

Electronic Document Flow Management System (EDoc)

CHS Vericel

Armenia Social Protection Systems Strengthening Project

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ԱՄՆ ՄՁԳ ՀԱՅԱՍՏԱՆ, ՍՈՑԻԱԼԱԿԱՆ ՊԱՇՏՊԱՆՈՒԹՅԱՆ
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Electronic Document Flow Management Information System EDoc

Delivered by:

CHS Vericel Service,

USAID SPSS Project Subcontractor

May 2008

Yerevan

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1. Introduction

RA Ministry of Labor and Social Issues (MLSI) in the sphere of social protection implements the following functions:

- Development of proposals for improvement of labor legislation and for labor protection; organization and monitoring of their implementation
- Development of proposals for the improvement of legislation concerning population employment; organization and monitoring of accepted legal acts implementation
- Development of governmental policy for pension protection and social insurance; presentation of proposals concerning legislation improvement; organization and monitoring of their implementation
- Monitoring of defined requests of RA Legislation about pension and benefit
- etc.

Yearly the staff of RA MLSI processes about 25 thousand complaints and appeals. The reasons of the complaints may be very different. Here are some examples:

- Confirmation of benefit amount
- Benefit recalculation as a result of changing conditions
- Delay of benefits payment
- Clarification and introduction of social protection legislation
- Changing of disability status
- etc.

About 50% of appeals and complaints relates to family pension. The reduction of family benefit budget leads to the increase of citizens complaints. In this case, quick and proper answers given to the questions reduce the social tension.

The RA Ministry of Labor and Social Issues secretariat organizes the documentation flow of the ministry. The secretariat is responsible for:

- For ensuring the support of common flow of legal acts, official letters and citizens proposals, appeals and complaints received by the staff of the ministry.
- For ensuring the organization of activities for the reception of citizens in the ministry
- For ensuring the coordination of current organizational activities of the ministry subdivisions

- For ensuring the supervision of documents and appeals performance discipline
- For ensuring the supervision of the implementation period of minister's and head of administration/HR Department/ orders and assignments
- For ensuring the implementation of administrative procedure in Ministry administration
- For ensuring archiving of Ministry documents

1.1 Purpose

The main purpose of “EDoc” Information System is the quick and reliable management of documents flow in RA Ministry of Labor and Social Issues. The system should give an opportunity for the processing of information included in the incoming and outgoing letters for different users in the designed environment by supporting reliability, compatibility, flexibility and correctness.

The main problems of “EDoc” system are:

- Development of a system for storing data of appeals and complaints
- Development of centralized database for the registration of document flow history
- Development of database for the effective management of social programs
- Transition from not electronic documentation to electronic one which will decrease the volume of documentation flow
- Increase the effectiveness of information and documents exchange between different administrations of RA Ministry of Labor and Social Issues and other users.
- Development of quick and flexible system which will give a possibility to implement quick distribution of information and monitoring of performance discipline.

Above-mentioned points will increase the possibility of effectively providing services and will give an opportunity to:

- decrease service cost
- secure the information completeness and reliability
- decrease available defects, faults and lapses
- provide (wholly or partially) information access for other stakeholders

1.2 Strategic problems

“EDoc” intranet system developed based on the web technologies will give a possibility to develop docflow management information system, which will support the stakeholders to get necessary information with appropriate differentiated accessibility.

This will eliminate the useless documentation during the organization of departmental and interdepartmental activities and will increase the speed of activities implementation.

The usage of open source operation systems and underlying technologies, flexible structure of “EDoc” system will give in future the following possibilities.

- free redesign of available processes
- in case of new functions appearance, installation of new processes and subsystems without changing the base system

“EDoc” system will:

- increase work efficiency
- decrease operation and service cost
- provide information flow variety during the information collection, processing and exchange
- increase the list of provided services through information exchange and improve interdepartmental cooperation (in organization, in case of necessity also between different organizations the systematized and quick information exchange will increase the quality of services)

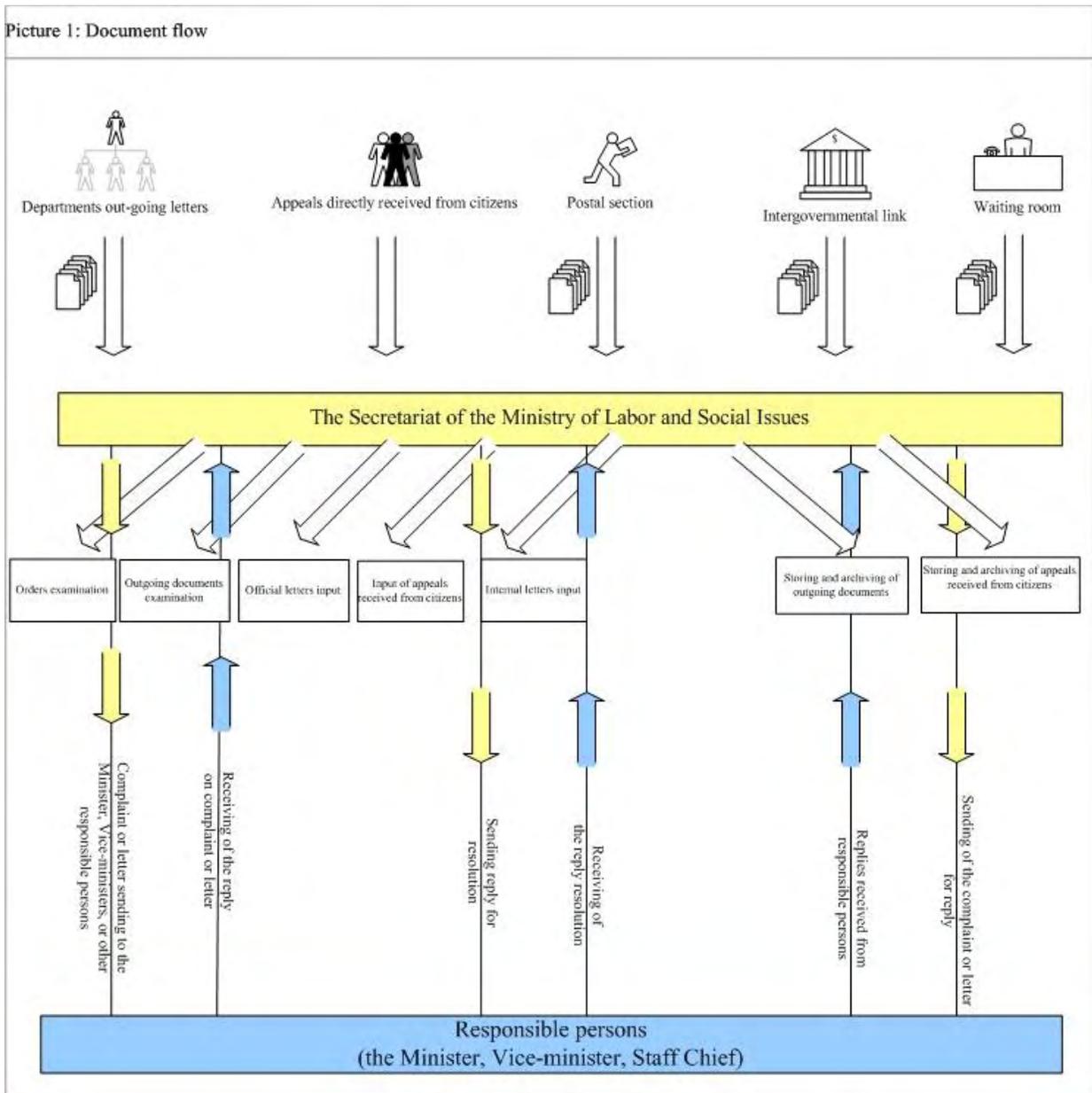
1.3 Sphere

The system is planned for RA Ministry of Labor and Social Issues and should be managed by the Ministry corresponding department, for example by secretariat.

The secretariat implements the following main functions.

- Organizes documents and applications flow
- Organizes citizens reception
- Periodically presents information to the ministry head of administration about the analysis of applications
- Presents information to the ministry head of administration about the working plans of ministry administration subdivisions

- Provides information to the heads of subdivisions about daily assignments
- Supervises the implementation of documents and applications performance discipline
- Supervises and summarizes the implementation periods of orders and assignments of the minister, ministry head of administration
- Prepare materials for archives with the assistance of subdivisions
- etc.



Picture 1 – Documentation Flow in RA Ministry of Labor and Social Issues

1.3.1 RA Ministry of Labor and Social Issues general department of secretariat

Based on the main functions of RA Ministry of Labor and Social Issues secretariat general department “EDoc” information system foresees the following functions:

- Give an opportunity to electronically input documents received from citizens or organizations
- Register documents in appropriate electronic environment
- Provide documents to secretariat general department manager for the future decisions

- Provide consultations for citizens by using database

1.3.2 RA Ministry of Labor and Social Issues secretariat

Based on the main functions of RA Ministry of Labor and Social Issues secretariat “EDoc” system foresees the following functions.

- Preservation of main information of incoming and outgoing letter’s by electronic version
- Preservation of information about the location of the original document and to organize the delivery of the originals;
- Preparation of reports and management of system by using advanced functions of search and selection
- Sending periodical reminders to authorized persons for preparation of various documents in paper-based and electronic copies
- Development of flexible system for controlling the implementation of document flow
- Data archiving

1.4 References

1.4.1 Incorporated documents

RA Laws		
<i>Law</i>	<i>Accepted</i>	<i>Website</i>
“Law on legal acts”	29.04.2002	www.parliament.am
“Law on discussions procedure of RA citizens proposals, appeals, complaints”	22.12.1999	www.parliament.am
“Law on freedom of information”	22.10.2003	www.parliament.am
“Law on administration concepts and administrative activity”	10.03.2004	www.parliament.am

Table 1

1.5 Definitions, terms and abbreviations

1.5.1 Definitions and terms

Definition/Term	Explanation
“NORK” Center	MLSI Information-Analytical Center

Table 2

1.5.2 Abbreviations

Abbreviations / Acronym	Unabbreviated word or term / ՝ճճՅՅ
MLSI	Ministry of Labor and Social Issues
RA	Republic of Armenia

SSC	Social security card
DEN	Document input number
DON	Document output number
DRA	Document registered address

Table 3

2 Project description

The Docflow management “EDoc” Information System (hereafter system) for the Ministry of Social and Labor Issues (hereafter MLSI), being developed in the scope of this project, will provide means for generation, collecting and directing of incoming and outgoing electronic documents, control over the implementation terms of orders or documents needing replies, and generation of corresponding reports.

“EDoc” Information System will promote effective organization of processes concerning complaints and appeals received from citizens and document flow normalizing work processes of the ministry.

Information exchange through mechanisms of systematized, fast acting and diverse information flows will improve cooperation at the departmental and interdepartmental levels, thus improving overall services quality.

The Docflow management information intranet/extranet system will reduce operational expenditures by means of standardization of department’s internal processes and effective use of work-hours, providing an opportunity for monitoring and establishing mechanisms for timely and correctly decision-making.

The Docflow management information system will provide stakeholders with fast and accurate information, giving them opportunity to improve quality and speed of their services by being protected of spending additional time and financial resources.

This can be achieved due to the Docflow management information system, the development of which is based on three main concepts.

- proper documentation
System design, standardized base codes, user and administrator manuals and procedures
- Internet technologies
Minimization of functions of fast and low cost services
- Open systems
Minimal acquisition and maintenance costs, flexible, easily adaptable to further changes

2.1 Project stakeholders

The stakeholders of this project can be divided into two main categories: internal and external.

Internal stakeholders include the following groups.

- Executor: “CHS Vericel Service” LTD
- Client: “CHS Vericel Service” LTD
- System users: The Ministry of Labor and Social Issues (MLSI)

External stakeholders include the following groups.

- RA citizens
- RA government

Each group of stakeholders has its own interests and concerns about the project (see Table 4).

