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INFORMATION TECHNOLOGY MASTER PLAN FOR THE HOLDING COMPANY FOR WATER AND WASTEWATER AND ITS SUBSIDIARIES

EGYPT WATER AND WASTEWATER SECTOR SUPPORT PROGRAM
Funded by the United States Agency for International Development (USAID)

January 2012

This publication was produced for review by the United States Agency for International Development (USAID). It was prepared by Chemonics International Inc.

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ACRONYMS AND ABBREVIATIONS

AMI	Automated Meter Infrastructure
AMR	Automatic Meter Reading
BCP	Business Continuity Plan
CIS	Customer Information System
CRM	Customer Relationship Management
DRP	Disaster Recovery Plan
EDMS	Electronic Document Management System
ERP	Enterprise Resources Planning
GIS	Geographic Information System
GOE	Government of Egypt
HCWW	Holding Company for Water and Wastewater
HRD	Human Resource Development
IT	Information Technology
ITMP	Information Technology Master Plan
MARS	Monitoring and Analysis Reporting System
MIS	Management Information System
SCADA	Supervisory, Control, and Data Acquisition
WWC	Water and Wastewater Company

EXECUTIVE SUMMARY

In the previous stage an assessment of the Holding Company for Water and Wastewater and its subsidiary companies was conducted. During this assessment, the strengths and weaknesses of the implementation of information technology in the companies were determined.

The components of the information technology master plan for the holding company were determined as follows:

- HCWW Back-office Components:
- Financial and Administrative Systems
- Human Resources Systems
- Electronic Document Management System (Archiving system) and Workflow System
- Web Portal and E-Government Readiness
- Office Automation
- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- IT human resources development
- Procedures and Documentation

HCWW components required to support the subsidiaries:

- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- Procedures and Documentation
- Business Intelligence Readiness

The components of the information technology master plan for subsidiary companies were determined as follows:

-
- Financial and Administrative Systems
- Human Resources Systems
- Customer Service Systems
- Assets Management and Operation
- Electronic Document Management System (Archiving System) and Workflow System
- Web Portal and E-Government Readiness
- Office Automation
- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- IT human resources development
- Procedures and Documentation

The IT Master Plan aims at:

- Making benefit of the existing investments in information technology
- Overcoming the weaknesses
- Coordination between subsidiary companies so as to exchange experiences between companies and avoid repeating the same work whenever possible to fully utilize the existing expertise and not waste it by repeating the same work

The IT master plan identifies the IT strategic goals and its relation to the general goals of the companies, and also identifies the relation between the components of the master plan and accomplishing the strategic goals.

The master plan also identifies the role of the General Department of Information Technology in the holding company towards the subsidiary companies where this department supports the subsidiary companies in developing the standard specifications for systems , equipment and networks and developing business continuity and disaster recovery plans. It also contributes in offering initiatives for implementing modern technologies and contributes in coordinating and testing it.

The master plan also determines the role of the general department of information technology in the holding company in supporting the new companies to reach the stage of maturity appropriate to perform their role in the selection of systems, equipments and network suited to their needs.

The master plan includes the proposed conception for the companies during a period of five years starting fiscal year 2011-2012 , and the master plan determines the expected costs to implement the plan as well as the expected timing to implement the components of the plan in general. The report also includes a cost and benefit analysis.

The second volume "the implementation plan" includes sub plans for each company which was made based on the gap analysis performed in the previous stage together with the workshop held for the departments of information technology in the subsidiary companies during April 2011 and the results gathered from the companies after this workshop. The second volume "the implementation plan" also includes the planned evaluation for each company after the five years period.

The master plan takes into account the present and future needs of the companies, it also takes into account achieving the strategic goals of the water and waste water sector in Egypt in offering excellent service to the citizens and good economic management of the companies.

SECTION 1 : THE METHODOLOGY USED IN PREPARING THE INFORMATION TECHNOLOGY MASTER PLAN

This section explains the methodology used in preparing the master plan. The section includes the following parts :

- The objective of preparing the information technology master plan
- The steps of preparing the plan
- The work team of preparing the plan
- Details of steps of preparing the plan

The objective of preparing the information technology plan

Preparing a future plan that covers five years to implement information technology and making it available to regulators , supervisory and sector workers , taking into consideration :

- Goals and objectives
- Needs
- Capabilities

Steps of preparing the plan

- Performing a survey to assess the current situation of information technology implementation in the water and waste water sector
- Conducting a sector-wide needs assessment
- Strategic planning phase (workshops and brainstorming sessions)
- Preparing the strategic plan
- Preparing the implementation plan

Work team of preparing the plan:

Top management of the holding company and subsidiary companies

Responsibility:

- Determine the project manager/coordinator from the holding company and subsidiary companies
- Work with the plan work team to determine goals and objectives expected from implementing information technology in the sector
- Determine implementation priorities
- Approve the budget (investment expenditure / operating and maintenance expenses) and identify sources of funding

The plan work team from the holding company and subsidiary companies :

- The project manager/coordinator from the holding company (information technology manager)
- the project manager/coordinator from the subsidiary companies (information technology manager)

Responsibility

- Participate in preparing the plan

- Provide the required information about the current situation
- Coordinate and attend the meetings with different departments to discuss current situation and future needs

From the USAID (Water and Wastewater Sector Support Project):

- Project management
- Information technology senior advisor
- Computer systems specialists

Specialists in different work fields:

- Heads of Financial and administrative sectors
- Heads of Commercial sectors
- Heads of human resources sectors
- Heads of engineering sectors
- (or their delegate)

Responsibility:

- Helping the plan work team in assessing needs and priorities

Detailed steps of plan preparation**Phase 1: Needs assessment and Due diligence****The objective:**

- Giving the information technology master plan development team a good idea about the implementation of information technology in the Holding Company and its subsidiaries
- Determining the needs of the sector and the available resources
- Determining the gap between the needs and the existing situation (Gap Analysis)
- Evaluating the current position of information technology against what is required to be achieved over five years

Method of implementation

- Reviewing the current assessment reports of the information technology in the water and wastewater sector
- Preparing a questionnaire to collect data regarding the status of implementing information technology in the sector in terms of hardware / networking / application systems
- Conducting field visits and holding meetings with specialists in different areas of work
- Conducting workshops and holding meetings with specialists in different areas of work
- Filling out the questionnaire by the project managers / coordinators from the subsidiaries
- Preparing a conceptual design for the master plan including the required components and determining a relative weight for each component based on importance, cost and complexity of implementation

- Assessing companies according to the specific elements of evaluation
- Preparing a preliminary report and discussing it with senior management
- Preparing the final report

Phase II : Strategic Planning

The objective:

- Determine the goals and objectives of implementing information technology and putting it in a frame appropriate with the general goals and objectives of the water and waste water sector
- Method of work:
- Workshops with top management and information technology departments in the sector to determine:
- Expected goals and objectives
- Information technology components and priority of its implementation
- Review the budgets (investment expenditure / operating expenses and maintenance) and to identify sources of funding
- Determine the role of information technology sector in holding company compared to the role of information technology sector in subsidiary companies

Phase III: Prepare the strategic plan for information technology

Objective:

- Prepare the strategic plan which includes expected goals and objectives of implementing information technology in the sector and determine the plan programs (components), implementation priorities, estimated budget, implementation timing, and cost benefit analysis

Method of implementation:

- Making field visits to see the capabilities of the companies in different governorates
- Prepare preliminary plan
- Discuss plan with top management
- Prepare final plan

Phase IV: Prepare implementation plan

Objective:

- Prepare the implementation plan required to implement the strategic plan
- Method of implementation:
- Detailing the strategic plan to detailed tasks for every company separately along with discussing resources , responsibilities and timing.

SECTION 2 : SUMMARY OF DUE DILIGENCE PHASE

The Due Diligence and Needs Assessment Report determined the strengths and weaknesses of the implementation of information technology in the Holding Company for Water and Wastewater and its subsidiaries. It also identified the gaps between the required and existing components. The report also provided recommendations for the preparation of the information technology master plan.

Strengths are summarized as follows:

- Good level of automation at the level of the Holding Company and its subsidiaries
- Modern equipment and networks
- Staff with appropriate education
- In-house development of applications
- Data connectivity between the companies and the Holding Company

Weaknesses are summarized as follows:

- Lack of integration between applications
- Weakness in the implementation of some basic applications in the companies
- Lack of resources or plans to deal with disasters and to ensure business continuity during a disastrous situation
- Weakness of the level of documentation in general
- Lengthy testing of automated applications before fully relying on them
- Inactive organization structures of information technology departments in many companies
- The absence of an independent budget for the operation, maintenance, replacement and renewal of information technology
- Lack of specialized training in the field of information technology
- Lack of practical experiences of some of the staff working in the field of information technology particularly in new subsidiary companies
- Lack of an exchange of experiences between the different companies in the field of information technology
- Networks in some cases do not live up to the required quality standards
- Weakness in security measures in the sites
- Data Quality
- Timeliness of data collection

Opportunities are summarized as follows:

- All the subsidiary companies are established under the same law, and practice the same activities, which leads to similarity in the procedures and facilitates developing common specifications for systems and procedures for data collection.
- The number of subsidiaries are large enough to allow them to negotiate good prices with the vendors specially in relation with software licenses.

Threats are summarized as follows:

- Resistance to change in many automation areas
- Bad quality of basic data such as fixed assets, inventory, and customer arrears
- Financing IT requirements specially software licenses and maintenance

- IT alone does not guarantee the work improvement. It has to be integrated with enhancing the manual work procedures and staff training to maximize the use of IT implementations

The assessment team analyzed the causes of weaknesses and made recommendations regarding their resolution.

The assessment team also evaluated companies based on the current automation status against what is expected to be achieved during the next five years and took into account the differences between water companies, wastewater companies and combined water / wastewater companies. The following table shows the weights of the elements of evaluation:

Evaluation Criteria	Weight (Water and Wastewater)		Weight (Water)		Weight (Wastewater)	
	Points	Percentage of total	Points	Percentage of total	Points	Percentage of total
Equipment and Networks	45	16.1%	45	16.4%	35	14.8%
Application Systems	123	43.9%	118	42.9%	98	41.4%
System Integration	32	11.4%	32	11.6%	24	10.1%
SCADA	10	3.6%	10	3.6%	10	4.2%
Web Site	10	3.6%	10	3.6%	10	4.2%
IT Personnel	15	5.4%	15	5.5%	15	6.3%
Procedures and Documentation	30	10.7%	30	10.9%	30	12.7%
Support and Maintenance Contracts	15	5.4%	15	5.5%	15	6.3%
Total	280	100%	275	100%	237	100%

The relative weight was taken as the evaluation basis, taking into account:

- Importance to the company
- Cost of implementation
- Complexity of implementation

The following table represents the summary evaluation of the holding company versus the five-year planned accomplishments:

Evaluation Criteria	Weight	Percentage of Total	Points	Completion Percentage (From Planned)
Equipment and Networks	35	10.20%	28.50	81.40%
HCWW Back-Office Components	63	18.40%	33.00	52.40%

Evaluation Criteria	Weight	Percentage of Total	Points	Completion Percentage (From Planned)
HCWW - Subsidiaries Consolidation and Reporting Components	100	29.20%	45.00	45.00%
Web Site	40	11.70%	24.00	60.00%
IT Personnel	60	17.50%	40.00	66.70%
Procedures and Documentation	30	8.70%	10.00	33.30%
Support and Maintenance Contracts	15	4.40%	10.00	66.70%
Total	343	100%	190.50	55.50%

During the workshop held in April 2011 for information technology departments in the holding company and the subsidiaries, the previously prepared evaluation was demonstrated by the plan preparing team, and the information technology departments made modifications to the evaluation including:

- Correcting mistakes that occurred in questionnaires during survey phase
- Updating the accomplishments made during the period after survey and up to date

Following are the summary recommendations for preparing master plan:

- Preparing a unified automation structure for the companies
- Determining the overall priorities and levels of application of information technology
- Raise the level of automation in all companies to a higher level
- Specifying and unifying the consolidated reports at the holding company level and automated the collection process
- Maximizing the use of existing investments and human resources and building on what has been achieved so far
- Developing a master plan for the information technology over the next five years
- Implement the concept of integrated design and phased implementation
- Emphasize on the importance of software development and procedure documentation which leads to better recovery and business continuity after disasters as well as providing asset protection.
- Emphasize on the importance of human resources and training and the importance of certifying several individuals in the various IT areas.
- Specify integration requirements when acquiring new systems.

Following are the recommended components for the IT Master Plan of the holding company:

HCWW Back-office Components

- Financial and Administrative Systems
- Human Resources Systems
- Electronic Document Management System and Workflow System

- Web Portal and E-Government Readiness
- Office Automation
- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- IT human resources development
- Procedures and Documentation

HCWW – Subsidiaries Consolidation and Reporting Components:

- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- IT human resources development
- Procedures and Documentation
- Business Intelligence Readiness

The following are the components or programs proposed for the information technology master plan for the subsidiary companies:

- Financial and Administrative Systems
- Human Resources Systems
- Customer Service Systems
- Assets Management and Operation
- Electronic Document Management System and Workflow System
- Web Portal and E-Government Readiness
- Office Automation
- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- IT human resources development
- Procedures and Documentation

SECTION 3: VISION , MISSION AND STRATEGIC GOALS

Vision

The following statements represent what most of the companies agreed upon as a general vision of its activity:

"Provide world class water and wastewater services – become a model, distinguished, and a leading company – ideal and economic management of water and wastewater services "

Mission

The following statements represent what the companies agreed upon as the mission:

"Gain Customer satisfaction and confidence by providing distinctive service – economic operation and financial balance – continuity in providing standard service – maintain citizen health and environment – raise the efficiency of employees"

Strategic Goals for Companies

The following points summarize the strategic goals of the companies:

- Raise the efficiency of employees and develop human resources
- Maximize the benefit from company assets
- Provide distinctive service according to international , local and legal standards
- Efficient economic management that achieve financial balance
- Develop administrative, financial and technical systems
- Provide water and wastewater service and expand coverage
- Gain customer satisfaction and confidence and improve service
- Raise awareness of customers and parties that deal with companies

Strategic Goals for Information Technology

- To achieve the strategic goals of the companies, the following goals were determined for the information technology master plan:
- Efficient management of the business by providing data and information required for decision making on the level of holding company and subsidiary companies
- providing access to information accurately and in a short time
- reduce the risks due to inaccuracy of data or unavailability of data in suitable time
- Spread the implementation of automated financial, administrative, and technical systems all over the company
- Developing the level of employment in all departments of the companies in order to fit with the rapid development in information technology applications
- Developing the level of employment in the information technology department order to fit with the rapid development in technology
- Reduce the risks due to failures or disasters that affect business continuity
- Implementation of information technology in an economical way by achieving the maximum benefit from investments and ensuring its proper utilization

- Provide better service to citizens through improved methods of maintenance and operation of the stations, customer service, billing, collection and follow up the complaints
- Protection of investment by securing equipments, networks, systems and locations, and comprehensive documentation of procedures and operating instructions

The information technology master plan aims to identify the future needs in advance to participate in planning investment budget and operations budget.

The following table represents the relationship between the information technology strategic goals and the general strategic goals of the company.

Information Technology Strategic Objectives	General Strategic Objectives							
	Raise the efficiency of employees and develop human resources	Maximize the benefit from company assets	Provide distinctive service according to international, local, and legal standards	Efficient economic management that achieve financial balance	Develop administrative, financial and technical systems	Provide water and wastewater service and expand coverage	Gain customer satisfaction and confidence and improve service	Raise awareness of customers and parties that deal with companies
Efficient management of the business by providing data and information required for decision making on the level of holding company and subsidiary companies	Medium			High				
providing access to information accurately and in a short time	Medium		High	High				Medium
Spread the implementation of automated financial, administrative, and technical systems all over the company			High	Medium	High		Medium	
Reduce the risks due to inaccuracy of data or unavailability of data in suitable time	Medium		High	High			Medium	Medium
Developing the level of employment in all departments of the companies in order to fit with the rapid development in information technology	High	High	Medium	High	Medium		High	

Information Technology Strategic Objectives	General Strategic Objectives							
	Raise the efficiency of employees and develop human resources	Maximize the benefit from company assets	Provide distinctive service according to international, local, and legal standards	Efficient economic management that achieve financial balance	Develop administrative, financial and technical systems	Provide water and wastewater service and expand coverage	Gain customer satisfaction and confidence and improve service	Raise awareness of customers and parties that deal with companies
applications								
Developing the level of employment in the information technology department order to fit with the rapid development in technology	High	High	Medium	High	Medium		Medium	
Reduce the risks due to failures or disasters that affect business continuity		High	Medium				Medium	
Implementation of information technology in an economical way by achieving the maximum benefit from investments and ensuring its proper utilization		High		High				
Provide better service to citizens through improved methods of maintenance and operation of the stations, customer service, billing, collection and follow						Medium	High	

Information Technology Strategic Objectives	General Strategic Objectives							
	Raise the efficiency of employees and develop human resources	Maximize the benefit from company assets	Provide distinctive service according to international, local, and legal standards	Efficient economic management that achieve financial balance	Develop administrative, financial and technical systems	Provide water and wastewater service and expand coverage	Gain customer satisfaction and confidence and improve service	Raise awareness of customers and parties that deal with companies
up the complaints								
Protection of investment by securing equipments, networks, systems and locations, and comprehensive documentation of procedures and operating instructions		High						

SECTION 4: INFORMATION TECHNOLOGY COMPONENTS

As we stated earlier the programs or components of information technology master plan as follows:

HCWW back office components:

- Financial and Administrative Systems
- Human Resources Systems
- Electronic Document Management System and Workflow System
- Web Portal and E-Government Readiness
- Office Automation
- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- IT human resources development
- Procedures and Documentation

