionnaires on the homepage of the official website of the PRM.
FR 17.06	M	*The System Administrator* will have a tool to configure and post/hide dynamic groupings on the homepage of the official website of the PRM.
FR 17.07	M	*The System Administrator* will have a tool to configure and post/hide groups of banners on the homepage of the official website of the PRM.
FR 17.08	M	The official website of the PRM will allow posting KPI indicators on the homepage.
FR 17.09	M	The official website of the PRM will allow configuring the URL reference of a KPI indicator, which will provide access to the main details used to generate such indicators.
FR 17.10	M	Only a visual tool (drag & drop with the mouse in the segment and order wanted) will be used to place elements in the segments of the homepage of the official website of the PRM.
FR 17.11	M	The official website of the PRM will have a mechanism to customize the appearance of the homepage depending on the specific calendar date (*for example: customizing the website for official holidays or important current events*).

5.1.18 UC18: Configure PRM interactive billboard

The functional requirements related to the mechanism of configuring the interactive billboard of the PRM are defined in Table 5.18.

Table 5.18. Functional requirements for the use case UC18

Identifier	Obligatoriness	Description of functional requirements
FR 18.01	M	The official website of the PRM will have a mechanism for configuring the user interface of the interactive billboard of the PRM.
FR 18.02	M	*The System Administrator* will have a tool to define elements (display/hide/order) posted on the interface of the interactive billboard of the PRM (navigation menu, categories of content, dynamic groupings, KPI, groups of banners, etc.).
FR 18.03	M	The official website of the PRM will allow defining the areas of publishing elements (left segment, central segment and right segment) of the user interface of the interactive billboard of the PRM. Implicitly, only the central segment will be used.
FR 18.04	M	*The System Administrator* will have a tool to configure and post/hide dynamic groupings on the homepage of the interface of the interactive billboard of the PRM.
FR 18.05	M	*The System Administrator* will have a tool to configure and post/hide groups of banners on the interactive billboard of the official website of the PRM.
FR 18.06	M	The official website of the PRM will allow posting KPI indicators on the homepage the user interface of the interactive billboard of the PRM.
FR 18.07	M	The official website of the PRM will allow configuring the URL reference of a KPI indicator, which will provide access to the main details used to generate such indicators.
FR 18.08	M	Only a visual tool (drag & drop with the mouse in the segment and order wanted) will be used to place elements in the segments of the homepage of the user interface of the interactive billboard of the PRM.
FR 18.09	M	The official website of the PRM will have a mechanism to customize the appearance of the homepage of the interactive billboard of the PRM depending on the specific calendar date (*for example: customizing the website for official holidays or important current events*).

5.1.19 UC19: Configure information blocks

The functional requirements related to the mechanism of configuring dynamic blocks of information of the official website of the PRM are defined in Table 5.19.

Table 5.19. Functional requirements for the use case UC19

Identifier	Obligatoriness	Description of functional requirements
FR 19.01.	M	The official website of the PRM will have a mechanism for defining

Identifier	Obligatoriness	Description of functional requirements
		and managing blocks of information (create, modify, post, hide, remove).
FR 19.02.	M	An information block is a mechanism of organizing and presenting information with a common logic (*for example: list of news, list of legislative acts, list of useful references*).
FR 19.03.	M	The official website of the PRM will not limit the number of information blocks that a *System Administrator* can define.
FR 19.04.	M	Information blocks will be defined for the homepage and each content category of the official website of the PRM.
FR 19.05.	M	When defining a new information block the following shall be entered: ■ the name of the block in Romanian, English and Russian; ■ hypertext reference to the title of the block (optional); ■ design preferences for the block (color, border, etc.). ■ the segment of placing the block (left, center, right).
FR 19.06.	M	It will be possible to do the following in a block of information: ■ enter any text with images edited in a WYSIWYG editor; ■ automatically enter N elements of specified categories; ■ automatically enter N elements by popularity; ■ explicitly enter elements of specified categories; ■ insert groups of advertising banners; ■ insert user authentication components; ■ insert combined content (text, automatically, explicitly, banners, rating).
FR 19.07.	M	Removing constituent elements in a block (except the text directly edited in the block) does not imply their physical removal from the content category from which they were taken.
FR 19.08.	M	For the elements inserted in a block of information, the way to display such elements will be specified using the following properties: ■ activate/hide block design elements (title, color, border etc.); ■ display/hide the number of comments with access links; ■ display/hide the number of accesses to the element; ■ display/hide the rating of the element; ■ display/hide the date of posting the element; ■ display/hide details of the element (summary, author, etc.); ■ display/hide suggestive image for the element; ■ display/hide notification that the element is new.
FR 19.09.	M	The order of display will be indicated for elements inserted in a block of information: ■ the order explicitly defined by the *System Administrator*;