Stakeholder groups	Stakeholder groups interests and concerns in this project
1. “CHS Vericel Service” LTD	Being the executor of the project and its immediate participant, the main interests of the “CHS Vericel Service” LTD are as follows. <ul style="list-style-type: none"> • Development of the system that satisfies client needs • Increase of professional experience
2. “CHS Vericel Service” LTD	Being the executor of USAID Armenia Social Protection Systems Strengthening Project, the TSG has the following interests. Implementation of IT in social protection sphere <ul style="list-style-type: none"> • Improvement of service quality in the social protection sphere
3. The Ministry of Labor and Social Issues (MLSI)	Being the user of the system the Ministry of Labor and Social Issues is the most interested participant of the project. Its main interests are. <ul style="list-style-type: none"> • Reduction of paper-based docflow volume • Assurance of information completeness due to docflow registration • Effective control of performance discipline • Possibility for conducting fast search of necessary documents • Fast and effective reporting mechanisms • Reduction of service costs • Improvement of service quality
4. RA citizens	Being the users of the provided services, RA citizens have the following interests and expectations from the implementation of the system. <ul style="list-style-type: none"> • Possibility of getting information about the process of their appeals at any time • Protection of information confidentiality and completeness
5. RA government	The main interests of RA government are. <ul style="list-style-type: none"> • Information availability • Improvement of service quality • Reduction of service costs

Table 4 – Project stakeholders’ description

2.2 Main phases of project implementation

The main phases of DocFlow Management Information System development works are as follows:

Phase 1

Phase 1 includes all the necessary tasks for study of Information System requirements and correspondent technical solutions definition.

▪ Study of Requirements

For the study of Information System requirements the project team should be involved in the following work processes directed at requirements identification, research and analysis:

- ☞ Study of the international experience
- ☞ Meetings and consultations with MLSI, TSG and NORK representatives
- ☞ Study of the MIS subsystems and the users specific role type
- ☞ Study of the information flow included in the subsystems of the Docflow MIS

▪ Technical Solutions Definition

For the technical solutions definition should be developed an Information System design which satisfies Client's needs. That means that should be identified all the necessary subsystems, design the necessary tables of the database and choose necessary technologies, tools and methods for project implementation. The data acquired as a result of meetings and discussions should be analyzed, summarized and designed.

The following tasks are to be implemented:

- ☞ MIS specifications development
- ☞ Information classification and definition of user authorizations
- ☞ Development of requirements for MIS servers, components of telecommunication network, hardware and software
- ☞ Development of requirements for hardware and general software for workstations
- ☞ Development of project design

Phase 2

Phase 2 includes tasks that are necessary for Information System development and pilot set-up.

▪ Information System Development

For the Information System development the following tasks should be carried out and as a result the pilot version of the Information System should be presented:

- 📁 Development of the application for creation and management of classifiers, dictionaries, names and frequently used terms
- 📁 Alfa, functional and multi-User Testing
- 📁 Information System testing Accepting - Delivery

▪ **Set up**

- 📁 Development and pilot installation of main servers components of software in NORK center
- 📁 Information System testing Accepting - Delivery
- 📁 Development and installation of pilot main software for workstations in NORK center
- 📁 Information System testing Accepting - Delivery
- 📁 Development and installation of pilot main software for workstations in MLSI secretariat
- 📁 Information System testing Accepting - Delivery

Phase 3

Phase 3 includes necessary tasks for Information System set-up, information migration, audit, documentation, testing and specialists training.

▪ **Development and installation of all the components of the system and operation of the system**

After testing of Information System pilot version, the entire system should be installed.

The following installation works should be implemented:

- 📁 Operating system for servers
- 📁 Operating system for workstations
- 📁 Database Management System

▪ **Data migration from legacy System**

For data migration and audit should be implemented data transfer from legacy system to new system and should be verified whether the migration has resulted in complete and accurate data transfer.

The following main tasks are anticipated:

- 📁 Old and new data definition

📄 Data migration definition

📄 Data migration

📄 Data cleansing

📄 Information System Audit

▪ **Documentation**

For the Information System work process operation and functional operation should be prepared user and support manuals.

▪ **Testing**

Testing should be implemented after installation of Database Management System and completion of data migration process. The main goals of this testing are:

- 📄 To verify, whether the Information System is being properly designed and developed, i.e. it satisfies all Client's needs and performs all anticipated functions.
- 📄 To verify, whether the Information System performs accurately, i.e. functions are being operated without bugs and result in anticipated outcomes.

The following testing activities are to be implemented:

- 📄 Beta Testing
- 📄 User acceptance testing

▪ **Training**

For specialists training should be provided training after set up of Information System.

Phase 4

In the Phase 4 the following tasks should be implemented:

- 📄 Set up of a system for overseeing document flow within MLSI departments
- 📄 Testing
- 📄 Automated Data exchange with other Information System of Social Protection sphere
- 📄 Testing

Project Review

Project review includes necessary tasks for Information System delivery, support and maintenance.

- **Information System Acceptance-Delivery Act**

In this phase Client and Executor should sign Information System Acceptance-Delivery Act, according to which project will be officially considered finished and system will be delivered to the users. It is necessary to organize system presentation and prepare final report.

- **Support and Maintenance**

Support and maintenance of the Information System will be implemented after signing Acceptance-Delivery Act and will continue within 6 months period.

2.3 Project schedule

Project will be implemented within *107* days.

Gantt chart for entire Project



“Project Management” time

Phases & Tasks	Duration	Start	Finish
1 <input type="checkbox"/> Start up	106 days	Sat 3/1/08	Mon 7/14/08
2 <input type="checkbox"/> "Project Management" time	102 days	Thu 3/6/08	Mon 7/14/08
3 "Project Management" time 1	3 days	Thu 3/6/08	Wed 3/12/08
4 "Project Management" time 2	3 days	Thu 3/13/08	Mon 3/17/08
5 "Project Management" time 3	3 days	Thu 3/20/08	Mon 3/24/08
6 "Project Management" time 4	3 days	Thu 3/27/08	Mon 3/31/08
7 "Project Management" time 5	3 days	Thu 4/3/08	Mon 4/7/08
8 "Project Management" time 6	3 days	Thu 4/10/08	Mon 4/14/08
9 "Project Management" time 7	3 days	Thu 4/17/08	Mon 4/21/08
10 "Project Management" time 8	3 days	Fri 4/25/08	Mon 4/28/08
11 "Project Management" time 9	3 days	Fri 5/2/08	Mon 5/5/08
12 "Project Management" time 10	3 days	Thu 5/8/08	Wed 5/14/08
13 "Project Management" time11	3 days	Thu 5/15/08	Mon 5/19/08
14 "Project Management" time12	3 days	Thu 5/22/08	Mon 5/26/08
15 "Project Management" time13	3 days	Thu 5/29/08	Mon 6/2/08
16 "Project Management" time14	3 days	Thu 6/5/08	Mon 6/9/08
17 "Project Management" time15	3 days	Thu 6/12/08	Mon 6/16/08
18 "Project Management" time16	3 days	Thu 6/19/08	Mon 6/23/08
19 "Project Management" time17	3 days	Thu 6/26/08	Mon 6/30/08
20 "Project Management" time18	3 days	Thu 7/3/08	Wed 7/9/08
21 "Project Management" time19	3 days	Thu 7/10/08	Mon 7/14/08

Phase I Gantt chart

Phases & Tasks	Duration	Start	Finish	08	Feb 25, '09	Mar 24, '09	Apr 21, '09	May 19, '09	Jun 16, '09	Jul 14,					
				S	W	S	T	M	F	T	S	W	S	T	M
22 <input type="checkbox"/> Phase I	23 days	Sat 3/1/08	Mon 3/31/08												
23 Study of the international experience	3 days	Sat 3/1/08	Wed 3/5/08												
24 Meetings and consultations with MLSI, TSG and NORK representatives	2 days	Wed 3/5/08	Mon 3/10/08												
25 Study of the MIS subsystems and the users specific role type	5 days	Mon 3/10/08	Sat 3/15/08												
26 Study of the information flow included in the subsystems of the Docflow MIS	5 days	Mon 3/10/08	Sat 3/15/08												
27 <input type="checkbox"/> Analysis and Design	18 days	Mon 3/10/08	Mon 3/31/08												
28 Development MIS specifications	6 days	Sat 3/15/08	Sat 3/22/08												
29 Information classification and definition of user authorizations	5 days	Mon 3/10/08	Sat 3/15/08												
30 Development of requirements for MIS servers, components of telecommunication network, hardware and software	6 days	Sat 3/15/08	Sat 3/22/08												
31 Development of requirements for hardware and general software for workstations	6 days	Sat 3/15/08	Sat 3/22/08												
32 Development of project design	5 days	Sat 3/22/08	Fri 3/28/08												
33 Project design package delivery for TSG approval	1 day	Fri 3/28/08	Sat 3/29/08												
34 Preparation of Phase I Completion Report	1 day	Sat 3/29/08	Mon 3/31/08												

Phase II Gantt chart

Phases & Tasks	Duration	Start	Finish	08	Feb 25, '09		Mar 24, '09		Apr 21, '09		May 19, '09		Jun 16, '09		Jul 14,
				S	W	S	T	M	F	T	S	W	S	T	M
35 <input type="checkbox"/> Phase II	48 days	Mon 3/31/08	Sat 5/31/08												
36 Development of the application for creation and management of classifiers, dictionaries, names and frequently used	43 days	Mon 3/31/08	Sat 5/24/08												
37 Alfa, functional and multi-User Testing	2 days	Sat 5/24/08	Tue 5/27/08												
38 Information System testing Accepting - Delivery	1 day	Tue 5/27/08	Thu 5/29/08												
39 <input type="checkbox"/> Set up	48 days	Mon 3/31/08	Sat 5/31/08												
40 Development and pilot installation of main servers components of software	15 days	Mon 3/31/08	Thu 4/17/08												
41 Information System testing Accepting - Delivery	1 day	Thu 4/17/08	Fri 4/18/08												
42 Development and installation of pilot main software for workstations in NORK center	15 days	Mon 3/31/08	Thu 4/17/08												
43 Information System testing Accepting - Delivery	1 day	Thu 4/17/08	Fri 4/18/08												
44 Development and installation of pilot main software for workstations in MLSI secretariat	17 days	Mon 3/31/08	Sat 4/19/08												
45 Information System testing Accepting - Delivery	1 day	Sat 4/19/08	Mon 4/21/08												
46 Preparation of Phase II Completion Report	2 days	Thu 5/29/08	Sat 5/31/08												