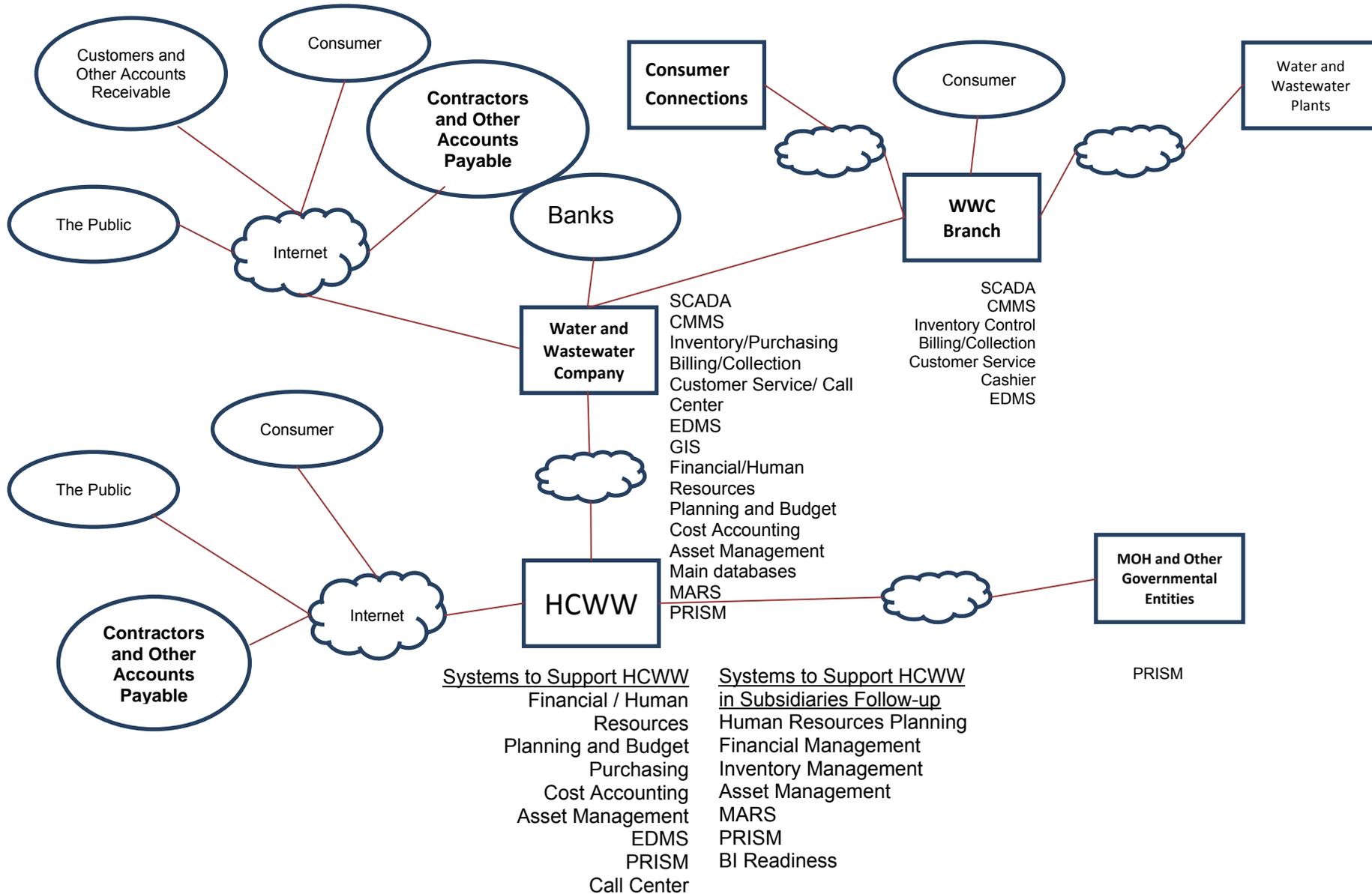
HCWW – Subsidiaries Consolidation and Reporting Components:

- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- Procedures and Documentation
- Business Intelligence Readiness

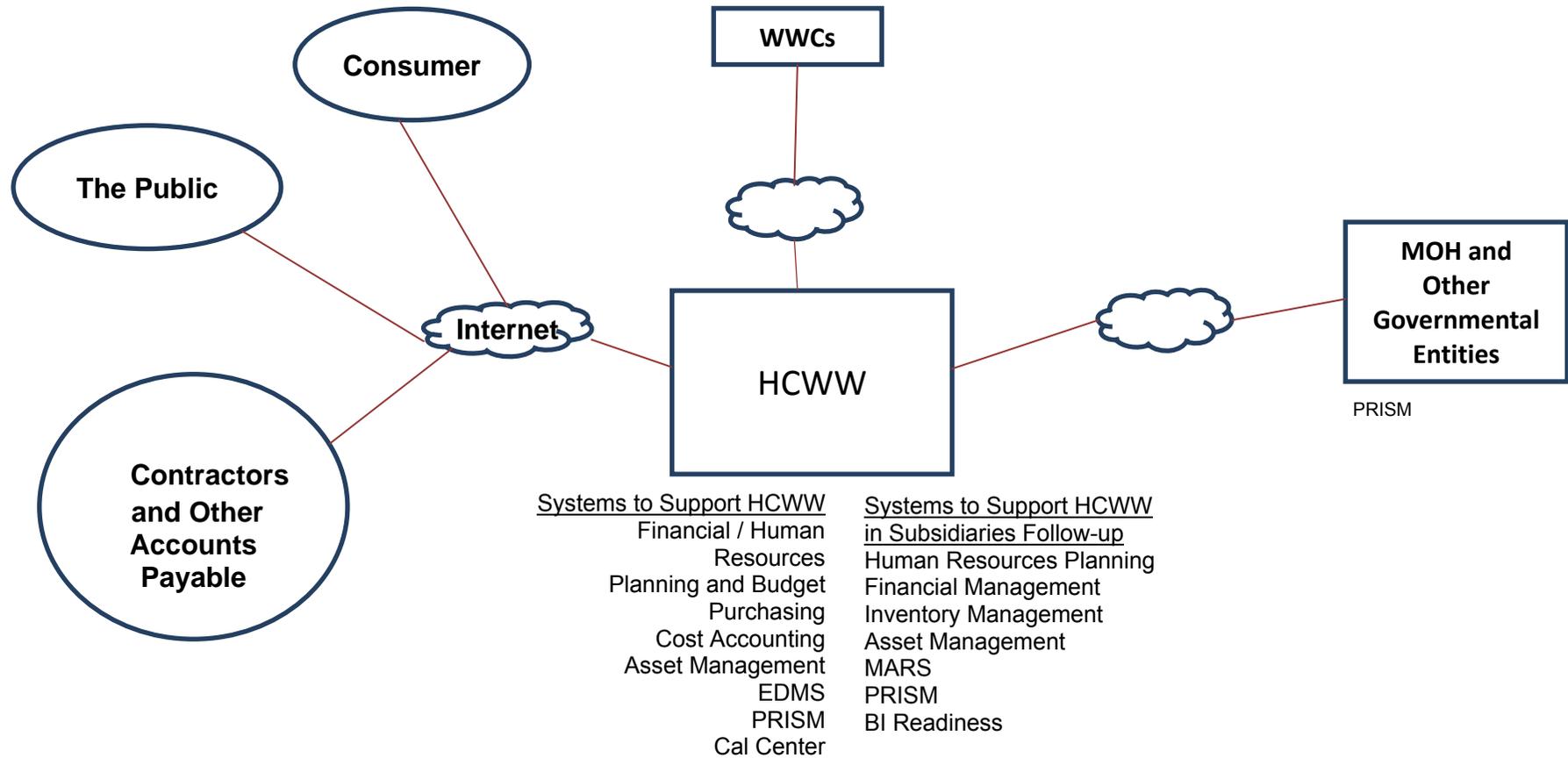
Subsidiary companies components

- Financial and Administrative Systems
- Human Resources Systems
- Customer Service Systems
- Assets Management and Operation
- Electronic Document Management System and Workflow System
- Web Portal and E-Government Readiness
- Office Automation
- Management Reports and Decision Support Systems
- System Integration
- IT Infrastructure
- IT human resources development
- Procedures and Documentation

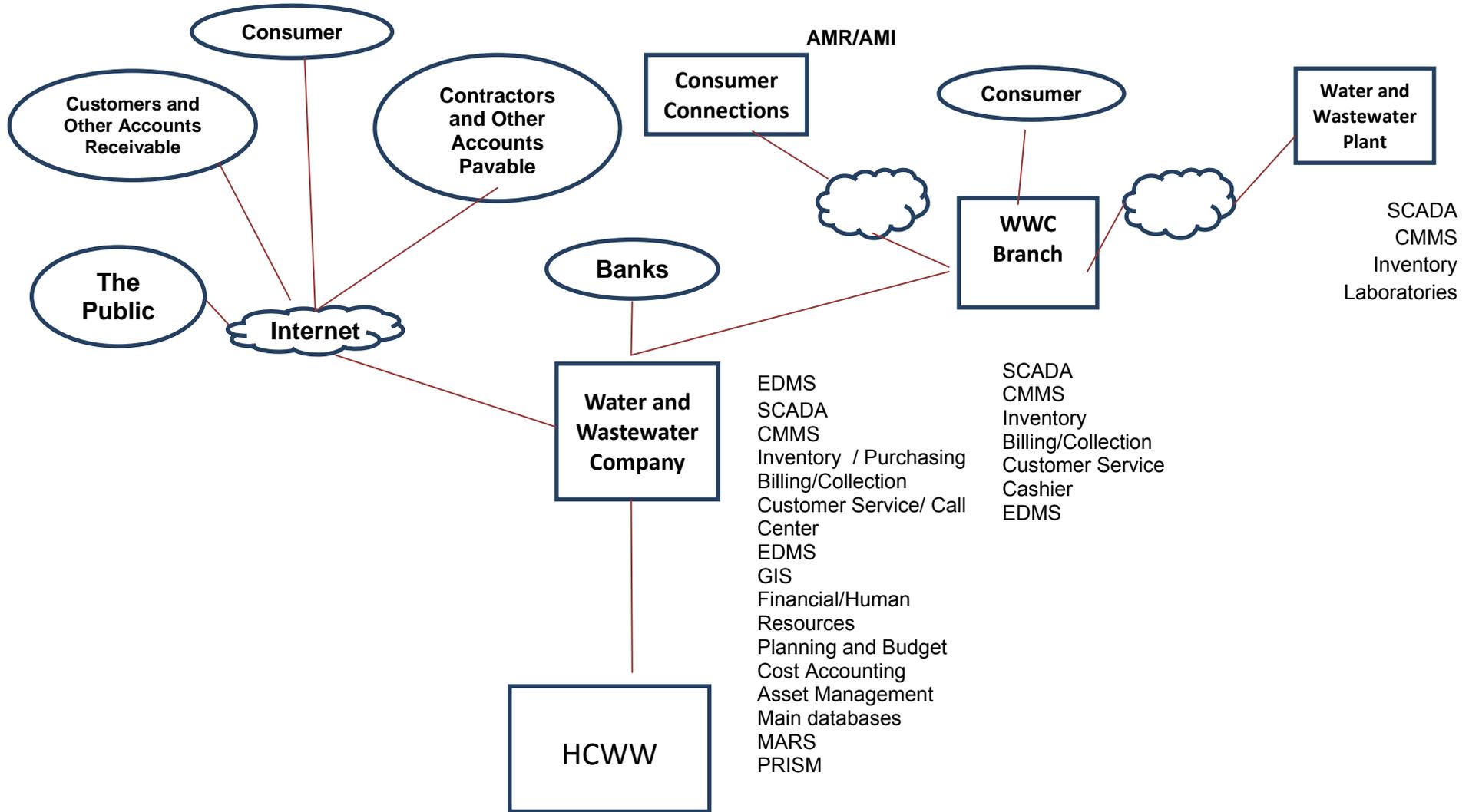
The following diagrams provide an illustration of the different IT components.



ITMP for the Water and Wastewater Sector



The Holding Company for Water and Wastewater



Subsidiary Companies

The following part explains the details of the programs or components:

HCWW back office programs:

Financial and Administrative Systems

(see the section on subsidiaries for the details of this component)

Human Resources Systems

(see the section on subsidiaries for the details of this component)

Electronic Document Management System and Workflow System

(see the section on subsidiaries for the details of this component)

Web Portal and E-Government Readiness

(see the section on subsidiaries for the details of this component)

Office Automation

The master plan includes deployment of office automation at the level of about 40% of the total number of staff of the holding company.

Management Reports and Decision Support Systems

System Integration

(see the section on subsidiaries)

IT Infrastructure

This component includes:

- Complete servers
- Complete PC's
- Complete other terminal units
- Complete LANs and WANs
- Complete reserve equipments to support disaster recovery plan and ensure business continuity
- Devices to protect against theft, snooping, spying, and fire

IT human resources development

This component includes:

- Ongoing training of all employees
- Licensing of some employees in various fields
- Joint workshops with the IT departments of subsidiaries

Procedures and Documentation

(See the section on subsidiaries for the details of this component)

HCWW – Subsidiaries Consolidation and Reporting Components:**Management Reports and Decision Support Systems**

This component includes supporting MARS system and ensuring the best use of it

System Integration

This component includes helping subsidiaries in specifications of the integration needs between applications

IT Infrastructure

This component includes helping subsidiaries in specifications of equipments and internal and external networks

IT human resources development

This component includes assisting subsidiaries in the preparation of training plans and coordinate the joint workshops of the subsidiaries and coordinate the implementation of joint actions (such as disaster recovery plans, business continuity and business development programs) in order to prevent repetition of the implementation of the same business and make the most of the working time of the employees in IT departments>

Procedures and Documentation

This component includes assisting the subsidiaries in developing the specifications of various documents as well as contracting procedures on the acquisition of equipment and systems, maintenance, and support.

Business Intelligence Readiness

It is difficult to start implementing Business Intelligence (BI) for top management consolidated reports on the level of the holding company in the five year period covered by the master plan and that is due to the following reasons:

- Automation of applications is yet not complete in most companies
- There are some old systems in some companies which do not allow integration into the BI system
- The high cost of acquisition of BI system
- Poor quality of data stored currently in the automated systems

Based on the above, the role of IT department in the holding company in this phase will be:

- Pushing the subsidiary companies to complete automating the main systems
- Pushing the subsidiary companies to improve accuracy of the data
- Standardizing of data and reports required to be consolidated on companies level
- Constructing of simple systems to collect this data to make sure the collected data meets the needs

Components and programs of subsidiary companies:

Component 1: Financial and administrative systems

Usually the financial and administrative systems are joined with human resources systems to what is called "Enterprise Resources Planning – ERP"

This system can be purchased as a single integrated unit from one vendor or as independent parts from one vendor or different vendors. Usually the billing system for water and wastewater companies is an independent system due to the special nature of this application but in most cases it allows integration with the rest of the ERP sub-systems.

The financial and administrative systems group includes the following:

- General ledger
- Sub ledgers:
 - Accounts payable
 - Accounts receivable
 - Fixed assets
 - Projects under implementation (financial aspect)
- Cost accounting
- Inventory Control and Purchasing

Many local and international readymade applications are now available in the Egyptian market that meets a high portion of the companies' needs and their cost varies between medium and high.

Appendix B explains the details of these sub applications and how they integrate with other systems.

Component 2: Human resources systems

As mentioned above, the human resources systems are part of "Enterprise Resources Planning – ERP", and these systems are available either as a part of the ERP system or independently. Usually these systems integrate with financial systems with the purpose of connecting payroll with general accounting.

Appendix B explains the details of these sub applications and how they integrate with other systems.

Component 3: Customer service systems

These systems are generally called "Customer Information System – CIS" which includes: billing systems and customer service and also relates to "Customer Relationship Management" or CRM system which allows dealing with all customer issues such as accounts, bills, collection, services, and complaints through one system from customer service centers and phone call centers.

There are some systems available in the Egyptian market whether local or international and their cost varies between medium and high

Some of these systems allow integration with financial systems and GIS.

Appendix B explains the details of these sub applications and how they integrate with other systems.

Component 4 : Assets management, operation, maintenance, and planning

This group includes the systems that assist in planning , maintenance, operation, and assets management (technical and engineering group). The group includes the following systems :

- GIS
- SCADA
- Maintenance management systems using computers
- Assets management systems
- Hydraulic analysis systems for water and waste water networks

This group integrates largely with financial and commercial systems.

Geographic information systems GIS

All companies made great accomplishments in implementation of GIS. The IT master plan for all companies includes :

In the field of IT

- A study of future needs for the application of GIS to determine the number of users and the types of the required licenses
- Completion of the required licenses and computers and the GPS devices to cover the needs
- Take into account the needs of the link with billing systems and customer service and hotline
- Follow-up of recent versions and update systems
- Link the GIS system with other systems such as billing and revenue and call centers and operation and maintenance.

In the field of network planning :

- Complete maps of the areas covered by water and waste water services
- Update and check the map data
- Provide maps for all users inside and outside the company

SCADA System

(Supervisory , Control , and Data Acquisition System)

As the SCADA system is subject mainly to the sectors of operation and maintenance, and the study proved that there are many successful experiences in the water and wastewater companies as well as some unsuccessful experiences in application of SCADA systems. Due

to the large investments related to the acquisition and application of SCADA systems , the IT master plan recommends the following :

- Benefit from past experience of water and wastewater companies in the application of this technologies and identify achieved benefits and shortcomings and study the reasons of failure of some experiences.
- Make feasibility study for each company according to its economical and operational circumstances about the feasibility of applying this technology, the level of implementation, and the expected returns of investment. The study is to be carried by a task force formed from the sectors of operation and maintenance and IT.
- When making the feasibility study the following should be taken into account:
 - Cost of the system including supplying , installing and programming
 - Cost of training the company individuals from operation and maintenance and IT departments
 - Cost of support and maintenance after the warranty period
- Develop a Master Plan to apply this technology according to the circumstances of each company separately

Component 5: Electronic document management systems (electronic archive) and workflow

The need for document management systems and workflow:

The activity of the companies includes dealing with many types of documents , including for example :

- Customer contracts and their attachments
- Personnel documents and recruitment papers
- Financial affairs documents
- Incoming and outgoing correspondences
- Legal affairs documents
- Equipment catalogs
- Standard operations instructions
- Training manuals
- Rules and regulations

These documents are in the form of paper documents or electronic documents sent via internet or recorded on magnetic or optical media (disks or tapes) . these electronic documents take different forms such as :

MS Word documents, MS Excel spreadsheets, HTML files, Adobe files, Image files, etc.

The document management and workflow systems should provide the possibility to specify different levels of accessing information that was stored and it should also provide the possibility of publishing information to the Web Server of the company.

Working with document management and work flow systems will require effort to reach standard documents and unify forms of similar documents.

Documents will be reviewed and some will be available for public to view either via web portal of the company or by obtaining a printed copy.

A readymade document management system can cover the needs of the company. And the workflow management system will represent an additional value.

Appendix B explains the details of system specifications and how it is integrated with other sub systems.

Component 6 : Web portal and e-government readiness

Appendix B contains details on the information and services that can be made available on the website of the Holding Company and its subsidiaries.

Component 7 : Office automation

The Master Plan includes deployment of office automation at the level of about 10% of the total number of employees of subsidiary companies.

Component 8 : Management reports and decision support systems

This component includes support and develop the existing systems that are developed internally by the subsidiaries to obtain the required management and decision support reports. It also includes supporting the MARS system used currently at the Holding Company.