Identifier	Obligatoriness	Description of functional requirements
		■ alphabetical order; ■ by date of posting elements; ■ by rating; ■ by number of accesses.
FR 19.10.	M	An information block can be posted in any segment of the official website of the PRM (left, central and right).
FR 19.11.	M	It will be possible to define the number of blocks placed in a row for the central segment.
FR 19.12.	M	If the right or left segments are not used, blocks from the central segment will cover the unused space (left, right or both segments).
FR 19.13.	M	The official website of the PRM will use only a visual tool to place blocks of information on the website (using a drag & drop tool to place the block in the required place and order).

5.1.20 UC20: Manage metadata

The functional requirements related to the mechanism of managing classifiers, nomenclatures and metadata on the official website of the PRM are defined in Table 5.20.

Table 5.20. Functional requirements for the use case UC20

Identifier	Obligatoriness	Description of functional requirements
FR 20.01.	M	The system will have a mechanism for managing nomenclatures, classifiers containing the metadata of the database.
FR 20.02.	M	If necessary, the classifiers managed by the *National Bureau of Statistics* (*CAEM Rev.2, CUATM, CFOJ, CFP*, etc.) and other official classifiers managed by *CPA* and *LPA* of the Republic of Moldova will be integrally taken over.
FR 20.03.	M	The right to make changes in the official classifiers will be restricted. For this category of classifiers, changes will be made only by the CPA that manages them.
FR 20.04.	M	The information system will have a tool to define and dynamically administer the internal system of nomenclature and metadata.
FR 20.05.	M	The system will not allow removing a category of metadata if it is used at least in one entry in the database.
FR 20.06.	M	The system of metadata will include the organizational chart of the PRM (subdivisions and functions) and the profiles of deputies.
FR 20.07.	M	The official website of the PRM will allow storing the entire traceability of a deputy (all legislatures in which they were elected, committees of which they were members, the functions fulfilled for each legislature, participation to all voting sessions, etc.).
FR 20.08.	M	The system of metadata will allow configuring the profile of each deputy which will allow deputies to have access to their personal cabinet.

5.1.21 UC21: Manage users, roles and rights.

The functional requirements related to managing roles of users with administrative functions for the content of the official website of the PRM are defined in Table 1.23.

Table 5.21. Functional requirements for the use case UC21

Identifier	Obligatoriness	Description of functional requirements
FR 21.01	M	The official website of the PRM will integrate the information subsystem *M-Pass* from the *MCloud* for the purpose of authenticating users.
FR 21.02	M	The official website of the PRM will integrate the solution Active Directory of the PRM to authenticate users.
FR 21.03	M	The official website of the PRM will have its own solution for authentication by user_name+password.
FR 21.04	M	*The System Administrators* will be able to define the preference of the acceptable authentication mechanism (only one from three or multi-criteria selection).
FR 21.05	M	The official website of the PRM will have a flexible and dynamic mechanism to define user roles and rights for content managers.
FR 21.06	M	The mechanism for defining roles and rights will allow specifying access rights at the level of options of the user and information content level of the official website of the PRM.
FR 21.07	M	The official website of the PRM will allow attaching several roles to one user.
FR 21.08	M	The official website of the PRM will contain an implicit category of users – superadministrators - created by the developer and also its credentials will be submitted at delivery.
FR 21.09	M	*System Administrators* will be able to assign/withdraw roles to any user of the official website of the PRM.
FR 21.10	M	*System Administrators* will indicate the spaces where administrator users can post content.

5.1.22 UC22: Generate reports

The functional requirements related to the mechanism of extracting activity reports from the official website of the PRM are defined in Table 5.22.

Table 5.22. Functional requirements for the use case UC22

Identifier	Obligatoriness	Description of functional requirements
FR 22.01.	M	The official website of the PRM will have flexible reporting so that administrative users manage the system.
FR 22.02.	M	The reporting mechanism must be able to provide a series of management, statistical and ad-hoc reports so that administrative users can monitor the activity and status of the system.
FR 22.03.	M	This reporting is necessary for the entire system, including:

Identifier	Obligatoriness	Description of functional requirements
		■ nomenclatures and classifiers; ■ entries to the database; ■ activities of users; ■ access permission and security.
FR 22.04.	M	The system must provide to administrative users a standard number of configurable reports and it must be easy to authorize the generation of ad-hoc reports, if needed.