Phase IV Gantt chart

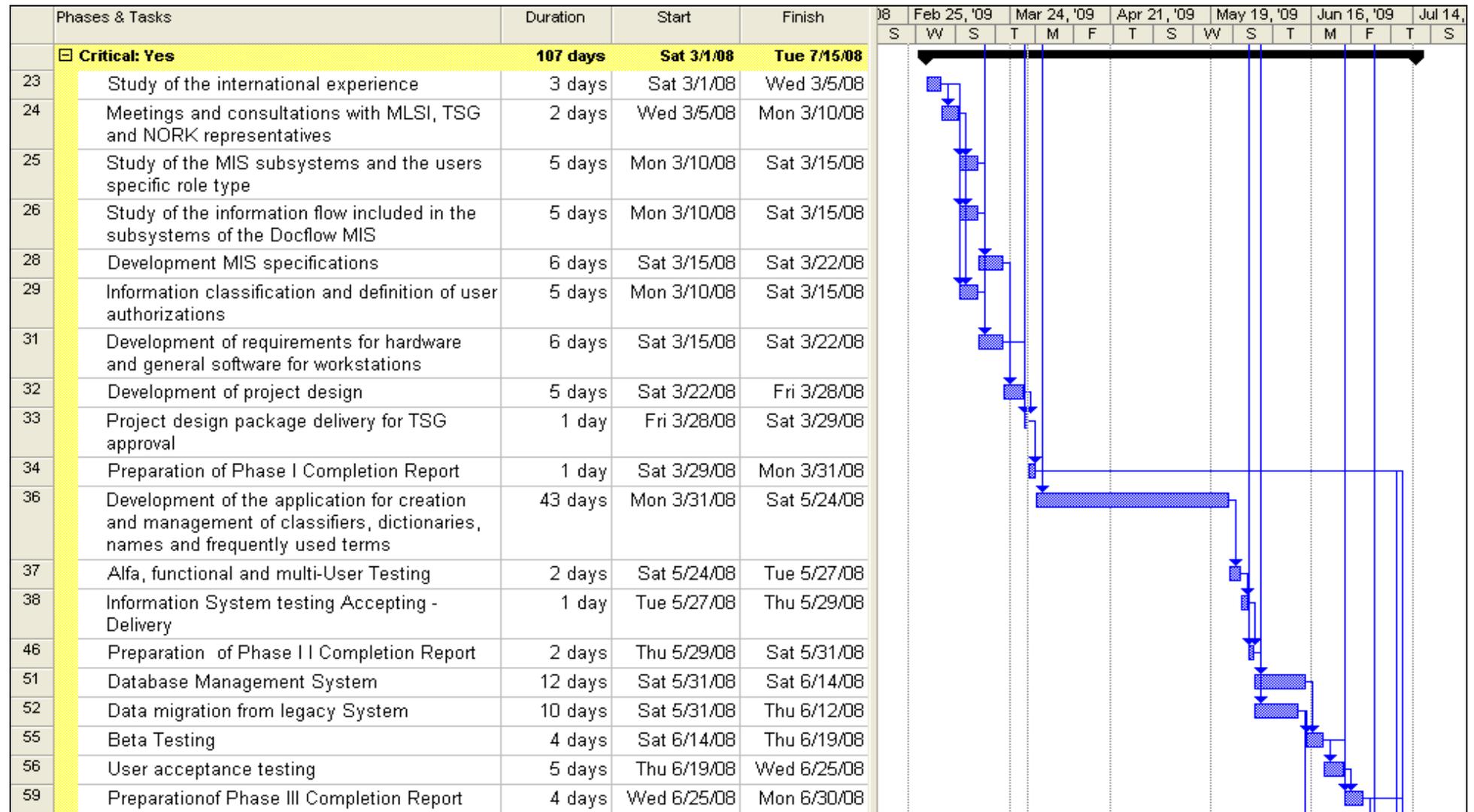
Phases & Tasks	Duration	Start	Finish	08	Feb 25, '09		Mar 24, '09			Apr 21, '09		May 19, '09		Jun 16, '09		Jul 14,
				S	W	S	T	M	F	T	S	W	S	T	M	F
60 <input type="checkbox"/> Phase IV	29 days	Tue 6/3/08	Wed 7/9/08													
61 Set up of a system for overseeing document flow within MLSI departments	15 days	Tue 6/3/08	Fri 6/20/08													
62 Testing	8 days	Fri 6/20/08	Mon 6/30/08													
63 Automated Data exchange with other Information System of Social Protection sphere	15 days	Thu 6/12/08	Mon 6/30/08													
64 Testing	3 days	Mon 6/30/08	Thu 7/3/08													
65 Preparation of Phase IV Completion Report	3 days	Thu 7/3/08	Wed 7/9/08													

Project Review Gantt chart

Phases & Tasks	Duration	Start	Finish	08	Feb 25, '09		Mar 24, '09			Apr 21, '09		May 19, '09		Jun 16, '09		Jul 14,
				S	W	S	T	M	F	T	S	W	S	T	M	F
66 <input type="checkbox"/> Project Review	5 days	Wed 7/9/08	Tue 7/15/08													
67 Project review	2 days	Wed 7/9/08	Fri 7/11/08													
68 Prepration of Final Report & system functional demonstration	3 days	Fri 7/11/08	Tue 7/15/08													

2.4 Critical path

The given below chart is the critical path of the project, that shows delay of which phases will result in the delay of the entire project.



Phases & Tasks	Duration	Start	Finish	08	Feb 25, '09			Mar 24, '09			Apr 21, '09			May 19, '09			Jun 16, '09			Jul 14,		
				S	W	S	T	M	F	T	S	W	S	T	M	F	T	S				
63 Automated Data exchange with other Information System of Social Protection sphere	15 days	Thu 6/12/08	Mon 6/30/08																			
64 Testing	3 days	Mon 6/30/08	Thu 7/3/08																			
65 Preparation of Phase IV Completion Report	3 days	Thu 7/3/08	Wed 7/9/08																			
67 Project review	2 days	Wed 7/9/08	Fri 7/11/08																			
68 Preparation of Final Report & system functional demonstration	3 days	Fri 7/11/08	Tue 7/15/08																			

So, the critical path includes the following tasks:

- Study of the international experience (3 days)
- Meetings and consultations with MLSI, TSG and NORK representatives (2 days)
- Study of the MIS subsystems and the users specific role type (5 days)
- Study of the information flow included in the subsystems of the Docflow MIS (5 days)
- MIS specifications development (6 days)
- Information classification and definition of user authorizations (5 days)
- Development of requirements for hardware and general software for workstations (6 days)
- Development of project design (5 days)
- Project design package delivery for TSG approval (1 day)
- Preparation of Phase I Completion Report (1 day)
- Development of the application for creation and management of classifiers, dictionaries, names and frequently used terms (43 days)
- Alfa, functional and multi-User Testing (2 days)
- Information System testing Accepting - Delivery (1 day)
- Preparation of Phase II Completion Report (2 days)
- Database Management System (12 days)
- Data migration from legacy System
 - Data migration definition
 - Data migration
 - Data cleansing
 - Information System Audit (10 days)
- Beta Testing (4 days)
- User acceptance testing (5 days)
- Preparation of Phase III Completion Report (4 days)
- Automated Data exchange with other Information System of Social Protection sphere (15 days)
- Testing (3 days)
- Preparation of Phase IV Completion Report (3 days)
- Project review (2 days)
- Preparation of Final Report & system functional demonstration (3 days)

The works will be implemented according to the time period mentioned in the contract - from 1st March to 15th July.

Amount of critical days is 107.

2.5 Project team description

The participants of this project, depending of the kinds of activity they are carrying out, can be divided into the following groups.

- **Client** – the future owner and the user of the software. The client can be both physical and juridical person. By the same time Client can also be considered as one or many organizations, which joined their efforts, interests and interest in the project implementation and its results utilization.

The participants of the project from the Client's side are:

1. *Client representative*
2. *DocFlow Information system user representative*

- **Executor**

The participants of the project from the Executor's side are:

1. *Project Manager*
2. *Communication Manager*
3. *System Analyst*
4. *Lawyer*
5. *Information Analysts*
6. *Field Specialist*
7. *System Administrator*
8. *Technical Specialist*
9. *Technical Specialist / Trainer*
10. *Technical Editor*
11. *Software developer*
12. *Software developer / Trainer*
13. *Interface Designer*
14. *Tester*
15. *Quality Manager*
16. *Security Manager*
17. *Translator*

Project team organizational structure

Role	Responsibility description	Amount of work
Client's representative	Project implementation control	Monthly
System user's representative	Coordination of project implementation works with project implementation workgroup by the Client (project manager)	During whole project
Project manager	Management of project implementation works	During whole project

Table 5

Main Phases	Project participant/ Position	Amount
<u>Phase 1</u>		
<ul style="list-style-type: none"> ▪ Study of Requirements 		
Study of the international experience	Project Manager	1
Meetings and consultations with MLSI, TSG and NORK representatives	Communication Manager	1
Study of the MIS subsystems and the users specific role type	System Analyst	1
	Lawyer	1
Study of the information flow included in the subsystems of the Docflow MIS	Information Analysts	1
<ul style="list-style-type: none"> ▪ Analysis and Design 		
MIS specifications development	Project Manager	1
Information classification and definition of user authorizations	System Analyst	1
	Field Specialist	1
Development of requirements for MIS servers, components of telecommunication network, hardware and software	System Analyst	1
	System Administrator	1
	Project Manager	1
	Technical Specialist	2
Development of requirements for hardware and general software for workstations	System Analyst	1
	System Administrator	1
	Project Manager	1
	Technical Specialist	2
Development of project design	Project Manager	1
	Technical Editor	1
	Translator	1
	Field Specialist	1
Project design package delivery for TSG approval	Communication Manager	1
Preparation of Phase I Completion Report	Project Manager	1
	Technical Editor	1
	Translator	1

Phase 2

▪ Information System Development

Development of the application for creation and management of classifiers, dictionaries, names and frequently used terms	Software developer	4
	Interface Designer	1
Alfa, functional and multi-User Testing	Tester	2
Information System testing Accepting - Delivery	Communication Manager	1

▪ Set up

Development and pilot installation of main servers components of software in NORK centre	Software developer	4
	System Administrator	1
	Technical Specialist	4
	Quality Manager	1
Information System testing Accepting - Delivery	Communication Manager	1
Development and installation of pilot main software for workstations in NORK centre	Software developer	4
	System Administrator	1
	Technical Specialist	4
	Quality Manager	1
Information System testing Accepting - Delivery	Communication Manager	1
Development and installation of pilot main software for workstations in MLSI secretariat	Software developer	1
	System Administrator	1
	Technical Specialist	4
	Quality Manager	1
Information System testing Accepting - Delivery	Communication Manager	1
Preparation of Phase II Completion Report	Project Manager	1
	Technical Editor	1
	Translator	1

Phase 4

Set up of a system for overseeing document flow within MLSI departments	Software developer System Administrator Security Manager	2 1 1
Testing	Tester	2
Automated Data exchange with other Information System of Social Protection sphere	Software developer System Administrator Security Manager Quality Manager	4 1 1 1
Testing	Tester	2
Preparation of Phase IV Completion Report	Project Manager Technical Editor Translator	1 1 1

Project Review

Project Review	Project Manager	1
Preparation of Final Report & system functional demonstration	Project Manager Technical Editor Translator	1 1 1

Table 6 – *Involvement of team members in the project by project phases*

2.6 Development team training

Development team members should have all the knowledge required in 6.4 section. Otherwise appropriate training will be provided for the project implementation Development team.

2.7 Project communication matrix

With the below described table you can find out with what channels, how frequent and which project participants should communicate, and what kind of information they should exchange.

Participants	Information	Method/Channel	Frequency
Project manager – Project team member	<ul style="list-style-type: none"> • Task-related information • Project progress information 	<ul style="list-style-type: none"> • Meetings • E-mails • Telephone 	Once per week or as needed

Project manager – Client representative	<ul style="list-style-type: none"> • Project requirements related information • Project progress information 	<ul style="list-style-type: none"> • Meetings 	Twice per month or as needed
Project team - Organization management	<ul style="list-style-type: none"> • Project progress information 	<ul style="list-style-type: none"> • Meetings 	Once per week or as needed

Table 7 – Communication matrix

3 Risk factors assessment

3.1 Risk identification

During the implementation of the project the following risks are possible to occur.

№	Risk	Risk Type	Description
1	Incomplete requirements definition	Product	Some requirements of the project will not be identified
2	Requirements change	Project and product	There will be a larger number of changes to the requirements than anticipated
3	Bad communication between client and executor	Project	Client and executor will not communicate as defined in the communication matrix
4	Limited time and financial resources	Project and product	Time and money assigned to the project are not sufficient for project implementation
5	Project team members experience shortfalls	Project and product	The project team members don't have the sufficient experience in the particular type of project
6	Staff turnover	Project	Experienced staff will leave the project before it is finished
7	Technology change	Business	The underlying technology on which the system is built is superseded by new technology
8	Hardware unavailability	Project	Hardware which is essential for the project will not be delivered on schedule
9	Product competition	Business	A competitive product is marketed before the system is completed
10	Management change	Project	There will be a change of organizational management with different priorities
11	Changes in legal system	Project and product	Some changes may occur to existing laws or some new laws may be adopted during the project implementation

12	Force majeure	Project	Some force majeure circumstances like natural
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	circumstances		cataclysms may occur during the project implementation
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Table 8. – *Project Risks*

3.2 Risk analysis

For each identified risk a judgment should be made about its occurrence probability and seriousness. The results of the analysis process are summarized in a **Table 8**.