Following are the steps to be followed:

- Insure the accuracy of data used in reports
- Unify the origin of information
- Develop a mechanism for reconciling the data used in the reports
- Rely on the computer generated results
- Integrate sub-systems with the decision support system

Component 9 : System integration

System integration is a main component of the IT master plan. The study performed during the due diligence phase proved that the main reason for the weak integration between applications is due mainly to lack of integration in the manual work. Other reasons for lack of integration are :

- Different vendors of various applications
- Different databases and different software development languages
- Lack of technical documentation of applications
- Some employees in IT departments are not familiar with modern integration tools such as SOA , XML
- Not specifying the integration needs when purchasing applications

Based on the above , and to ensure the integration of applications , the companies should follow the following method :

- Ensure the integration of financial , administrative and commercial applications manually by adjusting balances between the sub-systems and general ledger at least once a month

- Study the systems required to be integrated and determine the best method for integration:
- Printed report
- CSV files
- Intermediate common database files
- Write directly in databases
- Use Service Oriented Architecture SOA method

Component 10 : IT infrastructure

This component includes :

- Complete servers
- Complete Personal computer
- Complete terminals
- Complete LANs and WANs between the branches and stations and the company headquarters
- Complete reserve equipment to support disaster recovery and business continuity plans
- Devices of insurance against theft , snooping , spying and fire
- Automated meter reading (AMR) and automated metering infrastructure (AMI), which are discussed in detail in the next part

Automated Meter Reading (AMR) / Automated Metering Infrastructure (AMI)

Modern technology allows the possibility of automated meter reading either closely or remotely. Also through modern technology it is possible to control the meters by remotely totally or partly closing it .

This technology also allows the use of prepaid payment cards for payment for water consumption in advance. This technology also allows to know the status of the meter whether it is working or not working, or the case of water leakage inside the property, which helps to rationalize consumption and accuracy of accounting.

The obstacles to the implementation of this technology are summed up as follows

- High price of the meters compared to the value of water consumption of the small consumer which leads to not using this technology except in cases of high consumption consumers like hotels and factories.
- Automated transfer of readings technology requires in some cases the approval of third parties like National Telecommunications Authority (in the case of using radio waves to transfer data), or the electricity companies (in the case of using power lines to transfer data). While the use of SMS technology in data transfer does not require third-party approvals.
- The social factor, where the use of automated data transfer technology could leads to lay off a number of workers who used to work in reading meters.

Based on the above, the master plan for Information Technology recommends the following:

- Benefit from past experience of the water companies in the application of these technologies and determine the benefits achieved and shortcomings.
- Feasibility study for each company according to its social and economic circumstances about the feasibility of applying these technologies and the level of application and the expected returns . The study should be performed by a task force formed from commercial sectors, operation and maintenance and information technology.
- Developing a master plan for the application of those technologies.

Component 11 : Human resources development

This component includes :

- Ongoing training for all employees
- License some of the staff in the various fields
- Joint workshops with the IT departments of subsidiary companies

Component 12 : Procedures and documentation

Documentation in the field of information technology

Documentation is a compilation of technical facts in a form that suits the targeted group. Documentation can be available in hard copy or electronic form. Good documentation contributes to business success.

The benefits of documentation in the field of information technology

Good documentation of the systems allows understanding them a thorough understanding and thereby to use them efficiently. Good documentation also leads to the efficient management of information technology infrastructure and also to the good future planning in this field.

Good documentation aims at the following :

- Improving the efficient use of systems
- Speeding up problems solving
- Easy upgrade to new systems and applications
- Understanding the dependencies between different systems
- Maintaining knowledge in spite of changes in staff
- Easy training and informing new staff and consultants on infrastructure and applications of the company
- Transferring ownership of new systems from the vendor to the company quickly and easily
- Detecting security vulnerabilities
- Accelerating the resumption of work after a disaster

Types of documentation

Documentation in the field of information technology is divided to the following types:

Guides and manuals

Any product or program needs user guides which are documents that explain how to use the product correctly. These documents aim to explain the methods of using the product to company staff, consultants, and external auditors, each according to his/her specialty. These guides include :

A - Documents of information technology infrastructure :

The documents of IT infrastructure include documenting servers, PCs, network devices, communication devices and documenting various networks whether internal or external, terminal units, and portable units.

The documents of IT infrastructure also include data of Configuration Settings for the components of the IT networks. These components include servers, applications, network communication devices, databases, etc.

It is necessary to document configuration settings for these components because they are highly complex, and are constantly changing and it is considered the main document when preparing disaster recovery and business continuity plans.

B – Application systems documents

Since many companies are developing systems in house so these companies must follow a standard system development life cycle. All steps of systems development must be documented and take into account obtaining appropriate approvals from those relevant users in the company before moving from one stage to another.

Software and systems documents are the documents that explain how the systems are designed, how they work, and how they are used. These documents are prepared and used at different stages of system development and that may require user participation in the preparation, review, or approval. These documents are divided into the following:

Customer requirements document (requirements report) : it is the document that outlines the features, capabilities, characteristics and specifications of the system. It is the base upon which the design and implementation of the system is done.

System Design Document : which includes the design of the system components, also includes the relationships between these different components, namely: programs, databases, inputs, outputs. Also includes the relationship of the system with other systems applied in the company and how they are integrated.

Technical Documentation : which includes applications interfaces (entry screens and reports), database design and program specifications. And it includes the final status after completing the implementation.

End User Guide : includes guides for the end users, system administrators, and technical support staff. It explains how to use the system and to technically support it.

Administrative and regulatory documents

The administrative and regulatory documents provide guidance to the company staff which includes manuals for policies and procedures and different performance methods. Of these documents are:

A - Information security policy:

The information security policy includes how to secure sites and equipment used for storing, processing, and transferring of information and includes also defining the rights of accessing information and updating it. This policy should be available to all company employees whether on paper or electronically also all company employees are required to sign that they reviewed it.

This policy should be reviewed periodically and be updated as changes occur in the company. The companies could also use some hardware and software that help to enforce this policy and monitor the employees compliance to the policy.

B - Acceptable use policy of the company information technology resources:

It includes the acceptable and available limits of the employee to use information technology resources for personal use. For example : using the internet , using e-mail , using printers and scanners , etc.

This policy must be available to all company employees either on paper or electronically and all company employees are required to sign that they reviewed it.

C –Business continuity and Disaster Recovery Plans :

Business continuity and Disaster Recovery Plans include the plans developed by the company to ensure business continuity during a disaster and how to restore normal operation after the crisis. These plans will be covered in detail in the next section, where it requires the involvement of a large number of employees of the company other than those working in the field of information technology in the stages of planning , preparation, training and testing.

Given the importance of a plan to ensure business continuity and restore normal operation after the occurrence of crises, the master plan for information technology calls for the preparation of the plan in two phases:

First phase: It takes about six months and should begin immediately and include the preparation of an urgent plan using the facilities available to the companies. This plan allows restoring the operation in acceptable time and with acceptable results, and without the need for large investments in infrastructure and the greater reliance is on available resources .

Second phase: Starts during the second year of the plan and include an integrated and comprehensive plan outlining the additional requirements of hardware, software, and networks. This plan allows the restoring the operation in the shortest possible time and at the level close to normal operation.

Since the speed of recovery of operation and the level of restoration of the operating determine the cost of implementing the plan, it should be on the management of information technology in collaboration with the concerned departments to provide a number of proposed scenarios with the following specified in each of them:

- Speed of restoring operation
- Level of restoring operation
- Estimated cost

Top management approval is required on the agreed up scenario.

Due to the importance of such plans it will be discussed in detail in the next section.

Training documents :

They are the documents used for training in different skills and consists of :

- Trainee guide
- Training materials as slides , pictures, and diagrams
- Trainer guide

Maintenance and support contracts

Maintenance and support contracts are divided into two main groups :

- Main maintenance and support contracts group
- Secondary maintenance and support contracts group

A – Main maintenance and support contracts group

This group requires making maintenance contracts between the Holding Company and its subsidiaries on one hand and service providers on the other hand the service requires for the process of maintenance and support special expertise that may not available in the companies, or certain spare parts that are not normally available in the commercial market. These contracts include the maintenance and support of equipments that are large , limited in numbers, of high cost , and very important. Of these types of contracts:

- Maintenance of servers , large printers, large communication equipments, and security equipment
- Maintenance and support of computer applications programs
- Maintenance of operating systems , databases and security programs (to constantly get bug fixes and updates)

B – Secondary maintenance and support contracts group

This group does not necessarily require contracting with external sources , but companies can do some of the services by information technology departments employees. The companies can refer to external service providers in case of non-availability of required expertise in the companies or in case an feasibility study that proves that the contract with a service provider may be more feasible than providing service by employees of the company. Examples include:

- Maintenance of personal computers and small printers (because of the cheap price, the large number of units, low impact on the operation, and the available of spare parts and maintenance expertise in the commercial market)
- Operating systems and databases Support
- Network design and securing networks and systems

SECTION 5 : THE IMPACT OF IT MASTER PLAN COMPONENTS ON ACHIEVING THE STRATEGIC GOALS :

The following table shows the level of impact of IT components on achieving the strategic goals. As mentioned earlier, the IT strategic goals are:

Goal I : Efficient management of the business by providing data and information required for decision-making at the level of the holding company and its subsidiaries

Goal II : To provide access to information accurately and in a short time

Goal III : Generalize automation of financial , administrative and technical systems

Goal IV : Reduce the risk resulting from the data being inaccurate or not available in time

Goal V : Development of level of employment in all departments of the companies in order to fit with the rapid development in information technology applications

Goal VI : Development of level of employment in department of information technology in order to fit with the rapid development in technology

Goal VII : Reduce the risks of failures or disasters that affect business continuity:

Goal VIII : Application of information technology in an economical way by achieving the maximum benefit from investments and to ensure proper exploitation

Goal IX : To provide better service to citizens through improved methods of maintenance and operation of the stations, customer service, billing, collection and follow up the complaint

Goal X : Protect investments by securing devices, networks, systems and locations, and comprehensive documentation of procedures and operating instructions

Component	Goal I	Goal II	Goal III	Goal IV	Goal V	Goal VI	Goal VII	Goal VIII	Goal IX	Goal X
Financial and administration systems										
General ledger	Medium	High	High	High	High					
Cost accounting	Medium	High	High	High	High					
Inventory Control	High	High	High	High	High					High
Purchasing	Medium	Medium	High	High	High					
Fixed Assets	Medium	Medium	High	High	High					High
Accounts Payable	Medium	Medium	High	High	High					
Accounts Receivable	Medium	Medium	High	High	High					
Projects Under implementation (financial aspect)	Medium	Medium	High	High	High					
Budget and Obligations	Medium	Medium	High	High	High					
Human Resources System										
Personnel	Medium	Medium	High	High	High					
Payroll	Medium	Medium	High	High	High					
Training	Medium	Medium	High	High	High	High				
Customer Service Systems										
Billing and Revenue	High	High	High	High	High				High	
Customer Services	High	High	High	High	High				High	
Call Center	High	High	High	High	High				High	
Asset Management, Operation, and Maintenance										

Component	Goal I	Goal II	Goal III	Goal IV	Goal V	Goal VI	Goal VII	Goal VIII	Goal IX	Goal X
Asset Management	High	High	High	High	High		High			High
CMMS	High	High	High	High	High		High			High
Laboratories	High		High		High				Medium	
GIS	High		High		High					High
Hydraulic Analysis	High		High		High				High	
Document Management and Work Flow System	High	High	High	Medium	Medium		Medium			
Web portal and e-government readiness	Medium								High	
Office automation	High		High		High					
MIS and Decision Support System	High	High	High	High	High				Medium	
System Integration	High	High	High	High				High		
IT Infrastructure										
Update equipment	High	High	High							
Reserve equipment							High			
LANs and WANs	High	High	High						High	

Component	Goal I	Goal II	Goal III	Goal IV	Goal V	Goal VI	Goal VII	Goal VIII	Goal IX	Goal X
AMR and AMI	High	High	High	High				Medium	High	
Security and firefighting equipment							High			High
Human resources development										
IT staff certification							Medium	Medium	Medium	High
Continuous training							Medium	Medium	Medium	High
Meetings and workshops with sister companies								Medium		Medium
Documentation and procedures										
Operation procedures	High			Medium		High	High	High		High
Maintenance and support contracts							High	High		High
Disaster recovery and business continuity plans	Medium						High	High		High
Users manuals				Medium			High	High	Medium	High
Network documentation							High	High		High
System documentation							High	High		High

SECTION 6 : IT MASTER PLAN PROGRAM MANAGEMENT

During the due diligence phase (conducted during the period from July 2010 to October 2010) a preliminary assessment of the subsidiaries was prepared. This assessment was updated during the workshop held in April 2011 to reflect the development that has occurred in the companies during the previous period and make any adjustments or corrections in the evaluation. This evaluation is considered the baseline at the start of the implementation of the plan.

The programs or components for each individual company were prepared in the light of the needs, priorities, and the capabilities of companies. Accordingly, the target evaluation for the companies at the end of the plan period has been identified (see Volume II "implementation plans").

The holding company should follow up the implementation of the plan every six months or every year to determine the status of implementation.

Although this master plan is for information technology, the success of its implementation depends not only on IT departments in holding company and subsidiary companies, but it requires the cooperation of all departments involved in the implementation and the senior management of companies and their bearing responsibility for implementing the plan.

The evaluation of this plan is considered the evaluation of the implementation of information technology in the company and not an evaluation of the information technology department, where the role of information technology department is only the provision and management of devices, networks and applications for various departments, support it and ensure its operation correctly, and coordination with suppliers of hardware, applications and services in order to provide excellent service to users. The bigger burden lies on the departments concerned with applying the systems to enter data, review, and validate it and use of systems in daily business and decision-making concerning the activities of the companies.

Means of measuring the achievement of strategic goals for information technology:

The success of the plan can be measured by some indicators, such as:

- Requesting information requires less effort from the person responsible of preparing it
- Better service to customers and it is measured by less number of complaints about bills and accounting
- Facilitate and increase the accuracy of future planning which is represented by:
 - Less time to prepare estimated budgets
 - Better commitment to budgeted figures when disbursing
 - Better identification of inventory needs of raw materials and spare parts
- Easy to follow up the performance companies and different departments within the companies
- The credibility of the reports issued by companies to the Holding Company and third parties

SECTION 7 : THE ROLE OF INFORMATION TECHNOLOGY DEPARTMENT IN THE HOLDING COMPANY

The role of information technology department in the holding company is divided into two main parts :

- The role of the department in supporting the information technology used in holding company
- The role of the department in supporting the information technology in subsidiary companies

The following is an explanation of these two roles

I – The role of the department in supporting the information technology used in holding company

This role includes the following :

- Specifying , acquiring, monitoring and supporting of infrastructure for information technology used in Holding Company, which include: servers, internal and external networks, network devices, personal computers, terminals, etc.
- This support includes coordination with providers of telecommunications, maintenance, and technical support services.
- Specifying the applications used in the holding company in cooperation with the business users and contribute to the acquisition.
- Following up and supporting the applications used and coordinating with the providers of training and technical support services from outside the company.
- Support for users of information technology in the holding company.
- Support applications of subsidiaries which operate centrally in holding company.
- Provide technical support to the website of the holding company.
- Securing equipments and data and systems of the holding company and the protecting investments in information technology.
- Contributing in planning, developing, testing, and implementing disaster recovery and business continuity plans of the holding company.

II – The role of the department in supporting the information technology in subsidiary companies

This role includes the following :

- Specifying the rules of the data consolidation at the level of the holding company.
- Preparing for the application of Business Intelligence to collect data automatically from the subsidiaries at the Holding Company level regardless of the types of the technologies used by the subsidiaries. This includes :
- ensuring the automation of main applications in subsidiaries
- ensuring that the companies are using methods of modern technology that facilitates the application of Business Intelligence.
- ensuring that the companies know the principles and needs of Business Intelligence.
- standardizing of data that is sent from subsidiary companies and integrate them at the Holding Company.

- assisting subsidiaries in the development of strategic goals for information technology and follow up their implementation.
- assisting subsidiaries in the planning, preparation, testing, and implementation of their disaster recovery plans and business continuity plans.
- Coordinating between subsidiaries for the purpose of :
- Preventing the repetition of developing the same systems by more than one company.
- Taking advantage of applications developed in companies for the dissemination of their application in other companies.
- taking advantage of the previous expertise of companies with suppliers, applications, or types of technology.
- Jointly development of disaster recovery plans and business continuity plan especially for companies similar in the type of applications, equipments, operating systems, and databases.
- Proposing new initiatives in information technology and studying their feasibility and coordinating and following up testing and evaluating their success and the possibility of dissemination. Examples of the initiatives are: the automated meter reading (AMR), automated metering infrastructure (AMI), or multi-channel payment.
- Developing general policies to secure data and sites and ensure their enforcement.
- Assisting new companies in developing the specifications for systems and equipment and assist in the acquisition.

SECTION 8 : HUMAN RESOURCES

Functions and tasks of the information technology department in the subsidiary companies Operation and support of automated systems for any company require good management of information technology. This section explains the role of information technology department and the proposed staffing structure and the different jobs in the of information technology department and tasks of each job.

The tasks of the IT department in companies are to support the infrastructure and applications of information technology. Tasks include the following:

- Identify the needs of IT of equipments, networks, operating systems, databases, and applications.
- Preparing specifications of equipments, networks, and operating systems.
- Preparing specifications of applications in collaboration with the concerned departments.
- Developing software applications, in the case of the ability to do so within the company, with a commitment to standard systems development life cycle and a commitment to documenting all phases of system development.
- Participating in the acquisition of the required items.
- Supervising the installation of equipments and networks according to the terms, conditions, and specifications.
- Supervising the delivery of applications and the training of personnel in the company according to the terms, conditions, and specifications.
- Supporting the daily operation of the systems.
- Securing devices, networks and systems, and enforce security policy.
- Preparing disaster recovery plan and business continuity plan in coordination with concerned departments.

The IT department can perform the above tasks on their own or with the assistance of consultants from within the water and wastewater sector or from outside the sector, or the use of specialized companies in this field.

An example of the organizational structure of the IT department :

- IT department manager
 - Infrastructure department
 - System administrators
 - Networks administrators
 - Systems and networks Security Department (develop the security policy and supervise its application)
 - Systems development Department
 - Program developing
 - Program design
 - Programmers
 - Web sites developing
 - Database administration
 - Technical documentation
 - User documentation

- Applications support Department
 - Groups according to activity (financial and administrative systems , technical and engineering systems , GIS , etc.)
- Help Desk
 - Support for personal computers and office automation applications and provide the first level of support

Each company, depending on the size of the work and according to its own circumstances, may merge some departments or tasks or outsource some of the services to external companies. Also each company must determine the number of personnel required for these jobs according to the circumstances of each individual company.

Job Description :

The following is a description of the responsibilities of the jobs usually found in the departments of information technology.

