
EU-ILO Project
Enhancing the labour administration capacity
to improve working conditions and tackle undeclared work

Evaluation of existing information systems of the State Labour Service of Ukraine and of other institutions related to labour inspection with particular focus on SLS activities to tackle undeclared work

December 2018



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Glossary of terms

Acronym	Description
AIC	Ago Industrial Complex
ASM	Automated system of monitoring
CMU	Cabinet of Ministers of Ukraine
CO	Central Office
SVC	Security verification code
DSN	Information System of Ministry of Economic Development and Trade
EDRPOU	(USREOU - Unified State Register of Enterprises and Organizations of Ukraine)
EU	European Union
FTP	File Transfer Protocol
GB	Giga Byte
HHRR	Human Resources
ILO	International Labour Organization
IS	Information System
MB	Mega Byte
NRIISLP	National Research Institute for Industrial Safety and Labour Protection
PFU	Pension Fund of Ukraine
RAM	Random Access Memory
SCS	Social Cultural Sphere
SFS	State Fiscal Service
SLS	State Labour Service of Ukraine
TD	Territorial Directorate
TREMBITA (system)	The main purpose of this system, is to ensure data exchange between state agencies on a real-time basis
UDW	Undeclared Work
UIAS	Unified Information Analysis System

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Executive Summary

This initial section summarizes the [main sections](#) of this document, and collect the [main ideas and recommendations](#) in order to propose an improvement plan for the evolution of the SLS information systems:

- **Analysis of the current situation, deficiencies detected.**
- **Benefits of the evolution plan**
- **Objectives pursued**
- **Main Characteristics of the new SLS information system proposed**
- **Road map and estimated budget**

Analysis of the current situation, deficiencies detected

- ❑ **Technological obsolescence:** systems not oriented to web technology with limited accessibility and technological capabilities.
- ❑ **Lack of interaction between systems:** which prevents interoperability and the exchange of information.
- ❑ **Distributed systems and information:** without a centralized system that allows having a global vision of SLS operations.
- ❑ **Lack of centralized databases:** distributed data with difficulty for comparisons and data crossings.
- ❑ **Lack of analytical capabilities:** lack of a subsystem of reporting and analytical management of information.
- ❑ **Insufficient information:** necessary for a complete management of SLS operations (for example, information needs related to: Labor protection, Occupational health and working conditions, Labor relations, etc.)
- ❑ **Needs of directories and centralized classifications:** that allow having standard encodings with centralized maintenance.
- ❑ **Electronic documentation management needs:** as well as management flows of it.
- ❑ **Need for centralized management:** where defining access permissions, user roles, etc.

Benefits of the evolution plan of the SLS information systems

☐ Get a better image of the Ukrainian Public Administration:

- From the internal point of view of the Public Administration.
- From the point of view of companies and workers.
- From the point of view of other national or international organizations.

☐ Have a complete, reliable and accessible set of information:

- Improve and complete the available information that allows a more complete management of SLS operations.

☐ Improve the efficiency of the SLS processes:

- Based on standardization, automation, management improvements, etc.

☐ Improve the detection, control and monitoring of undeclared work.

☐ Enable the detection, control and monitoring of other fraud possibilities.

☐ Making the investment profitable in the short / medium term:

- Saving costs by improving efficiencies
- Through the increase in revenues due to the improvement in the detection of fraud and in the improvement of the administration's control.

Objectives pursued with the proposed improvement plan

- ❑ Endow SLS with a modern technological architecture:
 - With new operational capabilities
 - That facilitates future maintenance and evolution
- ❑ Facilitate the work of the different Units of the SLS
 - With the provision of improved tools and efficiency in the processes.
- ❑ Provide SLS with the maintenance of the legally attributed records:
 - As, for example, occupational accidents, occupational diseases, etc.
- ❑ Provide SLS with the necessary tools to analyze the data:
 - To improve the analysis and decision making.
 - To improve reporting, as well as analytical and predictive capabilities.
 - For the detection of fraud.
- ❑ Enabling and enhancing online transactions.
- ❑ Improve the management of reports and statistics.
- ❑ Allow the SLS the automated exchange of information.
- ❑ General consideration to study when carrying out the proposed improvement plan, aspects such as:
 - Software and hardware needs.
 - Communications requirements.
 - Needs of exploitation and maintenance of the systems.
 - Impact in the organization.

Main Characteristics of the new SLS information system proposed

- ☐ More modern Infrastructure.
- ☐ Based on web technologies, to facilitate access and usability.
- ☐ Scalable both quantitatively (number of users), and qualitatively (new services).
- ☐ Use of widely accepted and tested solutions by the Industry.
- ☐ New capabilities of communication with external information systems.
- ☐ Interoperability and data exchange more flexible.
- ☐ New capabilities of data analysis and reporting.
- ☐ Data intelligence to facilitate detection of undeclared work and other possibilities of fraud.
- ☐ Data set managed more complete
- ☐ Contemplate all SLS functional and business needs.

Road Map and estimated Budget

Road Map

Before these developments start, the [Technical Project Office](#) must make a detailed system plan, which could be estimated in 6 months, and take the rest of important decisions about hardware, software, HHRR, etc.



Estimated Budget

The following table shows the estimated financial needs for the works related to the creation and implementation of the SLS UIAS, according to the estimation provided by the OSH Institute in their report:

Subsystem name	Estimated cost of development
Development cost of the SLS UIAS subsystems	960.000,00 €
Cost of works related to UIAS implementation and staff training	102.000,00 €
Cost of work related to UIAS maintenance during a year	45.000,00 €
Cost of computer hardware and licensed software	437.250,00 €
including:	
Server equipment	61.500,00 €
Computer hardware (fixed workstations)	216.000,00 €
Computer hardware (mobile items)	58.500,00 €
Licensed software	101.250,00 €
Licensed software and certificates to be issued by the state administration (licenses and connection to the IS Trembita, State Statistics Service IS, Ministry of Justice IS etc.)	60.000,00 €
TOTAL	1.544.250,00 €

1. Introduction

1.1 Preliminary considerations

- ❑ The starting point for the preparation of this document has been the report: *“ASSESSMENT OF THE INFORMATION SYSTEMS OF THE STATE LABOUR SERVICE OF UKRAINE AND OTHER AUTHORITIES/INSTITUTIONS/ORGANIZATIONS IN THE LABOUR INSPECTION CONTEXT, FOCUSING ON THE SLS ACTIVITIES TO TACKLE UNDECLARED WORK”*, made by: *The National Research Institute for Industrial Safety and Labour Protection* and the visits made to Kiev to assess the situation.
- ❑ This document is then the result of the study of the report and the information obtained during the visits in February and July 2018. The main purpose is to outline the general objectives and benefits pursued, summarize the current situation of the SLS systems, compile the recommendations for the evolution and improvement of the SLS information systems and point out the critical factors for the successful implementation of the recommendations. It also outlines a roadmap and a preliminary estimated budget.

1.2 Objective of the document

The general objective of the document is to provide a [high-level vision of the evolution, modernization and improvement](#) approach of the SLS information systems, in order to optimize the management, coordination and operation of the Labour Inspection, with a special emphasis in monitoring undeclared work.

This document is structured in four main sections:

- ❑ [Benefits and objectives pursued](#) in the general process of modernization and evolution of SLS systems. This section will describe the guidelines pursued in aspects such as benefits to obtain, savings that can be achieved, efficiencies in operations, etc.
- ❑ [Summary of the current situation](#). The current situation of the SLS information systems will be summarized in order to understand the starting point as well as the proposed improvement and evolution recommendations.
- ❑ [Proposed evolution and recommendations for improvement](#). This section includes a series of recommendations for evolution and improvement, focused on the following global objectives:

- Propose a modern, usable and secure information system that serves SLS, companies, workers, business and union organizations, other state institutions and citizens in general.
- Detail a series of aspects on which it will be necessary to ponder and evaluate for the final objective pursued:
 - Objectives to be covered by the information system of the SLS
 - Target audience or sectors to which the information system must respond
 - Assess whether it is appropriate to improve the current systems or replace them with new ones with global capabilities
 - Technological solution to adopt for the modernization and improvement of the systems
 - Financial needs
 - Needs of human and material resources
 - Propose a set of information systems that fully cover all SLS needs and offer the possibility of modernizing and improving operations at all levels (management, inspection activity, staff personnel, training, etc.).
 - Establish an initial Roadmap, based on similar experiences.

It is necessary to bear in mind that once this final report is agreed upon, it will be necessary to make a [detailed system plan](#), based on this report, in order to carry out all the activities and recommendations that are proposed.

In addition, we cannot forget the importance of having the necessary financing capacity that can assume both the initial development and the future maintenance.

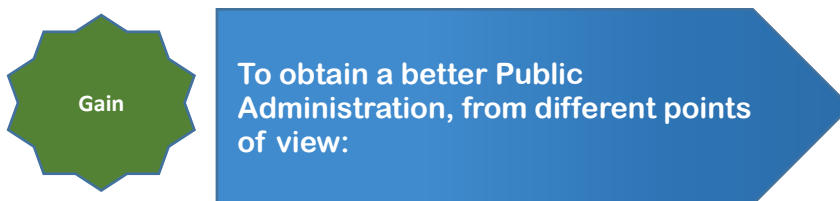
- ❑ [Critical factors of success](#). This section highlights a series of factors that must be taken into account for the implementation of the recommendations

2. General benefits of the process of evolution and improvement

2.1 Global benefits of this process

With the process of evolution, improvement and modernization of the information systems of SLS, it is intended to achieve a series of objectives from the organizational and technological point of view, as well as procedural and even economic in the medium and long term.

From a global point of view, the benefits that can be obtained with this process can be summarized in:



From the point of view of the administration

- You get more complete and updated information
- Management and control capabilities are improved
- It facilitates daily operations and streamlines its functions
- Inter-agency communication is facilitated
- The provision of public services can be improved
- A vision of modernity is achieved.
- Workers are provided with better work tools
- The feeling of belonging is improved ("Great place to work")

From the point of view of companies and workers

- The overall perception of the public service is improved

- The communication channels between the administration and the citizens are extended and improved (internet, mobile devices, etc.)

- Modernization allows streamlining administrative procedures

- Telematics' communications reduce the need for face-to-face assistance
-

From the point of view of other national or international organizations

- A perception of modernity and efficiency is achieved

- Improved communication and the provision of information

- It facilitates the exchange of information between organizations
-



Have a set of complete, reliable and accessible information

Improvement of the information set

- SLS will have a database with complete and centralized information
- The information will be accessible through web systems, from any location and through different channels (PC, Mobile devices, etc.).
- The information can be secured, defining profiles and roles of access to it
- The exchange of information between systems and organizations is improved. Manual exchange interventions will be reduced
- Management and monitoring of SLS operations will be enhanced, through dashboards, new advanced reports
- It will be possible to have analytical information capabilities that help in predictability and decision making
- New information identified as necessary for its operation will be included in the SLS systems



The efficiency of the SLS processes is improved

Improvements in the efficiency of processes

- Centralized information systems allow administrative procedures to be standardized
- It will be possible to define automated flows of information and documentation processing processes
- Automations and reduction of manual interventions can be achieved
- It will be possible to improve the services that the administration provides to the citizens, companies and workers
- The SLS management capabilities are improved



It facilitates the detection, control and monitoring of undeclared work

Detection and control of undeclared work

- A new information system will be available to identify and monitor undeclared work
- The system will also provide new fraud detection capabilities
- The control, follow-up and correction of detected fraud situations will be enhanced



It enables the detection, control and monitoring of other fraud possibilities

Fight against fraud

- In addition to the detection and monitoring of undeclared work, other capabilities may be included in the new system to identify other types of fraud to the administration



The investment will be profitable in the short term

With cost savings

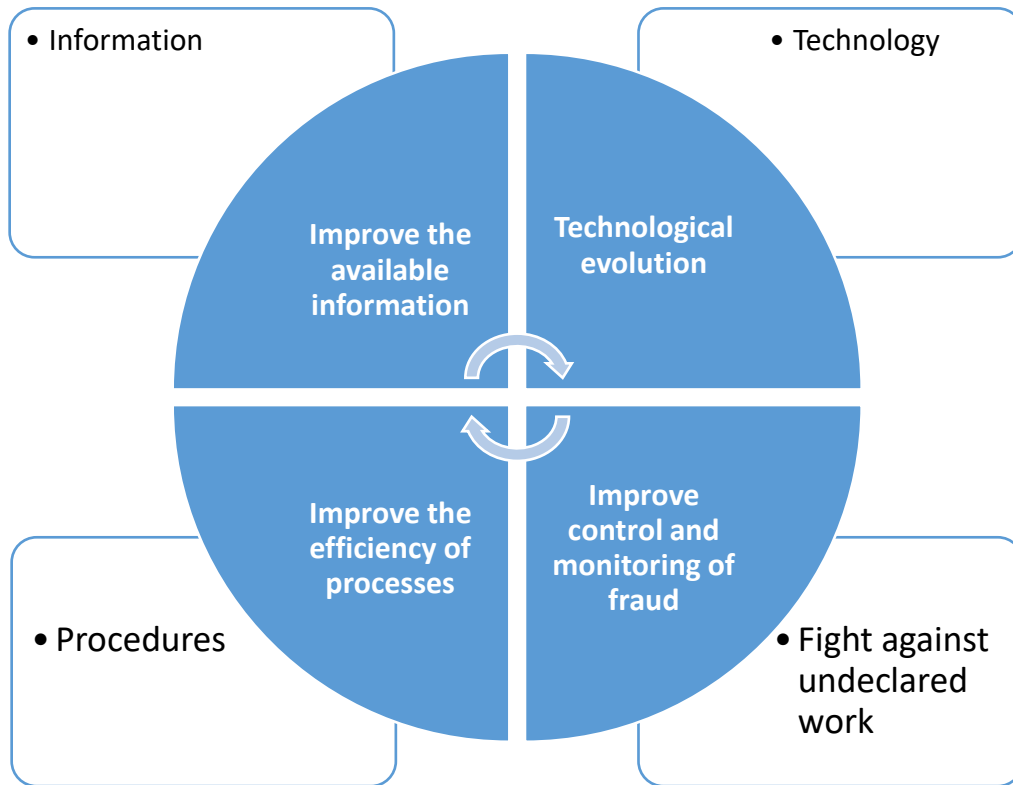
- Having a centralized and standardized system, allows us to reduce evolutionary and corrective maintenance costs
- The automation and reduction of manual interventions may allow the human team to invest their time in more productive activities
- The interconnection and interoperability with other agencies could allow the sharing of costs between SLS and other organizations for future developments and information exchange through collaboration agreements

With the increase of revenues

- The optimization of the process of detection of undeclared work and other possibilities of fraud will allow the regularization of fraudulent situations
 - It will achieve an improvement in the inspection possibilities and an increase in revenues of the public administration
-

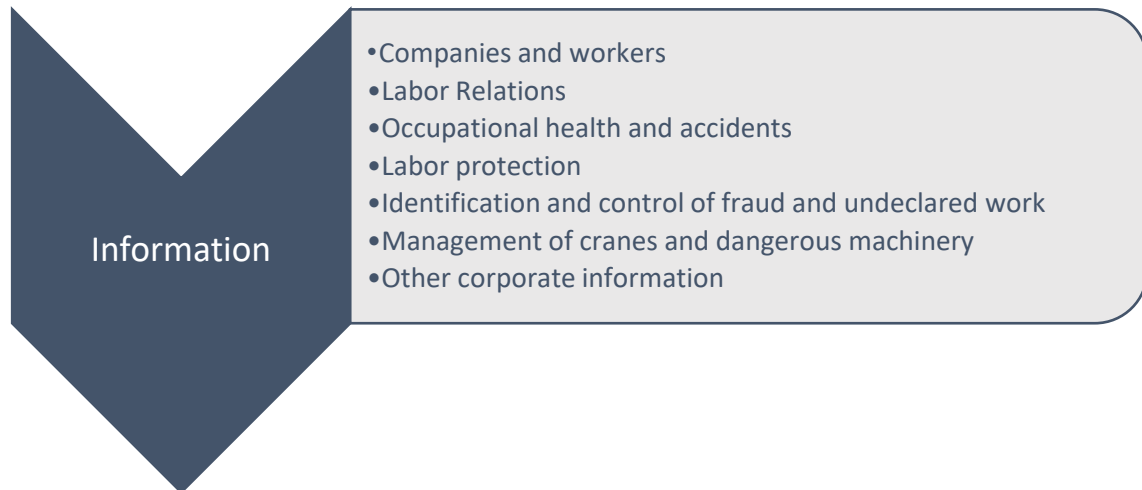
2.2 How the achievement of the objectives pursued is articulated

To achieve the indicated benefits, **four main lines of action** have been identified; each of them pursuing specific objectives defined in the process of evolution and modernization of the SLS information systems.