№	Risk	Consequences	Occurrence probability*	Effects**
1	Incomplete requirements definition	Development of the system that doesn't satisfy client needs	Moderate	Serious
2	Requirements change	Additional resource investment → Derivation from schedule and budget	Low	Serious
3	Bad communication between client and executor	Slow information dissemination process → Derivation from schedule and budget	Moderate	Tolerable
4	Limited time and financial resources	Development of unrealistic budget and schedule → Incomplete project	Moderate	Serious
5	Project team members experience shortfalls	Improperly developed system	Low	Serious
6	Staff turnover	Spending additional time on finding new people → Derivation from schedule and budget	Low	Tolerable
7	Technology change	Decrease of the relevance of the underlying technologies → Decrease of the system relevance → Project termination	Low	Tolerable
8	Hardware unavailability	Derivation from schedule and budget	Low	Tolerable
9	Product competition	Decrease of market demand → Decrease of client interest in the project → Project termination	Moderate	Tolerable
10	Management change	Decrease of management interest in the project → Project termination	Low	Insignificant

11	Changes in legal system	Requirements change → Additional resource	Very low	Tolerable
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		investment → Derivation from schedule and budget		
12	Force majeure circumstances	Project termination	Very low	Catastrophic

Table 9 – Risk analysis

* The probability of the risk might be assessed as very low (<10%), low (10-25%), moderate (25-50%), high (50-75%) or very high (>75%).

** The effects of the risk might be assessed as catastrophic, serious, tolerable or insignificant.

3.3 Risk management plan

For each identified risk, according to the performed analysis, a corresponding management plan is developed and coordinator is assigned to try to lessen the risk occurrence probability.

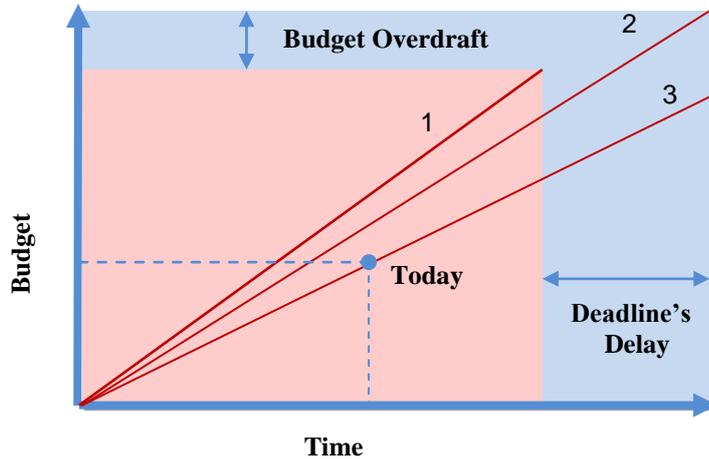
Nº	Risk	Mitigation plan	Coordinator
1	Incomplete requirements definition	In the phase of requirements definition involve as many project team members and system users as possible.	Project manager / Client representative
2	Requirements change	Develop system requirements specification, prioritize requirements, and make changes only in extremely important cases	Project manager / Client representative
3	Bad communication between client and executor	Develop client-executor communication matrix	Project manager / Client representative
4	Limited time and financial resources	Develop time-budget and time-scope project control graphs	Project manager
5	Project team members experience shortfalls	Organize professional courses and trainings for project team members	Project manager
6	Staff turnover	In the initial phase of the project choose a reserve staff who will be available when necessary	
7	Technology change	Not manageable	—
8	Hardware unavailability	In the initial phase of the project choose alternative suppliers of hardware	
9	Product competition	Do preliminary market research	Project manager
10	Management change	Not manageable	—
11	Changes in legal system	Not manageable	—
12	Force majeure circumstances	Not manageable	—

Table 10 – Risk management plan

4 Description of the Project Control mechanisms

4.1 Time - Financial Control

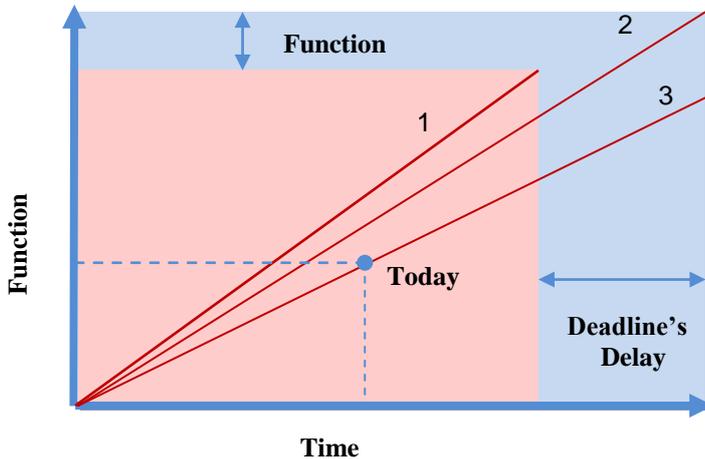
During the work processes Performer should manage Time - Financial Control and submit its monthly result to the Client in the following graphical form.



Line 1 shows perfect process of the project.
Line 2 shows the reality of the work processes
Line 3 shows work processes of the certain day

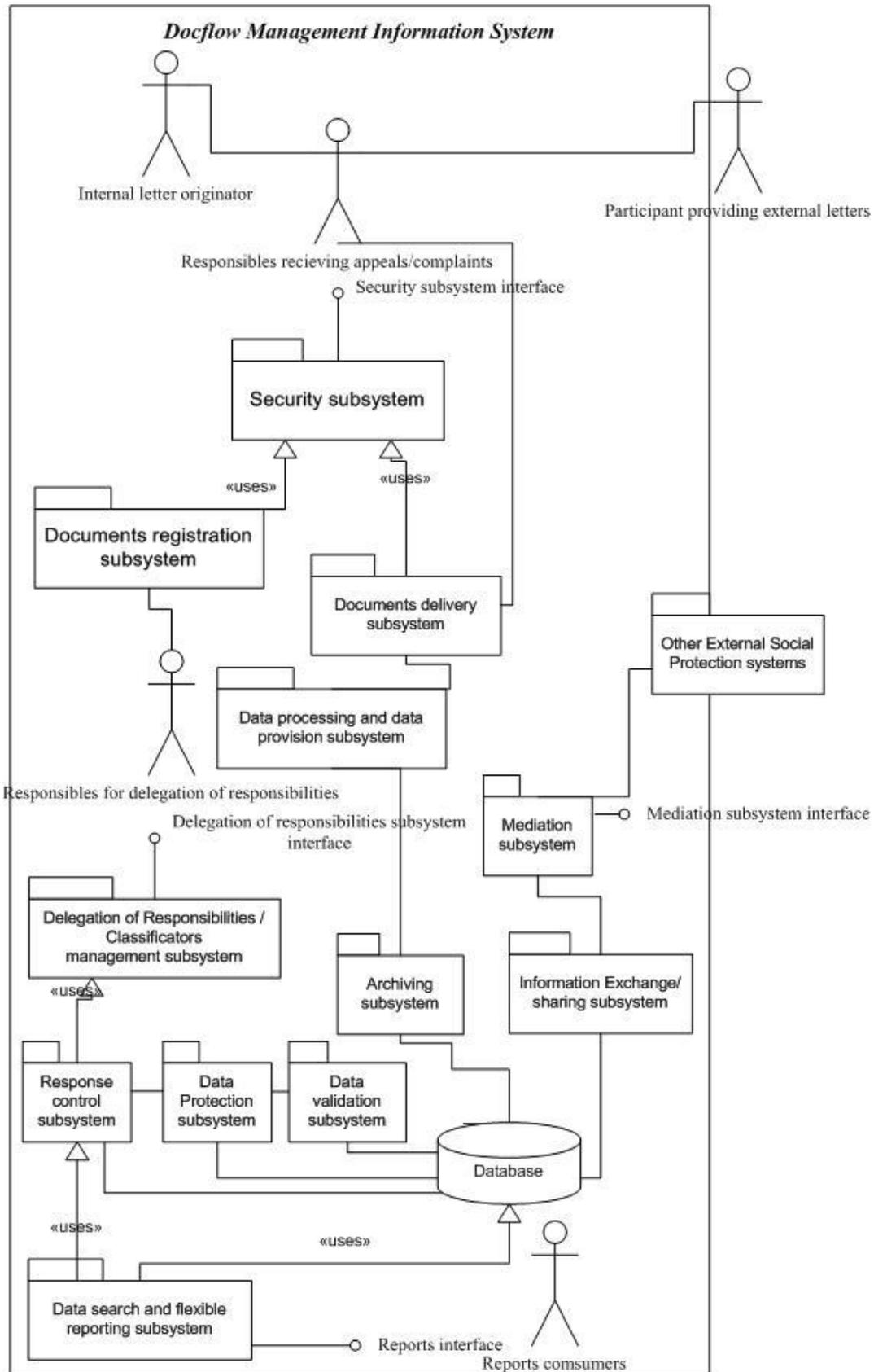
4.2 Functional-Time Control

During the Project implementation the Executor must carry out the functional-time Control; to take reasonable steps not to overstep the limits of permissible time and function and submit its monthly result to the Client in the following graphical form.



Line 1 shows perfect process of the project.
Line 2 shows the reality of the work processes
Line 3 shows work processes of the certain day

5 DocFlow Management Information System short description



Picture 2

Main functions of “Docflow” mentioned in the point 6.1 will be implemented with the usage of following subsystems:

- Security/Management subsystem
- Document registration subsystem
- Document delivery subsystem
- Data processing and data provision subsystem
- Delegation of Responsibilities / Classifiers subsystem
- Response control subsystem
- Data protection subsystem
- Data validation subsystem
- Data storage subsystem
- Data search and flexible reporting subsystem

Security/Management subsystem

The Security/Management subsystem function is to provide, with the usage of passwords, the security of the system. The certain information availability level is foreseen for each of users and every user can handle the information after inputting its name and password.

The subsystem provides MLSI office works continuance in case of unforeseeable consequences by the way of creating reserve duplicates.

Document registration subsystem

Document registration subsystem will provide an opportunity to create electronic documents in order to regulate and manage all the documents circulation which are receiving in the Ministry and are handling by Ministry staff. The electronic versions of those documents or their brief descriptions are to be inputting in “Docflow” IS.

Document delivery subsystem

Document delivery subsystem is regulating the process of delivery / sending information to the inner and outer addresser.

In case of letters requiring response the execution deadline is being defined.

Data processing and data provision subsystem

Data processing and providing subsystem provides an opportunity for processing the information of all documents receiving by and existing in Ministry and for information further monitoring.

Delegation of Responsibilities / Classificators subsystem

Responsibilities / classificators allocation subsystem provides an opportunity to address the documents electronic versions to executors or other addressers.

In case of letters requiring response the execution deadline is being defined

Response control subsystem

Responses monitoring subsystem provides an opportunity to monitor the process of execution and with the usage of warning mechanisms to signalize the execution deadlines. Due to automated warnings mechanisms no one of the personnel can ignore any of the documents. The executor can see the signed list of letters addressed to him.

This tool is very important from the management point of view.

The responses inputted by the executor are delivered to addresser with the usage of Documents delivery subsystem.

Data protection subsystem

Information security subsystem provides an opportunity to protect the data containing in the documents receiving by and existing in the Ministry.

Data validation subsystem

Data validation subsystem provides the process of checking the information in accordance with the given criteria.

Data storage subsystem

Archiving subsystem will contain two Databases: the Active and the Passive (Archive). Active database contains those documents which are in the process of processing and certifying and the deadlines for which are not expired yet.

After the documents whole circling it is transferring to the archive.

Data search and flexible reporting subsystem

The responsible are able, with the usage of the subsystem for searching information and creating flexible reports, to search the information contained in Database and to receive the analysis and reports on documents circulation.

It is important to mention that functionalism of the system is brought in correspondence with the local documentation specifications, constitution and criteria. The global idea of the system is that it contains both the inner documents and those being received and having their registration cards. The main goal is the organization of document circulation inside of Ministry.