- IT manager
- System administrator / network administrator
- System analyst / programmer
- Database specialist
- Document management system specialist
- Information and networks Security specialist
- Webmaster

The following are descriptions of the tasks and responsibilities of these jobs :

IT manager

Responsibilities

- Day to day management of IT operations
- The development of the company's strategy for information technology
- Planning and management of disaster recovery and business continuity plans
- Prepare technical reports for information technology operations
- Evaluate new technologies
- Manage the team of information technology and coordination among its members
- Preparation and negotiation of contracts (in collaboration with the procurement department procurement) with suppliers of services, equipment and supplies
- Deal and coordinate with suppliers of services, equipment, and supplies

System administrator / network administrator

Responsibilities

- Install systems
- Start and stop systems
- Develop procedures to backup and restore data
- Perform daily, weekly, and periodic data backup
- Restore data when needed
- Provide first level of support for systems and networks
- Escalate of unresolved problems for the top level (maintenance and support companies)

- Specify and support for data security systems
- Follow up stock of computer supplies

System analyst / programmer / application support

Responsibilities

- Developing applications for the company which includes: analysis, design, programming, testing, training, and documenting the applications developed by the company
- Provide technical support for application users
- Relay technical problems to applications suppliers

Database specialist

Responsibilities

- Install and specify database management system
- Check the databases periodically and backup databases and restore data when needed
- Provide technical support for database users such as programmers and application users
- Relay technical problems to applications suppliers

Manager of document management and electronic archive systems

Responsibilities

- Define the structure of document storage
- Modify the structure of document storage when needed
- Identification of indexes and search keys
- Determining the levels of security
- Define users data and use level of authority
- Change the places of storage of documents when needed
- Linking with company databases when needed
- Improve the efficiency of documents photos when needed
- Compressing the image files when needed
- Determine the comments on the documents
- Coordination with the web site administrator for documents that will be made available on the Internet
- Determine the classification of documents and indexes and search keys
- Review of input data and verify its contents
- Coordination with the Department of Publishing and web site administrator for information that is posted on the company website on the Internet
- Determining the levels of security
- Follow up various actions (add documents , cancel documents, change documents, retrieve and print documents, etc.)
- Follow up various versions of documents
- Organize documents
- Supervise scanning documents and indexing them

Information and networks Security specialist

Information Security Specialist is the person responsible for securing company communications and the other systems in the company especially systems exposed to snooping which are on the Internet

Responsibilities

- Develop and implement a security policy for information technology
- Make revisions or organize making revisions of the security policy
- Review security alerts and the actions taken against them
- Plan and management of disaster recovery and business continuity plans in coordination with IT manager
- Specify and acquire products for securing systems
- Aware employees of the importance of IT security policy
- Monitor the effectiveness of security policy and modifying it as needed

Webmaster

The webmaster is considered the leader of the team specialized in updating and managing the company web site on the internet. Therefore, the webmaster must be technically qualified and be eligible for design, development, project management, and problem solving. The webmaster should have the ability to communicate (verbally and written) and have a long experience of operating the computer systems.

Responsibilities

- Program with HTML or other programming languages and publish pages to the site
- Integrate of multimedia components and applications with web pages
- Prepare and follow up the strategic plan of the web site according to the priorities of senior management of the company
- Make continuous improvements on the company website
- Organization and maintenance of the site
- Evaluate new technologies and trends and develop strategies and plans for improving the site
- Maintain the site to be appropriate to work on different systems and different browsers that work in different operating environments (Internet Explorer, Google Chrome, Safari / Windows, Unix)
- Work to control the general appearance of the site using the fonts and sizes of letters on a uniform basis.
- Adjust the links to other sites and update them regularly
- Update the pages information and databases used on the site so as to facilitate the operations of updating the site
- Diagnose and resolve software problems for the site
- Review the e-mail addressed to the web site administrator and work to resolve operating problems reported to the site
- Review statistics of visits to the site periodically and analyze it (the number of visitors, their geographical distribution, etc.)
- Study, develop, and add new data, information or services to the site

SECTION 9 : COST-BENEFIT ANALYSIS

The following table shows the cost-benefit analysis of the components of the IT master plan for subsidiaries. This table also shows the level of complexity of the process of implementing the components.

Component	Cost	Complexity	Opportunities	Challenges	Benefits
Financial and administration systems					
General ledger	Medium (in case of local systems) High (in case of international systems)	Very simple	<ul style="list-style-type: none"> • Common chart of accounts • Limited number of accounts • Beginning balance is the balance of the latest trial balance • Availability of many local and international off the shelf applications 	Staff experience in the unified accounting system Resistance to change	High: <ul style="list-style-type: none"> • Ease and prompt ability to produce financial statements • Reduction of manual work to a great extent • Ease of performing financial analysis and producing financial ratios
Cost accounting	Medium	Medium	<ul style="list-style-type: none"> • Common chart of accounts • Limited number of accounts and cost centers • Beginning balance is the balance of the latest trial balance and cost accounting statement 	<ul style="list-style-type: none"> • Staff experience in the unified accounting system • Resistance to change • Too much details for cost allocations to cost centers • Lack of automated sub system 	High: <ul style="list-style-type: none"> • Easy calculation of costs by cost centers, and accordingly, calculating the activity cost • Ease of comparison between similar cost centers for the purpose of efficiency calculation • Support decision making in the economic management of the companies
Inventory Control	Medium (in case of local systems) High (in case of international systems)	Complex		<ul style="list-style-type: none"> • Large number of stores • Large number of items • Inaccurate part numbers • Difficulty in knowing alternative items • Bad condition of the stores makes conducting the physical inventory very hard 	Very High : <ul style="list-style-type: none"> • Eliminates reordering items that are in stock but in a different store • Easily determine future requisition • High availability of items and eliminate reaching the lower limit • Easy calculation of the moving

Component	Cost	Complexity	Opportunities	Challenges	Benefits
					average at the company level <ul style="list-style-type: none"> • Easy allocation of the stock issues on the cost centers
Purchasing	Medium	Simple		N/A	Medium: <ul style="list-style-type: none"> • Ability to follow up Purchase Orders • Ability to follow up contract performance • Ability to follow up letters of guarantee expiry
Fixed Assets	Medium	Simple		<ul style="list-style-type: none"> • Large number of assets • Difficulty in running an inventory of the assets due to the large number and distribution all over the governorate • Difficulty to reach some of the assets since they are located under ground 	High: <ul style="list-style-type: none"> • Considered the basic source for the asset management system • Provides better tracking of the assets • Ease of calculation of the depreciation and allocate it to the proper cost center
Accounts Payable	Medium			N/A	Medium: <ul style="list-style-type: none"> • Follow up liquidity • Follow up ages of due debts
Account Receivable	Medium			N/A	Medium: <ul style="list-style-type: none"> • Follow up liquidity • Follow up ages of debts due to the company
Projects (Work on Progress – Financial Aspect)	Medium			N/A	Medium: <ul style="list-style-type: none"> • Financial follow up of projects through tracking the amounts disbursed on projects accurately and quickly
Budget and Obligations	Medium				Medium

Component	Cost	Complexity	Opportunities	Challenges	Benefits
Human Resource					
Personnel	Medium	Complex		<ul style="list-style-type: none"> • Difficulty in recording historical employees transactions • Large quantity of data that are required to be recorded and thoroughly revised 	High: <ul style="list-style-type: none"> • Facilitate employees appraisal • Support the decision related to promotion based on specific basis
Payroll	Medium	Simple			High: <ul style="list-style-type: none"> • Easy calculation of payroll • Easy allocation of expenses to cost centers • Easy following up of employees loans • Easy linking with electronic payment systems • Easy calculation of periodical and special raises
Training	Medium	Medium		<ul style="list-style-type: none"> • Large quantity of data that are required to be recorded and thoroughly revised 	Medium: <ul style="list-style-type: none"> • Support the decision related to promotion based on specific basis
Customer Service System					
Billing and Revenue	High	Very Complex		<ul style="list-style-type: none"> • System and equipment cost • Lengthy implementation period • Large number of customers • Difficulty in collecting and verifying customers beginning balances • Difficulty in collecting 	Very High: <ul style="list-style-type: none"> • Saving the time and effort required to calculate bills for a large number of customers • Easy follow up of collection and arrears • Accuracy in bills calculation reduces customer complaints • Decrease commercial unaccounted for water • Easy follow up of collectors and

Component	Cost	Complexity	Opportunities	Challenges	Benefits
				and verifying customers arrears <ul style="list-style-type: none"> • Too many steps to related the customer to a reading / collection path • Large amount of monthly transactions (reading, collection, rescheduling, arrears payment, services, etc.) 	readers
Customer service	High	Simple			High: <ul style="list-style-type: none"> • Follow up customer service • Enhance customer services • Accuracy and speed in calculating assays
Call Center	Low	Simple			High: <ul style="list-style-type: none"> • Improve customer service • Follow up complains and breakdowns • Easy appraisal of staff working on complaints resolution
Asset management, operation, and maintenance					
Asset management	High	High			<ul style="list-style-type: none"> • Investment protection
CMMS	Low/Medium	Medium			<ul style="list-style-type: none"> • Investment protection
Laboratories	Low	Medium			
GIS	High	High			<ul style="list-style-type: none"> • Investment protection
Hydraulic analysis	Medium	High			<ul style="list-style-type: none"> • Investment protection • Improve service
Electronic Document Management System and	High	Medium		<ul style="list-style-type: none"> • Large backlog of documents need to be 	High: <ul style="list-style-type: none"> • Reduce the handling of paper

Component	Cost	Complexity	Opportunities	Challenges	Benefits
work flow				<ul style="list-style-type: none"> converted • Bad quality of some documents • Long period required for converting to an automated system • Cost 	<ul style="list-style-type: none"> documents • Protection of original documents from destruction and loss • Reduce the storage volume of documents and move the documents to a lower cost protected area • Using the work flow system leads to procedure unification
Web portal and e-government readiness	Low-High	Low-Medium		<ul style="list-style-type: none"> • Low Internet usage in general • No trust in e-payments • Low individuals bill value leads to non-feasibility of using e-payments 	<p>Medium:</p> <ul style="list-style-type: none"> • Easy to advertise services provided by the company • Increase collection • Easy communications with customers • Easy receiving of complaints • Easy avail of information to public
Office automation	Medium	Medium		<ul style="list-style-type: none"> • Resistance to change 	<p>High:</p> <ul style="list-style-type: none"> • Increase staff efficiency • Improves data accuracy • Enhances reports presentation
MIS and Decision support systems	Medium	High		<ul style="list-style-type: none"> • Low automation level • Lack of integration between systems • Lack of integration in the manual work 	<p>High:</p> <ul style="list-style-type: none"> • Efficient management • Faster Decisions
System Integration	Medium	Complex		<ul style="list-style-type: none"> • Lack of integration in the manual work • Multiple system vendors 	<p>High:</p> <ul style="list-style-type: none"> • Unify data sources • Improve data quality • Confidence in the results

Component	Cost	Complexity	Opportunities	Challenges	Benefits
				<ul style="list-style-type: none"> • Multiple operating systems and database management system • Lack of system technical documentation • Not specifying integration feature when requesting the systems • Presence of legacy systems that make integration difficult 	<ul style="list-style-type: none"> • Better operation control •
IT Infrastructure					
Update equipment	High	Simple		<ul style="list-style-type: none"> • Cost 	High <ul style="list-style-type: none"> • Ensure operation continuity • Reduce maintenance, repair cost, and down times • Faster processing speed which implies less working hours, i.e. less overtime compensation and energy consumption
Redundant Equipment	High	Medium		<ul style="list-style-type: none"> • Cost • Availing a secure location • Increase in operation expenses 	High: <ul style="list-style-type: none"> • Higher availability • Improves business continuity and reduces impact of disasters or crisis
LANs and WANs	High	Medium	WAN cost in decreasing with the introduction of modern telecommunication technologies	<ul style="list-style-type: none"> • Network security 	High: <ul style="list-style-type: none"> • Easy of data transfer between the different units of the company • Fast availability of data • Easy to integrate between different applications
AMR/AMI	High	Complex		<ul style="list-style-type: none"> • High meter cost 	High:

Component	Cost	Complexity	Opportunities	Challenges	Benefits
				<p>compared to the average bill amount</p> <ul style="list-style-type: none"> • Dependence on new technologies • External entities request may be needed in some cases (like when using radio frequency ranges or power line carrier) 	<ul style="list-style-type: none"> • Facilitate meter reading • Accuracy in meter reading • Ability to process meter reading cycle at lower intervals (monthly instead of each 2 months) • Reduce complaints due to reading errors • Better customer services • Easy discovery of leakage
Security and fire fighting equipment	Medium	Medium			<p>High:</p> <ul style="list-style-type: none"> • Investment protection • Reduced down times due to security or fire issues
Human resources development					
IT Staff certification	Medium	Simple		<ul style="list-style-type: none"> • Cost • Staff quitting after getting the certification 	<p>Medium:</p> <ul style="list-style-type: none"> • Investment protection • Better services to systems users • Better services to customers
On-going training	Medium	Simple		<ul style="list-style-type: none"> • Cost • Staff quitting after getting the training 	<p>Medium:</p> <ul style="list-style-type: none"> • Investment protection • Better services to systems users • Better services to customers
Meetings and workshops with sister companies	Low	Simple	<ul style="list-style-type: none"> • Availability of experienced staff in various areas in the sister companies 		<p>Medium:</p> <ul style="list-style-type: none"> • Reduction in cost due to utilization of previous experience instead of applying trial and error method • Better service to company users
Documentation and procedures					

Component	Cost	Complexity	Opportunities	Challenges	Benefits
Operation procedures	Low	Simple			High: <ul style="list-style-type: none"> • Investment protection • Facilitate training and experience transfer • Unify the procedures regardless of persons
Maintenance and support contracts	High	Medium		<ul style="list-style-type: none"> • Contract cost • Contract follow up • Top management acceptance 	High: <ul style="list-style-type: none"> • Investment protection • Business continuity assurance
Disaster recovery and business continuity plans	Medium (Assuming that the equipment and networks are already mentioned under the infra structure section)	Complex	<ul style="list-style-type: none"> • Similarity in operating systems, databases, and applications among several companies 	<ul style="list-style-type: none"> • Implementation cost • Planning complexity • Top management acceptance 	High: <ul style="list-style-type: none"> • Investment protection • Business continuity assurance
User manuals	Low	Medium			High: <ul style="list-style-type: none"> • Investment protection • Facilitate training and experience transfer • Speed up problem solving • Unify the procedures regardless of persons
Network Documentation	Low	Medium			High: <ul style="list-style-type: none"> • Investment protection • Facilitate training and experience transfer • Speed up problem solving • Easy upgrade and modification of the network
Systems Documentation	Simple	Medium			<ul style="list-style-type: none"> • High: • Investment protection

Component	Cost	Complexity	Opportunities	Challenges	Benefits
					<ul style="list-style-type: none"> • Facilitate training and experience transfer • Speed up problem solving • Easy upgrade and modification of the system

SECTION 10 : ESTIMATED COST

The following table presents the estimated cost of the implementation of the information technology components in subsidiaries. This cost represents what is expected to be spent on each component for one company. The table shows the minimum and maximum expected cost and the determinants that affect cost. Usually cost is determined on the basis of :

- Capabilities / Specifications
- Number of licenses
- The volume of work in the company
- Country of Origin of the product (domestic / foreign)
- The level of after sales support and service

Component	Minimum Cost Limit (L.E.)	Maximum Cost Limit (L.E.)	Remarks	Cost Determinants
Financial and administration systems	1,000,000	8,000,000		Number of licenses Required specification Required sub systems Distance between the company and the service provider
General ledger				
Cost accounting				
Inventory Control				
Purchasing				
Fixed Assets				
Accounts Payable				
Account Receivable				
Projects (Work on Progress – Financial Aspect)				
Budget and Obligations				
Human Resource	200,000	800,000		Number of licenses Required specification Required sub systems Distance between the company and the service provider
Personnel				
Payroll				
Training				
Customer Service System	1,000,000	8,000,000		Local / international system Number of customers Integration between the systems Number of sub systems
Billing and Revenue				
Customer service				
Call Center				
Asset management, operation, and maintenance				
Asset management	0	1,000,000		

Component	Minimum Cost Limit (L.E.)	Maximum Cost Limit (L.E.)	Remarks	Cost Determinants
CMMS	0	1,000,000		
Laboratories	0	50,000		
GIS	60,000	600,000		Number of licenses Required specification
Hydraulic analysis	10,000	100,000		Number of licenses Required specification
Electronic Document Management System and work flow	100,000	800,000		
Web portal and e-government readiness	10,000	1,000,000	The maximum limit includes servers cost	In-house / outsourced development Services provides on the portal Hosting location
Office automation	300,000	1,000,000		Number of licenses Discounts obtained Level of used systems
MIS and Decision support systems	0	1,000,000		Local / international system
System Integration	0	500,000		In-house / outsourced Similarity of applications Type of application Level of integration required
IT Infrastructure				
Update equipment	200,000	2,000,000		Number of units Type of equipment
Redundant Equipment	200,000	2,000,000		Number of units Type of equipment
LANs	25,000	2,000,000		Number of nodes Type of network
WANs	25,000	250,000	Yearly	Number of nodes Type of network Speed of communication (Band width)

Component	Minimum Cost Limit (L.E.)	Maximum Cost Limit (L.E.)	Remarks	Cost Determinants
AMR/AMI	Not specified in this report			
Security and firefighting equipment	20,000	200,000		Number of sites Level of security and protection (burglar / firm alarm and fighting)
Human resources development				
IT Staff certification	50,000	200,000	Every 5 years	Number of certified employees Type of certification
On-going training	50,000	200,000	Yearly	Number of trained staff Type of training
Meetings and workshops with sister companies	10,000	20,000	Yearly	
Documentation and procedures				
Operation procedures	0	10,000		In-house development / using a consultant
Maintenance and support contracts	500,000	4,000,000		Number of systems Number of units Level of support needed
Disaster recovery and business continuity plans	10,000	100,000	Including the cost of running a drill once	In-house development / using a consultant
User manuals	0	50,000		In-house development / using a consultant
Network Documentation	0	10,000		In-house development / using a consultant
Systems Documentation	0	20,000		In-house development / using a consultant

SECTION 11: EXPECTED IMPLEMENTATION PERIODS

The following section provides the expected timing of implementation of each component of the information technology master plan (as a minimum and maximum) and determinants that affect in the expected timing for implementation.

This section also presents the priorities of the implementation of each component in order to achieve the desired benefits as soon as possible.