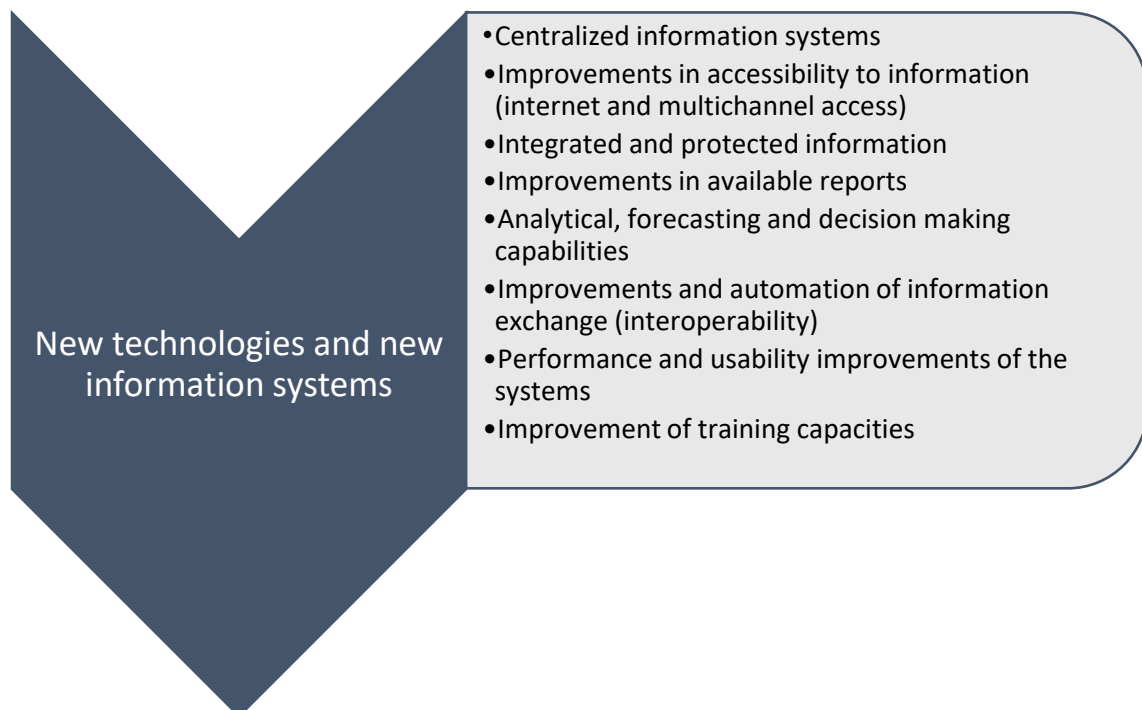
2.2.1 *Improve the available information*

Access to information is a key element for the management of SLS operations, so all the needs for improvement and inclusion of new information, detected in the current situation analysis, carried out by the local consultant will be taken into consideration:



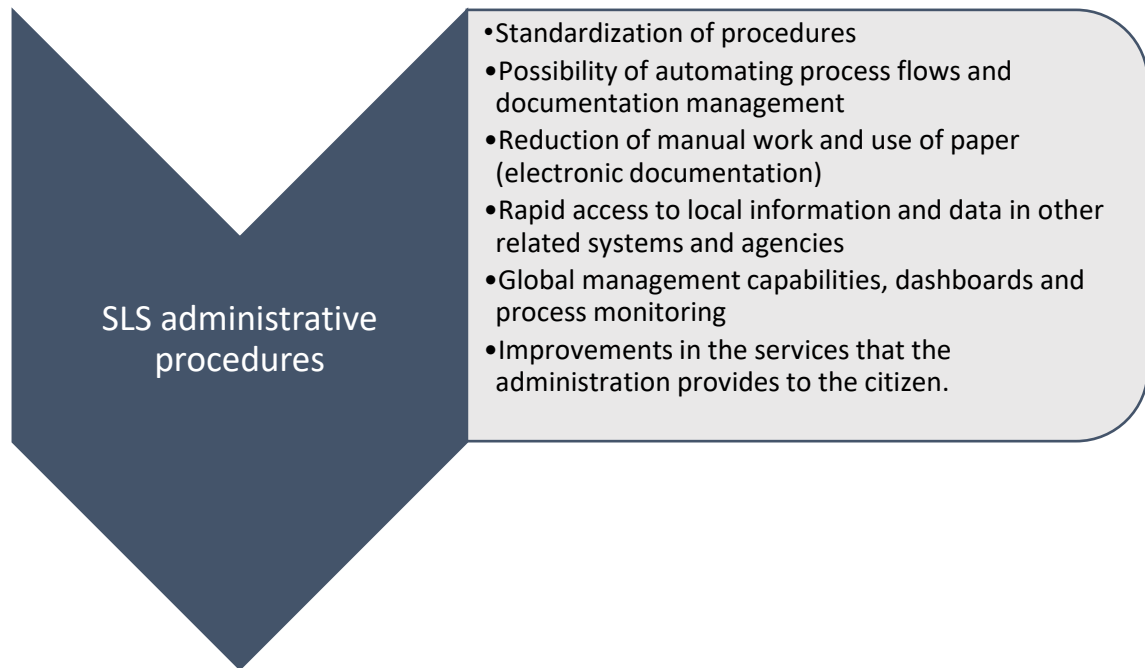
2.2.2 *Technological evolution*

The technological modernization will allow the evolution of the current information systems of SLS as well as the inclusion of new more modern systems that allow new capabilities, improving usability, performance, accessibility, etc.



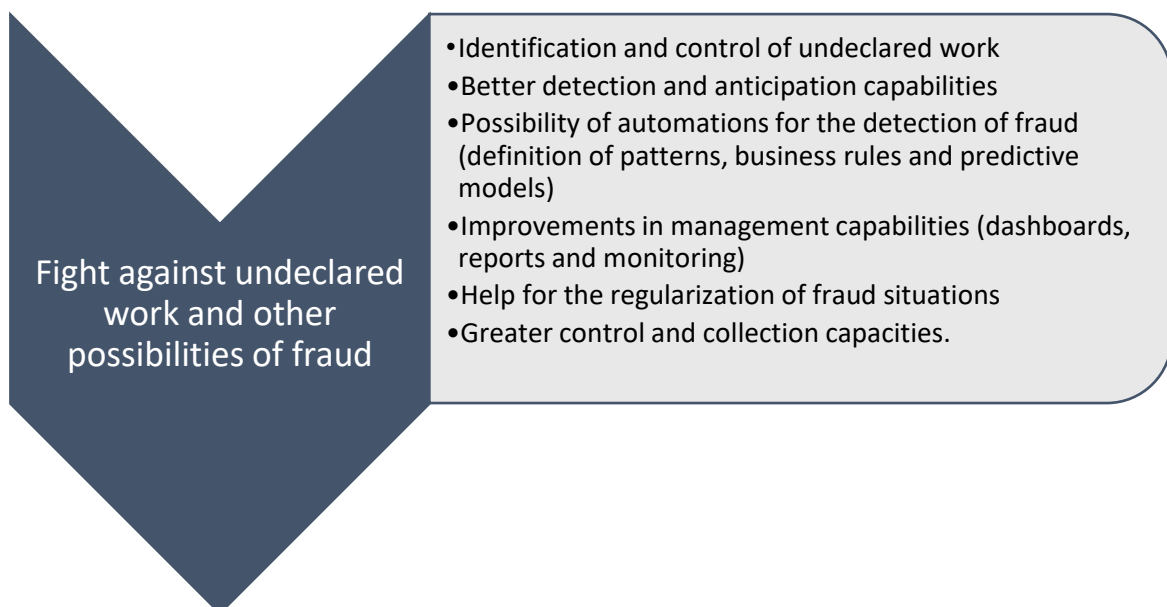
2.2.3 *Improve the efficiency of processes*

The improvement in technology will also allow to unify criteria and standardize administrative procedures. In turn, the automation capabilities will allow an improvement in efficiency and the reduction of manual work.



2.2.4 *Improve control and monitoring of fraud*

SLS will be provided with the necessary information and system for management and monitoring undeclared work and other possibilities for fraud to the administration, in the scope of SLS.



3. Current status of SLS

In this chapter is presented a summary of the current situation in the SLS, the details of which are included in the document **ENG_IS SLS National report_Final July 2018.doc**,

- ❑ “ASSESSMENT OF THE INFORMATION SYSTEMS OF THE STATE LABOUR SERVICE OF UKRAINE AND OTHER AUTHORITIES/INSTITUTIONS/ORGANIZATIONS IN THE LABOUR INSPECTION CONTEXT, FOCUSING ON THE SLS ACTIVITIES TO TACKLE UNDECLARED WORK”,

Made by: *The National Research Institute for Industrial Safety and Labour Protection.*

3.1 General structure of SLS

The **State Labour Service of Ukraine (SLS)** is a central executive authority established by the Cabinet of Ministers Resolution No. 442 of 10.09.2014 by means of merging of the State Service for Mining Supervision and Industrial Safety and the State Labour Inspectorate and by transfer of the State Sanitary and Epidemiological Service functions of the implementation of the state policy

The **principal SLS tasks** are as follows:

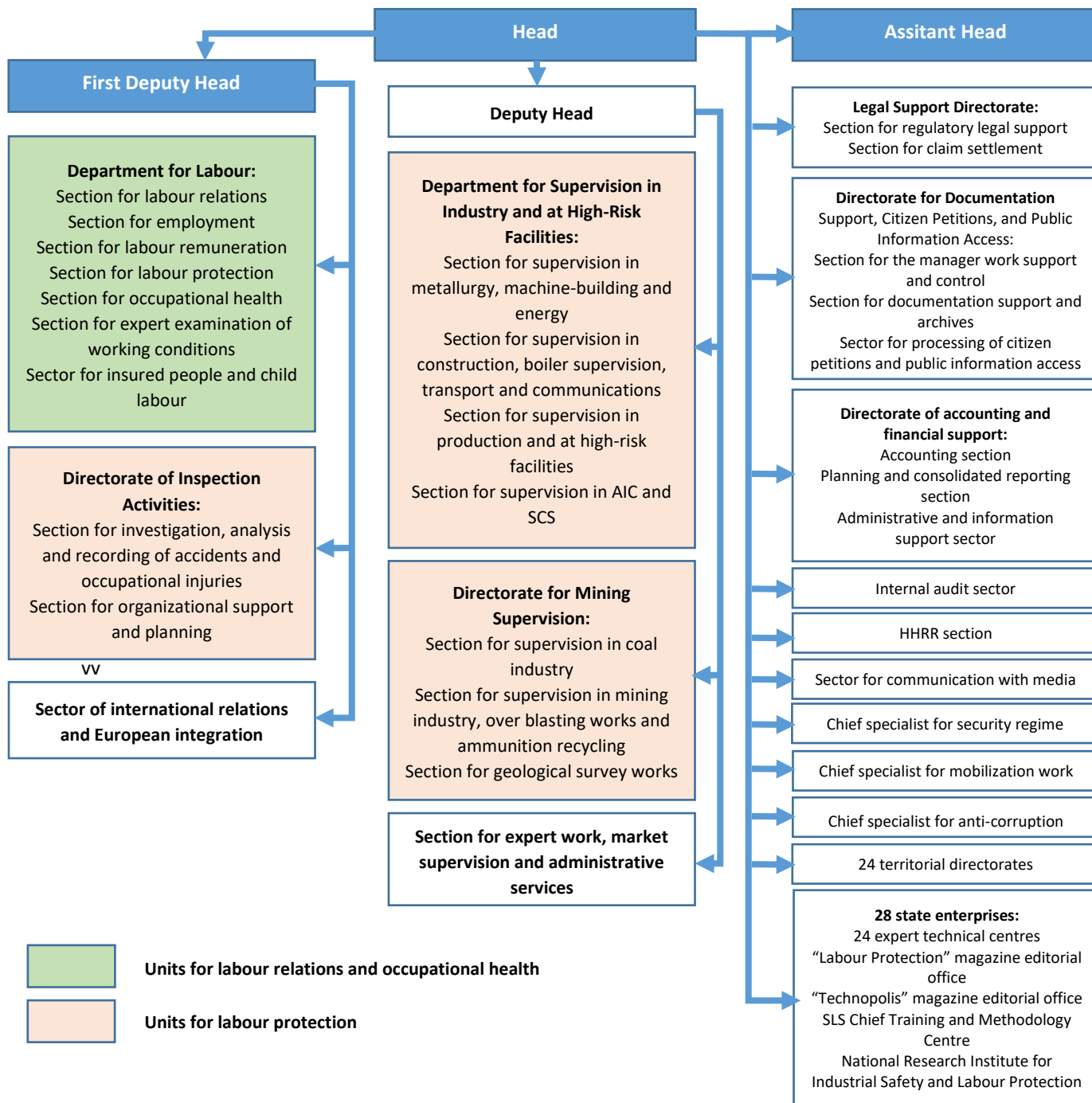
- Implementing the state policy in such fields as **industrial safety, labour protection, occupational health**, handling of **industrial explosive materials**. Exercise of the **state mining supervision**, as well as exercising the supervision and control over compliance with the **legislation on labour and employment**, compulsory state **social insurance** (to the extent related to setting, accruing and paying benefits and compensations, providing social services and other types of material security for the purpose of respecting the rights and guarantees of insured people).
- Exercising **integral management of labour protection and industrial safety** at the state level.
- Exercising state regulation and control in the field of activities connected with **high-risk facilities**.
- Organizing and exercising state supervision (control) in the field of the **natural gas market** functioning as to maintaining proper technical conditions of the systems, units and natural gas metering devices at natural gas production facilities and to securing safe and reliable operation of the Unified Gas Transport System facilities.

According to the tasks assigned thereto, SLS:

- **Maintains the state register of regulatory legal acts** on labour, labour protection, employment and occupational health, and the state register of high-risk facilities;
- Promotes the formulation of the register of enterprises and organizations as per **groups of risk to worker health**, and of the state register of **occupational diseases**.
- Organizes the formulation and maintenance of an information base for **forecasting and analyzing the tendencies of ensuring human rights** according to the SLS competence.