The registration card will contain following information:

- Documents specifications – date of creating, registration number and type, availability level etc. The document is filling in by that very person who is registering it.
- Information on tasks, executors, terms etc. concerning the document. The document is filling in by the manager who is defining the tasks and terms of execution.
- Information on the works accomplished. These reports are creating by the executor.

It is also foreseen to carry out the document flows electronic copying.

This tool is very important for getting the electronic versions of hard copies. It's usage will make possible to carry out the document package electronic copying and to look over the electronic versions of the documents.

It is also foreseen to output the forms in .pdf format.

It is also foreseen to install the Internet connection in order to provide an opportunity for citizens to keep abreast in course of applications developments.

Special role types

In the framework of Information system access control each role serves as an example of special role type.

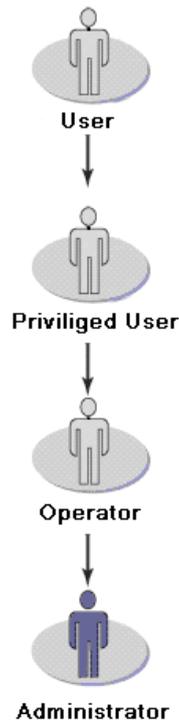
Docflow Management Information System suggests following role types:

- User (Minister / Vice-Minister / Chief of Staff)
- Privileged User /Executor (Departments)
- Operator (Secretariat)
- Administrator

Role types model forms different modes of users actions in the Information system which are depending from the scope of their responsibilities.

- *User* can observe all the reports in the system

- **Privileged users / Executors** can receive all the letters addressed them and create the responses.
- **Operators** can implement search operations, input new documents, edit them, make them out, and create reports.
- **Administrators** have unlimited access to the system, they can create, change, rearrange, delete and archive all the system resources (users, document types, functions etc.).



Picture 3 Role types hierarchy

Above mentioned role types represent the main user groups, nevertheless the opportunity will be given to create new groups.

6 Functional project

6.1 Functional description

The functions of Docflow Information System will be the following:

- Access authorization
- Documents registration
- Documents delivery / sending
- Responsibilities definition (Creating responses)
- Responses monitoring
- Archiving
- Reports

Outlining the main functions

Function Name	Description
Access authorization	<p>This function can be carried out by the administrator only. It is foreseen to grant each user an access to the system according to their roles.</p> <p>It is foreseen to form according to the RA MSLI office work rules the 4 main user groups. Each of users will be attached to one of these groups in order to get the correspondent access authorization. Administrator will have a privilege to create new groups or to make rearrangements of the authorized users in the existing groups.</p>
Documents registration	<p>This function is foreseen to register both the documents receiving from the outside and from all MLSI departments.</p> <p>The registrations will be numerated yearly. As the result of numeration every incoming document will get its identification number - Document Incoming Number (DIN) which will serve as its main criteria of incoming document searching.</p> <p>By this very way there will be registered all the intermediate incoming documents which are the component of docflow and are to be linked with the general document. The changes and additions are also permitted.</p>
Documents delivery	<p>This function is foreseen for all the outgoing documents.</p> <p>The registration of outgoing documents is also to be numerated yearly. Outgoing documents are getting their identification number – Document Outgoing Number (DON), serving as search criteria.</p> <p>By this very way there will be registered all the intermediate outgoing documents which are the component of docflow and are to be linked with the general document. The changes and additions are also permitted.</p> <p>There are following outgoing documents:</p> <ul style="list-style-type: none">▪ Response to incoming document▪ Handing over the incoming documents to other authorized bodies for the free use▪ Handing over the incoming documents to outside bodies

	<p>for the solution</p> <ul style="list-style-type: none"> ▪ Those outgoing documents which require no responses ▪ Those outgoing documents which require responses
Responsibilities definition (Reply preparation)	<p>The authorized persons will have an opportunity, with the help of MLSI secretariate to define the execution responsibilities for the incoming documents.</p> <p>By the way of implementing this function it will be possible to hand over the document to several persons in order to provide the appropriate solution of the problem.</p> <p>Minister will have an opportunity to hand over the document, via MLSI secretariat, to correspondent specialists with the aim of finding appropriate solution.</p>
Response control	<p>This function is foreseen to control the process of giving responses to complaints and applications. Monitoring process will be accompanied by reminders and reports.</p>
Archiving	<p>The storage of information in the order defined by MLSI. This function can be implemented by system administrator only.</p>
Reports	<p>This function is foreseen for the provision of necessary controlling reports and various analitical materials. To receive the analysis the User should choose the necessary form of report and mention the period for which he (she) would like to have a report.</p>

Table 11

Security / Management subsystem functional description

The usage of this subsystem will give an opportunity to efficient management of IS users, registration of new user, data editing, user removal, and granting authorization. The subsystem will also provide an opportunity to add new workers, positions, users groups and documents types.

“Workers”

“Workers” subsection will give an opportunity to add a new worker, or to view and edit the existing worker data.

Worker data

- Worker ID (generating automatically)
- First Name
- Last Name
- Email
- Room number
- Phone number
- Position

“Positions”

“Positions” subsection will give an opportunity to add a new position, or to view and edit the existing positions.

- Position ID (Generating automatically)
- Position outlining
- Manager (choosing from the MLSI hierarchical tree)

“Users”

“User” subsection will give an opportunity to add a new user, or to view and edit the existing user data.

User data:

- User ID (generating automatically);
- First Name, Last Name (choosing from the workers list)
- User Name;
- Password;
- Group ID
- Active – By the help of this field it is possible to make user status inactive through stopping the work for some period.

“Groups”

“Groups” subsection will give an opportunity to add a new group, or to view and edit the existing user groups data.

Group’s data:

- Group ID (generating automatically)
- Parent ID (choosing from the group list as a parent group)
- Group description
- Authorizations (of any quantity)
- Notes

Documents Registration subsystem functional description

The documents registration in the “Docflow” IS will be possible with the usage of the document registration subsystem.

The “Docflow” system operates with the following types of documents:

- Oral appeals
- Written appeals
 - Appeal / Request
 - Complaint
 - Suggestion
- Official Letters
 - Government decisions
 - Orders
 - Laws
 - Prime minister decision
 - Instruction
 - Protocols
 - Session project
- Internal Orders
- Instructions
 - Minister instructions
 - Head of Staff instructions
 - Procedures consultation instructions
- Orders
 - Minister orders
 - Normative
 - Personal
 - Chief of Staff orders
 - Personal
 - Local

Documents Registration form must contain the following subsection:

- **“Operation”** subsection must give an opportunity to choose following actions:
 - Registration – in case new incoming documents are registering
 - Intermediate input – in case intermediate documents are registering
 - Modification – in case of carrying out the changes in the registered document

- **“Document Information”** – must contain following fields:

- Input Date
- Document input number DIN – each document registered in the system must have its incoming number which is to be generating by the system and avoiding any changes. DIN will provide the fullness, uniqueness and data rapid receiving.
- Document Short Content - the document can have one and more content.
- Solution Date

○ **“Personal Data” / “Organization Data”** must contain following fields:

In case of physical persons:

- Social Security Card Number (SSCN)
- First Name;
- Last Name;
- Father’s Name;

In case of Legal entity:

- Organization name

Both for physical and legal persons:

- Region (Marz) - must be chosen from the Regions list
- City - must be chosen from the Cities list
- Community - must be chosen from the Communities list
- Street - must be chosen from the Streets list
- House
- Apartment
- Index
- Other Country must have an opportunity to choose – yes, no.
- Other Address – by selecting the field “Other Country”, the field “Other Address” is automatically activated for entering corresponding data.

○ **“Information about solution”** – must contain following fields:

- Responsible department – must be chosen from subdivisions list
- Responsible person – must be chosen from the personnel list
- Resolution author – must be chosen from the personnel list
- Resolution content – must be chosen from the endorsement content list

In case the “Oral Appeal” had been chosen from the “**Document type**” following fields should be added to the Document registration form:

- Application regular number
- Written appeal number
- Collective – must have an opportunity to choose – yes, no
- Receptionist
- Primary control time
- Response date
- Response content

In case the “Written Appeal” had been chosen from the “**Document type**” following fields should be added to the Document registration form:

- First resolution - must be chosen from the personnel list
- Resolution content – must be chosen from the resolution content list
- Document address
- Intermediate output number – Intermediate incoming sample was chosen from the Operation subsection
- Document subtype – Documents represented by the physical persons can also be of other types, such as: Complaints, Appeals/Requests and suggestions
- Number of pages attached
- Brief description of attached materials
- Solution number
- Collective – must have an opportunity to choose – yes, no
- Internal letter number
- Internal letter date

○ “**Information about Receiver**” subsection must be added in case redirected appeal is inputted and must contain:

- Organization Name;
- Organization output number
- Time
- Date

In case the “Official letter” had been chosen from the “**Document type**” following fields should be added to the Document registration form:

- First resolution – the name of first resolution author is inputting (must be chosen from the personnel list)
- Resolution content – must be chosen from the resolution content list
- Document subtype – Documents represented by the legal persons can be of other types, such as: Government decisions, Instructions, Protocols, Session projects etc.
- Document location address
- Output number of the document received
- Document title
- Number of pages attached
- Project preparation, Opinion, Conclusion (inactive when inputting)
- Period (mentioned in figures – mentioned days number is added taking into consideration free days)
- Solution number (output number; each line is dated)
- Expected term (inactive)
- Expected date (inactive)
- Internal letter number
- Internal letter date

In case of choosing other documents all fields typical to the given document type will be revealed in the document registration form.

In the field “Document Concise Content” and subsection “Personal Information”, after entering information and pressing the “Find” button of the form, the system must automatically recognize (find) the document, if it exists in the system. If record is found, the system automatically generates the DIN in “999999/99” format, which means that the number is the 6-digit number of the same registered document; and it is added by the consecutive number of the next similar document. The user can continue entering the document information and finish by pressing the “Register” button. If the record is not found, the system automatically generates the DIN in “999999” format, which means that this six-digit number is consecutive number of the document registration in the database. User can continue entering document information and finish by pressing the “Register” button.

In order to input the data in the “Information about Solution” subsection, the option of “Document Concise Content” of the “Document Information” subsection, must be chosen.

After pressing the “Register” button, the document will be registered at the system, and the empty form of “Documents Registration” will still remain on the screen.

After pressing the “Clear” button of the form, the entered information will be removed (the entire record that has not been registered yet). The button is active until the user presses the “Register” button. For already registered information only editing is allowed, and data can not be completely removed from the database.

In computer-based form, move from one field to another must be quick and easy. Mainly, this movement must be logical.

As there is a necessary minimum of information to be stored in the database, some fields of the form must necessarily exist. If even one of the necessary fields remains empty, the system must inform the user about this through the “Error Message”. Unless the data is confirmed and analyzed, the system will not implement the “Registration” operation.

In the form, the system must also provide processes of control. If wrong information is entered to the system (e.g., instead of letters, numbers or dates are entered, or number of symbols are not appropriate), the system must inform the user about this through the “Error Message”.

In the subsection “Information about Solution”, if the user enters data in the “Term” field, the system must automatically fill in the “Date” and vice versa; moreover, weekends must be omitted.

The system allows registration of the document which consists of different cases and each case needs involvement of different responsible persons and departments. That is why one or more lines of the “Information about Solution” subsection in the computer form corresponds to every point of document content (one line of the “Document Concise Content” field corresponds to the every point in the computer form).

For already registered record in the database only editing is allowed by selecting the “Modification” option and entering the input number of the desired document and pressing the “Find” button. If the system finds the record, it returns the record and allows for modification of any data.

As the “Document Number” field of the form has non-typical structure, and majority of analyses in the system are based on this number, the detailed definition of the field structure is needed for documents having non-typical formats.