Component	Priority	Minimum Estimated Completion Period (In months)	Maximum Estimated Completion Period (In months)	Constraints
Financial and administration systems				
General ledger	High	6	12	Acquaintance with the unified accounting system
Cost accounting	High	6	12	Acquaintance with the unified accounting system
Inventory Control	High	12	24	Number of stores Number of items Accuracy of the last physical inventory balances
Purchasing	Medium	6	12	
Fixed Assets	High	6	24	Number of assets Accuracy of the last physical inventory balances
Accounts Payable	Low	6	12	
Account Receivable	Medium	6	12	
Projects (Work on Progress – Financial Aspect)	Low	6	12	
Budget and Obligations	Medium	6	12	
Human Resource				
Personnel	High	6	12	
Payroll	High	٣	٦	
Training	Medium	٣	٦	

Component	Priority	Minimum Estimated Completion Period (In months)	Maximum Estimated Completion Period (In months)	Constraints
Customer Service System				
Billing and Revenue	High	12	24	Number of customers Condition of customer file Accuracy of customer beginning balances
Customer service	Medium	6	12	
Call Center	Medium	3	6	
Asset management, operation, and maintenance				
Asset Management	Medium	12	24	Number of assets Accuracy of available data
CMMS	Medium	3	6	Number of assets Accuracy of available data Number of plants
Labs	Low			
GIS	High	12	48	Size of Network Availability of base maps Field survey activities Frequency of data updating
Hydraulic analysis	Medium			
Electronic Document Management System and work flow	Medium	24	48	Condition of paper documents Number of documents to be scanned
Web Portal and e-government readiness	Medium	3	12	Complexity of implementation

Component	Priority	Minimum Estimated Completion Period (In months)	Maximum Estimated Completion Period (In months)	Constraints
Office automation	High			
MIS and Decision support systems	High			
Application Integration	Medium	12	24	Level of manual systems integration and reconciliation Diversity of application vendors, databases, and programming methodology
IT Infrastructure				
Update Equipment	Medium			
Redundant Equipment	Medium			
LANs and WANs	High			
AMR / AMI	Low			
Security and Safety Equipment	High			
Human Resources Development				
Staff Licensing	Medium	On-going	On-going	
On-going Training	High	On-going	On-going	
Meetings and workshops with sister companies	Medium	On-going	On-going	
Documentation and procedures				
Operation procedures	High	1	2	
Maintenance and support contracts	High	1	6	Complexity of contracting
Disaster recovery and business continuity plans	High	1	6	Number and size of used applications Network size

Component	Priority	Minimum Estimated Completion Period (In months)	Maximum Estimated Completion Period (In months)	Constraints
User manuals	High	1	6	Number of application developed in-house
Network Documentation	High	1	3	Network size
Systems Documentation	High	1	6	Number of application developed in-house

APPENDIX A: BUSINESS CONTINUITY PLANNING

Business Continuity Plan is a combination of:

- Specific strategies and detailed procedures to restore systems operation
- Specific strategies and detailed procedures for the resumption of operations
- An official team for the implementation of procedures and crisis management
- All necessary arrangements to support the above

The business continuity plan can be defined as:

"documented series of activities to be undertaken by an official team to restore systems and / or resume basic operations after the devastating events"

The life cycle of business continuity plan:

Business continuity plan is a set of processes used to ensure that business is not subject to any unacceptable interruptions in any critical operations.

Business continuity planning is not just a task that happens once, but is rather one aspect of an ongoing program to control the risk and maintain the company's ability to withstand catastrophic events. Therefore, it requires the following:

- Ongoing commitment from management
- Determination of responsibilities
- Provision of an annual budget
- Provision of adequate resources

Management of the business continuity plan program

- The establishment of a permanent framework for the program management continuously:
- Identify policies and standards
- Determination of responsibilities
- Create a steering committee for planning and follow-up
- Identify the budgets and annual targets
- Pursue an agreement with the standards

Definitions related to the plan preparation:

Recovery Time Objective (RTO)

"How long does it take for the recovery of systems operation."

Recovery Point Objective (RPO)

"The point from which the resumption of work will start (such as the end of the run the previous day, the end of the previous month, etc.) So that the reentry and operation of the transactions and processes that took place after this date."

Maximum Tolerable Downtime (MTD) or Maximum Allowable Downtime (MAD)

“Is the maximum period allowed to stop work in the event of a crisis without the occurrence of adverse effects on the company.

Objectives of assessing threats and vulnerabilities:

- Identify the different threats that may affect business continuity
- Assess the probability of each threat, and the impact of operational risk exposure resulting from the threat
- Review of current controls to reduce risk or mitigate losses
- Identify scenarios of threats that requires developing strategies and business continuity plans for

Steps for setting up the plan

Stages of preparation of the plan include the following steps:

- I - Assess threats and vulnerabilities
- II - Analyze the effects of threats to business
- III - Choose a continuity plan strategy
- IV - Develop a plan to restore computer systems
- V - Develop incident management plan
- VI – Select teams
- VII - Awareness and training
- VIII - Test and practice
- IX - Update and evaluate the plan

(Steps and stages could vary according to the methodology used in the preparation of the plan).

I - Assess threats and vulnerabilities

Assess the possibility of the stopping of operations for the following reasons (for example):

- Natural disasters
- Loss of utilities
- Loss of computer systems
- Loss of data
- Loss of communications
- Loss of key staff
- Social risks, for example:
 - Strikes and sit-ins
 - Vandalism
 - Bomb threats
 - Violence in the workplace
 - Incidents of terrorism

II - Analyze of the effects of threats to business

Specific objectives of this step are:

- Identify critical tasks performed in each work site
- Specify the maximum period of suspension for each task in a crisis situation
- Identify the minimum resources necessary for the resumption of all the essential task at the lowest acceptable level
- Identify requirements for restoration of computer systems and the basic data
- Identify priorities for system recovery and resumption of operations

Determine the effects of business interruption that depends on the time of interruption of business, such as:

- Loss of income and / or cash
- Loss of market share (in the case of availability of competitors)
- Loss of reputation
- Loss of productivity
- Non-compliance with regulatory standards
- Legal liability, etc..

III - Choose a continuity plan strategy

Identify and implement appropriate strategies for:

- Reduce the risk
- Mitigate the effects
- Restore systems and data
- Resumption of work

Chose management strategy that achieves:

- Reduce the probability of an interruption
- Reduce the effects of an interruption
- Resume critical operations quickly
- Resume operation of computer systems

Include the process of selecting the appropriate strategy as a trade-off between Cost and efficiency strategy. Usually the most efficient strategy will have a high cost and vice versa.

IV - Develop a plan to restore computer systems

There are four basic components to restore computer systems:

- Suitable alternative place to accommodate the devices
- Means of communication with users
- Hardware
- Copies of recent data and programs

Strategies for the resumption of computer systems:

There are five components of strategies to resume work:

- An alternative site to accommodate staff and their tools
- Means of communication servers
- Personal computers
- Any other devices required to resume work
- Trained staff to carry out the required tasks

Develop a plan to restore computer systems

- Develop plans to restore critical systems, that address:
- Alternative Computer centers
- Replacement of broken computers
- Data and systems Recovery
- Communication system
- Secure the sites and data, etc..

The challenges of the resumption of operation:

- The volume of data
- How to update the data
- The number and types of devices
- The time required for the supply of new hardware with the required specifications

The risk of interruption of operation due to defects in information technology can be reduced by:

- Use high-efficiency appliances
- Acquisition of backup sensitive hardware and devices
- Maintenance contracts for the provision of alternative devices for broken devices
- Follow-up problems to determine the causes
- Secure the sites and data

V - The development of incident management plan

Incident management plan is a series of activities that must be documented to be implemented in response to a catastrophic incident.

The catastrophic incident, whether for internal or external reasons, are those incidents that may cause an unacceptable disruption in the core functions and tasks of the company'.

Teams required for the implementation of the plan:

There are multiple teams to implement the plan, each with their role and responsibilities are clearly defined, from these teams are:

- Incident Management Team
- Response Teams
- Teams of different departments
- IT team
- Facilities support teams and human resources, communications, finance, etc..

The contents of the Incident Management Plan:

Must include a plan of each team as follows:

- Overview of the strategy for each type of accident (or disaster scenario)
- A list of minimum requirements for the resumption of work
- List team members and their contact information (mobile phone numbers, landline telephone numbers, radios, addresses, etc.).
- A list of required materials from outside the site and other supporting documents
- Lists of tasks to be implemented (in order by level and type of incident)
- Details of the tasks to be executed

The Phase is a set of activities that provide the basis for the work plan of each team, and each Phase represents a critical point in the incident management plan. There are usually five Phases:

Phase 1: initial response and assessment

It aims to assess the impact of such events on the operations and take any immediate action to address the incident.

Phase 2: to take interim measures

It includes the implementation of short-term measures to reduce the impact of this incident, such as the transfer of staff to work in another location, or allow some employees to work from their homes.

Phase 3: Resource Management

It aims to provide the minimum resources necessary to resume operations at an alternate location, such as offices, telephones, personal computers, printers, servers, communication system, and copies of electronic data, etc..

Phase 4: Resumption of Operations

A resumption of work at an acceptable level of operations at an alternate location. May require the transfer of staff, rebuild the lost data, and process the accumulated transactions, etc.

Phase 5: Restore the normal operation

Include completion of all actions required to resolve the event and return the staff back to the original site, and resume normal operations.

VI - Selection of teams

Teams are a group of employees responsible for managing the implementation of business continuity plan in the event of disasters. Their role is:

- Identify the tasks to be implemented depending on the type of disaster
- Coordinate the implementation of those tasks with the other employees of the company
- Coordinate with other teams

The teams consist of the following groups:

- Incident Management Team
- Incident response teams
- Teams from different business units
- IT team
- Support and service groups

VII - Awareness and training

Individuals are the most important factor in the success of the business continuity plan. Such programs must be developed for:

- Training of planners and team members
- Educate staff and management

VIII - test and practice

Must develop a method to test and practice the plan of action as follows:

- Meetings with the team to review and follow the steps on paper (conducting dry runs)
- Tests of contact tree for reporting the crisis
- Simulation exercises
- Executive exercises
- Mock disaster drills

IX - update and evaluate the plan

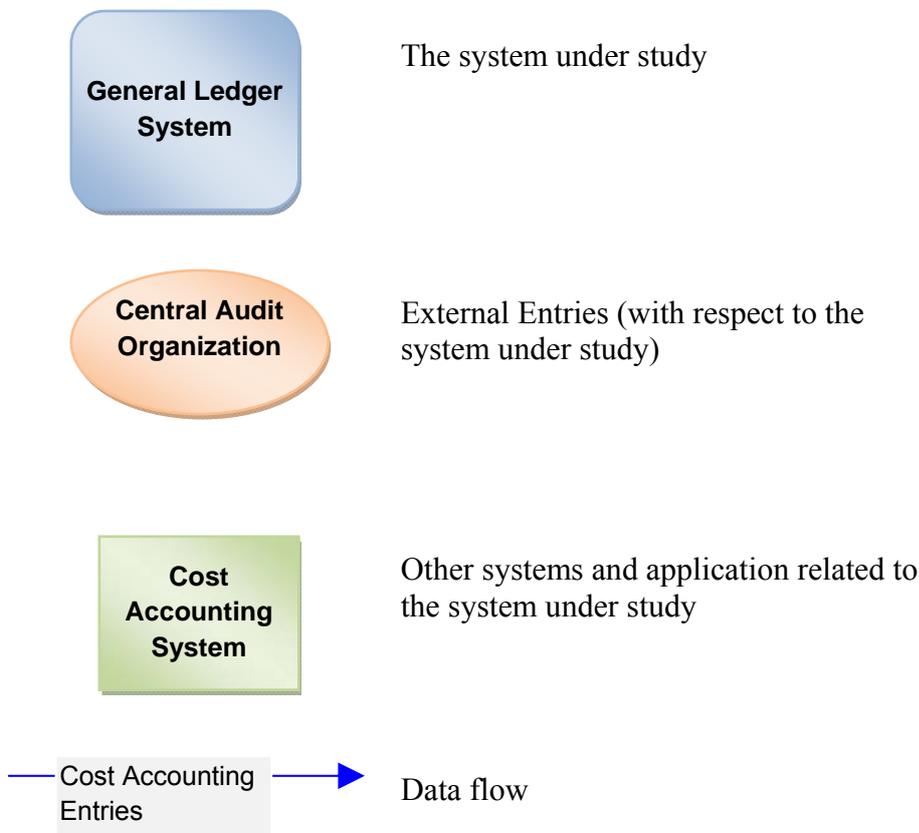
Must review and evaluation of the plan periodically as changes that may occur in the system of work. Based on this are:

- update the contents of the plan
- Distribution of the amendments made to the plan to the officials,
- assess the effectiveness of the revised plan

APPENDIX B: GENERAL SPECIFICATIONS FOR APPLICATIONS

This appendix includes general specifications for applications where it includes an introduction and explanation of the objectives of each application, then there is a context diagram showing the application under study and its relationships with the external entities and other applications, then there are the general high level specifications for applications in the form of a table.

The following is an explanation of the symbols used to describe the relations of the application:



The table represents the general high level specification of the application and where is it implemented (HCWW, subsidiaries, branches, and plants).

The table shows whether the specification is mandatory (M), or desired (D), and the implementation level represents:

A = High level

B = Medium level

C = Entry level

General Ledger System

Description of the Automated General Ledger System

Introduction

The Automated General Ledger System aims to:

- Easily producing the financial statements of the companies
- The accuracy of reports extracted from the automated system
- Cancellation of manual books and reliance on a fully automated records (except for books to be kept by law)
- Easy tabulation of financial statements

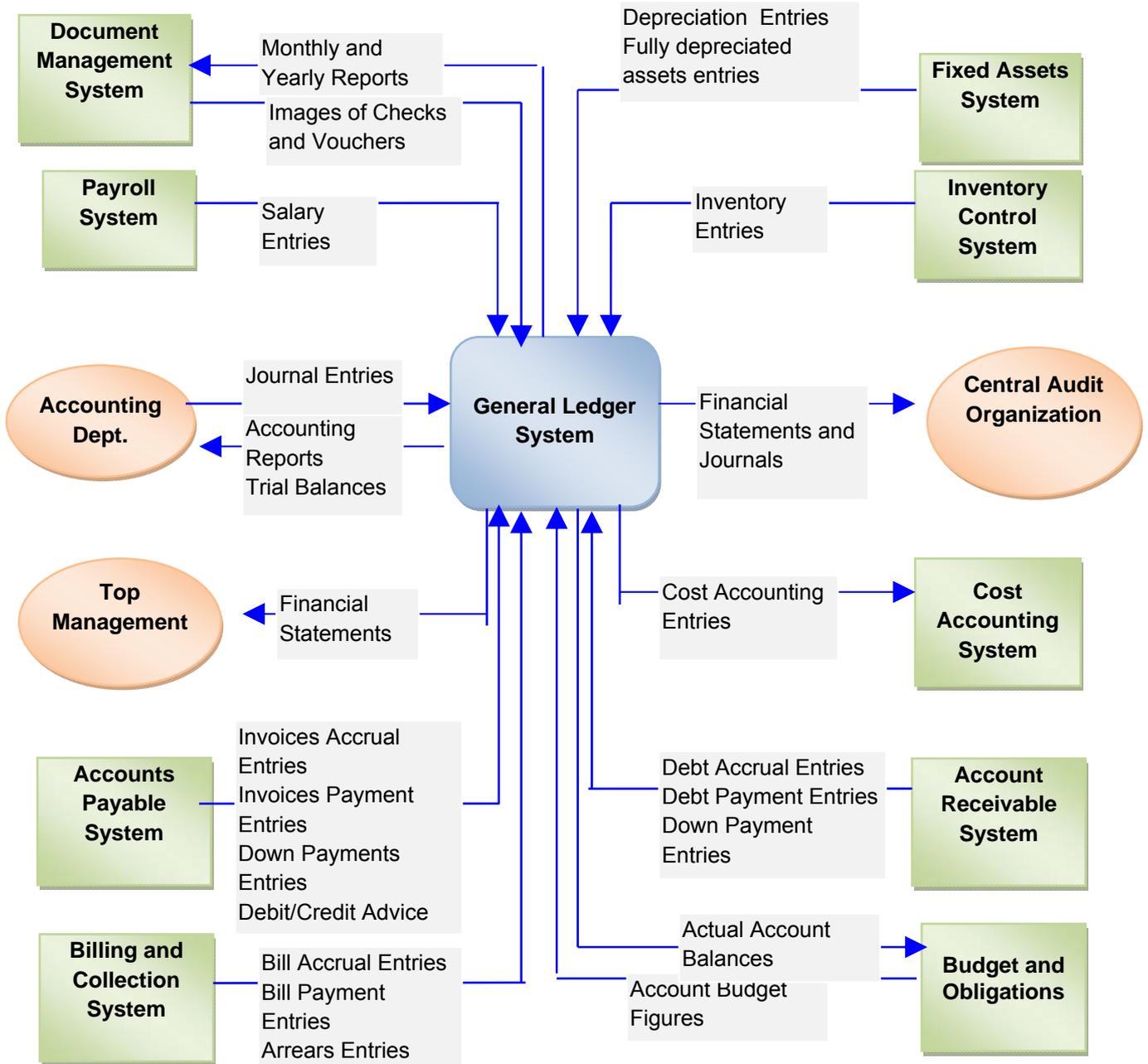
The automated system provides the possibility of working on two levels; the first level is of the subsidiary companies (water and wastewater companies), and the second level is the holding company for water and wastewater with the possibility of an electronic connection between the two levels by the data network. Purpose of the automated system is the possibility of automating the work and functions of accounting departments in the companies to replace the manual labor work. The system provides the possibility of automatic definition of the general ledger account numbers according to the unified accounting system, and allows the definition of two types of accounts: sub-accounts, which is used in the preparation of the daily entries, and the main accounts, which are the accounts of the aggregate sub-accounts. The system provides at least three levels of automated accounts: accounts which are the aggregate total, sub-accounts, and detailed accounts.

The automated system provides the possibility to deal with different types of journals, for example, cash journal, purchasing journal, etc. The system provides an option to post various journals to update the sub-account balances as well as to update main account balances at all levels. The system provides the possibility of issuing monthly trial balances, and the possibility of making the statement of financial position, an income statement, and a statement of cash flows.