FR 22.05.	M	The system will supply a set of pre-defined reports (usually, physically embedded in the content of the information system) designed for the auditing and analysis of the activities of the official website of the PRM. The following could be included in this category of reports:
		    ■ performance report of the official website of the PRM;
		    ■ performance report of a deputy;
		    ■ performance report of a *Content Manager*;
		    ■ statistics of accessing the official website of the PRM.

FR 22.06.	M	The developer will integrate in the content of the official website of the PRM at least 20 categories of statistical reports with aggregation levels.
FR 22.07.	M	The developer will provide the OLAP tool of generating ad-hoc reports based on the metadata system of the official website of the PRM.
FR 22.08.	M	A user viewing a report of the system must be able to export it to an external file.
FR 22.09.	M	The official website of the PRM will integrate *Google Analytics* for the purpose of collecting primary data and extracting statistical data on using the compartments of the official website of the PRM.

5.1.23 UC23. Other management activities

The functional requirements related to activities of administering the official website of the PRM are defined in Table 5.23.

Table 5.23. Functional requirements for the use case UC23

Identifier	Obligatoriness	Description of functional requirements
FR 23.01.	M	The system must allow administrators to take up, display and reconfigure the parameters of the official website of the PRM and system settings.
FR 23.02.	M	The system must allow dynamic administration of all nomenclatures and classifiers and other entities related to the system of metadata of the official website of the PRM.
FR 23.03.	M	Administrators manage users and groups accessing the administrative space of the official website of the PRM.
FR 23.04.	M	The system must allow administrators to:

Identifier	Obligatoriness	Description of functional requirements
		■ assign functions and roles to users;
		■ assign a role to one or more users.
FR 23.05.	M	Administrators manage the profile of each user with access to the administrative space of the official website of the PRM.
FR 23.06.	M	The administrator formulates access rules to the software interface and database content (roles and access rights) in the profile of users authorized to access the administrative space of the website.
FR 23.07.	M	Administrators access system logs.
FR 23.08.	M	Administrators make backup copies and restore the functionality of the system based on these copies.
FR 23.09.	M	Administrators ensure the good operation of all functionalities of the official website of the PRM.

5.1.24 UC24: Notify users

The functional requirements related to the notification mechanism of the official website of the PRM are defined in Table 5.24.

Table 5.24. Functional requirements for the use case UC24

Identifier	Obligatoriness	Description of functional requirement
FR 24.01.	M	The official website of the PRM will have 2 notification strategies: by email or placing the notification in the personal cabinet/dashboard.
FR 24.02.	M	Authenticated users (regardless of their roles) will be able to configure their preferences for the notification tool.
FR 24.03.	M	The official website of the PRM will notify the *Content Manager* with advanced rights about information content submitted for review and approved for posting coming from the *Content Manager*.
FR 24.04.	M	The official website of the PRM will inform a *Deputy* about the agenda of events in which he/she is involved (plenary session, parliament committee, Permanent Bureau of the PRM, meeting, etc.).
FR 24.05.	M	The official website of the PRM will notify *System Administrators* about any issues affecting the performance and availability of the information system.

5.1.25 UC26: Publish statistics, KPI

The functional requirements related to the mechanism of publishing statistic information about the operation of the official website of the PRM (**KPI** indicators) are defined in Table 5.26.

Table 5.25. Functional requirements for the use case UC25

Identifier	Obligatoriness	Description of functional requirements
FR 25.01.	M	The official website of the PRM will systematically produce a notification about its functional condition. If this notification is not received by monitoring systems, they will alert the authorized