Type of Document	Field Format
Orders	999-L/9, The first 3-digit number is a consecutive number of the document, the next symbol «L» is one of the letters “P”, “L”, and “N”. “P” - Personal, “L” – Local, “N” –Normative, the last symbol characterizes the author of the order, it is one of the 2 following values: “1” or “2”. “1” - the Minister, “2” - the Staff Chief:
Procedures	“L99/99”, first symbol “L” is the first letter of “Procedures” “P”, the next 2-digit number is a conference number, the last 2-digit number is a consecutive number of “Procedures”:
Instructions	“L999-9”, the first symbol “L” is the first letter of “Instruction” “I”, the next 3-digit number is consecutive number, the last digit is one of the 2 following values: “1” or “2”. “1” - the Minister, “2” - Staff Chief:
Internal Letters	“L999”, the first symbol “L” is the first letter of “Internal Letters” ‘I’, the next 3-digit number is a consecutive number of document registration.

Table 12

Document Delivery subsystem functional description

This subsystem aim is the regulation of the process of information delivery to the inside and outside addressers. In case of letters requiring responses the deadlines will be defined.

Document Delivery

Document delivery form must include following main subsection:

“**Operation**” - subsection must have an opportunity to choose following actions:

- New Output – if a new reply is registered
- Intermediate Output –intermediate output is registered
- Modification – if the registered document is modified

○ “**Document Registration (Input) Information**” – must include following fields:

- Type of the Document – must be selected those documents type for which the output is carrying out. This field must be chosen at first, before filling in other field as it will determine all the other fields in accordance with the document type. If the newly registered output is not that of any incoming document reply so the “Empty Input” option should be selected.
- Document Input Number (DIN)
- Document Short Content
- Solution Date
- Project Preparation (In case of Official letters)
- Term (In case of Official letters)
- Date (In case of Official letters)
- Solution Number (In case of Official letters)

In order to deliver document, first of all the document requiring correspondent output formation must be found by DIN. The document input number is being inserted and the “Find” button is being pressed, as a result of which the input information will be returned and the presence of already existing outputs will be checked.

For every line of “Document Short Content” the new “Document Delivery (Output) Information” must be formed. To form the appropriate output for other incoming document new input number must be inputted in the DIN field and “Find” button must be pressed.

- **“Information about Solution” must include:**
 - Responsible Department
 - Responsible Person
 - Resolution Content
 - Resolution Author
 - Minister Control Term (expected term)
 - Minister Control Date (expected term)
 - Inside Letters Number (In case of Official Letters)
 - Inside Letter Date (In case of Official Letters)

Data of this subsection will be returned automatically after inputting DIN and pressing “Find” button. All data except that of DIN is only for viewing. This subsection of the document registration form allows no editing.

- **“Document Delivery (Output) Information” – must include following fields:**
 - DON (Document Output Number) – generating by the system
 - Output date
 - Signatory
 - Department
 - Pages number
 - Organization – Organization Name
 - Reply type – following types are foreseen:
 - Incoming document reply
 - Delivering the incoming documents to other authorized bodies for the free use
 - Delivering the incoming documents to outside bodies for the solution
 - Those outgoing documents which require no responses
 - Those outgoing documents which require responses
 - Term (In case of Official Letters)
 - Expected date (In case of Official Letters)
 - Reply / intermediate content
 - Receiving date – The date of receiving the organization reply which will automatically filling in by the system; in case it is filling in for the given output - the incoming date of receiving from the organization (In case of Official Letters).
 - Document Output Method

If the document output is carrying out for the physical persons, the document delivery form will include following additional subsections:

- **“Personal data”/ “Organization data”**
 - SSCN
 - First Name
 - Last Name
 - Father’s Name
 - City

- Region
 - Community
 - Street
 - House
 - Apartment
 - Index
 - Other Country
 - Other address – By choosing “Other Country” field the “Other Address” field will be activated automatically were the correspondent data could be inputted.
 - Collective
- **“Information on Sender”**
 - Organization Name
 - Term
 - Date
 - Output number
 - Output date

As there is a necessary minimum of information to be stored in the database, some fields of the form must necessarily exist. If even one of the necessary fields remains empty, the system must inform the user about this through the “Error Message”. Unless the data is confirmed and analyzed, the system will not implement the “Registration” operation.

In the form, the system must also provide processes of control. If wrong information is entered in the system (e.g., instead of letters, numbers or dates are entered, or number of symbols are not appropriate), the system must inform the user about this, through “Error Message”.

After pressing the “Clear” button of the form, the entered information will be removed (the entire record that has not been registered yet). The button is active until the user presses the “Register” button. For already registered information only editing is allowed, and data can not be completely removed from the database. In order to make a new registration, user must select the “New Registration” option of the “Operation” subsection.

For already registered record in the database only editing is allowed by selecting the “Modification” option and entering the input number of the desired document and pressing the “Find” button. If the system finds the record, it returns the record and allows for modification of any data.

In this form move from one field to another must be quick and easy. Mainly, this movement must be logical.

If the “Solved” field is marked, then by pressing “Registration” button in the Document Registration form, “Solution Date” field is being automatically filled and the document is considered closed.

After entering information in the “Signature” and “Department” fields, the system automatically generates the DON in 9/99-99999 format. The first digit is the code of the signatory, and generated by using information entered in the “Signature” field. The next two digits show department code and generated by using information entered in the “Department” field. The last five digits show consecutive number of the current record in the database.

After entering information in the “Date” field, the system automatically generates the DON for physical persons in 999999 or 999999/99 formats. The DON can be either six-digit number or six-digit number with an adjacent two digit number. In spite of the format, six-digit number of the DON and DIN must be the same.

In case of Intermediate exit, if the document is repeated, consecutive number of the intermediate exit is added to the two-digit number adjacent to the basic number, and the DON gets 999999/99/99 format. Otherwise, if there is no repetition, format is 999999/00/99.

Data Search and Review

The separate form for implementation of various search functions must be developed. Searching engine will give an opportunity to make simple and advanced search in both incoming and outgoing documents.

- **Simple search** will be implemented according to.
 - Document input/output number
 - Document input/output date

- **Advanced search of incoming documents** will be implemented according to the following fields.
 - “Registration” subsection:
 - Document type
 - ”Incoming Document” subsection:
 - DIN
 - Input Date (from, to)
 - Output Number of Incoming Document
 - Output Date (from, to)
 - Solution Number
 - Solution Date (from, to)
 - Document Type
 - Document Number
 - Appeal Content
 - Document Content (words, phrases)
 - Document Title
 - “Source” subsection:
 - First Name
 - Last Name
 - Father's Name
 - Organization
 - Sender
 - “Address” subsection:
 - City
 - Region
 - Community
 - Street
 - House
 - Apartment
 - Index
 - Another Country
 - Another Address
 - “Solution” subsection:
 - Department

 - Responsible Person

- Signature
- Resolution Content
- “Information about Outgoing Document” subsection:
 - DON
 - Output Date (from, to)
 - Organization – reply addressee

After entering searched data and pressing the “Find” button, the number of the found documents is appeared at the bottom of the form and the “List Review” button is activated. The move to the “Registered Documents List” window can be performed by pressing the “List Review” button. This window reflects the main information that helps to identify the record.

The review of the entire data of the current record will be possible by selecting corresponding record from the list of documents and pressing the “Review” button.

- **Advanced search of outgoing documents** will be implemented according to the following fields.
 - “Registration” subsection:
 - Document type
 - “Information about Outgoing Document” subsection:
 - DON
 - Output Date
 - DRN
 - Signatory
 - Department
 - Outgoing Document Type
 - Reply
 - “Addressee” subsection:
 - Organization Name
 - First Name
 - Last Name
 - Father's Name
 - City

 - Region
 - Community

- Street
- House
- Apartment
- Index
- Another Address
- Reply
- “Information about Incoming Document” subsection:
 - DIN
 - Input Date (from, to)
 - Organization Name

After entering searched data and pressing the “Find” button, the number of the found documents is appeared at the bottom of the form and the “List Review” button is activated. The move to the “Registered Documents List” window can be performed by pressing the “List Review” button. This window reflects the main information that helps to identify the record.

The review of the entire data of the current record will be possible by selecting corresponding record from the list of documents and pressing the “Review” button.

Delegation of Responsibilities (Reply Preparation)

The authorized persons with the corresponding access provided by administrator are responsible for the reply function in the system.

The user should insert the answer into the field designed specifically for inserting the answer. After formulating or sending the answer, user can create corresponding file of .pdf format, print it and store in the corresponding folder

Control over the Delegation of Responsibilities

One of the important functions of the system is to provide implementation processes control. Through various reports the secretariat will be able to implement fast and effective control over the process of documents management.

Current subsection provides quick obtaining of all necessary control reports by defining required parameters beforehand.

The system includes the following control reports (those reports are based on the records where the “Solution Number” and “Solution Date” fields are empty).

Form1: The process of handling documents subject to the special control

Records containing term (deadline) of the document implementation controlled by the supervisor must be separated in the database.

- In order to allow the user to fix time period of the report, a dialog window is activated.
- If the beginning date is not filled, the system defaults to the system's initial date.
- If the final date is not filled, the system defaults to the current date.
- If the values of the fields are defined by the user, the system checks for the final date being greater than the beginning date.
- The "Implementation Mark " column is formed by the difference between the date controlled by the supervisor and the current date:
 - The current date is greater than final control date – < "X" days late>.
 - The current date is not greater than final control date – < "X" days remain>.

The report contains the following fields:

- DIN and Date,
- DON and Date,
- Sender,
- Document Title,
- Content,
- Date Controlled by Supervisor,
- Responsible Person,
- Mark (Implementation Mark).

Form2: The process of handling documents subject to the control

Records containing term (deadline) of the document implementation controlled by the Minister and the Minister's resolution (document number contains "*/1") must be separated in the database.

- In order to allow the user to fix time period of the report, a dialog window is activated.
- If the beginning date is not filled, the system defaults to the system's initial date.
- If the final date is not filled, the system defaults to the current date.
- If the values of the fields are defined by the user, the system checks for the final date being greater than the beginning date.
- The "Implementation Mark" column is formed by the difference between the date controlled by the Minister and the current date:

- The current date is greater than final control date – < “X” days late>.
- The current date is not greater than final control date – < “X” days remain>.

The report contains the following fields:

- DIN and Date,
- DON and Date,
- Sender,
- Document Title,
- Content,
- Date Controlled by the Minister,
- Responsible Person,
- Mark (Implementation Mark).

Form3: The process of handling orders and instructions received from the Staff Chief.

Records containing term (deadline) of the document implementation controlled by the Staff Chief and the Staff Chief’s resolution (document number contains “*/2”) must be separated in the database.

- In order to allow the user to fix time period of the report, a dialog window is activated.
- If the beginning date is not filled, the system defaults to the system’s initial date.
- If the final date is not filled, the system defaults to the current date.
- If the values of the fields are defined by the user, the system checks for the final date being greater than the beginning date.
- The “Implementation Mark ” column is formed by the difference between the date controlled by the Staff Chief and the current date:
 - The current date is greater than final control date – < “X” days late>.
 - The current date is not greater than final control date – < “X” days remain>.

The report contains the following fields:

- DIN and Date
- DON and Date
- Sender
- Document Title
- Content

- Date Controlled by the Staff Chief
- Responsible Person

- Mark (Implementation Mark)

Form4: Term defined for control over the overdue list of records

Records with the overdue final date containing term (deadline) of the document implementation controlled by the supervisor (including the Minister and the Staff Chief) must be separated in the database.

- In order to allow the user to fix time period of the report, a dialog window is activated.
- If the beginning date is not filled, the system defaults to the system's initial date.
- If the final date is not filled, the system defaults to the current date.
- If the values of the fields are defined by the user, the system checks for the final date being greater than the beginning date.
- The "Implementation Mark " column is formed by the difference between the date controlled by the supervisor and the current date:
 - The current date is greater than final control date – < "X" days late>.
 - The current date is not greater than final control date – < "X" days remain>.

The report contains the following fields:

- DIN and Date,
- DON and Date,
- Sender,
- Document Title,
- Content,
- Date Controlled by the Supervisor,
- Responsible Person,
- Mark (Implementation Mark).

Form5: Flow of documents concerning the legislative projects

The following parameters are mentioned for control over the flow of documents concerning the legislative projects: Project preparation, output document type, document input date, and organization(s) name(s).