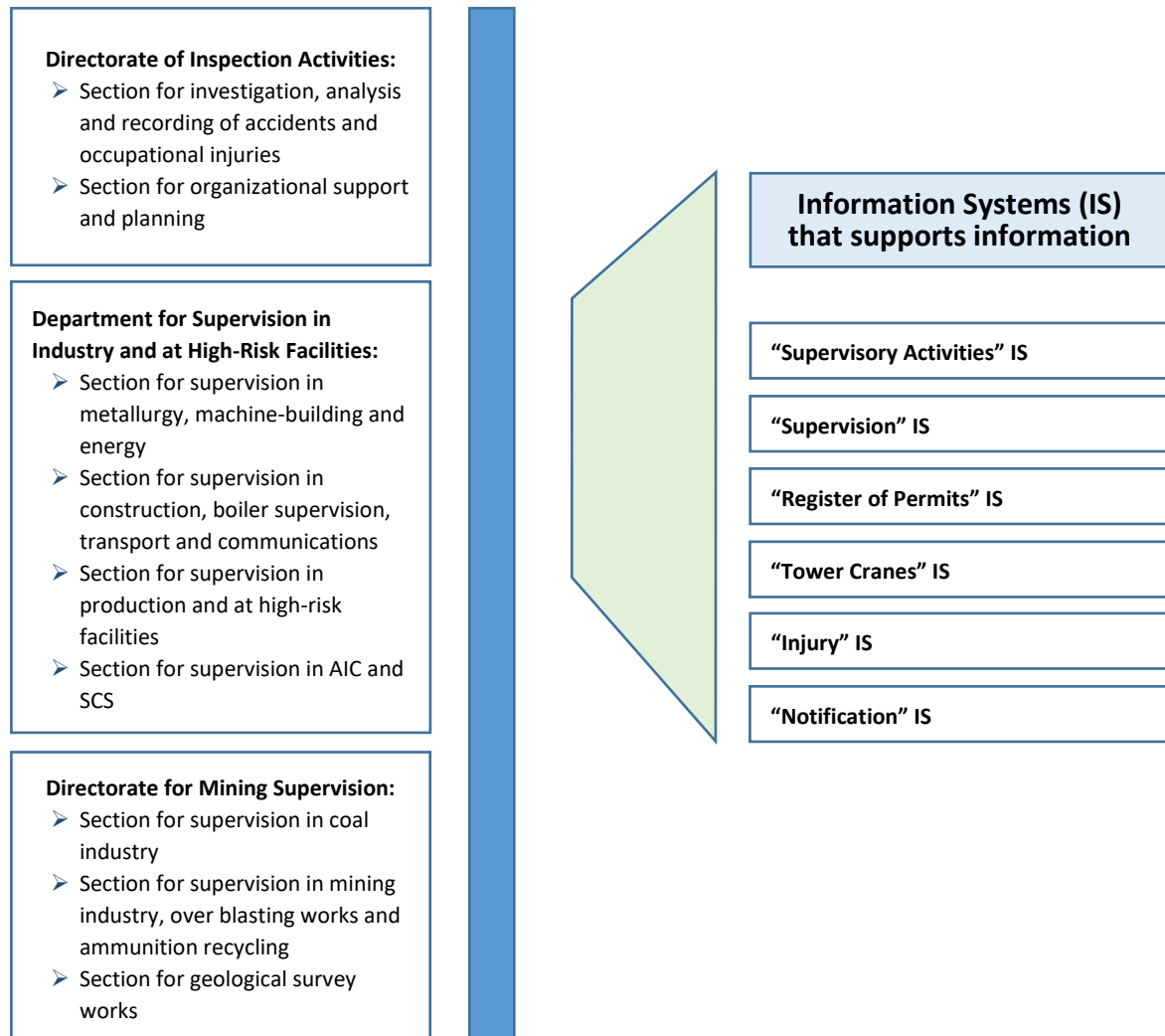
SLS has the right to use relevant information databases of public authorities and local governments, the state system of government communications, and other technical facilities.

The general SLS structure is presented in figure below:

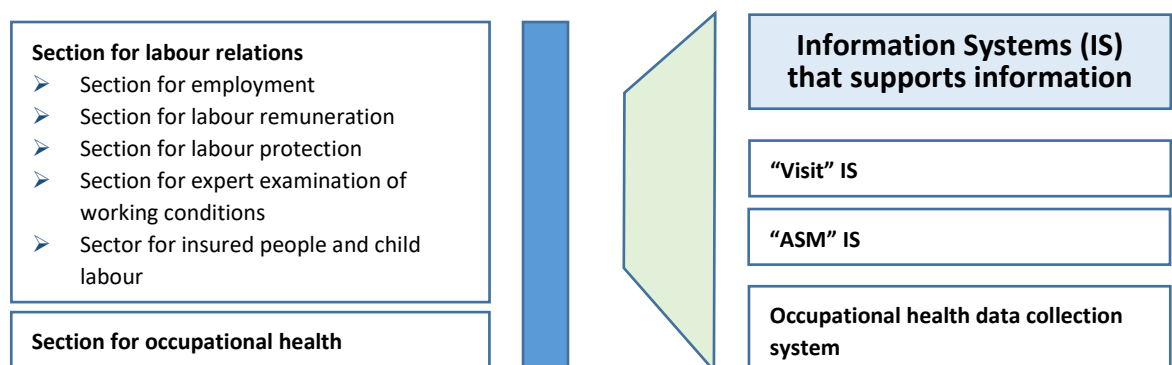


3.2 Operational and functional areas managed

Functional areas - Information support for [labour protection](#) in SLS central office units



Functional areas - Information support for the [Department for Labour](#)

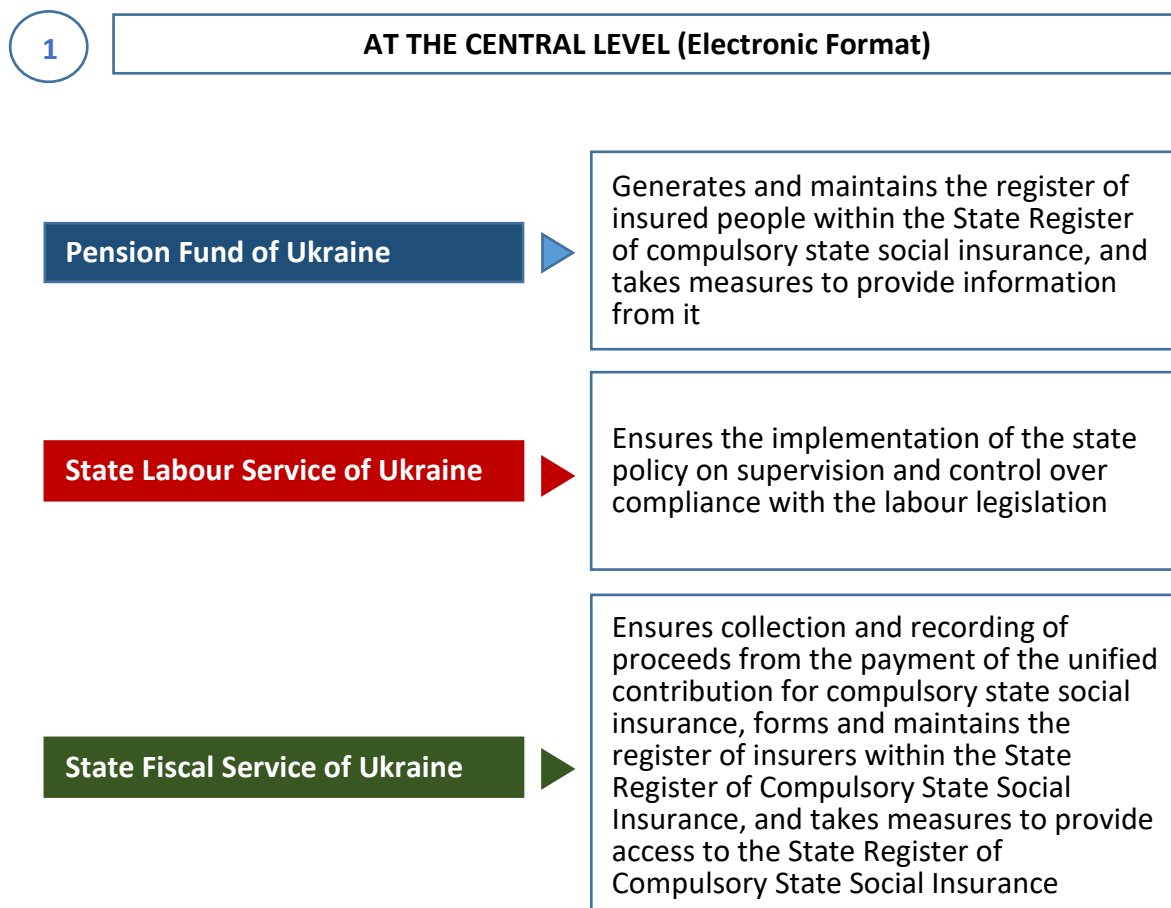


3.3 Relationship of SLS with other organisms

The Resolution of the Board of the Pension Fund of Ukraine No. 11-1 of 29.05.2017 “On the Procedure of exchange of information about data indicating the use of labour of non-formalized workers and violations of the labour legislation”, defines a mechanism of informational interaction concerning the data showing signs of the use of non-formalized workers’ labour and violations of the labour legislation between the information exchange subjects to ensure the exercise of their powers.

In addition, more recently, the Cabinet of Ministers of Ukraine (CMU) Decree No. 649-p, of 5 September 2018, “On measures aimed at unshadowing of relations in employment of the population”, provides that the “ministries and other central executive authorities shall revise their regulatory legal acts and amend them to strengthen the control over formalization of labour relations with wage workers”.

Subjects of information exchange are:



The Information provided should contain:

- Data on facts of **violations of the labour remuneration legislation detected** on the basis of inspections of insurers:
 - Month for which information is provided
 - Insurer's name - name of the legal person (stand-alone unit) or full name (if any) of the individual entrepreneur whenever an inspection whereof found facts of a worker's admission to work without a formal employment agreement (contract)
 - EDRPOU code, or a taxpayer's registration card number, or passport series and number (for individuals who, due to their religious convictions, refused to accept a taxpayer's registration number and record card, notified the respective revenue body thereabout, and have a mark in the passport to that effect)
 - Number of facts detected
- Data about the **agreed-upon sums of the unified contribution additionally charged**, including for **insurers who violated the requirements** of Art. 8(5) of the Law, based on results of inspections disaggregated by insurers:
 - Month for which information is provided
 - Insurer's name (name of the legal person (stand-alone unit) or full name (if any) of the individual entrepreneur)
 - EDRPOU code, or a taxpayer's registration card number, or passport series and number (for individuals who, due to their religious convictions, refused to accept a taxpayer's registration number and record card, notified the respective revenue body thereabout, and have a mark in the passport to that effect)
 - The sum of the unified contribution additionally charged, as agreed upon in the reporting period

2

AT THE TERRITORIAL LEVEL (On paper)

Bodies of the Pension Fund of Ukraine

Bodies of State Fiscal Service of Ukraine

Information provided by the State Fiscal Service (SFS) and its territorial bodies:

- Mismatch between the employer's number of workers and the volume of production (works performed, services provided) in terms of average indicators for the respective economic activity
- Facts of violation of the labour legislation found when exercising the controlling powers
- Facts of conducting an economic activity without state registration prescribed by law
- Employers in debts on payment of the unified contribution for compulsory state social insurance where the debt exceeds the minimum insurance contribution for every worker

Information provided by the Pension Fund of Ukraine to the State Labour Service of Ukraine includes data on:

- Insured people working for 5 or more insurers on the plurality basis
- Insured people performing works (providing services) under civil law contracts with one employer for more than a year

- Insurers having the number of insured people performing works (providing services) under civil law contracts greater than the number of staff workers in the reporting month and/or their number is much greater than in the previous reporting month
- Insurers who increased the number of insured people working on the part-time basis by 20% or more during the reporting month
- Insurers who calculate payroll at the rate less than the statutory minimum wage for a principal place of employment, except those who filled up the “part-time basis” section in the report and those who commenced and ended employment relations in the reporting month
- Insurers who showed the commencement of employment relations with a worker in the reporting month but did not submit a notice on hiring of the worker
- Insurers that provided data in the reporting month about insured people who had been on unpaid leave for a duration longer than prescribed by law and whom no wage had been accrued
- Insurers whose figures of the number of insured people and the total amount of the payroll calculated did not change during a year
- Insurers whose staff number of workers decreased by 10% or more in the reporting month as compared to the previous reporting month

Information provided to the Pension Fund of Ukraine by the State Labour Service on the basis of processed data from the register of insured people within the State Register of compulsory state social insurance according to this Procedure includes data on:

- Facts of violations of the labour legislation detected during inspection of insurers (disaggregated by insured people)
- Facts of a worker’s admission to work without a formal employment agreement (contract) (disaggregated by insured people)
- Implemented measures of response to violations of the labour legislation

3

Other information systems that can be useful to the SLS inspectors

- **The State Statistics Service and its territorial bodies.** Data on wage arrears.
- **The Ministry of Justice of Ukraine.** Unified state register of legal people, individual entrepreneurs and non-governmental organizations.
- **The Federation of Trade Unions of Ukraine.** Information on violations of the rights of workers being trade union members detected in the course of public control over compliance with the labour legislation.
- **The Office of the Prosecutor’s General of Ukraine.** Register of criminal proceedings. Information on criminal proceedings instituted concerning violations of the labour legislation.
- **The State Enforcement Service.** Unified state register of enforcement proceedings. Information about enforcement actions concerning violations of the labour legislation.
- **The Supreme Court of Ukraine and lower courts.** Unified state register of court decisions.
- **The Ministry of Health of Ukraine.** State register of hazardous factors. Data on disease statistics.
- **The Ministry of Economic Development and Trade** prepared for work a pilot module of planning and information collection for the Integrated Computer-Aided System of State Supervision (Control).

3.4 Existing information systems

3.4.1 Overall architecture of information

The Information Systems (IS) architecture is determined by the SLS hierarchical structure. The topmost tier in the hierarchy consists of the SLS central office (CO). It manages the work of territorial directorates (TDs). The TDs in turn manage the work of inspectorates. From the perspective of data entry, storage and transfer, this well-shaped three-tier model, however, is actually supplemented by the “Inspector” tier. Thus, it can be argued that the SLS IS has a four-tier hierarchical structure and consists of functionally complete subsystems.

Each of the SLS IS subsystems has its own features.

First of all, the most obvious feature is the subsystems’ orientation on the SLS hierarchical structure tiers (for example, the “Supervision-CO”, “Supervision-TD”, “Supervision-Inspectorate” and “Supervision-Inspector” subsystems are designed for the CO, TD, Inspectorate and Inspector tiers, respectively).

IS name	Architecture	Inspector	Inspectorate	Territorial directorate	Central office
Visit	client-server				
Supervision	file-server				
Supervisory Activities	client-server				
Injury	file-server				
Notification	file-server				
Register of Permits	client-server				
Tower Cranes	file-server				

Initial (primary) entry of data



Intermediate data summarization



Final data summarization



Data transfer



3.4.2 Visit Information System

General Description	The Visit is designed for the entry, editing and transfer of data on labour inspectors' visits to enterprises; sampling; information documenting (printing, export to Excel); and recording and analysis of inspectors' visits to supervised enterprises generally. The system includes three subsystems that are used by the SLS state inspectors, state supervision organization sections in the SLS territorial bodies, and the SLS central office.
Functionality	• entry of data on an inspector's visit to an economic entity • entry of data on the entity visited (employer) • entry of data on enterprise visit results • system's database generation at the SLS webserver • sampling • export of results.
Use	The "Visit" information system and its functional subsystems are used by the SLS state inspectors, structural units of territorial bodies, and the SLS central office.
Software	Software is installed locally on the end user's computing resources that must have stable Internet access. The IS central database is located on the SLS web resources. Operates both in the permanent Internet connection mode and offline. However, Internet access is required to synchronize databases of different levels and to connect to the central database from a user workstation. It is built on a client-server architecture. The database is located at a remote server and provides authorized user access. If there is no connection with the server, the system can work offline, and full data synchronization takes place when connection is renewed. The "Visit" IS functions on personal computers with Windows XP and higher operating system installed. Necessary hard disk space is at least 1 GB, and no less than 1 GB RAM is required. MySQL is used as the database server.

3.4.3 Supervision Information System

General Description	The Supervision information system is intended for analysis of the data on supervisory activities results, evaluation of the supervisory activities by criteria and results of integral estimations, making the samples and documenting the analysis results (printing, export to Excel). The IS structure provides for a vertical of step-wise data transfer from the lowest level (inspector) to the topmost level (SLS central office).e.
Functionality	• Formation of a database of supervisory activities; • Editing of information in the database; • Calculation of supervisory activity indicators in terms of various criteria; • Building of integral and score estimates of supervisory activities disaggregated by territory and economic activity, and generation of summary reports on supervisory activities enabling inter-temporal data comparison (on the year-to-year basis or within a current year); • Sampling and information documenting (printing, export to Excel).
Use	The application scope of Supervision IS covers the SLS territorial directorates' structural units (inspectorates) and the SLS territorial directorates.
Software	Supervision Information System consists of four subsystems communication among which takes place using post office protocols or, in emergency cases, manually, and data confidentiality is secured by the use of the SSL cryptographic protocol. The Supervision IS functions on personal computers with Windows XP and higher operating system installed. Necessary hard disk space is at least 1 GB, and no less than 128 MB RAM is required. Data are transferred via the Internet. Data transfer is secured by the information system's capacity.