Identifier	Obligatoriness	Description of functional requirements
		technical personnel.
FR 25.02.	M	Every 4 hours, the official website of the PRM will publish the total number of normative acts for review posted on the site.
FR 25.03.	M	Every 4 hours, the official website of the PRM will publish the total number of legislative acts for review posted on the site.
FR 25.04.	M	Every 4 hours, the official website of the PRM will publish the total number of normative acts passed during the current month and by the current legislature.
FR 25.05.	M	Every 4 hours, the official website of the PRM will publish the total number of legislative acts passed during the current month and by the current legislature.
FR 25.06.	M	Every 4 hours, the official website of the PRM will update all KPI indicators related to the activities of deputies (number of sessions attended, number of sessions not attended, number of legislative initiatives, etc.).
FR 25.07.	M	The official website of the PRM will instantly publish the number of *Authenticated Users* and the number of *Anonymous Users* currently connected to the official website of the PRM.
FR 25.08.	M	The official website of the PRM will provide a hypertext reference to the value of a KPI, which will also show the disaggregated values of the indicator (list of normative acts under review, list of legislative acts under review, etc.).
FR 25.09.	M	The official website of the PRM will publish all KPI indicators and statistical reports in specialized compartments of the website http://www.parlament.md.
FR 25.10.	M	*System Administrators* will be able to define and post other categories of KPI.
FR 25.11.	M	The developed will configure at least 20 categories of KPI indicators defined by the Beneficiary.

5.1.26 UC26: Logging events

The functional requirements related to the mechanism of logging events on the official website of the PRM are defined in Table 5.26.

Table 5.26. Functional requirements for the use case UC26

Identifier	Obligatoriness	Description of functional requirements
FR 26.01.	M	The information system will contain a tool for logging all events related to using the official website of the PRM.
FR 26.02.	M	*System Administrators* will be able to configure all strategies for logging events related to using the official website of the PRM.
FR 26.03.	M	The official website of the PRM will have a tool for generating reports related to logging events.

5.2. Non-Functional Requirements for the Information System

5.2.1 Overall and Performance Requirements

Overall system and performance requirements are defined by the policies and strategies developed and passed in the Republic of Moldova as well as the *ICT Strategy of the Parliament of the Republic of Moldova* for 2011-2015. It is also important to mention that these acts are based on good sector practices and include many organizational measures, but also a series of technical measures.

Overall system requirements specific for the official website of the PRM are defined in Table 5.27.

Table 5.27. Overall system requirements for the official website of the PRM

Identifier	Obligatoriness	Description of performance requirements
TGEN 001	M	The user interface and the informational content of the official website of the PRM will have 3 linguistic versions: Romanian (implicit), English and Russian.
TGEN 002	M	The Romanian version of the user interface and the information content of the official website of the PRM will use Romanian language diacritic signs.
TGEN 003	M	For level A, the elements of the user interface must comply with the requirements of the *Web Content Accessibility Guidelines (WCAG) 2.0.*
TGEN 004	M	The official website of the PRM will generate content pages taking into account the best optimization SEO practices.
TGEN 005	M	The official website of the PRM will have a user interface adjustable to the device used (computer, tablet, smartphone).
TGEN 006	M	The user interface of the official website of the PRM will maintain (and improve) the functionalities of visualizing profiles of deputies, legislative acts, agendas, etc. (of the entire content migrated from the old version into the new version of the site).
TGEN 007	M	The official website of the PRM will automatically re-scale any image placed in the content depending on system configurations. Re-scaling involves de facto modification of a large image among all images requested from the content of the official website of the PRM.
TGEN 008	M	The official website of the PRM will have a user interface optimized for smartphones and tablets.
TGEN 009	M	The official website of the PRM will integrate in its public interface advanced statistical tools provided by *Google Analytics*.
TGEN 010	M	The official website of the PRM must have integrated global search functions or search by requested values of the system of metadata. The procedures of finding information and entries will be conducted through simple searches (specifying a series of values) or higher complexity searches conducting more accurate filtering of information. Regardless of the nature of information searched, the user will use the same interrogation and finding methods for any compartment of the official website of the PRM.
TGEN 011	M	Browsing and searching for information in the content of the official website of the PRM will be adjusted to ensure maximum comfort in case of using touch screens.

Identifier	Obligatoriness	Description of performance requirements
TGEN 012	M	The user interface of the information system must ensure the filtering of entries complying with search criteria for events on agendas, legislative and normative acts published on the official website of the PRM.
TGEN 013	M	The system will guarantee an aggregated level of services (SLA) with an overall availability of minimum 95%.
TGEN 014	M	The architecture of the official website of the PRM will have at least 3 levels.
TGEN 015	M	The official website of the PRM must have web interfaces for external access.
TGEN 016	M	The official website of the PRM will be based on a service-oriented architecture (SOA).
TGEN 017	M	Potentially variable information in the system (*for example: various parameters, pathways for storing data, connections to external services, classifiers etc.*) will be configurable and will NOT need rebuilding of the system or direct interventions to the database.
TGEN 018	M	The information system will use open standards for communication formats and protocols.
TGEN 019	M	The parts of the official website of the PRM designed for the general public will be technologically neutral (operational systems, Internet browser, etc.).