The title of the report is

Document type (legislative act/project) and name,

The report has the following fields:

- DIN and Date

- DON and Date
- Organization Name
- Document Title
- Content
- Department
- Sent for Opinion (Organization, DON, Date)
- Replies (Intermediate DIN, Date)
- Implementation Mark
- Initial Control Term
- DON, Date
- Final Reception Mark

Mark

- If the “Final Reception” column contains selection, the corresponding records will not be printed.

Form6: Implementation process of the managerial program

The following parameters are mentioned for control over the implementation process of the managerial program: outgoing number of the received document, date of the received document, document title.

The report has the following fields:

Document type (legislative act/project) and name,

Report has the following fields:

- Document Title
- Organization Name
- DIN and Date
- DON and Date
- Content
- Department
- Sent for Opinion (Organization, DON, Date)
- Replies (Intermediate DIN, Date)
- Supervisor’s Implementation Term

- Initial Control Term
- DON, Date

Data Archiving

With the help of “Archiving” option of the “System” submenu the administrator will have an opportunity to archive all the data of the database which are more than two years older than current date.

Archiving operation can be implemented only at the beginning of the year.

Reports

The DocFlow Management “EDoc” Information System must be provided by generating various reports for its efficiency.

1. Processing of Suggestions, Appeals, and Complaints

Defined parameters:

- Document type,
- Document input date,
- By departments,
- By places,
- By regions,
- Personally,
- By organizations:

Number of appeals	Number of appealers	Number of double appeals	Number of collective appeals	Analyzing of appeals implementation term				Number of appeals according to their contents								Number of replies according to their contents			
				Total number of	In time	Replied lately													
				1-10 days	11-20 days	21-31 days	30 days and more												

2. Processing of Documents Implementation Discipline

Defined parameters:

- Document input date,
- By departments,
- Personally,
- By organizations.

Controllable					Total	From the staff of the president of RA				Total	From the parliament of RA				Total	Documents received from the government of RA				Total	Orders, Instructions				
Total	In time	Implementation term				In time	Delay				In time	Delay				In time	Delay				In time	Implementation term			
		1-10 days	11-20 days	21-30 days			30 days and more	1-10 days	11-20 days			21-30 days	30 days and more	1-10 days			11-20 days	21-30 days	30 days and more			1-10 days	11-20 days	21-30 days	30 days and more

3. . Processing of Document Flow

Defined parameters:

- Document input date,
- Republic,
- By departments,
- By organizations.

	Number of inputs										Number of outputs					
	Total	Document type					Kind of the document					Total	Reply type			
Total																

4. Personal Survey

Defined parameters:

- SSCN,
- First Name,
- Last Name,
- Middle Name.

F.L.M.

Address

DIN and date	Organization, DON and date	Content	Responsible, Department	DON, date	Reply content

6.2 Interface description

Functions implemented by the system may be classified into six main parts which should be toolbar components of the system's main window: “My inbox”, “My deadlines”, “My Log”, “Incoming”, “Outgoing” and “System”.

The following functions are foreseen to be implemented in the subdivision “My inbox”

- Documents Registration
- Documents Delivery/Sending

Documents Registration

Interface of documents registration form is given bellow.

Operation

Registration
 Intermediate input
 Modification

Document information

Document type	<input type="text"/>
Input date	<input type="text"/>
Document input number (DIN)	<input type="text"/>
Short content	<input type="text"/>
Solution date	<input type="text"/>

Solution information

Responsible department	<input type="text"/>
Responsible person	<input type="text"/>
Resolution author	<input type="text"/>
Resolution content	<input type="text"/>

Personal data / Organization data

SSCN	<input type="text"/>
First name	<input type="text"/>
Last name	<input type="text"/>
Father's name	<input type="text"/>
Organization's name	<input type="text"/>
City	<input type="text"/>
Region	<input type="text"/>
Community	<input type="text"/>
Street	<input type="text"/>
House	<input type="text"/>
Apartment	<input type="text"/>
Index	<input type="text"/>
Other country	<input checked="" type="checkbox"/>
Other address	<input type="text"/>

Delivery/Sending of Registered Documents

Interface of registered documents delivery form is given below.

Operation

New registration Intermediate exit Modification

Document registration (input) information

Document type	<input type="text"/>	<input type="button" value="Find"/>
Document input number (DIN)	<input type="text"/>	
Document short content	<input type="text"/>	
Solution date	<input type="text"/>	

Personal data / Organisation data

SSCN	<input type="text"/>
First name	<input type="text"/>
Last name	<input type="text"/>
Father's name	<input type="text"/>
City	<input type="text"/>
Region	<input type="text"/>
Community	<input type="text"/>
Street	<input type="text"/>
House	<input type="text"/>
Apartment	<input type="text"/>
Index	<input type="text"/>
Other country	<input checked="" type="checkbox"/>
Other address	<input type="text"/>
Collective	<input checked="" type="checkbox"/>

Information about sending organization

Organization name	<input type="text"/>
Term	<input type="text"/>
Date	<input type="text"/>
Output number	<input type="text"/>
Output date	<input type="text"/>

Information about solution

Responsible department	<input type="text"/>
Responsible person	<input type="text"/>
Resolution author	<input type="text"/>
Resolution content	<input type="text"/>
Term controlled by the Minister	<input type="text"/>
Date controlled by the Minister	<input type="text"/>

Document sending (output) information

Document output number (DON)	<input type="text"/>
Date	<input type="text"/>
Number of pages	<input type="text"/>
Reply type	<input type="text"/>
Signatory	<input type="text"/>
Department	<input type="text"/>
Organization	<input type="text"/>
Reply / Content	<input type="text"/>
Document delivery method	<input type="text"/>

Searching/Viewing of Data

Advanced Search of Input Data

Document registration (input) information

Document type

Incoming document information

Document input number (DIN)

Output number of incoming document

Solution number

Input date From To

Output date From To

Solution date From To

Document content

Document title

Source

First name	<input type="text"/>
Last name	<input type="text"/>
Father's name	<input type="text"/>
Organization	<input type="text" value="v"/>
Sender	<input type="text" value="v"/>

Address

City	<input type="text" value="v"/>
Region	<input type="text" value="v"/>
Community	<input type="text" value="v"/>
Street	<input type="text" value="v"/>
House	<input type="text"/>
Apartment	<input type="text"/>
Index	<input type="text"/>
Other country	<input checked="" type="checkbox"/>
Other address	<input type="text"/>

Solution

Department	<input type="text" value="v"/>
Responsible person	<input type="text" value="v"/>
Resolution author	<input type="text" value="v"/>
Resolution content	<input type="text" value="v"/>

Information about outgoing document

Document output number (DON)	<input type="text"/>	
Output date	From <input type="text"/>	To <input type="text"/>
Organization	<input type="text" value="v"/>	

Number of found documents -

Advanced Search of Output Data

Document registration (input) information

Document type

Information about outgoing document

Document output number (DON)

Document location address

Signatory

Department

Output date From To

Outgoing document type

Reply

Addressee

Organization name

First name

Last name

Father's name

City

Region

Community

Street

House

Apartment

Index

Other country

Other address

Outgoing document information

Document input number (DIN)

Input date From To

Organization name

Number of found documents -

The rest windows of the interface will be created based on the docflow inside the Ministry.

7 Technical Project

7.1 Information Flow Structural Description

Functions of all subsystems' information flows and their implementation are presented according to the subsystems' functional description - section 6.1.

7.2 Full Description of Information

Names of Necessary Tables

Table	Description
Docking	Input of Documents
TIN_1	
InDoc Short Content	Short content of documents
InDoc_Resolves	Resolves of documents
Doc_Out	Output of documents
TOUT 1	
Out Doc Inform	Output information
Ref_RefTypes	Types of references
References	References
DocFields	Fields of documents
Staff_Positions	Staff
Positions	Positions
Organization structure	Structure of the organization
Users	Users
Groups	Groups
UsersGroups	Users' division according to the groups
Rights	Rights
GroupsRights	Division of rights according to the groups

Description of Tables

Doc_In

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
cDocInNumb	Number of document input	varchar	15	
cMinOutNumb	Ministry's output number to which the given input corresponds	varchar	15	
dDocInDate	Date of document input	date		
nDocInType	Code of input document's kind (phis, offic. and etc.)	number	2	
cSenderOutNumb	Output number of the sender	varchar	10	
dSenderOutDate	Date of sending	date		
nDocTitleText	Title of the document	varchar	512	
nDocPageNumb	Number of document's pages	number	2	
nDepCode	Code of the department, organization	number	3	
nCityCode	City code of the department, organization	number		
nRegionCode	Region code of the department, organization	number		
nCommunityCode	Community Code of the department, organization	number		
nStreetCode	Street Code of the department, organization	number		
cHouse	House number of the department, organization	varchar	10	
cApartment	Apartment number of the department, organization	varchar	10	
nPostIndex	Post Index of the department, organization	number	6	
cOtherAddress	Other address of the department, organization	varchar	100	
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

For each type of document new tables should be built for the rest of requisites.

TIN_1 (number is document's code)

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK, FK
field 1				
.....				
Field n				
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

Such kind of table for contents should be built for each type of document.

InDoc_Short_Content

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
nDocInID	Document registration ID	number		FK
nNumbContRow	Number of content row	number	4	
cDepInContent	Short content of the documrnt	varchar	256	
cDocLoc	Document location (folder)	number	2	
nDepTerm	Deadline mentioned by the head (days)	number	2	
dDepDeadline	Deadline mentioned by the head (date)	date		
nResOutNumb	Output number of resolve document	number	6	
dResDate	Resolve date	date		
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

InDoc_Resolves

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
nDocInID	Document Registration ID	number	6	FK
nDocInterNumb	Regular number of intermediate input	number	2	
nNumbContRow	Number of content row	number	4	
nResAuthorCode	Resolution author's code	number	3	
nResolutionCode	Resolution code	number	3	
nDivisCode	Code of division	number	3	
nPerformerCode	Performer's code	number	3	
nMinTerm	Deadline mentioned by the Ministry (days)	number	2	
dMinDeadline	Deadline mentioned by the Ministry (date)	date		
nInternalLetter	Number of internal letter (resolve)	number	3	
dInternalLetterDate	Date of getting internal letter	date		
nParentID	Parent ID (See nID)	number		FK
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

Doc_Out

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
nDocInType	Document input type(Official letter, Order, Phis..)	number	1	
nDocInID	Document input ID	number		FK
nResAuthorCode	Resolution author's code	number	3	
nDivisCode	Code of subdivision	number	3	
dDocOutDate	Date of document's output	date		
nDocPageNumb	Number of document's pages	number	2	
nDocOutSortCode	Code of output document's type	number	3	
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

TOUT_1 (number is document's code)

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK, FK
field 1				
.....				
field n				
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

Out Doc_Inform

Field name	Description	Type	Size	Comment
nID	Registration ID (autoincrement)	number		PK
nDocOutID	Document output ID	number	6	FK
nNumbContRow	Number of content row	number	4	
nDepCode	Department code	number	3	
nAnswerCode	Code of answer's type	number	1	
nAnsContCode	Code of answer's content	number	3	
nMinTerm	Deadline mentioned by the Ministry (days)	number	2	
dMinDeadline	Deadline mentioned by the Ministry (date)	date		
nPostMethodCode	PostMethodCode	number	1	
dReceiveDate	Receive date	date		
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

Ref_RefTypes

Field name	Description	Type	Size	Comment
nCode	Code of references' type	number	3	PK
cText	Type	varchar	50	
nCodeLen	Length of reference's code	number	2	
cComment	Comment			
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

References

Field name	Description	Type	Size	Comment
nID	Registration ID	number		PK
nType	Type	number		FK
nCode	References code	varchar	15	
cText	Text	varchar	200	
nPID	Parent ID (See nID)	number		
cComment	Comment			
nUserId	User's code	number	3	
dModifDate	Modification date of the given registration	date		
nModifReason	Code of modification reason of the given registration	number	1	

DocFields

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
nDocTypeID	Document type ID	number		FK
nFieldID	Field ID	number		FK
nFieldPositionNum	Number of field position	number		