3.4.4 Supervisory Activities Information System

General Description	The information system of supervisory activities within the SLS remit is designed to: • Form the SLS administrative documents in the course of preparation and implementation of state supervision activities • Build databases of supervised enterprises and their production facilities • Build a unified electronic database of results of inspections carried out at supervised enterprises and other information about supervisory activities at the SLS level • Plan and control compliance with the plan of inspections of supervised enterprises and their production facilities. Data from the Supervisory Activities IS database inform processing and analysis of results of inspections carried out at supervised enterprises and of other information about supervisory activities, as well as generation of reporting forms on its basis and preparation of information notes and reports both on supervisory activities and concerning the occupational safety situation at production facilities across the country.
Functionality	The system was created to provide the structural units of the SLS territorial bodies and central office with information in the process of supervisory activities in SLS due to: • Automation of the process of generating administrative documents of state supervision bodies during the planning, organization and carrying out of inspections within the SLS system • Automation of inspection material processing for analysis of inspection results • Automation of generating information notes and reports about the status of supervisory activities and occupational safety at production facilities.
Use	Subsystems of the Supervisory Activities IS are used by the SLS state inspectors, structural units of territorial bodies, and the SLS central office. The “Supervisory Activities” IS includes four subsystems oriented on different hierarchical tiers of SLS: “Supervisory Activities - Inspector”; “Supervisory Activities - Structural Unit”; “Supervisory Activities - TD”; “Supervisory Activities - CO”.
Software	Intel-based servers should be used as technical platforms for databases. The workstations must be built on modern personal computers with Pentium IV or higher processor, at least 1 GB of RAM, at least 80GB of hard disk space, and a 17” or larger monitor. The minimum system requirements to the server: Apache/2.2.14 (FreeBSD) PHP/5.2.12, MySQL client version 5.0.90. The hardware in use must be supported by internetwork exchange protocols and standards securing high speed of information exchange among the system components.

3.4.5 Injury Information System

General Description	The Injury information system is intended for the entry, editing and transfer of data on occupational injuries, sampling and report generation, information documenting (printing, export to Excel). The Injury information system automatically generates quarterly reports on occupational injury indicators for subsequent analysis of these indicators by a variety of attributes (economic activity type, territory, etc.). The subsystem is installed in the SLS central office, territorial directorates, and inspectorates.
Functionality	Main functions of the Injury information system include: • Entry, processing and accumulation of data on occupational injury rates • Generation of quarterly reports on occupational injury rates disaggregated by territorial body and economic activity; • Generation of summary reports on the occupational injury situation enabling inter-temporal comparison of injury indicators • Generation of analytical materials on the occupational injury situation • Generation of data arrays for analysis, modelling and forecasting of future indicators.
Use	The occupational injury indicators are formed with account of all the occupational accidents that occurred during the reporting period. The system allows for affiliation-based transfer of entered data using web technologies, generation of summary and current reports at every level of the SLS hierarchy, and their export to the Excel or Word packages as well as printing of generated reports.
Software	The Injury IS functions on personal computers with Windows XP and higher operating system installed. Necessary hard disk space is at least 1 GB, and no less than 64 MB RAM is required. Data are transferred via the Internet. Data transfer is secured by the information system's capacity.

3.4.6 Notification Information System

General Description	The Notification information system is intended for performance of all the processing operations for data on the occupational injury cases subject to a special investigation, namely: fatal and group accidents as well as accidents with severe consequences. The subsystem is installed in the SLS central office and territorial directorates.
Functionality	The system's key functions are as follows: • Formation of a database of occupational injuries based on results of special investigations • Information accumulation (entry) in the database • Editing of information in the database • Analysis of occupational injuries in terms of various attributes, and generation of current reference documents • Generation of reports on occupational injuries • Sampling and information documenting (printing, export to Excel)
Use	This IS is used in the SLS territorial directorates and central office.
Software	SSL cryptographic protocol is used for data transfer. The "Notification" IS functions on personal computers with Windows XP and higher operating system installed. Necessary hard disk space is at least 1 GB, and no less than 64 MB RAM is required. Data are transferred via the Internet. Data transfer is secured by the information system's capacity.

3.4.7 Tower Cranes Information System

General Description	The Tower Cranes information system is intended for data entry and processing, data maintenance and processing, recovery of data contained in the system, search for necessary data and output of search results to users. The Tower Cranes IS is designed for: • Streamlining and automating the processes of dissemination of information about the tower cranes conditions • Improving the level of meeting the information needs concerning the tower cranes conditions in state institutions and organizations; • Determining, based on the tower cranes conditions analysis results, an accident risk, and taking proper measures to ensure safe operation of the cranes; • Supervising the tower cranes conditions in a timely manner and making grounded managerial decisions to undertake necessary preventive measures.
Functionality	Main functions of the “Tower Cranes” IS are as follows: • Reviewing information about supervised cranes • Editing information about supervised cranes • Maintaining the database of crane-related events • Printing output forms • Searching for information
Use	The “Tower Cranes” IS includes the following subsystems: • “Tower Cranes – TU”: subsystem is intended to generate data about the tower cranes conditions and to transfer them to the Central Office database as well as to generate and document reports; • “Tower Cranes – Expert and Technical Centre”: subsystem is intended to analyze the tower cranes conditions at enterprises owning tower cranes, based on data received from the Central Office unified IS databases; • “Tower Cranes – CO”: is intended to analyze the tower cranes conditions at the Central Office level, based on data received from the Central Office unified IS databases.
Software	Communication between the “Tower Cranes” IS subsystems takes place using the FTP data transfer protocol. Confidentiality at the software level: the data transmitted underwent 256-bit-key encryption, and a decryption procedure was conducted upon receipt.

3.4.8 Register of Permits Information System

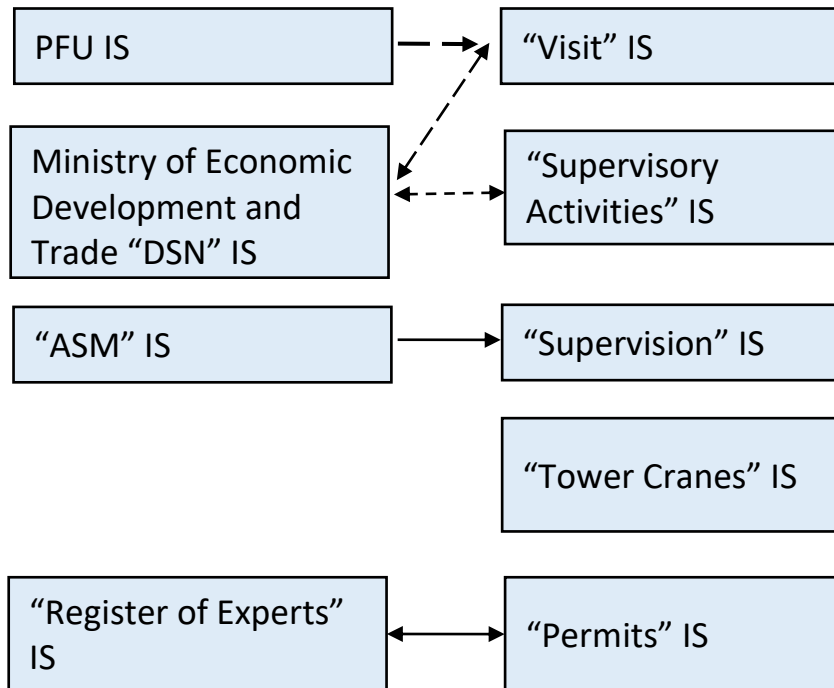
Functionality	• The system provides for a possibility of permit review, addition, editing, deletion and search. • It is possible to apply filters as per several parameters. • It is possible to search for permits as per several fields.
Use	• An authorization subsystem is available that is used for the process of identification of a registered user with subsequent provision of rights to permit addition, editing and deletion. • The Help section is created, containing detailed information about functionality of the Register of Permits IS.

3.4.9 Automated system of monitoring (ASM) Information System

Functionality	• Data are transferred from the “ASM” IS to the “Supervision” IS. • Data collected in order to eliminate violations of the legislation on labour and compulsory state social insurance
Use	• Labour Inspectors

3.4.10 Information relations between the Information Systems of SLS and of the other public authorities

Information relations between the SLS ISs (and with the ISs of other public authorities) are presented in the figure below. Dotted arrows mean the relations implemented using Excel files in the piloting mode. Solid arrows are relations implemented by the IS means.



3.5 Assessment of needs regarding the current SLS IS

Relevance of creation of the SLS unified information analysis system (UIAS) is driven by amendments in the regulatory legal framework, changes in the SLS structure and inspector staff number, and changes in the approaches to the organization of state supervision, reporting forms, and procedures of their filling-in and submission.

In addition, the increasing concerns regarding the public administration bodies' efficiency and effectiveness, along with a growing awareness and concern of taxpayers regarding the transparency and accountability of public administration bodies also claim for the improvement of SLS performance and accountability.

Expediency of the SLS UIAS development is also explained by the need for comprehensive upgrading of the system of information analysis support for the labour protection and industrial safety sector. At present, SLS (central office, territorial directorates, expert technical centres, and inspectorates) has functional information systems designed for automated processing of data about indicators of supervisory activities, occupational injuries, recording of high-risk facilities, recording of bridge and tower cranes, recording of economic entities and facilities, and maintenance of the register of permits for performance of high-risk works.

The above-mentioned systems, which were developed more than a decade ago, do not meet the modern level of information technologies, have no information interaction, underuse integrated databases, etc. Absence of a specialized subsystem for analytical processing greatly complicates realization of complex queries and multi-criteria search for information in databases and generation of integrated reports as well as prevents efficient use of mathematical modelling methods for forecasting of safety indicators and assessment of occupational injury risks. All this leads to an insufficient level of the information analysis support for state supervision at all levels, and confirms reasonability of creation of a modern SLS UIAS.

The SLS UIAS should consist of the following functional subsystems:

- **information collection and accumulation subsystem;**
- **analytical data processing subsystem;**
- **subsystem of classifiers and directories;**
- **Internet portal;**
- **electronic document flow management subsystem;**
- **SLS UIAS administration subsystem;**
- **Integrated information protection system.**

- ❑ **The information collection and accumulation subsystem** is intended for uploading, storage, systematization and summarization of information in the SLS UIAS central data storage, and creation of a single archive. According to the main functions designated in the Regulations on the State Labour Service of Ukraine, it is necessary to ensure collection and accumulation of information in the following fields:
 - **Labour protection:**
 - ↳ “Market Supervision”
 - ↳ “High-risk Facilities” subsystem
 - ↳ “Inspection Activities in the SLS Sector” subsystem
 - ↳ “Injury” subsystem
 - ↳ “Permits” subsystem
 - ↳ “Declaration of Conformity” subsystem
 - ↳ Process Transport Register
 - ↳ Lifting Devices Register
 - ↳ State Register of Regulatory Legal Acts on Labour
 - ↳ Information bases for forecasting and analysis of trends in ensuring human rights according to the SLS competence
 - ↳ Register of economic entities according to risk groups
 - **Occupational health and working conditions:**
 - ↳ “Supervision (Control) in Occupational Health” subsystem
 - ↳ “Sanitary and Hygienic Working Conditions” subsystem
 - ↳ “State Expert Examination of Working Conditions” subsystem
 - ↳ “Workplace Assessment in Terms of Working Conditions” subsystem
 - **Labour relations:**
 - ↳ “Visit” subsystem
 - ↳ “Undeclared Work” subsystem
- ❑ **The analytical data processing subsystem** is intended for data analysis in the system based on the tools for analysis of detailed information in databases, report creation tools, report generation tools, and visual (graphical) report presentation tools.
- ❑ **The subsystem of classifiers and directories** is intended to ensure maintenance of up-to-date versions of the SLS UIAS unified classifiers and directories, maintenance of the classification and coding systems, collation, description and systematization of the system information resources.
- ❑ **The Internet portal** is an information system implemented on web technologies and intended to manage information and organize access to documents by concerned bodies (users).
- ❑ **The electronic document flow management subsystem** should ensure electronic document flow in the phases of creation, processing, sending, transfer, receipt, storage, use, destruction and integrity check, and, if required, ensure acknowledgement of receipt of such documents.

- ❑ **The administration subsystem** will have software tools to administer the SLS UIAS, define access rights, and implement database back-up.
- ❑ **The integrated information protection system** ensures protection of the state information resources being part of the SLS UIAS, by means of implementing a package of technical, cryptographic, organizational and other measures and means aimed to prevent information blocking, unauthorized access to information and/or its modification. An electronic digital signature system should be provided for.

Results of the work (in the form of information subsystems and respective databases of the SLS UIAS) are to be implemented on the basis of the organization designated by the Customer (e.g. NRIISLP). Results of the work may be used in executive authorities of various levels, economic entities, and non-governmental organizations. A number of measures should be taken to commission the UIAS:

- Staff training and testing;
- Creation of workplaces for operation of the UIAS subsystems;
- Equipment of the workplaces with hardware and software.

For efficient UIAS work in the SLS territorial directorates and expert technical centers, it is necessary to create workplaces equipped with computer hardware and means of communications as well as licensed software for every structural unit. A department of scientific and **methodological support for the UIAS operation should be established in NRIISLP**.

4. Proposed evolution and improvement of the SLS Information Systems

In this chapter, a series of recommendations and aspects are proposed to be taken into account from different perspectives, in order to modernize and improve the current SLS information systems.

4.1 General characteristics of the new Information System

4.1.1 Objectives to be met by the Information System

From a broad perspective, the most important objectives of the information system of the SLS, should be:



Management of the activity of the SLS

Facilitate the work of the different Units of the SLS

- Planning and Control of the work. Tools that allow the management positions of each department and unit to control the work currently in progress and the planning and assignment to users of future work.
- Execution of the inspection work. Tools that facilitate users to perform inspection activities their day-to-day tasks, including:
 - Centralized information update.
 - Control and planning of assigned work. The tools would allow users to know the pending work at all times.
 - Incorporation of the results of this work. Incorporate the relevant information regarding their activities in order to know their development and results and, additionally, be able to elaborate aggregate and statistical information.
 - Access to "valuable" functions for the execution of the works. Which includes relevant information for the execution of the activity and creation of new information from the one introduced.
- The operation of the tools should be customized to the needs and particularities of each of the units of the SLS (legislation on labor compliance, occupational health, working conditions, supervision in machine-building and energy, mining supervision, gas market supervision, etc.).



Maintenance of legally attributed records

In an integrated way with the rest of the functionalities

- Registry of Occupational Accidents and Professional Diseases
- Registration of high-risk facilities, including the registration of cranes.
- Classification of companies and organizations according to the risk to workers' health or any other type of risk.
- Record of periodic medical examinations
- Registration of permits and technical training for hazardous work
- Declaration of conformity
- Registration of permits for handling of dangerous machinery, including the handling of cranes.



Analysis of data

The necessary tools must be provided for the analysis of the available data to allow:

- Detection of undeclared work (UDW) and other types of fraud
- Improve the management, control and monitoring of information and processes of the SLS
- Make a risk classification of companies of fraud infringements



Online processing

Incorporate into the Solution the use of information and communication technologies in all the processes of the SLS, with special attention to the relationship with citizens and companies, including:

- Electronic Headquarters of the SLS
- Electronic notification to citizens and businesses
- Electronic signature of generated documents



Reporting and Statistics Management

The Solution must provide a set of tools to allow the collection of aggregate, detailed and statistical information from the information entered by users. These reports will be classified in three major groups:

- Internal management reports to provide the Management of the SLS with an overview of the current situation and the results of the Organization's activity in all relevant aspects
- Advanced dashboards and reports
- Reports to present outside of SLS including:
 - Other agencies of the Ukrainian government.
 - ILO and other international organizations.



Exchange of information

It should include functionalities that allow the SLS exchange information automatically with other agencies of the Ukrainian Administration, both for sending and receiving:

- Unitary data. Sending or receiving data considered relevant in a specific activity of the SLS or a third organization within the Ukrainian Administration
- Massively sending or receiving data automatically and periodically with a third organization.