The performance requirements specific for the official website of the PRM are defined in Table 5.28.

Table 5.28. Performance requirements for the system

Identifier	Obligatoriness	Description of performance requirements
PERF 001	M	The average response time of the server will not exceed 3 seconds from the nominal loading of the system.
PERF 002	M	The system must be able to support the operation of over 300 *System Administrators*, *Content Managers and Deputies*.
PERF 003	M	The system must be able to allow annual access of over 100000 one-time internet users.
PERF 004	M	The system must allow simultaneous operation of minimum 150 *System Administrators*, *Content Managers and Deputies* and up to 10000 Internet users.
PERF 005	M	Every year, over 10000 documents will be entered and processed in the content of the official website of the PRM.
PERF 006	M	Prior to delivering the information system, all performance tests of the official website of the PRM will be conducted.
PERF 007	M	Testing performance will include at least two components: testing the load of the system (load testing) and testing the behavior of the system at high stress (stress testing).

5.2.2 Security and Protection Requirements

The system must comply with the technical requirements for information systems provided in the *Standard of the Republic of Moldova SMV ISO/CEI 27002:2009 Information Technology: Security Techniques. Good Practice Code for the Management of Information Security*.

The information system will comply with all security and protection requirements defined in Table 5.29.

Table 5.29. Security and protection requirements for the official website of the PRM

Identifier	Obligatoriness	Description of security and protection requirements
SR 001	M	The information system guarantees full storage and integrity of the content of the official website of the PRM.
SR 002	M	Public information will be accessible to anonymous users.
SR 003	M	Access to functions provided to unauthenticated users is controlled using protection tools against one or several network nodes over-using the service.
SR 004	M	All fields from the forms filled in by users must be validated by type both by the client and on the server.
SR 005	M	Digital certificates will be used by the system to communicate with other systems for identification purposes.
SR 006	M	Immediately after conducting sensitive transactions, a time stamping service will be used.
SR 007	M	The system will be secured against *OWASP Top 10 vulnerabilities*.
SR 008	M	The system will ensure confidentiality of data sent-received through communication channels.
SR 009	M	Access to the information system is controlled.
SR 010	M	Access to functions provided to internal users is allowed with their authentication using any of the following means: user+password, digital certificate, Active Directory.
SR 011	M	Data is exchanged only through secured channels.
SR 012	M	The actions of users are logged in electronic logs.
SR 013	M	The system issues a periodic signal indicating its functional condition.

5.2.3 Software, Hardware and Communication Requirements

The developer will indicate the cost of licensing all suggested software components as well as the delta of the licensing costs of:

- doubling the number of users;
- doubling the number of processing units (CPUs or CPU cores);
- doubling the number of nodes of this type.

Table 5.30 contains all requirements for software, hardware and communication technologies for the official website of the PRM.

Table 5.30. Software, hardware and communication requirements for the official website of the PRM

Identifier	Obligatoriness	Description of requirements for software, hardware and communications
SHC 001	M	The system must be installed both on dedicated servers and on Cloud solutions.
SHC 002	M	The developer will demonstrate the possibility to install the information system in the *MCloud*.
SHC 003	M	The system will be accessed through communication channels of at least 128kbps.
SHC 004	M	The system will be developed based on platforms widely accepted in the IT sector for which there are specialists in the Republic of Moldova.
SHC 005	M	The system will have strong tools to ensure the security of authentication and authorization procedures of users with mandatory implementation of *Active Directory* technology.
SHC 006	M	It will be possible to virtualize the software-hardware of the system.
SHC 007	M	It is necessary to demonstrate the virtualizing ability by delivering to the Beneficiary an image of the system that can be downloaded and becomes functional with minimum configurations on one of the virtualization solutions existing on the market.
SHC 008	M	The system will be tolerant to errors and provide support for clustering and fail over for the entire platform and its components.
SHC 009	M	It is necessary for the parts of the service exposed to the public to be technologically neuter.
SHC 010	M	Verification will be conducted by using a set of (modern) platforms and the expectation for performance parameters to be similar or better than in the reference configuration.
SHC 011	M	It would be benefic for the developer of the server solution not to limit the Beneficiary to using s specific software platform. It is adequate for the information system to operate on both *Windows* platform and on *Unix* (*Linux, Free BSD, Solaris*, etc.). It would be welcome if the information solution is built using open, nonproprietary solutions specific for web applications (*XML, XSL, XHTML, WSDL, SOAP, LDAP, J2EE*, etc.) for the Beneficiary to be able to develop it further.
SHC 012	D	It is preferable for the Developer to develop the official website of the PRM based on LAMP/XAMP technology.
SHC 013	M	The generic software recommended for operation and interaction with the official website of the PRM is a web browser.
SHC 014	M	The system will be compatible with at least 2 most recent versions of the following web browsers: *Microsoft Internet Explorer, Mozilla Firefox, Google Chrome*, *Safari* and *Opera*.
SHC 015	M	The compatibility with the web browser *Microsoft Internet Explorer* is mandatory.
SHC 016	D	The official website of the PRM will incorporate a Heart-beat service, which will communicate periodically the normal working condition of the system.