Staff

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
cFirstName	First name	varchar		
cLastName	Last name	varchar		
cEmail	E-mail	varchar		
nRoomNumber	Room number	number		
nPhone	Phone	number		
nPositionID	Position ID	number		FK

Staff_Positions

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
nStaffID	Staff ID	number		FK
nPositionID	Position ID	number		FK
dStartDate	Start date	date		
dEndDate	End date	date		

Organization_structure

Field name	Description	Type	Size	Comment
nPositionID	RegistrationID (autoincrement)	number		PK
cPositionDesc	Position description	varchar		
nStrPosNum	Position number	number		
dStartDate	Position start date	date		
dEndDate	Position end date	date		
nParentID	Parent ID (See nID)	number		

Users

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
cUsername	User's name	varchar		
cPassword	User's password	varchar		
cComment	Comment	varchar		
nStaffID	Staff ID	number		FK

Groups

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
nParentID	Parent ID (See nID)	number		FK
cName	Description of the group	varchar		
cComment	Comment	varchar		

UsersInGroups

Field name	Description	Type	Size	Comment
nGroupID	Group ID	number		PK, FK
nUserID	User ID	number		PK, FK

Rights

Field name	Description	Type	Size	Comment
nID	RegistrationID (autoincrement)	number		PK
cName	Description of the right	varchar		

GroupsRights

Field name	Description	Type	Size	Comment
nGroupID	GroupID	number		PK, FK
nRightID	Right ID	number		PK, FK

7.3 Full Description of Input and Output Documents

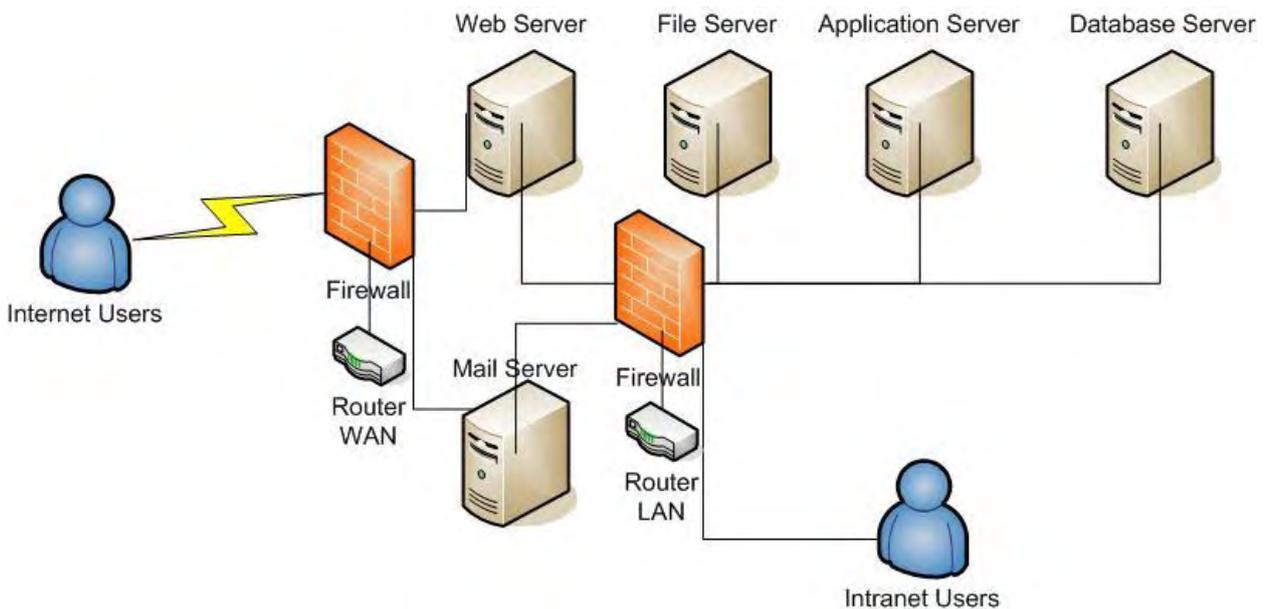
Content of input and output documents of Information System is described in section 6.1.

7.4 Implementation methodology, languages, databases, and the operation system

1.	Operating System	FreeBSD
2.	Database Management System	PostgreSQL
3.	Programming Languages	PHP, HTML, CSS, Java Script
4.	Web Server	Apache
5.	Methodology	Intranet/Extranet
6.	Data transfer protocol	HTTP, HTTPS, FTP, SFTP, SMTP, POP3, LDAP

Table 13

7.5 Hardware structural description



Picture 4

7.6 Hardware minimal requirements

Web Services

Pentium CoreQuad 2 x 4MB, P65 chipset 320 GB HDD, 4 x 512 MB (800 MH) RAM, 128 MB VGA (NVIDIA), LAN, 17" Monitor, Mouse, Keyboard

Applications and Database Services

Pentium CoreQuad 2 x 4 MB, P65 chipset 320 GB HDD, 4 x 512 MB (800 MH) RAM, 128 MB VGA (NVIDIA), LAN, 17" Monitor, Mouse, Keyboard

File Services

Pentium CoreQuad 2 x 4 MB, P65 chipset 320 GB HDD, 4 x 512 MB (800 MH) RAM, 128 MB VGA (NVIDIA), LAN, 17" Monitor, Mouse, Keyboard

Mail Services

Pentium IV - 2400, 200 GB HDD (depending on volumes), 1 GB RAM, 32 MB VGA, LAN, 17" Monitor, Mouse, Keyboard

Spare (Service Continuity)

Pentium CoreQuad 2 x 4 MB, P65 chipset 320 GB HDD, 4 x 512 MB (800 MH) RAM, 128 MB VGA (NVIDIA), LAN, 17" Monitor, Mouse, Keyboard

Internet access

Router Cisco

7.7 Project alternatives

In the presence of financial resources user can choose the below mentioned methodology, languages, databases, and the operation system:

1.	Operating System	FreeBSD, Linux, or Solaris 10.
2.	Database Management System	PostgreSQL, Oracle
3.	Programming Languages	Java, C/C++, PHP, JSP, Perl, Python, Ruby, HTML, CSS, Java Script
4.	Web Server	Apache
5.	Methodology	Intranet/Extranet
6.	Data transfer protocol	HTTP, HTTPS, FTP, SFTP, SMTP, POP3, LDAP

Table 14

8 Design summary

Effectiveness and simplicity

Project executors must have in mind that the user storage information of short duration obliges to organize interfaces with the simple, well remembering, prompting and dictating logical sequence of functions screen forms. The screen forms must be logically combined and categorized, providing functional circle completion through the shortest route. It is also necessary to avoid the useless screen change in order to gain the users confidence.

Thus, the interface is to be convenient and efficient, with the opportunities of easy navigation. Access screens and reports construction must be available to all the users regardless their experience level.

Flexibility

The system must be as flexible as possible to create the reports and form the inquirers.

Expandability

Software, databases and libraries changes and spreading, legislative changes must minimally impact the system. It should be possible to create new modules on existing basis. The changes should be implemented in the shortest period being insignificant for the users.

The involvement of other social sphere subsystems shouldn't violate the system completeness and lead to implementation of whole system performance testing costly activities.

Free interrelations concerning data transmission between different systems

Each system of social sphere should be designed so as, that at any time it should be able to perform like a subsystem functions for other systems. It should have

- Possibility to make comparisons
- Means of reducing insertion of same information to minimum (e.g. when Social Security Card Number is entered, an immediate comparison with SSC system should be made and the fields of First name, Last name, Father's name, sex and number should be automatically filled)
- Possibility to formulate reports, analyses and other output document types with MS Word and MS Excel, which will give an opportunity for convenient and efficient departmental and interdepartmental docflow.

Information centralization, canonization and availability

Actuality

Using the opportunities given by the Information accumulation and management centralized system, it is necessary to provide the information actuality for any unit at any time period

The use of simple and logical forms for implementing search and making reports should be easy to understand.

Reliability

The system should provide the information collection and exchange reliability. In case of need, the feedback should be provided through the network technologies.

Operation rapidity

The operation rapidity provision requirement is the choice and application of the efficient combination of Database and Software. With relation to the Database and Software design the System should provide the minimal Frequently Used Sampling time.

Security and safety

The security main guarantees are:

- Reversibility of any function of the system
- Human factor's role reduction
- Realization of steps to secure the system from disasters and provide the data restoration mechanisms
- Information flows secure paths/technologies application
- Human factor risk reduction on basis of the users' access management, users' role division and users' identification
- Implementation of database periodic or in some cases mandatory copy activities
- Storing information about data modifications, i.e. implementation of logging functions by the system, which in conflicting situations will give an opportunity to restore the executor of the given action, actions carried out by him, the time period and content. Each user should realize his responsibility while using the system and should be aware that his actions are being logged in all work phases.

Transparency

The system should provide the transparent information to all the users via provision of the checking mechanisms and opportunity to access from the various sources.

High level of controlling and managing

Control at systems' different levels should be implemented both in up-to-down and down-to-up directions in the frame of each level's authorities.

Similar approach will eliminate faults and information loss and in State - Foundation-Authorized agent - Person relationships will create unconstrained, agreed and reliable atmosphere for cooperation, which is the first and the most important success factor for normal system performance.

The existence of monitoring-related issues clarifying functions in the system will support and accelerate the clarification of evolving issues.

The centralization of controlling and managing will lead to formalized relationships between system and external objects and will greatly reduce misunderstandings and uncertainties between internal and external objects.

Maintenance costs reduction

Based on the state-of-the-art technologies the software, databases and libraries changes and spreading in the system will lead to operation time and cost reduction.

Well-documented and easily structured System will create the background for the development team to provide low costs for future changes.

All the actions concerning system operation should be easy and available. The use of the system shouldn't require high-level computer literacy.

Using system's "Help", users will be timely informed about changes, which will also lead to costs reduction.

9 Service deployment

9.1 Implementation requirements

For the Information System deployment Client should provide correspondent technical and communication means defined in section 7.4 (7.7 in case of project alternatives).

9.2 Training requirements

It is planned to organize training for correspondent MLSI staff members. The training courses will be provided by the CHS Vericel Service experienced specialists. The training course participants will be provided by the Users and Maintenance manuals.

The Executor should implement the training courses for:

- System administrator
- Specialists for the system functional maintenance

9.3 Deployment testing

Before the IS installation the Executor must carry out the Alfa testing.

10 Testing

All the testing plans and terms will be developed on the basis of functional specifications and requirements.

The main testing types are represented below.

10.1 Functional and Integration testing

10.1.1 Functional testing

The aim of this testing is to verify that each software component (module, subsystem, function, information) complies with functional requirements.

10.1.2 Integration testing

By this testing it is assured that all the interfaces terrains are matched with each other; the information flows are protected from inconsistency and the information system operate as an integrated unit.

10.1.3 User acceptance testing

This testing is carrying out by the user and shows that Information System operates in accordance with the user expectations and all the assistant procedures and forms are appropriate and correct, and directed toward the foreseen objectives. This testing is of high quality; it provides the guarantee for functional accuracy.

10.1.4 Regression testing

This type of testing is to be carried out after each new version implementation in order to ascertain that there are no impacts of the old versions and the Software operational growth takes place.

10.1.5 Multi-user simultaneous testing

Multi-user testing should try to assure that the concurrent use by the acceptable number of users is possible.

10.1.6 Technical testing

The technical testing is the duty of the development team and is directed to ascertain the installed system efficiency and technical compliance.

10.1.7 Actions acceptance testing

This testing type is to be carried out by the installation and support group before system complete operation.

10.2 Beta and final testing

Executor and Client are signing the final testing act.

11 Maintenance and support plan

After the Information System installation Executor passes the initial codes to the users, after which the contract on the maintenance and on-going support will be signed between the Executor and User. The User can implement the maintenance and on-going support on his own.

Daily tasks include:

1. Registration and Error recording
2. Disc space / disc changes
3. Reflection
4. Storage maintenance
5. Backups
6. Automation mechanisms
7. Work load
8. Service reply
9. Reports on problems