The solution implemented must follow the technical requirements set by the Ukrainian public administration (*Integration with Trembita is highly recommended*)

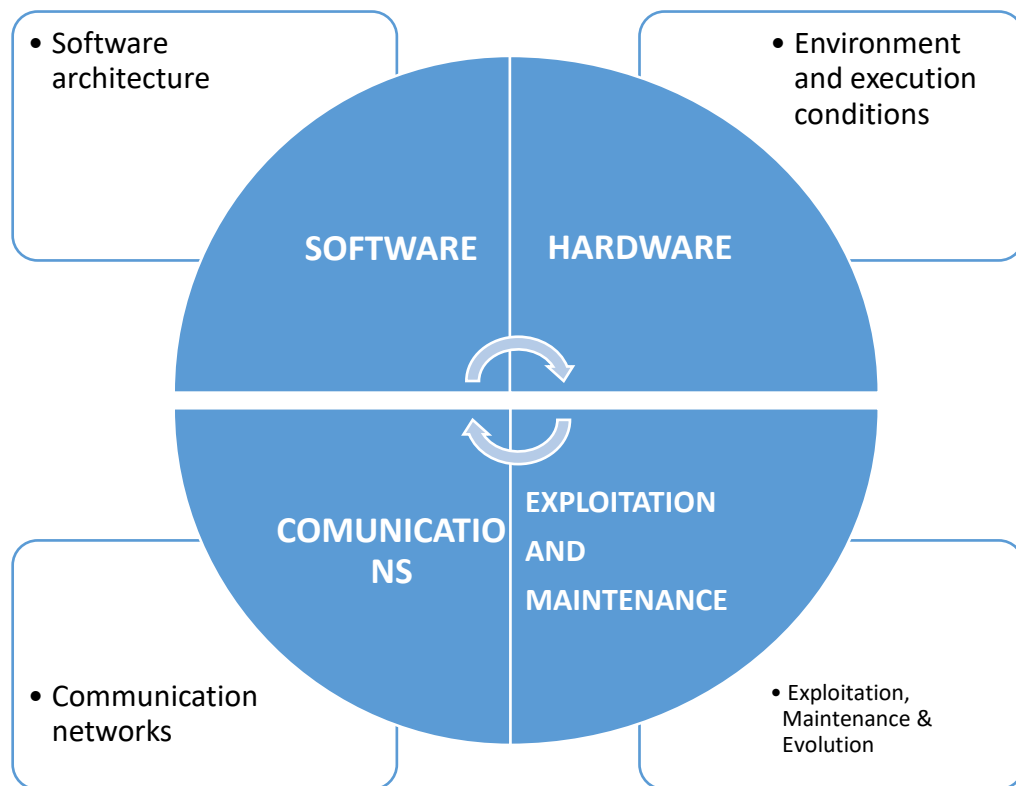
4.1.2 Target users of the new System

The Information systems should consider different types of users and target audiences



4.1.3 *Architecture of the solution - aspects to consider*

In order to evolve the current systems or to implement a new, more modern system, it will be necessary to define a global strategy that must define the characteristics and nature of the solution in the following main aspects:



SOFTWARE

The alternatives to the software architecture of the solution should be analyzed and the one that best adapts to the needs and circumstances of the SLS must be selected. This architecture must initially meet the following characteristics:

- **Centralized** in order to reduce the initial cost and homogenize the activity
- Based on **web technologies**, to facilitate access
- **Scalable** both quantitatively (number of users), and qualitative (new services).
- Use of **widely accepted and tested solutions by the Industry** to ensure its quality and ease of expansion

It should also be contemplated

- **Alternatives for its implementation** (with SLS' own team, with specialized external companies or mixed teams)
 - The **necessary software licenses** (operating systems, application servers, content manager, database manager, etc. ...)
-

HARDWARE

The alternatives of the infrastructure where the solution will be executed should be analyzed:

- Use of its **own or outsourced infrastructure**. Each alternative involves the analysis and evaluation of a series of factors:
 - The use of its own infrastructure will involve an initial investment and the setup of a team responsible for its exploitation. Additionally, there will be a continual expense in maintenance.
 - In the case of an external service provider, a series of technical and legislative requirements must be met (security, location physical data, etc.)
- In case of selecting the use of SLS' own hardware, it will also be necessary to analyze and evaluate the different alternatives regarding:
 - Servers
 - Storage cabins
 - Security systems

And how each one adapts to the rest of the Architecture (software, communications ...)

COMMUNICATIONS

The communications' needs should be analyzed and selected among the alternatives depending on the infrastructure where the solution will be executed:

- **Minimum communication needs**, internal communications or communications with third parties, both within the Ukrainian public administration, and with external bodies
 - **Intranet or internet as a network** for communications between the centralized services of the solution and the end users of the SLS
-

EXPLOITATION, MAINTENANCE AND EVOLUTION OF THE SYSTEMS

It should also be analyzed and assess future needs:

➤ **Estimate the volume of changes** and evolutions foreseen on the initial deployment.

➤ Based on these needs:

- **Equipment, tools and development infrastructure** necessary to undertake them
- **Quality** control and **continuous improvement** plans

And finally the cost that can be expected that will suppose

4.1.4 *Impact on the organization*

In order to define and evolve the systems, it will be necessary to take into account that the SLS personnel will have to assume new tasks of support and support in the work to be carried out:

FUNCTIONAL EXPERTS

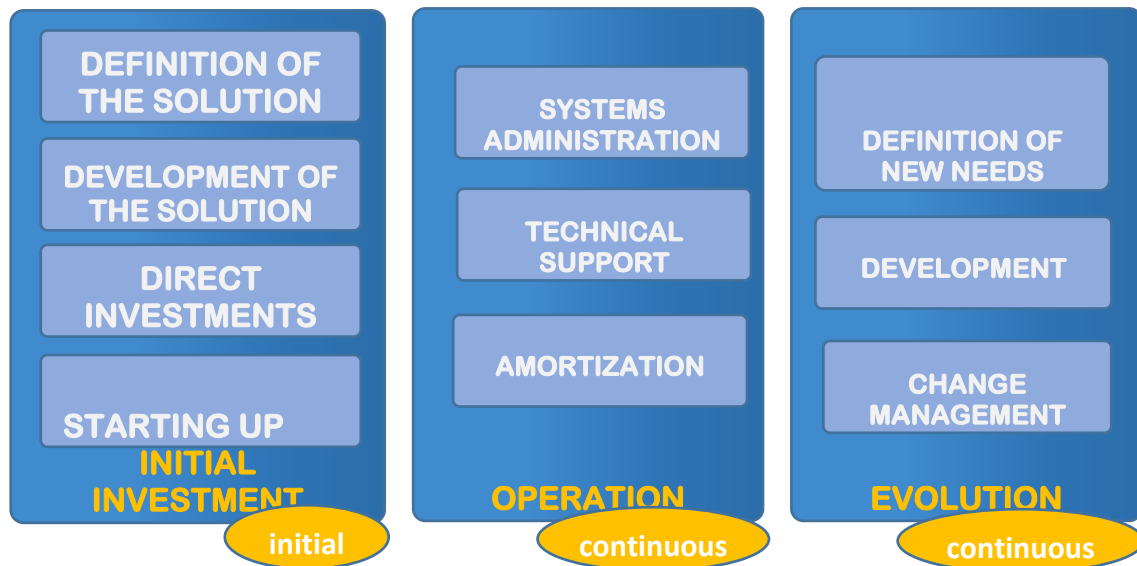
- Define the needs of the SLS
- Validate functional solutions
- They support change in the Organization (training, communication, etc.)
- They detect changes and new needs that may require changes in the solution

TECHNICAL EXPERTS

- Define the technical solutions that respond to the functional needs
- Manage the different applications and systems that make up the solution.
- They supervise the accomplishment of the necessary tasks in each moment, in case they are outsourced.
- They prepare the necessary change, communication and training plans at each moment

4.1.5 Financial needs

The definition of the Solution must also consider the financial implications that each alternative entails in three fundamental aspects:



These expenses will be both direct (new licenses, software development, purchase of equipment), and indirect (costs associated with new tasks to be assumed by the SLS).

From our experience, *investments in the evolution* of the system is a very important factor to be considered since, due to both macroeconomic and legislative changes, the needs of the SLS, regarding information systems can change or expand steadily.

4.1.6 Deployment.

Both the initial deployment and any subsequent evolution of the Information System will have an impact on the organization of the SLS. We must consider the necessity to establish change management procedures, to minimize this impact as much as possible and facilitate the transition to users. To do this, we should:

- ☐ Review of existing work-flow protocols.
- ☐ Define a stepwise implementation processes (functional, territorial, organizational, etc.)
- ☐ Establish communication mechanisms to inform about the changes to all the teams involved
- ☐ Establish initial training procedures for the new systems, technologies, etc.

4.1.7 Other recommended features

- ☐ Alignment with international classifications to facilitate the presentation and comparison of results (economic activities, occupational accidents, professional diseases, etc.).

4.2 Main information systems to be implemented

This chapter details the recommendations on the information systems that the SLS should have to cover its functional or business needs, or to improve its current capabilities.

4.2.1 General systems

They are transversal systems that offer an appropriate technological framework to support the functional systems.

INTRANET	
OBJECTIVE	
General point to provide the centralized access to all internal staff to the different applications made available to users, both internal and external.	
CHARACTERISTICS AND FUNCTIONALITIES	
■ Secured and exclusive to the SLS staff ■ Customized according to the functions of each user ■ Initially its content could be: ■ Access point to the different applications accessible by the user ■ News of interest and news for SLS staff ■ Work procedures ■ Standardized templates of commonly used documents ■ General documentation of SLS and Documentation of Applications (user manual, news, etc.)	
ACTORS INVOLVED	
All users of the SLS, the management positions, the inspector personnel and the auxiliary personnel.	
RELATIONSHIP WITH OTHER SYSTEMS	
Being the access point to other systems, it will have an integration with each one to determine the access of each user.	

REGISTRY OF COMPANIES AND WORKERS

OBJECTIVE

Centralized DB for the registration of companies and workers subject to inspection by the SLS.

CHARACTERISTICS AND FUNCTIONALITIES

- Secured to allow access only to authorized users and customize accessible functions based on the work to be performed.
- It will contain the relevant information for the activity of the SLS of the companies and workers.
- The information of the registry will be updates with the relevant data of the Ministry of Justice or other external institutions.
- It will provide a centralized DB to associate the different activities carried out by the SLS with a specific worker or a company, allowing, in addition to easier access for users, to know in a centralized way the operations carried out regardless of their nature.

ACTORS INVOLVED

The inspector personnel will use the registry to retrieve information about the workers and companies they will act on, relating their work to them.

In addition, the management, the inspector personnel and the rest of the staff of SLS (with the established limitations) may consult the actions carried out in relation to a specific worker or company.

RELATIONSHIP WITH OTHER SYSTEMS

The data of this registry will be integrated with the different operations introduced in the Functional Systems, so that all of them must be able to access the existing information.

Additionally, data will be integrated with the related information in the Ministry of Justice or other external institutions.

REGISTRY OF DOCUMENTATION

OBJECTIVE

Application responsible for the registration of receipt and submission of documentation in the SLS with third parties or between different units within the SLS, as long as each is considered independent at the organizational level.

CHARACTERISTICS AND FUNCTIONALITIES

- Access secured to allow only authorized users and customize the accessible functions based on the work to be done.
- Compartmentalized information so that each user can access only the data that is necessary for them to work.
- It will facilitate the reception and registration of complaints and other documentation both in person and using internet, integrating automatically with the functionalities in other systems where the reception is relevant.
- It will contain the necessary information for the control and monitoring of the registered documentation.
- It will facilitate the digitalization of the documentation received in paper format, in order to facilitate its distribution.
- It will allow tracking of the distribution to the different departments of the received documentation and to register, when it is known, the reception of the documentation sent.

ACTORS INVOLVED

Auxiliary staff in charge of receiving and sending documents.

RELATIONSHIP WITH OTHER SYSTEMS

Integrated when relevant with the rest of the applications when the received or sent documentation is related to any of the data or processes managed from them.

Integrated with Electronic Headquarters and Trembita. With the possibility of electronic reply with certification of the validity of the notification.

ELECTRONIC HEADQUARTERS OF SLS

OBJECTIVE

Make available to citizens and companies a series of procedures to facilitate communication with the SLS.

CHARACTERISTICS AND FUNCTIONALITIES

- It can be its own creation or through integration with an existing electronic site in the Administration.
- It will provide citizens and companies with a procedure for electronic interaction with the SLS, including:
 - Submission of complaints about irregular situations competition of the SLS (Mailbox of labour fraud).
 - Provide documentation at the beginning or during the processing of the procedure
 - Know about the status of the procedure
 - Receive all types of documents, including resolutions of ongoing procedures that require them
- It will make available a repository to access the electronically signed documentation through the SVC that identifies it.
- For some of the procedures, any citizen or company can access it through an electronic certificate that identifies them.

ACTORS INVOLVED

Citizens and companies.

RELATIONSHIP WITH OTHER SYSTEMS

It will be integrated automatically with the Registry of Documentation and through it, with the rest of Systems.

4.2.2 Functional systems

These systems must support all the work of the SLS, its procedures of action and all the functions entrusted to them.

It is recommended that the SLS have systems to cover the following aspects:

OCCUPATIONAL ACCIDENTS REGISTRY	
OBJECTIVE	
Allows the incorporation of information regarding occupational accidents produced from different actors. It is an essential system but we doubt if it has to be the responsibility of SLS or it should be under the Statistics Office of the Ministry	
CHARACTERISTICS AND FUNCTIONALITIES	
■ Secured to allow access only to authorized users and customize the accessible functions based on the work to be done according to their profile. Access for external users can be implemented through the use of digital certificates. ■ Compartmentalized information so that each user can access only the data that is necessary for them to work. ■ Classifications and information on the accident should be adapted to the Eurostat ESAW (European Statistics on Accidents at Work) ■ There will be predefined consultations and profiles to facilitate access to data with the possibility of selecting accidents by various criteria ■ The data will be integrated with the Management System of the Inspection Activity in its relationship with accident investigations.	
ACTORS INVOLVED	
■ Enterprises. ■ Working bodies of the Fund's executive directorate. ■ State fire supervision bodies – regarding victims of fires. ■ Institutions of the state sanitary and epidemiological service and the working bodies of the Fund's executive directorate. ■ SLS, other central executive authorities, and local state administrations.	
RELATIONSHIP WITH OTHER SYSTEMS	
Integrated with the Management System of the Inspection Activity, for the cases in which the information about the accident must be integrated in the investigation procedure of them.	

OCCUPATIONAL DISEASES REGISTRY

OBJECTIVE

It allows to incorporate the information regarding professional diseases. Same considerations as in the case of occupational accidents.

CHARACTERISTICS AND FUNCTIONALITIES

- Secured to allow access only to authorized users and customize the accessible functions based on the work to be done according to their profile.
- Compartmentalized information so that each user can access only the data that is necessary for them to work.
- Classifications and information on the disease will be adapted to the information required by the EU
- There will be predefined consultations and profiles to facilitate access to data with the possibility of selecting diseases by various criteria
- The data will be integrated with the module of Management of the Inspection Activity in its relation with the investigations of professional diseases.

ACTORS INVOLVED

Staff of the SLS

RELATIONSHIP WITH OTHER SYSTEMS

Integrated with the Management of the Inspection Activity, for the cases in which the information on the professional disease should be integrated in the investigation procedure of them.

MANAGEMENT OF THE INSPECTION ACTIVITY

OBJECTIVE

It is the core of the systems. Cover the set of primary functionalities of the inspection activity of the SLS in its planning aspects, execution of the activity and monitoring of the results.

CHARACTERISTICS AND FUNCTIONALITIES

- Secured to allow access only to authorized users and customize the accessible functions based on the work to be done according to their profile.
- Compartmentalized information so that each user can access only the data that is necessary for them to work.
- The access to the functionalities and pending work will be carried out through personalized control panels to the functions to be carried out by each user, allowing at a glance to know the situation of the areas and works under their responsibility. In this area there will be command panels, for the control of the work of supervised and individual teams, for the control and access to the pending work of a user.
- The main functional areas that will cover will be:
 - Planning of Objectives, Indicators and Goals
 - Definition of flexible and scalable indicators to know the results of the activity.
 - Definition of objectives, indicators and annual goals for each indicator.
 - Definition of annual or multi-year campaigns with multiple objectives, indicators and goals.
 - Execution of the Inspecting Activity
 - Flexible to define the workflow and documents for all types of activity in all areas of SLS.
 - Visualization of the current situation of the inspector's activity or vision of each person in charge of his team.
 - Integration of all the documentation generated.
 - Easy access to the history of inspections of the company and or the workplace
 - Supervision and approval of workflow steps for each document.
 - Supervision of each person in charge of a team of inspectors.
 - Monitoring of the planning and evaluation of the results of the activity
 - Interactive system with selection of geographic area (central, territorial, division), temporality and indicator to review.
 - Possibilities of disaggregated information and aggregation of data by various concepts.
 - Color map with navigation based on indicator with drill down by geographic area, group of inspectors and inspector.
 - Follow up of requirements and fines to companies and degree of compliance.
 - Automatic generation of all documents from the data entered, with possibilities for previewing and entering free text where necessary.
 - Massive activity management functionalities, to allow to automate functionalities in order to reduce the manual workload. I should initially allow:
 - Generation of inspection campaigns in a massive way.
 - Massive notifications
 - Repetitive administrative processes with little added value (document dates, record of documentation, etc.)