Identifier	Obligatoriness	Description of requirements for software, hardware and communications
SHC 017	M	The system will include configurable tools for technical logging.
SHC 018	M	The system is able to produce at least the following levels of technical logging: *info*; *warning*; *critic*; *error*.
SHC 019	M	The developer will list the tools to be used for the technical repair of the system.
SHC 020	M	The developer will prepare tools facilitating system administration functions: ■ starting system components; ■ stopping system components; ■ restarting system components, ■ creating a backup copy of the database, ■ restoring data from the backup copy of the database, ■ refreshing the operational memory of the system.
SHC 021	M	The system will operate in the TCP/IP networks and especially, HTTPS.
SHC 022	M	The developer will suggest other network and utility services necessary for the operation of the system.

5.2.4   Document Requirements for the Information System

The information solution will be accompanied by a full set of documents for the information system covering the compartments included in table 5.31.

Table 5.31. Document requirements for the official website of the PRM

Identifier	Obligatoriness	Description of document requirements of e-Petition
DOC 001	M	The developer will prepare and publish interactive guides included in the administration interfaces of the official website of the PRM in Romanian.
DOC 002	M	The developer will prepare and deliver the user manual in Romanian.
DOC 003	M	The developer will prepare and deliver the administrator guide in Romanian.
DOC 004	M	The developer will prepare and deliver the system installation and configuration guide (which includes at least compilation of code, installation of application, hardware and software requirements, platform description and configuration, application configuration, disaster recovery procedures).
DOC 005	M	The developer will prepare and deliver the technical design of the information system to be used for all development/acceptance activities for the information system (SRS and SDD).
DOC 006	M	The developer will prepare and deliver the architecture documentation of the system with the description of models in UML

Identifier	Obligatoriness	Description of document requirements of e-Petition
		language, which is to include sufficient detailing of architecture in several sections (including the logical and physical model of data).
DOC 007	M	The developer will prepare and deliver the documentation of APIs for integration with other systems.
DOC 008	M	The developer will deliver the technical design updated and supplemented during the development of the information system.
DOC 009	M	The developer will deliver all electronic tools necessary to describe and validate interfaces in WSDL language.
DOC 010	M	The developer will deliver the source code for applications and components developed as part of the project.

5.2.5   Maintenance Requirements for the official website of the PRM

The developer will ensure guarantees and technical help after delivery which includes the requirements described in table 5.32.

Table 5.32. Guarantee and technical support requirements for the official website of the PRM

Identifier	Obligatoriness	Description of guarantee and technical support requirements
GMS 001	M	The developer will provide guarantees and technical support for 24 months after acceptance of the information system.
GMS 002	M	The guarantee and technical support will comply with the national standard SM ISO/CEI 14764:2005 – Information Technology: Software Maintenance.
GMS 003	M	The developer will provide to the Beneficiary a Help Desk service available during all work days of the year.
GMS 004	M	The beneficiary will be able to call the Help Desk service at a domestic phone number (which complies with the phone numeration of the Republic of Moldova).
GMS 005	M	The language of communication with the Help Desk will be Romanian.
GMS 006	M	The Beneficiary will be able to report technical issues alternatively through ticketing, by email or instant messaging.
GMS 007	M	The developer will ensure support for the documentation of technical issues and their traceability for the Beneficiary.
GMS 008	M	The deadline for responding and remedying reported technical issues will not exceed 8 hours from reporting.
GMS 009	M	In case of higher difficulty issues, the remedying deadline will not exceed 72 hours.
GMS 010	M	The developer will demonstrate its capacity to provide post-delivery technical support in accordance with the requirements of GMS 001-GMS 009.