The automated General Ledger System is integrated with other automated systems such as the Payroll system, so that to obtain automatically on the accounting entry of payroll accruals. The system is also integrated with the Inventory Control System to automatically obtain the generated accounting entries. The system also integrates with the fixed assets system to obtain automatically the accounting entries for depreciation of fixed assets. Automated system also integrates with the accounts payable system to obtain a balanced entries (such as due bills - advance payments - paid bills). The system is also integrated with the billing system for a balanced entries (due bills - collection - arrears). The system is also integrated with the accounts receivable system to obtain balanced entries (such as debt accrual – debt payments). The system is also integrated with the budget system and links to get the budget balances of the accounts to compare with the actual balances. The system is also integrated with Document Management System in order to save documents, images and pictures of the approved financial checks and invoices, adjustments, and monthly and annual reports generated from the system. The system is also integrated with the cost accounting system to obtain the data necessary to issue a statement of profits and losses, and also provide the accounting system costs to be allocated to cost centers.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The General Ledger System	✓	✓					
	General Specifications							
	The ability to run the system on two levels: the level of consolidation at HCWW, as well as a detailed level in the subsidiary companies.	✓	✓			M	M	-
	The system should provide at least 14 accounting periods as follows: <ul style="list-style-type: none"> Accounting period in which the opening entries of accounts are recorded in the beginning of the fiscal year. 12 accounting periods in which the accounts transactions are recorded, each period corresponds to a month of the fiscal year. Accounting period in which the closing balances of accounts at the end of the fiscal year are recorded. 	✓	✓			M	M	M
	The possibility of the existence of two additional periods to be used as follows: <ul style="list-style-type: none"> Accounting period for recording amendments of the Board of Directors after the first version of the financial statements are produced. Accounting period for recording the adjustments of the Central Audit Organization. 	✓	✓			M	M	M
	Ability to Allow the recording of the daily movement of the successive periods before closing the current period.	✓	✓			M	M	M
	The possibility of posting daily movement on the earlier periods after obtaining the appropriate authorization from the person in charge.	✓	✓			M	M	M
	The possibility of classification of accounts to 9 levels of analysis, at least.	✓	✓			M	M	M
	The possibility of consolidating the accounts of the Subsidiaries to obtain consolidated statements at the consolidated level at the HCWW. A consolidation account number must be identified in the chart of accounts for the possibility of merging sub-accounts in different accounts in the highest level.	✓	✓			M	M	-
	The possibility of dealing with different currencies and to re-evaluate account balances automatically on demand.	✓	✓			M	D	-
	The possibility of dealing with the differences resulting from rounding.	✓	✓			M	D	-
	The possibility of receiving a daily balanced entries from different financial and administrative systems, such as payroll, Inventory control, fixed assets, accounts payable, etc.	✓	✓			M	M	-
	Ability to back-reference to the details of the entries posted to the general ledger in the sub-systems through the use of a	✓	✓			M	D	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	reference number.							
	Ability to deals with up to 14 digits at least in account balances and transactions (including the decimal point)	✓	✓			M	M	M
	Ability to inquire about the various reports.	✓	✓			M	M	M
	The system provides the necessary data required for a financial analysis system to extract financial indicators.	✓	✓			M	D	-
	The main functions of the system:							
	The definition of the company's chart of accounts. These data include the following at least: <ul style="list-style-type: none"> Account number as per the Chart of Accounts Statistical sub-account number Account Name The nature of the account balance (debtor / creditor) Account Type (main / sub) Consolidation Account number Closing Account number and number of step 	✓	✓			M	M	M
	The definition of cost centers data. These data include the following: <ul style="list-style-type: none"> Cost Center number Cost Center Name Type of Cost Center (Main / Sub) 	✓	✓			M	M	M
	Recording the opening balances of the accounts (during the conversion from manual system to an automated system only).	✓	✓			M	M	M
	Ability to record the adjustments entries that are prepared manually. Data contains at least: <ul style="list-style-type: none"> Entry Number Entry type (cash / non cash) Journal number (Fund / Bank / purchases / ...) Entry Date Description Entry Line number Account number (debtor / creditor) Cost center number (if any) Description of the line Currency Conversion rate (in the case of foreign currency) Entry Amount 	✓	✓			M	M	M
	Give all entry a unique number.	✓	✓			M	M	M
	Not to accept the entries that are not balanced.	✓	✓			M	M	M
	Issue a report to review the various journals.	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Post various journals to update account balances.	✓	✓			M	M	M
	Issuing reports of the general ledger accounts transactions during the period of time pointing out the following for each general ledger account: <ul style="list-style-type: none"> Balance at the beginning of period Detailed transactions The ending balance 	✓	✓			M	M	M
	Issue monthly trial balance of totals and balances contains: <ul style="list-style-type: none"> Account number Account Name Totals for debit and credit movement year to date The balance at the end of period (debtor or creditor) 	✓	✓			M	M	M
	Possibility of issuing the statement of financial position (balance sheet) for the current period or previous periods	✓	✓			M	M	M
	Possibility of issuing an income statement (income and expenditure) for the current period or previous periods	✓	✓			M	M	M
	Possibility of issuing a cash flow statement	✓	✓			M	M	M
	Possibility of issuing a cost statement (expenditure analysis on the cost centers)	✓	✓			M	M	M
	Possibility of issuing reports comparing the current balances and variance with: <ul style="list-style-type: none"> The previous period The same period last year The estimated amounts (account balances of the budget) 	✓	✓			M	M	M
	Automatically closing the fiscal year: Entries are prepared for closing accounts and automatically opening them and post them to the general ledger accounts. The possibility of closing the accounts at several stages in order to close the accounts of profit and loss in a step, and closing accounts of assets and liabilities in the next step.	✓	✓			M	M	M
	The definition of top-level chart of accounts which is used in consolidation. These contain data on at least the following: <ul style="list-style-type: none"> Account number according to the Accounting Manual Account Name The nature of the account balance (debtor / creditor) Account Type (main / sub) Closing account number and step 	✓				M	M	-
	The possibility of manual data entry of trial balances of those subsidiaries that are non-automated so that it can be automatically integrated with the rest of automated subsidiaries.	✓				M	M	-
	Issuing of consolidated reports at the level of HCWW: <ul style="list-style-type: none"> Monthly trial balance of totals and balances Financial position (balance sheet) 	✓				M	M	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> The income statement (revenue and expenditure) Statement of Cash Flows 							
	Integration Requirements.							
	<p>The system is integrated with Inventory Control System for the following balanced entries:</p> <ul style="list-style-type: none"> Stock issues Stock receipts 	✓	✓			M	M	-
	<p>The system is integrated the payroll system for the following balanced entries:</p> <ul style="list-style-type: none"> Monthly salary accrual entry Overtime and incentives entry Direct disbursements entries 	✓	✓			M	M	-
	<p>The system is integrated with the billing system to get the following entries:</p> <ul style="list-style-type: none"> Bills accrual entry Bills collection entry Arrears entry 	✓	✓			M	M	-
	<p>The system is integrated with the fixed assets system for the following entries:</p> <p>Depreciation of fixed assets</p>	✓	✓			M	M	-
	<p>The system is integrated with the accounts payable system for daily following entries:</p> <ul style="list-style-type: none"> Accruals of suppliers' invoices journal Payment of supplier invoices journal Down Payments journal Debit and credit advice journal 	✓	✓			M	M	-
	<p>The system is integrated with the Accounts Receivable System to get daily following entries:</p> <ul style="list-style-type: none"> Customer debts Payment of the debts of customers Down payments of customers Debit and credit advices of employees custodies 	✓	✓			M	M	-
	<p>The system is integrated with the cost accounting system, where the General Ledger System provide the cost accounting system with entries containing cost centers.</p>	✓	✓			M	M	-
	<p>The system is integrated with the budget and obligations system, to get the budget balances of accounts, as the system provides the budget system the actual balances of the accounts.</p>	✓	✓			M	M	-
	<p>The system is integrated with Document Management System, to obtain images of checks, vouchers, and other financial documents, and the system will provide the Document Management System with monthly and annual reports.</p>	✓	✓			M	D	-

Cost Accounting System

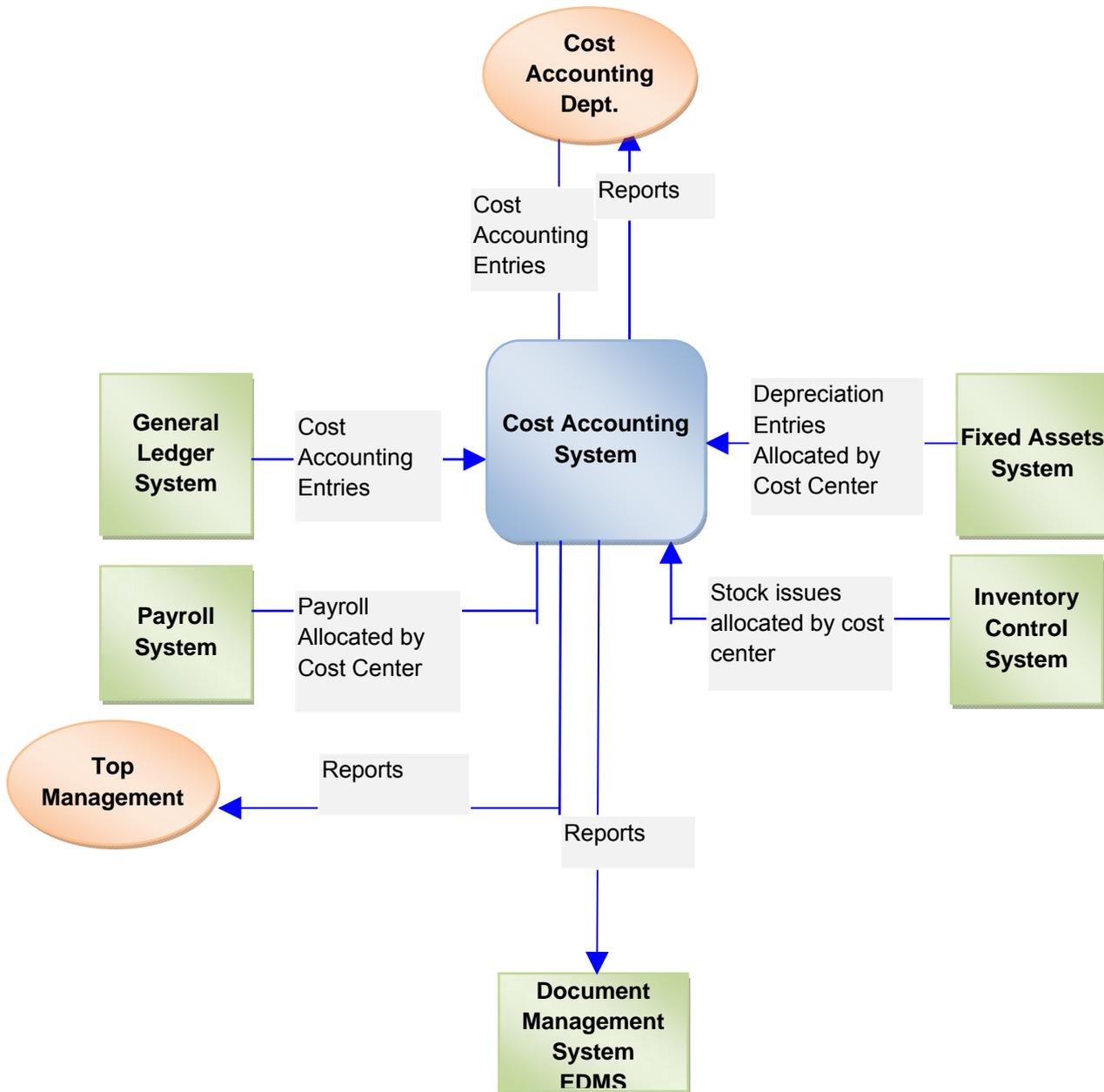
Introduction

The automated cost accounting system aims at automating the work and functions of the cost accounting departments in water and wastewater companies so as to replace the manual labor work with automation. The system provides the possibility of registration of all entries which represents the detailed costs for each production unit or marketing units (Sub-cost centers). Entries include all costs: salaries, supplies and commodities, and services. The system provides the possibility of calculating the average cost per cubic meter of drinking water, and also calculate the cost per cubic meter of treated wastewater. The system provides the possibility of issuing of cost statements on the level of each sub-cost center or station, as well as issuing statements of total costs at the level of each activity, in addition to issuing a statement of total costs at the company level.

The automated cost accounting system is integrated with other automated systems such as payroll, so as to automatically obtain salaries costs distributed to cost centers. The system is also integrated with Inventory Control System in order to automatically obtain data on commodities and supplies allocated to cost centers. The system is also integrated with the fixed assets system to obtain data on the depreciation of fixed assets allocated to cost centers. The system is also integrated with general ledger system and to obtain entries related to services allocated to cost centers. The system is also integrated with Document Management System in order to save the annual reports.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Cost Accounting System	✓	✓					
	General Specifications							
	Follow-up cost data at the level of the various cost centers.		✓			M	M	M
	Follow-up costs using control accounts (production, marketing, etc ...) according to what is applied in the unified accounting system.	✓	✓			M	M	M
	The possibility of follow-up costs according to the type of activity (drinking water - Wastewater treatment).		✓			M	M	M
	Access to several methods to allocate the indirect costs to various cost centers based on the different allocation factors.	✓	✓			M	M	M
	Follow-up data about quantity of drinking water produced at each station, in order to reach the average cost per cubic meter of water at each station, and then calculate the average cost per cubic meter of water at the level of the company.		✓			M	M	M
	Follow-up data about the quantity of treated wastewater, on the basis of pumping stations, filtration plants, and processing units, in order to reach the average cost of the service.		✓			M	M	M
	The possibility of receiving journal entries on costs of financial and administrative systems such as general ledger, payroll, inventory control, fixed assets system, etc..Preferably a possibility of drilling down to the details of the entries posted to the cost accounting system from the sub-systems.	✓	✓			M	M	-
	Possible functions of the system:							
	Definition of cost centers numbers at the level of the company according to what is applied in the accounting system. The data include the following: <ul style="list-style-type: none"> Type of costs control (production, marketing, etc ...) Cost Center Number Cost Center Name Type of activity Station number cost center Type (actual or virtual): <ul style="list-style-type: none"> Actual: cost entries amounts are loaded directly to the cost center. Virtual: cost entries amounts are re-loaded indirectly to the cost center based on allocate rate. 	✓	✓			M	M	M
	Recording data related to drinking water and sanitation plants including the following data: <ul style="list-style-type: none"> Station number Description of the station Standard Power for the station 		✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Definition of the basis under which the virtual cost centers costs are allocated actual to cost centers.	✓	✓			M	M	M
	Definition of costs items that correspond to the general ledger account numbers and sub-account numbers as applied in the unified accounting system, and include the following data: <ul style="list-style-type: none"> • Cost item number and name • General ledger corresponding account number (that is defined in the general ledger system) • Classification of cost items at three levels: <ul style="list-style-type: none"> • Main, for example service • Sub, for example depreciation of fixed assets • Analytical, for example, depreciation of networks 	✓	✓			M	M	M
	Recording daily cost transactions which contain the following data: <ul style="list-style-type: none"> • Transaction date • Transaction description • Transaction amount • Cost Center • Cost item analytical number 	✓	✓			M	M	M
	Give each entry a unique number.	✓	✓			M	M	M
	Receive cost entries of other automated systems. The entries that are automatically posted contain (in addition to the daily transactions data) on a statement specifying the source of these entries. This requires linking with the following systems: <ul style="list-style-type: none"> • Payroll • Inventory Control • Fixed assets • General Ledger 	✓	✓			M	M	-
	Recording the monthly production capacity of drinking water and sewage plants, and include the following data: <ul style="list-style-type: none"> • Month • Station number • The amount of water produced / treated 		✓			M	M	M
	Issue a report on the cost entries that are recorded through the cost accounting system , or those that are automatically generated by other automated systems, for review before approval and posting.	✓	✓			M	M	M
	Posting various cost entries to update the balances of the actual cost centers, as well as the distribution of cost entries related to virtual cost centers on the actual cost centers based on the rules that have been already defined.	✓	✓			M	M	M
	Issuing a monthly report about detailed costs entries for cost centers and contains: <ul style="list-style-type: none"> • Type of cost center, station number, and cost center 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<p>number .</p> <ul style="list-style-type: none"> Number of analytical costs item. Other data to record for the cost entries such as the date of the entry, and the amount, etc. 							
	<p>Issue a list of analytical costs of the plant each month including:</p> <ul style="list-style-type: none"> Type of cost center, and station number. Number of analytical costs item. Analytical cost item balance until the end of the current month. Total analytical cost items I balances, which represent the balance of the costs sub-item. 		✓			M	M	M
	<p>Issue a statement for the cost sun-items of the plant each month including:</p> <ul style="list-style-type: none"> Type of cost center, and station number. Number and the name of the costs sub-item. The balance of the cost sub-items until the end of the current month. Total assets sub-cost items, which represent a major balance of costs. 		✓			M	M	M
	<p>Issue a statement of main cost items of the plant each month including:</p> <ul style="list-style-type: none"> Number and the name of the main cost item. The balance of the main cost items until the end of the current month. The total balances of main cost items. 		✓			M	M	M
	<p>Issue a statement of analytical costs per month for the type of activity including:</p> <ul style="list-style-type: none"> Type of activity. Type of cost Analytical cost item balance until the end of the current month. Total analytical cost items balances, which represent the balance of the costs sub-item. 		✓			M	M	M
	<p>Issue a monthly list of ancillary costs for the type of activity each include:</p> <ul style="list-style-type: none"> Type of activity. Cost center group. The balance of the sub-cost items until the end of this month. Total balances sub-cost items, which represent the balance of main cost items. 		✓			M	M	M
	<p>Issue a list of main cost items for the type of activity each month include:</p>		✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Type of activity. Cost center group The balance of the main cost item until the end of this month The total balances of main cost items 							
	<p>Issue a list of analytical costs at the level of the company each month include:</p> <ul style="list-style-type: none"> Cost center group Item cost analytical balance until the end of this month. Total cost items analytical balances, which represent the balance of the costs of a sub-item. 	✓	✓			M	M	M
	<p>Issue a list of ancillary costs at the level of the company each month include:</p> <ul style="list-style-type: none"> Cost center group The balance of the sub-item costs until the end of this month. Total balances sub-cost items, which represent a main cost group. 	✓	✓			M	M	M
	<p>Issue a list of the main cost items at the company level each month include:</p> <ul style="list-style-type: none"> Cost center group The main cost item balance until the end of this month The total balances of main cost items 	✓	✓			M	M	M
	<p>Issuing a monthly report total costs of cost centers which contains:</p> <ul style="list-style-type: none"> Cost center group and cost center number Analytical costs item number or sub or main Balance until the end of the previous month Balance until the end of this month The difference between the two balances and the percentage of the difference 	✓	✓			M	M	M
	<p>Issuing a monthly report with a total cost of the stations contains:</p> <ul style="list-style-type: none"> Cost center group and station number Analytical costs item number or sub or main Balance until the end of the previous month Balance until the end of this month The difference between the two balances and the percentage of the difference 		✓			M	M	M
	<p>Issuing a monthly report with a total cost of the type of activity includes:</p> <ul style="list-style-type: none"> Type of activity. Cost center group Analytical costs item number or sub or main 		✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Balance until the end of the previous month Balance until the end of this month The difference between the two balances and the percentage of the difference 							
	Issuing a monthly report with a total cost of the company contains: <ul style="list-style-type: none"> Cost center group Analytical costs item number or sub or main Balance until the end of the previous month Balance until the end of this month The difference between the two balances and the percentage of the difference 	✓	✓			M	M	M
	Issuing a monthly report total costs of cost centers compared with the previous year contains: Cost center group, and cost center number Analytical costs item number or sub or main Balance until the end of this month The balance of the same month of previous year The difference between the two balances and the percentage of the difference	✓	✓			M	M	M
	Issuing a monthly report with a total cost of the stations compared with the previous year contains: <ul style="list-style-type: none"> Cost center group and station number Analytical costs item number or sub or main Balance until the end of this month The balance of the same month of previous year The difference between the two balances and the percentage of the difference 		✓			M	M	M
	Issuing a monthly report with a total cost of the type of activity compared with the previous year contains: <ul style="list-style-type: none"> Type of activity. Cost center group Analytical costs item number or sub or main Balance until the end of this month The balance of the same month of previous year The difference between the two balances and the percentage of the difference 		✓			M	M	M
	Issue a monthly report, the company's total costs compared with the previous year contains: <ul style="list-style-type: none"> Cost center group Analytical costs item number or sub or main Balance until the end of this month The balance of the same month of previous year The difference between the two balances and the 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	percentage of the difference							
	Issue a monthly report, the average cost of activity contains: Type of activity <ul style="list-style-type: none"> • The amount of water produced / treated • Cost center group • Item number or analytical costs, or the main or sub-total • Balance • Average cost per cubic meter 		✓			M	M	M
	Issue a monthly report on the average cost of the plant contains: <ul style="list-style-type: none"> • Station number • The amount of water produced • Type of monitoring • Item number or analytical costs, or the main or sub-total • Balance • Average cost per cubic meter 		✓			M	M	M
	Inquiry functions:							
	Inquire about the cost entries in the order of date, cost item number, or order cost center number.	✓	✓			M	M	M
	The possibility of querying cost statement by type of activity or by the station, as well as the possibility of querying the system reports before printing.		✓			M	M	M
	Integration Requirements.							
	The system is integrated with the general ledger system, in order to get the daily entries allocated to cost centers.	✓	✓			M	M	-
	The system is integrated with the payroll system in order to get the salary allocated over cost centers.	✓	✓			M	M	-
	The system is integrated with Inventory Control System, in order to get stock issues allocated over cost centers.	✓	✓			M	M	-
	The system is integrated with fixed assets system, in order to get the depreciation installments allocated over cost centers.	✓	✓			M	M	-
	The system is integrated with Document Management System in order to save the annual reports.	✓	✓			M	D	-

Fixed assets System

The accounting departments keep a record of fixed assets at the level of each company. The fixed assets are classified into six groups, a major investment group: f land, buildings and constructions, networks, machines and equipment, means of transportation, tools, and furniture and office equipment. Each group is divided into investment sub-groups, according the unified accounting system.