- The selection of the nature of the data needed (as well as the objectives and indicators) should follow closely the ILO guidelines on the harmonization of labor inspection statistics produced by the ILO Department of Labor / OSH ("Guide on the Harmonization of Labor Inspection Statistics" and "Collection and use of labor inspection statistics: a short guide")

ACTORS INVOLVED

All users of the SLS, both the management positions, the inspector personnel and the auxiliary personnel.

RELATIONSHIP WITH OTHER SYSTEMS

It will be automatically integrated with the rest of the Systems where relevant information is handled for the inspection activity (Companies and workers registry, Accidents and Diseases, Registry of Documentation)

4.2.3 Information exploitation systems:

Systems that will allow the exploitation of the data handled by the rest of Systems, and facilitate reporting and decision making.

EXPLOITATION OF THE INFORMATION	
OBJECTIVE	Exploiting the existing information of the rest of systems to present aggregate or detailed reports that allow the analysis of the activity and results of the SLS.
CHARACTERISTICS AND FUNCTIONALITIES	▪ Secured to allow access only to authorized users and customize accessible reports based on their profile. ▪ Compartmentalized information so that each user can access only the relevant data. ▪ The information can be accessed by different criteria (temporal, geographic, etc.). ▪ The information can be obtained in a complete or aggregated form by the criteria that are indicated as relevant. ▪ It will allow the analysis of the results of the investigations: ▫ Inspectorate actions and results of them. ▫ Sanctions issued by the inspector personnel. ▫ UDW detected (amounts, nature, types of employers, workers, sectors of activity, regions, etc.). ▫ Debt detected. ▫ Criminal responsibilities indicated. ▫ Accidents and diseases declared and investigated. ▪ It will allow to obtaining statistics, nationally and for the ILO ▫ Based on predefined tables. ▫ Selection by different criteria (temporal, geographical, etc.). ▫ Statistics from all the IS that make up the solution.
ACTORS INVOLVED	The management positions of the SLS.
RELATIONSHIP WITH OTHER SYSTEMS	It will get data from the rest of systems to prepare the reports.

4.2.4 Data Intelligence Systems (Undeclared Work)

Systems that will allow, from the analysis of the information within the scope of the SLS, the detection of irregular situations such as undeclared work, or the identification of evidences that identify companies or workers most likely to be in situations of irregular or risky situations. All this is aimed at increasing the productivity of the SLS activity, either by improving the efficiency of its actions or by allowing the automatic and massive generation of actions for irregular situations detected through the analysis of the data, where additional investigation is not necessary.

UNDECLARED WORK DETECTION SYSTEM
OBJECTIVE
Its purpose is the detection, from the data accessible to the SLS, of situations that affect workers in an irregular situation. This system has a special importance for the detection of fraud and would cover current gaps that are detected in this area.
CHARACTERISTICS AND FUNCTIONALITIES
■ Data Sources: ▫ Mailbox of labour fraud of the Electronic Headquarters as a source of information. ▫ History of inspection actions. ▫ External sources. ■ It involves the creation of a DataMart for investigation through a set of rules whose application allows to determine if a worker may be in an irregular situation. ■ It will also allow, in addition to determining irregular situations, to autonomously detect companies with greater risk of fraud, without waiting to receive Social Security or Tax data. ■ This will allow the selection of companies based on various risk indicators, to allow the management of the SLS to conduct action campaigns on them. ■ It will be integrated with the Management System of Inspection Activity, for the creation of massive actions to correct the irregular situations detected, and for the launching of campaigns on companies with greater risk. ■ It will integrate its results in the campaigns generated from this system.
ACTORS INVOLVED
Management positions and inspection staff of the SLS.
RELATIONSHIP WITH OTHER SYSTEMS
It will be fed from the rest of the systems for obtaining data with which to compose the DataMart, as well as data from third-party organizations (Social Security, Treasury, etc.) relevant for the detection of fraud situations or the definition of risk profiles to present irregular situations.

4.2.5 Other auxiliary systems

Support systems for other activities, such as:

MAILBOX OF LABOUR FRAUD	
OBJECTIVE	
Integrated with the Electronic Headquarters that allows citizens to send complaints or communications to SLS about any type of irregularity related to a company or work center.	
CHARACTERISTICS AND FUNCTIONALITIES	
■ Accessible from the internet ■ Possibility to select the type of irregularity to communicate, for example: ○ Workers without contract ○ False self-employed ○ Work incompatible with the provision of unemployment, temporary disability, retirement, etc. ○ Foreign workers without work permits. ○ Payment of amounts not included in payroll and not declared to social security ○ Workers with irregular temporary contracts ○ Workers with a working hours longer than those signed in the contract (irregular part-time contracts) ○ Non-compliance with respect to working hours, overtime and vacations ○ Discrimination in access to employment ○ Discrimination in salary due to gender (salary gap) ○ Sexual harassment ○ Non-compliances in the Occupational Health and Safety area ○ Other (Detailed in the description of the facts)	
ACTORS INVOLVED	
Citizens	
RELATIONSHIP WITH OTHER SYSTEMS	
Integrated with the Electronic Headquarters and the Registry of Documentation	

ELECTRONIC SIGNATURE

OBJECTIVE

Centralize application for all the electronic signature needs of the SLS.

CHARACTERISTICS AND FUNCTIONALITIES

- Secured to allow access only to authorized users.
- Signature workflow, sequential signature, signature in parallel, one or several signatories
- Generation of signed document and document with SVC (ready to be notified on paper). Checking SLS Electronic Headquarters using the SVC.
- Signature, approval, rejection, resubmission, etc.

ACTORS INVOLVED

All users of the SLS, both the management, the inspector and the auxiliary personnel.

RELATIONSHIP WITH OTHER SYSTEMS

Integrated with other applications that require electronic signed documents.

EDICTAL BOARD

OBJECTIVE

Publication of notifications to companies and workers with legal consequences.

CHARACTERISTICS AND FUNCTIONALITIES

- Possibility of automatic changes of the status of the documentation (for example, to move to a notified state after a few legally established days)
- Communication or notification with legal value

ACTORS INVOLVED

Workers and companies

RELATIONSHIP WITH OTHER SYSTEMS

Integrated with the Registry of Documentation.

MANAGEMENT OF THE SLS HHRR

OBJECTIVE

Management of the human resources DB of the SLS.

CHARACTERISTICS AND FUNCTIONALITIES

- Secured to allow access only to authorized users and customize accessible reports based on their profile.
- Compartmentalized information so that each user accesses only the relevant data.
- Management of assignments, functions and profiles within the organization.
- Vacation management, sick leaves, etc.
- Management of access profiles and privileges for the access to the rest of the SLS Systems.

ACTORS INVOLVED

All the staff of the SLS

RELATIONSHIP WITH OTHER SYSTEMS

Integrated with the rest of Systems as the security access manager and user profile administrator.

KNOWLEDGE FORUM

OBJECTIVE

Serve as a shared service for the staff of the SLS, to provide information and services relevant to their work.

CHARACTERISTICS AND FUNCTIONALITIES

- Secured to allow access only to authorized users.
- I will provide information of:
 - Instructions, circulars, legal novelties, jurisprudence, protocols of action, etc.
 - Information about data of companies (by an external provider).
 - Updated legislation (by external provider).

ACTORS INVOLVED

All the staff of the SLS.

E-LEARNING

OBJECTIVE

On-line training and training management system for SLS personnel.

CHARACTERISTICS AND FUNCTIONALITIES

- Secured to allow access only to authorized users.
- It will allow the creation and management of on-line training, creation of courses, establish and manage its content, manage assistance, application, authorizations, questionnaires, evaluations, etc.
- Initially, the use of existing e-learning solutions is proposed (Moodle is proposed as the most used tool).

ACTORS INVOLVED

All the staff of the SLS.

QUALITY CONTROL TOOLS

OBJECTIVE

Set of tools for ensuring the quality and consistency of the data included in all the DB of the different systems.

CHARACTERISTICS AND FUNCTIONALITIES

- Automatic processes to guarantee that the information contained in any system complies with a set of pre-established rules regarding its coherence, rules that could not be incorporated in the processes of editing the data for various reasons (complexity, opportunity, etc.).
- The rules can refer to the internal logic of each data or crossings of information of different nature.
- It must incorporate data coherence review capabilities from both technical and functional points of view.
- It will report the detected evidences through reports so that they can be reviewed by SLS personnel for its correction or, if applicable, mark it as special situations that should be ignored by the detection processes.

ACTORS INVOLVED

Personnel of the SLS assigned to the review of the evidences detected. A specialized group should be created for this task.

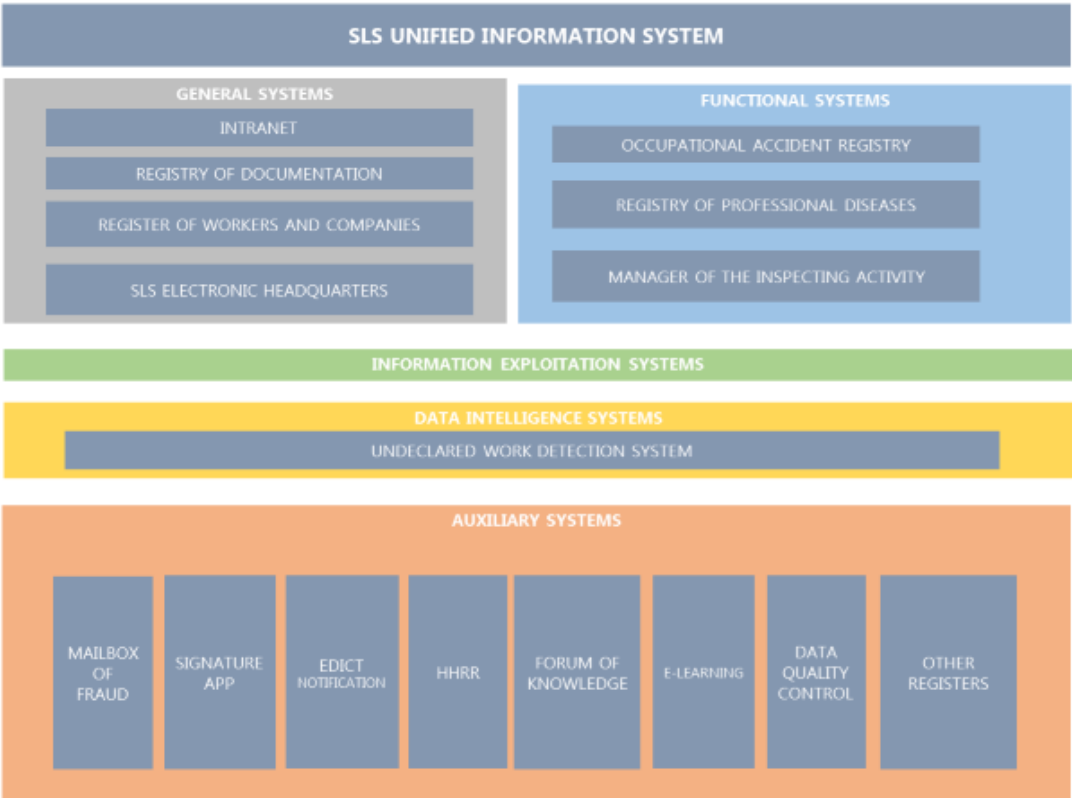
4.2.6 Other management systems integrated with the rest

OTHER MANAGEMENT SYSTEMS	
OBJECTIVE	
Group of several other systems for the registration and management of information relevant to the SLS.	
CHARACTERISTICS AND FUNCTIONALITIES	
▪ Secured to allow access only to authorized users and customize accessible reports based on their profile. ▪ Compartmentalized information so that each user accesses only the relevant data. ▪ It would include: ▫ Permit Manager for the Management of Dangerous Machinery. ▫ Declaration of Conformity ▫ Permit Manager for the Management of Cranes. ▫ Registration of high-risk facilities, including the registration of cranes. ▫ Registration of technical training for hazardous work (now available online) ▫ Registration of Transportation ▫ Medical exam registration ▫ Management of master systems entities	
ACTORS INVOLVED	
Staff of the SLS.	

4.2.7 Overview of the new unified information system of SLS

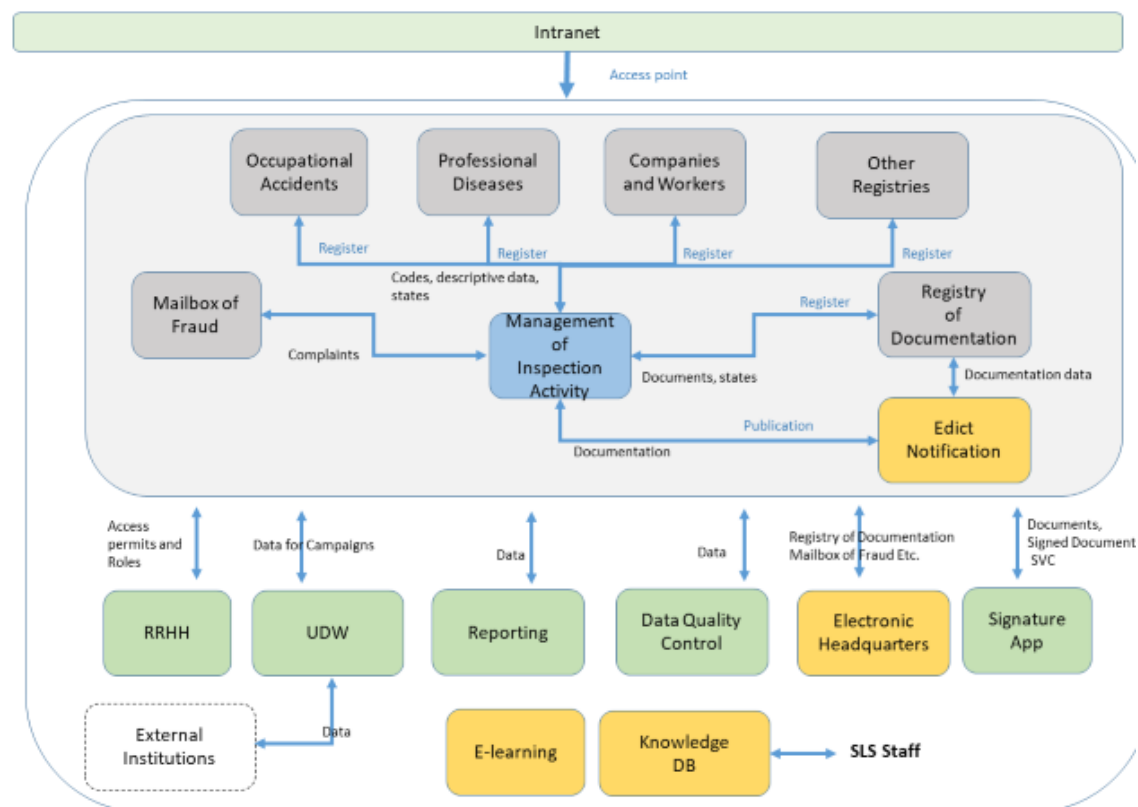
General outline of the unified information system

The following graphic shows an overview of the different systems that would integrate the new Unified Information System of SLS:



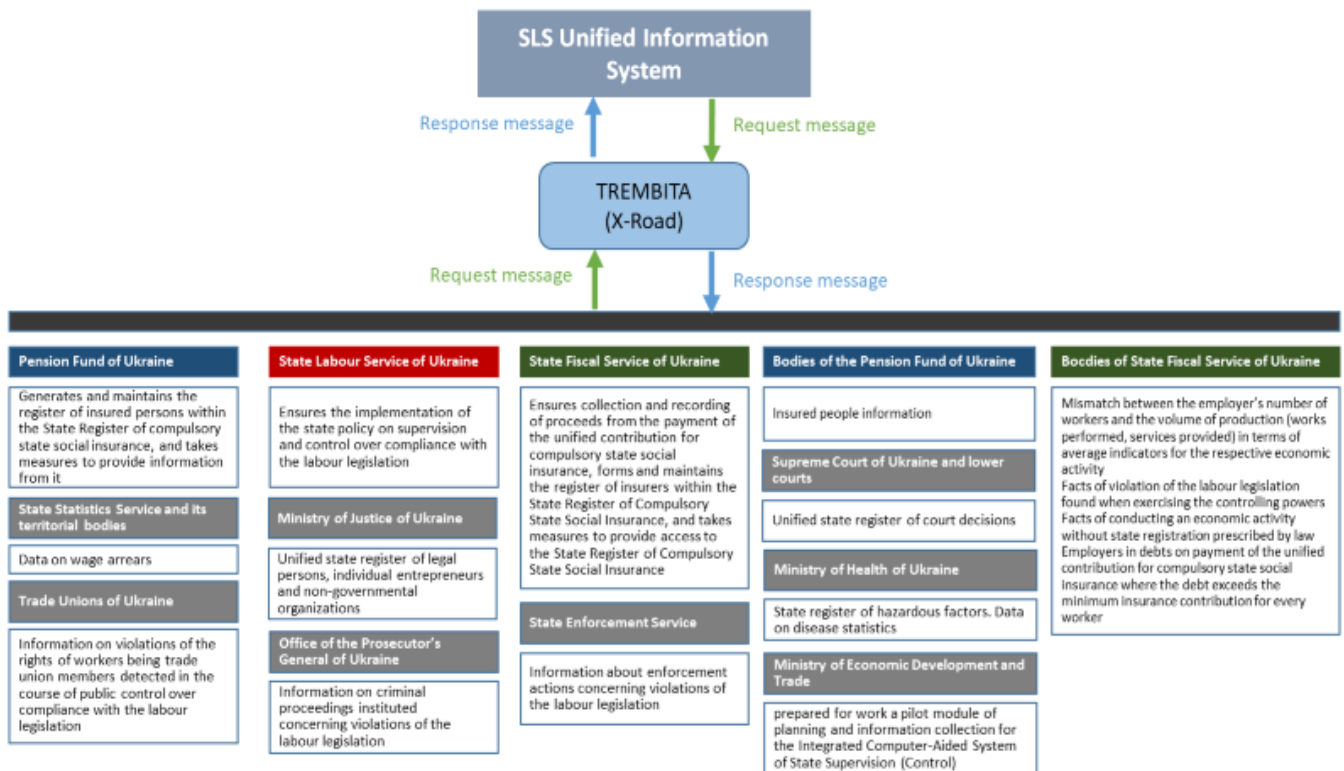
Relational vision between systems

The following graphic shows a vision of the main relationships between the different systems:



Relationship with external agencies or institutions

For the exchange of information with information systems of other external organizations, it is recommended to make use of the standardized mechanism in the Ukrainian public administration, that is, the use of the Trembita platform.



4.3 Recommendations for the development and evolution of systems

This section shows some general recommendations to be consider in the project of evolution and modernization of the SLS information systems, from the organizational, management and technical points of view.

4.3.1 *Management and coordination of the work*

4.3.1.1 *Establish a Steering Committee to impulse and coordinate the project*

To carry out this project, it is necessary to have the necessary stakeholders support to promote its implementation. Its main mission is to guarantee the political support for the project.

In order to achieve that, it is important to establish a steering committee that should be formed by people who have the necessary power of decision to establish the strategic lines of the work to be done. The main mission should be:

- Establish the strategic direction (alignment with the business).
- Coordinate the strategic guidelines and objectives that affect the project.
- Solve and approve the strategic and economic aspects.
- Carry out the follow-up of the set of activities and actions developed in the project, especially oriented to the achievement of the proposed objectives.
- Effectively manage and give a solution to issues that cannot be solved in the meetings of the project monitoring committee.
- Review and analyze the overall status of the project and compliance with needs, obligations and responsibilities.
- Check the compliance with the contract of the external companies that may be involved.
- Take care of the management of the project and the contract.
- Solve disagreements regarding personnel and resources assigned to the project.
- Settle the mechanisms of work and coordination with other project work teams and third parties if required.
- Crisis Management, decision making on critical situations and impact on the project.

4.3.1.2 *Establish a Project Technical Office*

This office will have as a general mission the control, follow-up and audit of the work to be carried out.

The **main activities** are the following:

- Transfer the strategic directions in the daily operations of the project within each area of the project.
- Review and monitor the guidelines and priorities set by the Steering Committee and apply them to the operation of the service according to the needs of each area.
- Carry out the monitoring and control of the execution of the project according to the defined objectives.
- Review and discuss the economic aspects of the agreement with third parties (billing, penalties, etc.), notwithstanding that the final decision is escalated to the Steering Committee.

- Resolve discrepancies or disagreements on the interpretation of the contract with third parties and submit them to the Steering Committee.
- Review and follow-up of the status of ongoing initiatives, planning and prioritization.
- Identify the project needs according to each business area proposing adjustments and / or action plans to the Steering Committee when necessary.
- Review of the action plans and initiatives in progress in the technological and innovation / continuous improvement areas.
- Review of the action plans and initiatives in progress, derived from the actions of third parties that may affect the service and its business areas.
- Analyze the future forecast, in such a way that the technological and development capacities can be properly planned.
- Coordinate the groups and persons assigned to the project, ensuring that the personnel assigned for the execution of the services are available and have the means, training and support necessary for the proper execution of their tasks.
- Establish and review priorities.
- Carry out the follow-up of the Service Level or the status of the actions or initiatives proposed, assessing progress, identifying risks and approving necessary changes or modifications.
- Demand management involvement according to the needs of the project and strategic objectives.
- Management of critical issues, making decisions about critical situations that have an impact on business or technology.

4.3.2 Use of a proven methodology

To undertake all the work of management, functional or technical, within the general process of evolution of the information systems of SLS, it is recommended the selection and use of a **proven methodology**, which helps to carry out the tasks in a standardized form, controlled and with the necessary level of quality.

There are specific methodologies widely used internationally that provide the guidelines and recommendations to carry out the tasks.

The use of methodologies commonly used in the sector, enables the tasks to be performed in an orderly, standardized manner and guarantees that they are carried out with an appropriate level of quality.

These methodologies usually suggest a series of Phases and tasks to be carried out and provide recommendations on the information necessary to perform a task and the information that this task generates as a previous step to the next one (workflow). In turn, they recommend tools for the best performance of each task.

Examples of contrasted methodologies in the market can be:

- **CMMi, Agile (Scum)**, which may be applicable for information systems development and maintenance projects.
- **ITIL** for technological infrastructure projects
- **Lean** as a methodology for process optimization and continuous improvement.

4.3.3 Definition of the phases of the development of the project

For such ambitious task as the one described within this document, the selected methodology must encompass and define the processes involved in the different areas and phases that make up a computer systems development project.

The works should be enhanced following the established methodology and structuring the work in large phases that allow working in an orderly manner.

At least the methodological definition for the following phases and activities should be taken into account:

4.3.3.1 Planning of the tasks (Information Systems Plan)

The objective of an **Information Systems Plan** is to provide a strategic framework of reference for the SLS Information Systems.

The result of the Information Systems Plan must, therefore, guide the actions in the area of systems development with the basic objective of supporting the corporate strategy, preparing an information architecture and a computer project plan to support the strategic objectives.

The **main products** that should be generated in this activity are:

- Catalog of requirements arising from the study of the current situation.
- Information architecture that in turn consists of the following products:
 - Information model.
 - Information systems model.
 - Technological architecture.
 - Project plan.
 - Future maintenance plan.

4.3.3.2 Study of feasibility and alternatives

To **analyze a specific set of needs**, with the idea of proposing a **short-term solution**. The criteria with which this proposal is made will not be strategic but tactical and related to economic, technical, legal and operational aspects.

The results of the System Feasibility Study will be the basis for making the necessary decisions to carry out the work. As a result of these decisions, one or more projects may arise that affect one or more information systems. These systems will be developed according to the result obtained in the feasibility study and taking into account the portfolio of projects for the implementation strategy of the global system.

The feasibility study should contain **information regarding**:

- Context of the system (with the definition of the interfaces depending on the solution).
- Impact on the organization.
- Cost / benefit of the solution.
- Evaluation of the risks of the solution.
- Focus of the work plan of the solution.
- Solution planning.
- Proposed solution:
 - Description of the solution.
 - Decomposition model in subsystems.
 - Process matrix.
 - Data matrix.
 - Technological environment and communications.
 - Global implementation strategy of the system.
- Description of the processes.

4.3.3.3 Functional and technical analysis

To obtain the [detailed specification of the information systems](#), through a catalog of requirements and a series of models that cover the information needs of the users for whom these systems will be developed.

The main products that should be generated in this activity are:

- General description of the technological environment.
- Requirements catalog
- Glossary of terms
- Data model
- Process model
- Description of subsystems
- User interface
- Specification of software requirements
- Functional documentation of the modifications to be made on existing systems,
- Functional documentation of the new systems to be implemented.

4.3.3.4 Functional and technical design

To obtain the [definition of the architecture of the system](#) and the technological environment that will give support to it, together with the [detailed specification of the components](#) of the information system. From this information, all the construction specifications related to the system itself are generated, as well as the technical specification of the test plan, the definition of the implementation requirements and the design of the procedures for [migration](#) and [initial data loading](#).

The design of the architecture of the system will depend to a great extent on the characteristics of the current SLS systems installed, so it is necessary to take into account an active participation of those responsible for Systems and Operations of SLS.

The [main products](#) that should be generated in this activity are:

- Catalog of standards for design and construction.
- System architecture design.
- Technological environment of the system.
- Procedures of operation and administration of the system.
- Security procedures and access control.
- Detailed design of the support subsystems.
- Optimized physical data model.
- The necessary data migration procedures.
- The definition and review of the test plan, and the design of the verification of the established test levels.
- The specification of the implementation requirements.

4.3.3.5 Development and construction of the systems

The final goal of the construction is the [development and testing](#) of the different components of the information system, based on the set of logical and physical specifications identified in the design phase.

To carry out the development, the information regarding the construction specifications of the system is collected, the construction environment is prepared, the code of each one of the components of the information system is generated and then deployed and tested as soon as they are finalized. The unitary tests of each of the components and the integration between subsystems must also be tested.

The **main products** that should be generated in this activity are:

- Result of the unitary tests.
- Evaluation of the result of the integration tests.
- Evaluation of the results of system tests, performance, usability, etc.
- Software product:
 - Source code of the components.
 - Procedures of operation and administration of the system.
 - Security procedures and access control.
 - User manuals.
 - Specification of training for end users.
 - Source code of the migration components and initial data load.
 - Migration procedures and initial data loading.
 - Evaluation of the results of migration tests and initial data loading.

4.3.3.6 Implementation of the systems developed

The main objective of this process is the **delivery and acceptance of the system** as a whole, which may include several information systems developed independently, as established in the feasibility study process, and a second objective that is to carry out the opportune activities for the implementation in the production environment of the system.

The **main products** that should be generated in this activity are:

- System Implementation plan.
- Implementation team that will carry out the implementation.
- Training plan for the implementation team (outline, materials, necessary resources, planning and specification of the training for the end users).
- Evaluation of the system implementation tests by the operation user.
- Evaluation of the acceptance tests of the system by the end user.
- Maintenance plan prior to production.
- System level agreement.
- System in production.

4.3.4 Quality control and continuous improvement

It is very important to carry out **quality control tasks** that verify that the work is carried out according to the **guidelines set** and that the planned objectives are being achieved.

Quality assurance is based on a policy, strategies, plans and quality programs that are clearly established, approved, and disseminated throughout the SLS.

It will be convenient to implement a set of instruments, procedures, methods and specific actions aimed at ensuring the quality of the work, establishing the harmony between the results of the project and the perception of them by all the SLS groups involved.

The **main objectives** of the management of the quality of the works are:



Conformity of SLS requirements and expectations with the performance of software products.

Reduction of errors, functional deficiencies and deficiencies of information systems. Elimination of budget deviations through the appropriate processes of estimation and management of scope and development.

Compliance with the deadlines established with the compromised scope. Obtaining documentation and intermediate products according to standards.

Progress towards an organization with a solid level of quality whose success does not depend on individualized people, but on the effectiveness of the organization itself.

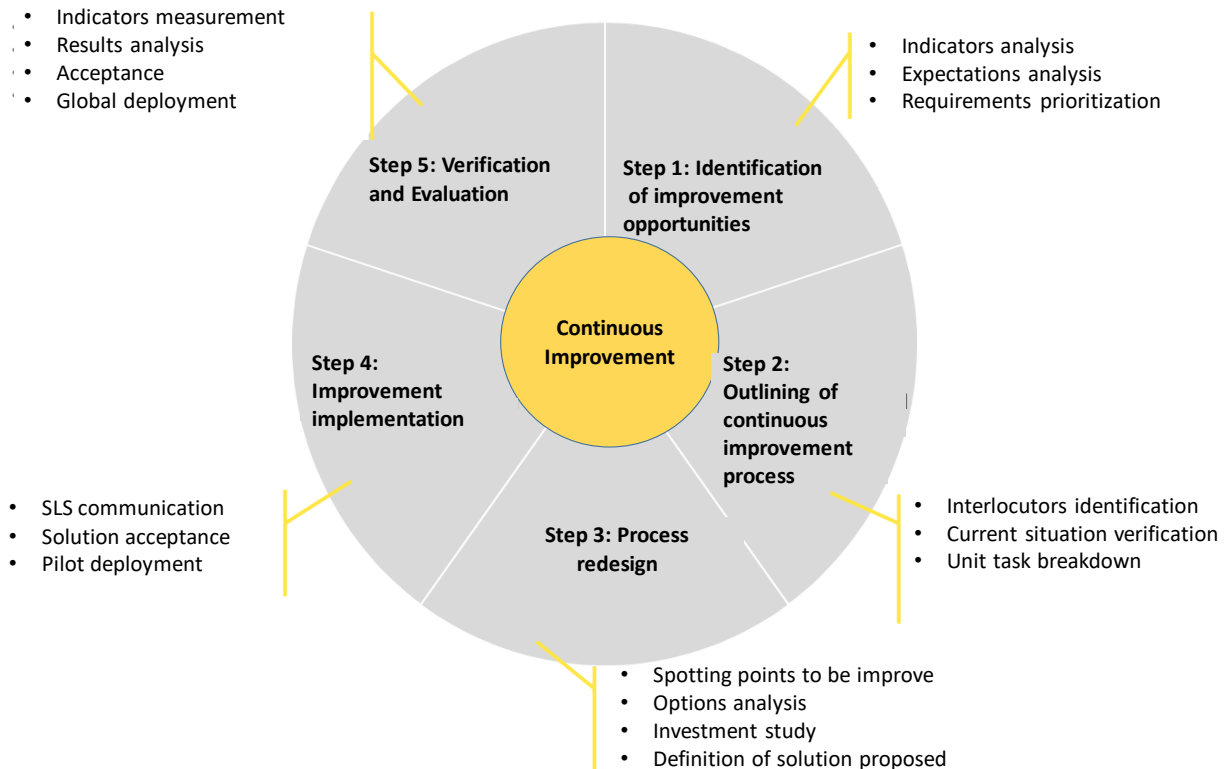
Quality Management should contemplate at least the following areas:

4.3.4.1 Continuous Improvement Program

The final goal of this continuous improvement procedure is to **save corrections costs** during the evolution of applications and systems:

- The improvements can be in the scope of the processes, technological, application or organizational.
- The actions must be reviewed at the Service Follow-up Meetings, in the specific area of **Continuous Improvement**.

As an example, the following graphic shows a process of continuous improvement:



4.3.4.2 Software Quality Plan

In the process of quality assurance of the software, 3 clearly different areas can be identified:

➤ Definition of standards or good practice guides

This phase is prior to the modification of any software, and is related to define and communicate all those aspects related to the quality of the software in order to avoid bad practices or inefficient use of resources. Aspects to be considered at this point would be such as:

- Nomenclature to use.
- How to proceed depending on the type of modification to be made (Copy standard objects and modify the new created object, or make a copy of the standard object as a backup and then modify the standard).
- Avoid hardcode in development
- Avoid the use of incorrect logic (every conditional *if* must consider all cases (must have an else)).
- Security aspects
- Performance aspects
- Aspects of maintainability
- Etc.

➤ Verification strategy

Verification is a control that ensures that all components have been correctly constructed and / or configured from the input data and established standards.

The main objective will be to provide a structured development framework, emphasizing the quality of the construction and / or configuration from the initial requirements phase until the testing phase.