6. The Final Product and Deliverables

The final product (the official website of the PRM) consists of software artifacts and documentation of the system as well as the transfer of knowledge to the holder and administrator of the system.

The artifacts related to the deliverables for the official website of the PRM are indicated in table 6.1.

Table 6.1. Artifacts delivered for the official website of the PRM

Identifier	Obligatoriness	Brief description of artifacts
DELIV 001	M	The entire source code of modules and components necessary to compile the delivered program product.
DELIV 002	M	Relevant information migrated from the database of the current website of the PRM into the new version of the PRM website.
DELIV 003	M	Final product packaged for easy installation in the proposed technological environment.
DELIV 004	M	Technical task/assignment updated and supplemented during development.
DELIV 005	M	Technical design (SRS+SDD).
DELIV 006	M	Documents on configuration and deployment of the system.
DELIV 007	M	User manual (for the Content Managers).
DELIV 008	M	Administrator Manual (including the contingency plan).
DELIV 009	M	Deputy Manual (for the interface of deputies).
DELIV 010	M	All materials related to training the users of the official website of the PRM.
DELIV 011	M	Technical specifications for interfaces published by the official website of the PRM.
DELIV 012	M	The test plan and the results of internal testing (functionality, performance, security).
DELIV 013	M	All artifacts copied on electronic support (CD-R or DVD+-R).

In addition to the artifacts related to deliverables of the official website of the PRM, all services necessary for the transfer of knowledge as indicated in table 6.2 will be delivered.

Table 6.2. Knowledge transfer services for the delivered artifacts

Identifier	Obligatoriness	Brief description of artifacts
DELIV 013	M	Training for users and administrators.
DELIV 014	M	Assistance during the piloting of the system.
DELIV 015	M	Assistance for the acceptance testing of the system.
DELIV 016	M	Assistance for rolling out the system.
DELIV 017	M	Settling deficiencies identified during piloting and testing for acceptance.

Identifier	Obligatoriness	Brief description of artifacts
DELIV 018	M	Post-implementation technical support (after roll out) for a period of 24 months, including corrective, adaptive and preventive maintenance in accordance with ISO/IEC 14764.

7. The Stages of Implementing the Official Website of the PRM

The activities of designing, developing, testing and implementing a new version of the official website of the PRM must be carried out by specialized enterprises and institutions holding licenses and experience necessary to conduct the respective works and shall include the following stages:

1. **Developing the information system** – a stage divided in sub-stages coordinated with the stakeholders involved in updating the official website of the PRM as follows:

    a. Based on the tender dossier specifications and the discussions with the direct Beneficiary, the Developer determines and analyzes requirements, designs the structure of the information system and develops in maximum one month the **Technical Design** (*a document containing detailed information about the architecture of the solution, the conceptual and physical model of the data, all components of the information system and the interaction between them, hardware and software resources necessary for its operation, the principles of developing administrator and user interfaces, the peculiarities of implemented legislative norms, users and their roles, all types of standard documents implemented, the principles of ensuring information security*);

    b. The developer develops the graphic design of the official website of the PRM. 2-3 design versions will be proposed, from which a working version will be selected and the final design will be developed. The deadline for developing the graphic design until complete approval will not exceed 3 weeks;

    c. The developer develops the program code of the information system, integrates the graphic design and its modules in a prototype version of the information system (the first presentation will be made to stakeholders demonstrating the existence of all functionalities required in the Terms of Reference and documented in the **Technical Design**). This stage will not exceed 2.5 months.

    d. The developer will test the system in the lab (internal testing) and prepare accompanying documentation (presenting the functionalities of the system with corrections and adjustments to the objections made at the previous sub-stage, the set of technical documentation is presented, etc.). This stage will last 1 month.

    e. The developer ensures the migration of relevant information stored in the current version to the developed information solution (the duration of migration will not exceed one month).

2. **The stage of implementing the system** starts together with the owner of the information system approving the acceptance minutes as presented and signing the acceptance and delivery report for experimental roll out. At this stage, the Developer tests the system under experimental roll out conditions and identifies and removes performance errors, issues, etc. At this stage, the Developer prepares the final version of the information system to be deployed.