The accounting departments record all the data for each fixed asset and include description of the asset and the cost center that uses the asset as well as the actual value of the asset or the value corresponding to the evaluation of asset, and the date of start of operation of the asset, and the assumed life time of the asset, and the total depreciation installments that has been calculated on the asset, as well as the reminder value of the asset.

The accounting departments prepare every month or every three months depreciation entries of fixed assets classified by investment groups and sub-groups and allocated to the various cost centers for preparation for the cost statements.

Description of the Automated Fixed Assets System

Introduction

An automated fixed assets system aims to:

- Provide a comprehensive inventory of fixed assets owned by the company
- Facilitate the process of inventory of assets by assigning a unique code for each asset
- Facilitates the calculation of depreciation installments and allocated them to the cost centers

The automated Fixed Assets System provides unique identification numbers for investment groups and sub-groups as applied in the unified accounting system, each number corresponds to a general ledger main or sub-account number.

The automated system provides the possibility of recording all the detailed data for each fixed asset, in addition to the possibility of recording all the changes, both new additions added to the asset or exclusions from the asset. The system provides automatic calculation of fixed assets depreciation on demand (monthly, quarterly, or annually).

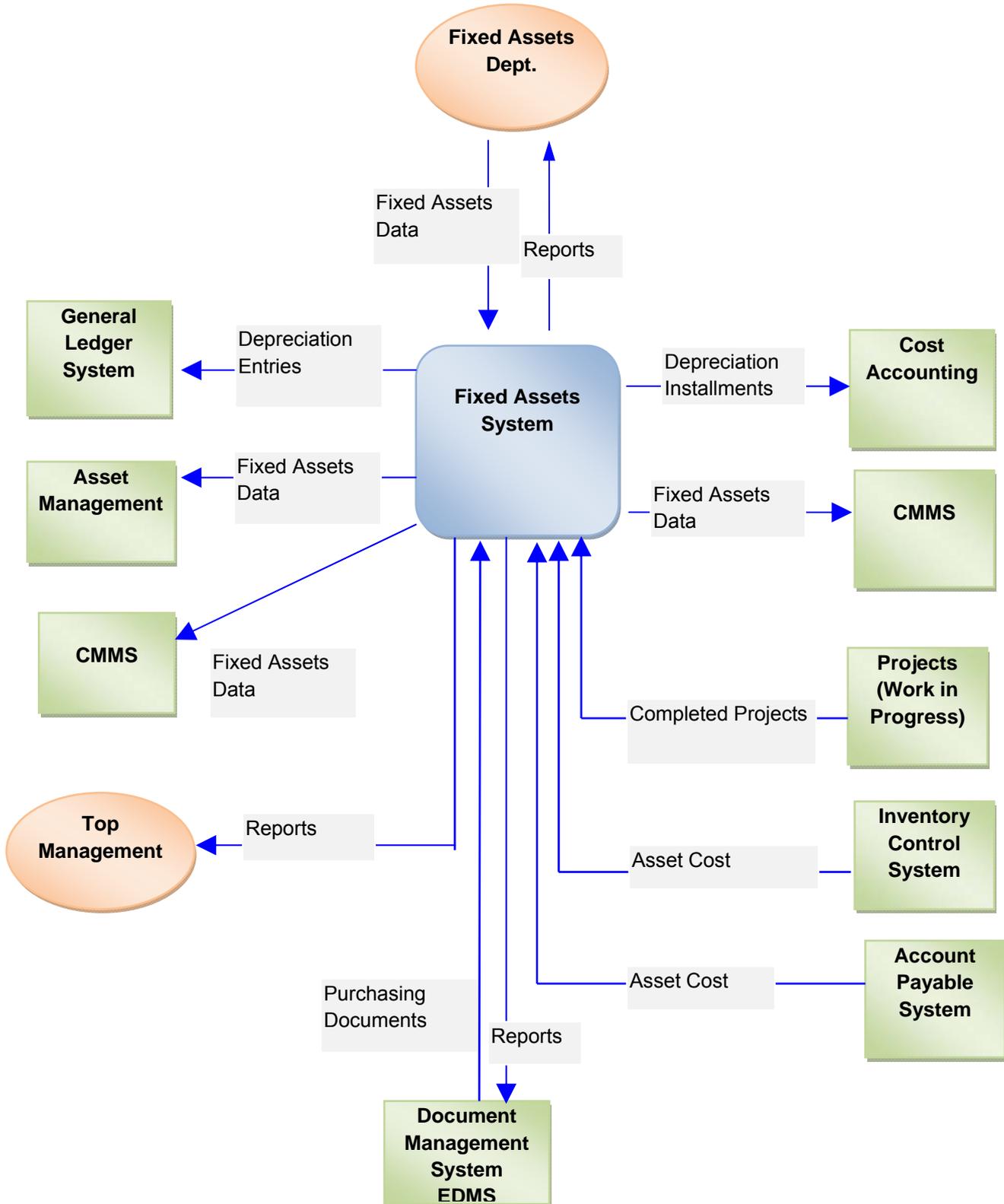
The automated fixed assets system is integrated with other automated systems such as general ledger system to provide the possibility of posting depreciation installments of fixed assets. It is also integrated with the cost accounting system to provide the possibility of posting depreciation installments allocated on cost centers. The system is also integrated with the projects under implementation system to obtain data on fixed assets for the fully implemented projects. The system is also integrated with the accounts payable system to retrieve the cost of the asset, and with Inventory Control System as well for the cost of assets that have already been received at the stores.

The system is also integrated with the Document Management System in order to save the annual reports as well as to retrieve documents for the purchase and receipt of assets.

The system can also be integrated with asset management systems and maintenance management system to unify a database of fixed assets.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Fixed Assets System	✓	✓					
	General Specifications							
	The possibility of keeping all the detailed data for all fixed assets in each of the HCWW and its Subsidiaries.	✓	✓			M	M	M
	The possibility of keeping all the detailed data for each additions on fixed assets.	✓	✓			M	M	M
	The possibility of keeping all the detailed data for each exclusion of fixed assets.	✓	✓			M	M	M
	The possibility of classification of fixed assets to the groups of major investment groups and investment sub-groups, according to the unified accounting system, so that each of the major investment corresponds to general ledger account, and investment sub-professor corresponds to a general ledger sub-account.	✓	✓			M	M	M
	The possibility of determining the proportion of the annual depreciation of fixed assets at the level of each sub-investment group.	✓	✓			M	M	M
	Possibility of amending the percentage of operation at the level of each asset (if this method is followed in the company)	✓	✓			D	D	D
	The possibility of calculating the depreciation of fixed assets every month / three months / years according to the user's choice.	✓	✓			M	M	M
	The system integrates with the general ledger system and the cost accounting system.	✓	✓			M	D	-
	The system integrates with Inventory Control System and accounts payable system.	✓	✓			M	D	-
	The system integrates with the asset management system, and the operation and maintenance system.	✓	✓			M	D	-
	The system integrates with Document Management System	✓	✓			M	D	-
	the system integrates with the projects under implementation system, to retrieve the projects which were completely implemented to the system fixed assets	✓	✓			M	D	-
	Possible functions the system:							
	Definition of major investment groups and investment sub-groups data, in addition to the definition of corresponding general ledger accounts numbers, according to the unified accounting system. This includes at least the following data: Investment Group number. <ul style="list-style-type: none"> • Asset general ledger account number • Accumulated depreciation general ledger account number, • Depreciation expenses account number 	✓	✓			M	M	M
	The recording of the basic data of fixed assets for each asset is the company, including the following data at least: Fixed asset number which consists of: <ul style="list-style-type: none"> • Major investment group number. 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Investment sub-group number. The fixed asset serial. Description of the asset. cost center / department in which the asset is located Date of commissioning The number of units The unit cost. Percentage of operating the asset. Reminder value of the asset (for assets fully depreciated and are still in service) The total depreciation that has been made on the asset which represents the accumulated depreciation recorded in the books before conversion to an automated system for fixed assets. 							
	<p>Recording the basic data of the additions made to fixed assets, and include the following data at least:</p> <ul style="list-style-type: none"> Fixed Asset Number Number of addition Commissioning Date the number of units unit cost the total depreciation that has been made on the addition which represents the accumulated depreciation recorded in the books before conversion to an automated system for fixed assets 	✓	✓			M	M	M
	<p>Recording of the basic data for the fixed assets exclusions which includes the following data at least:</p> <ul style="list-style-type: none"> Fixed Asset Number Exclusion number and description. Date of exclusion from the service. Number of units. Unit cost of exclusion. The total depreciation that has been on the exclusion, which represents the accumulated depreciation recorded in the books hand before conversion to an automated system for fixed assets. 	✓	✓			M	M	M
	the possibility of preparing journal entries for depreciation of fixed assets at the level of each fixed asset monthly, every three months, or yearly based on demand.	✓	✓			M	M	M
	<p>Issue a report of the entries of fixed assets depreciation for review before confirmation, and include at least the following data:</p> <ul style="list-style-type: none"> The depreciation entry period Cost center number. 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Investment Group and investment sub-group number The asset number and description. The total cost of the asset, the total cost of the additions on the asset, and the total cost of exclusions from the asset. The depreciation of the asset, additions, and exclusions Accumulated depreciation. 							
	Possibility of posting the depreciation of fixed assets, to update the accumulated depreciation, for each fixed asset, and asset additions.	✓	✓			M	M	M
	<p>Issue a statement of the monthly distribution of fixed assets, on an the level of investment groups and sub-group, and detailed to the level of each fixed asset, so as to reconcile the fixed asset balances with general ledger accounts. It includes data on at least the following:</p> <ul style="list-style-type: none"> The month Investment sub-group. The fixed asset number, and description. The balance the beginning of period, which is the total cost of the asset at the beginning of the fiscal year. The total cost of the additions, and is equal to the total value of the additions made to the asset from the beginning of the fiscal year until the end of the month , or the total cost of the new asset acquired from the beginning of the current fiscal year until the month. The total cost of the exclusions, and equal to the total value of exclusions that are made to the asset from the beginning of the fiscal year until the end of the month. The current cost of the asset, which is equal to: [(Opening balance) plus (total cost of additions)] less (the total cost of exclusions). 	✓	✓			M	M	M
	<p>Issue a statement of the monthly distribution of fixed assets, at the level of investment groups and detailed on the level of the investment sub-groups. It includes data on at least the following:</p> <ul style="list-style-type: none"> Month Major investment group. Investment Sub-group The balance at the beginning of period, which is equal to the total cost of the investment sub-group at the beginning of the fiscal year. The total cost of the additions, which is equal to the total value of the additions made to the investment sub-group from the beginning of fiscal year until the end of the month. The total cost of the exclusions, which is equal to the total value of exclusions that are made to the investment sub- 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	group from the beginning of fiscal year until the end of the month. <ul style="list-style-type: none"> The current cost, which is equal to [(Opening balance) plus (total cost of additions)] less (the total cost of exclusions). 							
	Issue a statement of the distribution of monthly accumulated depreciation of fixed assets, at the level of investment groups, sub-subgroup, and each fixed asset, so as to reconcile the data of the depreciation of fixed assets with general ledger account balances. It includes data on at least the following: <ul style="list-style-type: none"> Month Sub-investment group. The asset number or the number of addition or the number of exclusion / description. Accumulated depreciation of fixed assets (previous month). Depreciation installment of fixed assets. Accumulated depreciation of fixed assets (this month). 	✓	✓			M	M	M
	Issue a monthly statement of the distribution of installments of depreciation at the level of investment groups and sub-group.	✓	✓			M	M	M
	Issue a monthly statement of the distribution of depreciation installments at the level of cost centers.	✓	✓			M	M	M
	Issue a monthly statement of fixed assets that were fully depreciated.	✓	✓			M	M	M
	Issue asset card which includes all the basic data of the asset, as well as data the additions to the asset, and also exclusions that are made on the asset, in addition to all the depreciation installments.	✓	✓			M	M	M
	Perform the end of the year process at the level of each asset in order to: <ul style="list-style-type: none"> Update the value of cost of the asset in the new fiscal year. Update the value of the accumulated depreciation in the new fiscal year. 	✓	✓			M	M	M
	Inquiry Functions:							
	Ability to inquire about fixed assets depreciation entries by asset number.	✓	✓			M	M	M
	Ability to inquire about the monthly depreciation by cost center or general ledger number.	✓	✓			M	M	M
	Integration Requirements.							
	The system integrates with the general ledger system, in order to post fixed assets depreciation journal entries. The following entry will be prepared on the level of each investment sub-group as follows: The value of the depreciation installment for the period specified: DR A/C: depreciation expenses CR A/C: Accumulated depreciation	✓	✓			M	D	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The system integrates with the cost accounting system, in order to post entries of depreciation of fixed assets to the cost accounting journal. Each cost center will be loaded with the total cost of depreciation, at the level of each account from the accounts of expenses and depreciation, which corresponds to an item of costs as defined in the cost accounting system.	✓	✓			M	D	-
	The system integrates with a projects under implementation system to retrieve the fully implemented project data.	✓	✓			M	D	-
	The system integrates with the asset management system to retrieve assets data.	✓	✓			M	D	-
	The system integrates with maintenance and operation system to provide it with asset data.	✓	✓			M	D	-
	The system integrates with maintenance management system for data of fixed assets.	✓	✓			M	D	-
	The system integrates with Document Management System in order to save the annual reports, and also to get pictures of documents of purchase of fixed assets.	✓	✓			M	D	-
	The system integrates with the accounts payable system and Inventory Control System to retrieve the value of fixed asset	✓	✓			M	D	-

Inventory Control System

Introduction

The automated inventory control system aims to:

- Track the items in stores (geographic and specific stores).
- Analysis of turnover rates and to identify items minimum limit and reorder limit to determine the future needs.
- Knowledge of stock in stores to prevent ordering items that are already in the company's stores.
- Easy to allocate stock issues on the cost centers and work orders.
- Easy to calculate moving average cost at the level of the company and re-pricing of the expense in the case of price adjustment.

The Automated Inventory Control System provides the possibility of automating the work and functions of the warehouse management and follow up the assets of the stores, inventory control and the movement of items in stores and warehouses, as well as follow-up of individuals custodies and provide data that help to keep inventory within the safety limits. In addition, the possibility of dealing with the functions of warehouses on the basis of having multiple stores, some of them a main stores and the others are sub-stores. Also, the possibility of dealing with the functions of warehouse stores in the main and sub-stores, and at the central level. Also, the possibility of an electronic connection between all levels.