It will be necessary to define the set of test types to be carried out, the process to carry them out and the help tools to be used.

➤ **Monitoring of developments**

Keep track of the developments carried out and verify that all the test controls have passed, that they meet the objectives set and that they respect the needs set by SLS.

4.3.4.3 Risk management

Risks are factors or situations that, if manifested, can hinder or impede the achievement of the objectives set. Although they can be detected throughout all the phases of the project, identify them as early as possible is desirable.

Once a risk manifests or materializes, it becomes an incident, so work must be done so that the risks are classified according to their probability and impact, the mitigation actions are identified and the right committees are informed and escalated.

This will materialize in a **Risk Management Plan** (inventory and associated actions), which should include the following points:

- Identification of possible risks that may interfere with the execution of the service.
- Adoption of preventive and corrective measures.
- Investigation of the causes that cause the risk situation.
- Establishment of:
 - Corrective Actions to eliminate the causes of risk.
 - Preventive actions to warn possible situations of risk.

In the preparation of the Risk Management Plan, **tasks such as:**

- Identification of processes and critical resources involved in the execution of the service.
- Review of security policies that define the level of theoretical security that the processes / resources involved must comply with.
- Preparation of questionnaires and interviews with those responsible for the processes / resources involved.
- Identification of threats.
- Classification of the vulnerability of the resources (probability) and severity of the loss or violation of its integrity (potential problems).
- Determination of risks.
- The ultimate objective of the activities described, once the security mechanisms have been selected, will tend to obtain acceptable levels of acceptable risk

4.3.5 Necessary teams

For the preparation and development of this type of projects, it is very important to bear in mind that multidisciplinary teams with knowledge and experience in the different areas that this type of work includes are needed: Public administration expertise, functional areas, technical areas and areas of management and coordination.

It will be necessary to verify if SLS has the adequate number of human resources with enough qualifications and expertise or they need to incorporate people to help them to carry out the project and its maintenance.

- ✓ **Identification of necessary profiles:**
 - **Management profiles** responsible for executing the management tasks. It should include expert personnel in Social Security and Labor Inspection.
 - **Business Analysis Profiles** that have analytical and technical skills that allow defining or evolving the new system.
 - **Technical profiles** for the implementation, configuration, development and maintenance of the new information system.
- ✓ **Verification of the existence of internal personnel**
 - **Functional experts** in social security, in labour inspection, fraud, etc.
 - **Personnel with a technical profile** that coordinates the development of the new information system.
 - **Computer experts** (technological skill, depending on the selected technical option).
- ✓ **Identify internal training needs** that allow the acquisition of basic knowledge for the management of new techniques and lay the foundations so that the model can be independently evolved by the organization's own staff.
- ✓ **Study the possibilities of hiring external personnel**, specialized in information systems development that can collaborate in the implementation tasks of the new information system, with specialized knowledge in:
 - Technologies applicable to the new information system.
 - Functional scope of SLS.
 - Etc.

4.3.6 Audit the project by an specialized external company

This external company specialized in auditing projects will have an important role controlling the project as a whole.

These are the **main activities** that it would be advisable to carry out when auditing the project:

- Verifying that the works done are catering for the requirements defined at the beginning of the project and that they are meeting the expectations set by the project management board.
- Verifying that the functional and technical requisites are being met.
- Checking out all the products generated (software, documentation, etc.) to make sure the standard and quality requisites are met.
- Verifying that the technical designs meet all the technical specifications required.
- Verifying that the development carried out fulfils the technical specifications set.
- Making sure the milestones and deadlines are accomplished.

- Establishing, together with the Technical Office of the project, the global quality plan of the project, defining the indicators to be measured and do a monitoring of them.
- Carrying out the economic monitoring of the project and anticipating possible deviations.
- Reviewing the risk management done by the project teams.
- Elaborating the auditing reports (reports, dashboard, quality indicators, etc.).
- Keeping the Technical Office of the Project informed.

4.4 Critical factors of success

This section summarizes the main aspects to be taken into account as success factors of the modernization project of the SLS information systems.

4.4.1 *Establish a clear leadership in the project*

For the correct definition and execution of the project it is essential that the responsibilities of leadership and sponsorship of the project be established very clearly.

It is convenient to define the necessary roles for the direction of the project, as well as the assignment of the specific people who will have the power to make the strategic, economic, etc. decisions, select alternatives, define and lead the project execution teams and in short, have the executive capacity of the project.

This is mainly intended to achieve:

- ☐ That the strategic decisions to be made are as centralized as possible, avoiding "collegiate" decisions that may come from different sources with the possibility of inconsistencies between them.
- ☐ That the project be promoted by the appropriate organizations / persons that have the power to make important decisions and to make sure that the work is carried out properly.

4.4.2 *Management and exhaustive coordination*

Good management, control and coordination of the project is essential for the work to be carried out in a timely manner, complying with the objectives defined at the beginning of the project.

To do this, as indicated in the recommendations in section 4.3., it will be advisable to define both the Steering Committee and the Project Operating Committees, in a coordinated manner to ensure the good execution of the work.

In turn, the creation of the Project Technical Office is essential for the control, supervision and monitoring of the project.

4.4.3 *Establish periodic checkpoints*

In relation to the previous point, it is necessary to establish the set of committees and meetings to be maintained during the development of the project, as well as the periodicities necessary for a good control and monitoring. There should be established:

- ☐ **Management committees:** at least on a quarterly basis, where the general status of the project will be reviewed and strategic measures for continuity, correction of deficiencies or modification of those aspects that are susceptible to improvement will be taken.
- ☐ **Operative committees:** at least on a monthly basis, where the work is monitored at a greater level of detail, the different teams are coordinated and operational, technical, functional decisions, etc. are made to warrant the progress of the project. At this level, follow-up reports are made to the Management Committees.
- ☐ **Work meetings:** at least weekly or on request, where all topics are dealt with at the lowest possible level, functional / technical teams are coordinated and low-level decisions are made, tasks are distributed, follow-up, etc. At this level, follow-up reports are made to the Operative committees.

4.4.4 Adequate provision of human and material resources

In the initial phases of planning and feasibility study of the project, it will be necessary to analyze in detail all the human and material needs to be able to carry out the objectives set in the project.

From the point of view of human resources (see section 4.3.5.), It will be necessary to take into account aspects such as:

- ☐ Identification of people with required profiles
- ☐ Verification of sufficient existence of internal personnel
- ☐ Identify training needs

From the point of view of material resources, it will be necessary to take into account aspects such as:

- ☐ Premises and buildings to carry out the work
- ☐ Necessary jobs
- ☐ Hardware elements needed (technological environments)
- ☐ Communications lines
- ☐ Basic software and specific software for the development of the project
- ☐ Necessary budget allocation

4.4.5 Assignment of expert personnel from external companies

As analyzed in the previous point, it may be necessary (and usually always convenient) to obtain expert staff from an external company that has extensive experience in the development of similar projects that can help [both the execution and monitoring of the project](#).

The company to be selected in the market must have a [demonstrated solvency](#) in aspects such as:

- ☐ Works in projects of the public sector and in particular in the areas of competence of SLS.
- ☐ Development of consulting projects in the functional scope of the project.
- ☐ Development and implementation of technology projects, as well as the development and maintenance of information systems.
- ☐ Management and coordination of projects, with extensive experience in Project Technical Offices.
- ☐ Have a proven technical capacity, with business volume, human resources and sufficient materials.

4.4.6 Appropriate selection of the technology to be used

One of the strategic decisions to be taken by the Steering Committee will be the technological platform that will support the new SLS information systems.

It will be necessary to evaluate:

- ☐ [Custom software vs. commercial software](#), in each of the aspects to be covered.
- ☐ [Technological platform](#) selection
- ☐ The chosen software must have the [technical capabilities](#) to cover the defined functional needs (reporting, analytical, accessibility, usability, etc.)
- ☐ Always adapting the decisions to the [budgetary restrictions](#) of the project.

4.5 Roadmap

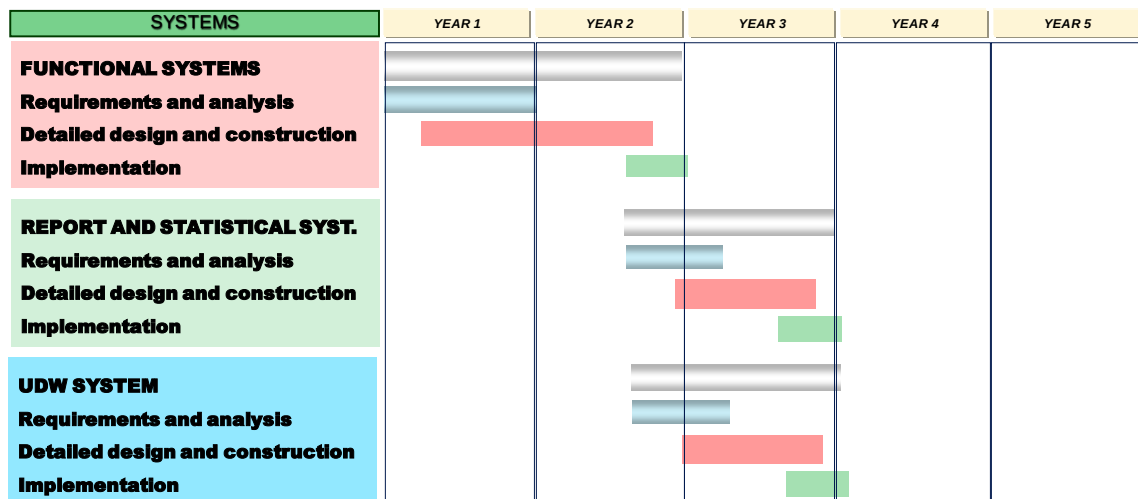
4.5.1 Introduction

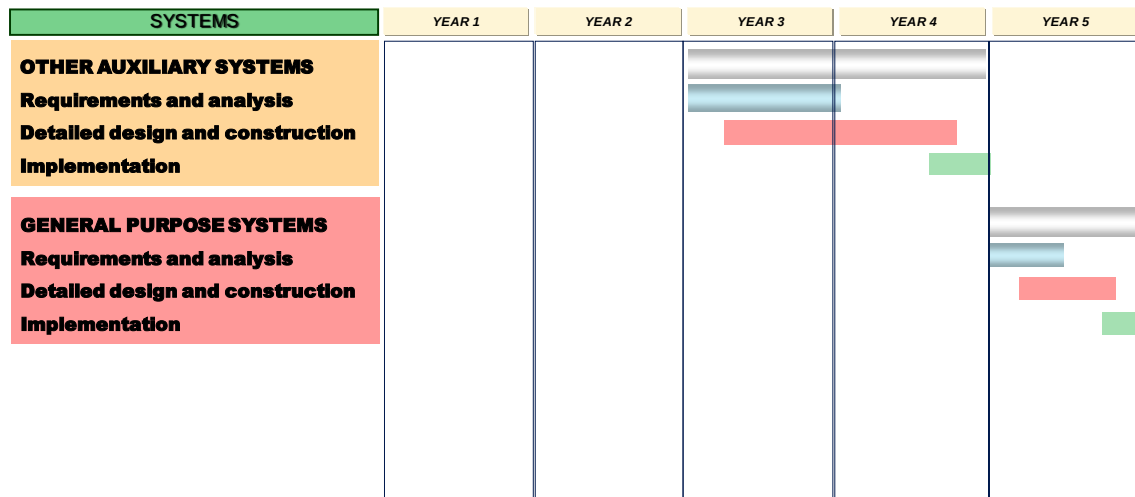
The detailed work plan to carry out all the tasks of analysis and implementation of the proposed systems, will be very dependent on the capabilities of the SLS as well as the strategy adopted to undertake the work:

- ☐ Economic capabilities
- ☐ Possibility of carrying out work with internal staff of the SLS
- ☐ Hire external support from specialized companies (one or more)
- ☐ Mixed teams (internal / external) to set up work teams
- ☐ Possibilities to do parallel work depending on the available resources capacity
- ☐ Etc.

However, this document includes an initial roadmap, with the most important tasks for the development of the new systems, which will have to evolve to a detailed work plan based on the strategy adopted and available capacities, both economic and human.

4.5.2 Global Outline





Before these developments start, the Technical Project Office must make a detailed system plan, which could be estimated in 6 months, and the rest of important decisions about hardware, software, HHRR, etc. must be taken.

4.6 Estimated Budget

4.6.1 *Implementation of a Technical Project Office (TPO)*

Once this report is approved, where the strategic plan for the evolution and modernization of the SLS information systems is outlined, it will be necessary to start the detailed work, where the technological and functional decisions will be taken and all the detail requirements will be collected to be able to carry out the implementation of the systems.

For this task, it is recommended to begin by establishing a [Technical Project Office](#), which will be responsible for carrying out the following main activities:

- ☐ [Compilation of all detailed requirements](#): functional level, operational level, organizational level and technological level.
- ☐ [Preparation of the conceptual and functional documentation](#) needed to define the scope of all the work to be done.
- ☐ [Take strategic decisions at the technological level](#): necessary technological infrastructure, hardware, servers, basic software, application software, technological alternative to implement the systems, etc.
- ☐ [Define the necessary work teams](#) to carry out the work (functional / technical): both internal teams, external personnel, services to hire, expert staff, etc.
- ☐ [Manage the development of work](#): control of teams and tasks to be performed
- ☐ [Monitor the work](#): control of deadlines, costs and compliance with objectives.
- ☐ [Quality control](#): ensure that the works are carried out with the established quality criteria and that they meet the expectations set out in the requirements catalog.
- ☐ Preparation of [reporting and dashboards](#) on the status of the work.

Profiles that should be considered as part of the Project Technical Office

Profiles	Description
Business experts	Internal personnel with deep knowledge of the needs and operations of SLS.
Functional experts	People with knowledge in the different functional areas that can have a very clear vision of the needs of the users of functional area.
Technological experts	Personnel with technological knowledge in architectures, technological alternatives, market tools, etc.
Experts in the management of technological projects	Personnel with experience in the development and maintenance of computer systems.
Expert in quality	Staff with experience in the quality control of technological projects
Functional technicians	Personnel with experience in transforming the requirements into functional documentation that serves as input for the systems development and implementation teams.

The final objective of the Project Technical Office will be to prepare all the information, documentation, and infrastructure ready for the start of the project of development and implementation of the systems.

4.6.2 Estimated budget

The cost of implementing the new Unified Information System of SLS should be analyzed and calculated once the tasks indicated for the Technical Project Office have been finished.

Many factors can influence in the final cost of the solution according to the strategic decisions made in the initial phase of the project, such as:

☐ Decisions about the hardware:

- Acquisition of machines vs rent
- On-premise vs cloud machines
- Typology of the selected machines
- Needs of laptop computers (purchase or renting of PC's)

☐ Decisions on the alternative Software:

- Base software to acquire (web servers, applications, database, etc.)
- Alternatives of development software (custom vs. market): JEE, Microsoft, market packages, etc.
- Support for finally adopted functionalities: BI, Data Intelligence, Reporting, etc.
- Operating system licenses
- Specific software licenses

❑ Internal capacities vs the need to subcontract external personnel

- Experts in consulting
- Functional experts
- Technological experts
- Software development teams
- Systems and support equipment
- Experts in the management of technological projects

❑ Etc.

The following table shows some orders of magnitude of the budget required to implement the Project Technical Office:

Concept	Description	Estimated budget
Technical project office	Define the scope, take of technological alternatives, definition of requirements and functional analysis. (Estimated time 6 months)	300.000€

The following table shows the estimated financial needs for the works related to the creation and implementation of the SLS UIAS, according to the estimation provided by the OSH Institute in their report:

Subsystem name	Estimated cost of development
Development cost of the SLS UIAS subsystems	960.000,00 €
Cost of works related to UIAS implementation and staff training	102.000,00 €
Cost of work related to UIAS maintenance during a year	45.000,00 €
Cost of computer hardware and licensed software	437.250,00 €
including:	
Server equipment	61.500,00 €
Computer hardware (fixed workstations)	216.000,00 €
Computer hardware (mobile items)	58.500,00 €
Licensed software	101.250,00 €
Licensed software and certificates to be issued by the state administration (licenses and connection to the IS Trembita, State Statistics Service IS, Ministry of Justice IS etc.)	60.000,00 €
TOTAL	1.544.250,00 €