3. **The training stage** starts with the deployment of the information system and covers the training of 2 system users from all subdivisions to post or supply information to the official website of the PRM: *Secretariat of the Parliament (2 people from each department of the Secretariat), fractions of the Parliament, Committees of the Parliament* and 2 system administrators from the *Information Technologies Division* of the *General Information-Analytical Department*.

4. **Deploying the system** starts with signing the acceptance and delivery report for deployment of the information system and starting using the system.

5. **Maintenance stage of the official website of the PRM** is the period when the Developer of the system takes responsibility towards the owner to assist in maintaining the capacity of the information system to provide services as well as to change the information product

keeping its integrity. This stage can last as long as necessary depending on contractual arrangements. In case of the website of the Parliament of the Republic of Moldova we believe that an initial period of 24 months would be sufficient.

8. Requirements for Preparing Bids

8.1. Requirements for the Institutional Capacity of Bidders

The company shall be specialized in providing information services with an experience of minimum 5 years. It is preferable for the bidder to have experience developing and implementing web solutions for CPA and LPA.

Legal entities interested in participating in the tender must send a technical proposal and a price bid containing the following:

- Detailed description of the enterprise (experience, human resources, specialized management and technical capacities, etc.);

- Copy of registration documents;

- Certificate confirming that the company has no arrears to the budget;

- The portfolio of the company showing similar projects;

- References of beneficiaries of the company for the last 4 years;

- CVs of key personnel involved in the project;

- Brief description of similar information solutions;

- Detailed technical proposal, including hardware operational restrictions, estimation of activities and their duration;

- Guarantee period and technical assistance period;

- Detailed financial proposal;

- Other relevant documents.

8.2. Requirements for the Qualifications of the Staff of the Bidder

All discussions with the beneficiaries of the project will be conducted in Romanian. All related documentation, the interface of the information solution and training and technical support will be in Romanian. All the staff involved in the project who interact directly with the Beneficiary must speak excellent Romanian.

The bidder will present in the technical proposal brief information about the personnel involved in the project and their qualification. It is welcome to involve qualified personnel with experience in the development and implementation of information systems for *CPA* from the Republic of Moldova. Explicitly, the people for the following key functions will be presented:

- Project Manager;

- Technical Coordinator;

- Designer;

- System Analyst;

The CVs of people involved will be presented for these positions taking into account that the experience of the members of the team includes:

1. Minimum Requirements for the Project Manager:

- University degree in ICT;

- Minimum 5 year experience in information project management;

- Specific experience as Project Manager in ICT area demonstrated by the implementation of similar projects where this person conducted technical analyses, formulated requirements for the design and development of software solutions;

- Knowledge about modern project management tools;

- Excellent knowledge of Romanian and English;

- Economic degree would be an advantage;

- Well-known certification in project management would be an advantage.

2. Minimum Requirements for the Technical Coordinator:

- University degree in ICT;

- Minimum 5 year experience in information system development;

- Specific experience as Technical Coordinator in ICT projects demonstrated by previous similar positions in developing information solutions similar to the official website of the PRM or of higher difficulty;

- Advanced knowledge of modern information technologies, information security standards and methodologies;

- Knowledge of international KPI indicator monitoring and estimation;

- Sufficient knowledge of methodologies of developing information systems for the governmental sector of the Republic of Moldova;

- Excellent knowledge of Romanian;

- Well-known certification in the area of technologies proposed in the technical proposal would be an advantage.

3. Minimum Requirements for the Designer:

- Minimum 3 year experience in developing web interfaces;

- Specific experience as designer in ICT projects demonstrated by previous similar positions in developing information solutions similar to the official website of the PRM;

- Knowledge of modern methodologies and trends of designing and developing information solutions based on web interfaces;

- Sufficient knowledge of methodologies of developing information systems for the governmental sector of the Republic of Moldova;

- Excellent knowledge of Romanian.

4. Minimum Requirements for the System Analyst:

- University degree in ICT;

- Minimum 5 year experience in analyzing and developing information systems;

- Specific experience as System Analyst in ICT projects demonstrated by previous similar positions in developing information solutions similar to the official website of the PRM or high difficulty projects;

- Knowledge of modern methodologies of designing and developing information solutions;

- Sufficient knowledge of methodologies of developing information systems for the governmental sector of the Republic of Moldova;

- Excellent knowledge of Romanian.