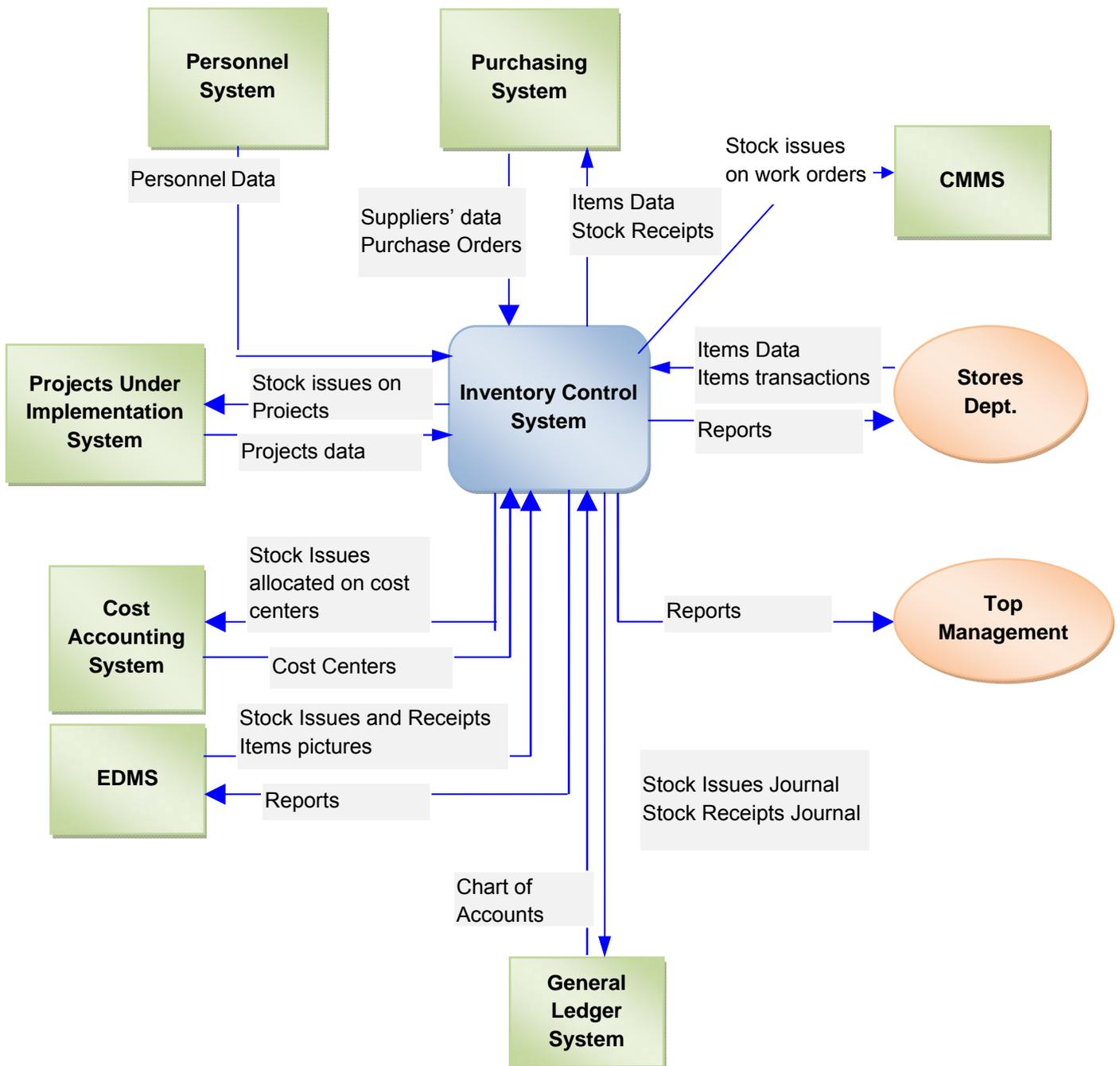
The system is integrated with CMMS (Computerized maintenance management system) by providing data on items issued for work orders and avails date on items in stores.

The system is integrated with Document Management System to save the images stock issues and stock receipts, as well as pictures of the items which makes it easy to recognize.

The system is integrated with the procurement system to obtain data about suppliers and provide the data required to follow-up the purchase orders (requested items) and what was supplied. The system is integrated with the projects under implementation system, where to provide items issued for the projects. The system also integrates with general ledger system, where the system provides accounting entries. In addition, the system integrates with the cost accounting system, where the system provides stock issues allocated to cost centers. Finally, the system integrates with the personnel system to obtain employees data for items under custody.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Inventory Control	✓	✓	✓	✓			
	General Specifications							
	The possibility of dealing with the functions of stores and warehouses on the basis of having multiple stores, some main and some are sub-stores. Also, the possibility of dealing with the functions at the central, main stores and sub-stores levels.	✓	✓	✓	✓	M	M	M
	The possibility of keeping items data and to follow-up their balances and movement.	✓	✓	✓	✓	M	M	M
	The possibility of follow-up custodies of individuals but are not considered from the actual stock.	✓	✓	✓	✓	M	M	-
	The possibility of follow-up expiration date of the items that have such date.	✓	✓	✓	✓	M	D	-
	Possibility of re-calculate the average price through a function when there is a change in the price.	✓	✓			M	M	M
	Average price is calculated on the basis of the moving average at the central level or at the store level (as selected by the user).	✓	✓			M	M	M
	All document numbers of the transactions must be unique in the store and the type of transaction.	✓	✓	✓	✓	M	M	M
	Possibility of issuing reports for a number of choices and ranges of data items, as selected by the user.	✓	✓	✓	✓	M	M	M
	Must provide all reports to the user the possibility to determine the status or several status of product for the reporting period.	✓	✓	✓	✓	M	D	-
	Possibility of issuing warning messages when the stock reaches the minimum level or the expiry date.	✓	✓	✓	✓	M	M	D
	Possibility of defining the beginning of the fiscal year used.	✓	✓			M	M	M
	Possibility of providing a security system to allow users to deal with some tasks and not others, and some of the data and not the other.	✓	✓	✓	✓	M	M	D
	The possibility of tracking alternative items	✓	✓	✓	✓	M	M	D
	The possibility that the posting process is done on time of data entry or through an off-line process.	✓	✓	✓	✓	M	M	D
	Possible functions the system:							
	At the central level							
	Recording suppliers data, which is a task in the purchasing system, but it is placed here if the Inventory Control System is operated independently. This data is entered at the central level and are provided with main and sub stores, and include at least the following data: <ul style="list-style-type: none"> • Supplier number, Supplier name • AKA name, Trade name • Name of Director or Officer in Charge • Legal address (the place chosen) 	✓	✓			M	M	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • Phone Number, Fax Number • Types of activity • ID Card No. • Tax card data, and contains: • Tax Card No. • Tax File Number • Tax office • Governorate • Expiration date of the tax card • Registration number with Sales Tax Department • Commercial Register number • Industrial register number • Importers Register number • Commercial agents registration number • Registration number of any other record which is required by law. • Other data required by the administrative authority of the activity. • Classification of the supplier. 							
	<p>Recording of stores data, these are entered at the central level and are provided to the main and sub stores, and include at least the following data:</p> <ul style="list-style-type: none"> • Store number and name • Store keeper name • Classification of the store (main or sub) • Remarks 	✓	✓			M	M	M
	<p>Recording personnel data, which is a task in the personnel system, but it is placed here if you operate the Inventory Control System independently. This data is entered at the central level and are provided to main and sub stores, and data include at least:</p> <ul style="list-style-type: none"> • Employee number • Employee name of the worker • Work location 	✓	✓			M	M	-
	<p>Recording of general item data, and is incorporated in the central level and are provided to the main and sub stores, and include at least the following data:</p> <ul style="list-style-type: none"> • Item Number and name. • Supplier's Item Number (the possibility of multiple entries). • Supplier (can be multiple entries). • Classification category (such as raw materials or packaging materials, etc). • Subcategories (such as primary and secondary raw materials or packaging materials, and consumer durable, 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	etc). <ul style="list-style-type: none"> Classification of the main store category Classification of the main store sub-category The unit of measurement. Manufacturer part number Manufacturer's name and country of manufacture. Equipment using the item (can be multiple entries). The kit. Remarks Classification according to the account number to be used when linking with the General ledger system. The status of product (such as New / Used / irreparable / scrap). Duration for custody expiry. Item alternative varieties (can be multiple items)) 							
	Data entry of other data about the items at the central level, and are provided to main and sub stores, and include at least the following data: <ul style="list-style-type: none"> Delivery period Date of first issue Date of last issue Date of first receipt Date of last receipt Unit Price Last purchase price Annual consumption for three years Average annual consumption Minimum level Reorder level Maximum level 	✓	✓			M	M	D
	Follow-up balances of items in each store separately and at the central level, the data include at least the following: <ul style="list-style-type: none"> Opening balance Current Balance 	✓	✓	✓	✓	M	M	M
	Re-calculate the average price at the central level in an independent function in the case of the price change. The process is performed at the central level and provided to the stores and sub stores. The calculation is in a moving average method.	✓	✓			M	M	M
	Issuing various reports such as:							
	Items balances in quantity and value at the central level and at the level of main and sub stores.	✓	✓	✓	✓	M	M	M
	Items Balances in quantity and value in all stores.	✓	✓	✓	✓	M	M	M
	A list of items basic data.	✓	✓	✓	✓	M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Assay list for commodity supplies for a certain year and contains at least the following data: <ul style="list-style-type: none"> Item Number and name Unit The year beginning balance A free cell for the approved amount Quantity disbursed during the previous years, each year in a cell Average disbursed amounts during the specified years Free cell for the required quantity for this year specified in the report Free cell for the estimated price Free cell for the estimated total price Notes 	✓	✓			M	M	-
	Possibility of issuing reports at the level of main and sub stores.	✓	✓	✓	✓	M	M	M
	At the level of the main and sub-stores							
	Follow-up items data in each store separately for at least the following: <ul style="list-style-type: none"> Opening balance The current balance (calculated) Item record number Item page Storage location (Bin number) Date of last issue Date of first receipt Date of last receipt 	✓	✓	✓	✓	M	M	M
	Recording the items transactions in the form of: stock issues, stock receipts, returns, or adjustments for each type of transactions for correction purpose. Each type of transaction contains on at least the following:	✓	✓	✓	✓	M	M	M
	Stock Receipts: <ul style="list-style-type: none"> Store Number Receipts number and date Supplier number or the number of the main store Invoice number and date Purchase order number Date of inspection report Operation number Lines of the document contains: <ul style="list-style-type: none"> Item Number Quantity supplied or added and the unit price 	✓	✓	✓	✓	M	M	M
	Stock Issues: <ul style="list-style-type: none"> Store number 	✓	✓	✓	✓	M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Issue number and date Requesting Store or entity (cost center) or the number of employee (in the case of custody). The date of application. Project number, operation number, and/or work order number. Lines of the document contains: <ul style="list-style-type: none"> Item Number. Amount disbursed. Price per Unit (calculated by the system according to the system of moving average). Cost center number 							
	<p>Internal Return:</p> <ul style="list-style-type: none"> Store Number Document number. and date Date of issue Employee number Lines of the document contains: <ul style="list-style-type: none"> Item Number Returned Quantity The status of returned item (new, used, scrap) Price per Unit (calculated by the system according to the system of moving average, in the case that the status of the product was "new"). 	✓	✓	✓	✓	M	M	M
	<p>Stock Returns:</p> <ul style="list-style-type: none"> Store Number Document Number and date Date of issue The cost center Project number, operation number, or work order number Number of receiving store (in case of external return) Employee number (in case of internal return) Lines of the document contains: <ul style="list-style-type: none"> Item Number Quantity returned Price per Unit (calculated by the system according to the system of moving average, in the case that the status of the product was "new"). Cost center number. 	✓	✓	✓	✓	M	M	M
	<p>Transfer from store to store</p> <ul style="list-style-type: none"> The store transferred from Transfer date The store transferred to 	✓	✓	✓	✓	M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Lines of the document contains: Item Number Amount transferred Unit Price 							
	Amendment to receipts (allows the entry of quantity with no value or quantity with no value): <ul style="list-style-type: none"> Store Number Document number and date Original document number Notes Lines of the document contains: Item Number Quantity added Value added 	✓	✓	✓	✓	M	M	M
	Amendment of issues (allows the entry of quantity with no value or quantity with no value): <ul style="list-style-type: none"> Store Number Document number and date Original document number Notes Lines of the document contains: Item Number Quantity disbursed Value disbursed 	✓	✓	✓	✓	M	M	M
	Maintain data of the items in custody of the individual which include a at least the following: <ul style="list-style-type: none"> Employee number Item Number Quantity Date of receipt 	✓	✓	✓	✓	M	M	-
	Issue a report for the accounting entries for the stock receipts as applied in the unified accounting system.	✓	✓			M	M	D
	Preparation of accounting entries for stock receipts as applied in the unified accounting system to be posted to the general ledger system.	✓	✓			M	D	-
	Issuing daily reports such as:							
	Printing of the daily transactions for all types of movement, according to the store, or the type of movement, or date.	✓	✓	✓	✓	M	M	M
	Issuance of monthly reports or on demand or on fixed-term, such as:							
	Report the current balance in quantity and value	✓	✓	✓	✓	M	M	M
	Report on items that reached the minimum level	✓	✓	✓	✓	M	M	M
	Report on items that reached the reorder limit	✓	✓	✓	✓	M	M	M
	Report items that reached the maximum limit	✓	✓	✓	✓	M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Report items that end validity date before the date specified by the user	✓	✓	✓	✓	M	D	-
	Report on stagnant items	✓	✓	✓	✓	M	M	D
	List of the custody items to be checked with the custody book of the store keeper	✓	✓	✓	✓	M	M	M
	Similar list of custody items with of the unit price and value.	✓	✓	✓	✓	M	M	M
	Report of total permanent custody	✓	✓	✓	✓	M	M	M
	Summary Report of the supplies transactions during a certain period	✓	✓	✓	✓	M	M	M
	The custody list	✓	✓	✓	✓	M	M	M
	Inventory report of items (the items that have a balance)	✓	✓	✓	✓	M	M	M
	Report of the date of the transactions of a certain item in the range of dates, at the level of all stores as a whole, or at the level of each store separately.	✓	✓	✓	✓	M	M	M
	Report stagnant items, the items that	✓	✓	✓	✓	M	M	D
	Report of the rate of consumption which is used to identify and determine the stagnant items and reorder limits.	✓	✓	✓	✓	M	M	D
	Report of the equipment and the country of manufacture	✓	✓	✓	✓	M	M	D
	Inquiry Functions:							
	To inquire about items composing a kit, and that by entering the name of the kit, items will be displayed with the same kit and their balances in the store.	✓	✓	✓	✓	M	M	D
	To inquire about item balances in all stores.	✓	✓	✓	✓	M	M	M
	To inquire on the balances of items in the store.	✓	✓	✓	✓	M	M	M
	To inquire on the balances of items involved in the part of the item, in a particular store or in all stores.	✓	✓	✓	✓	M	M	M
	To inquire about items involved in the part of the name or brand, in a particular store or in all stores.	✓	✓	✓	✓	M	M	M
	Integration Requirements							
	The system is integrated with the procurement system to obtain data about suppliers and purchase orders and provide the data required to follow-up what was supplied.	✓	✓			M	D	-
	The system is integrated with the projects under implementation system with respect what was disbursed from the stores on projects implementation.	✓	✓			M	D	-
	The system is integrated with the general ledger system, for preparing stores accounting entries for stock issues and stock receipts	✓	✓			M	D	-
	The system is integrated with the cost accounting system, where the automated system for stores to provide data on stock issues allocated to cost centers.	✓	✓			M	D	-
	The system is integrated with the personnel system for the employee numbers and data to be used in recording items under employees' custody.	✓	✓			M	D	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The system is integrated with maintenance management system by providing data on stock issues for work orders and items in stores.	✓	✓			M	D	-
	The system is integrated with Document Management System to store the stock issues and receipts documents. You can also use Document Management System for storing pictures of the items at different angles for easy identification	✓	✓			M	D	-

Purchasing System

Introduction

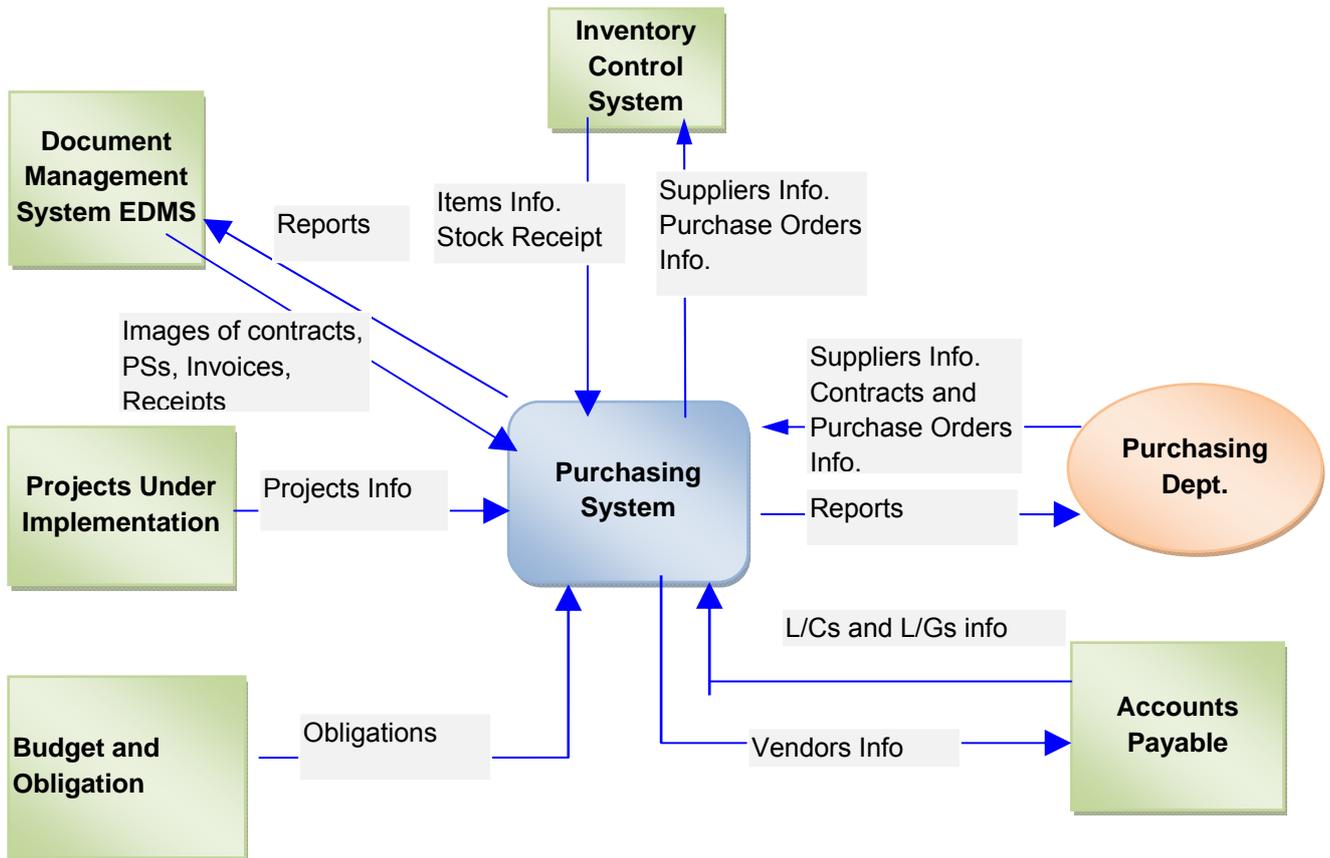
The automated purchasing system aims to facilitate the procurement process and follow-up contracts and supplies that are related to those contracts.

The system integrates with the accounts payable system, Inventory Control System, and the budget system, Budget and obligations system, and the projects under implementation system.

The system integrates with Document Management System (electronic archive) to save the images of contracts and purchase orders, invoices, bills, receipt of goods.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Purchasing	✓	✓					
	General Specifications							
	Ability to deal with different types of contracts, such as: projects, delivery, and services.					M	M	
	Ability to follow up the final letter of guarantees related to the contracts.	✓	✓			M	M	
	Ability to deal with both local and foreign procurements.	✓	✓			M	M	
	Basic Functions	✓	✓					
	<p>The possibility of recording the basic data of suppliers which include at least:</p> <ul style="list-style-type: none"> • Supplier ID • The name of the owner • AKA name • Trade name • Name of Director or Officer in Charge • Legal address (the place chosen) • Phone Number, Fax Number • Types of activity • National ID card (in the case of individuals and sole proprietorships) • Tax card data, which contains: <ul style="list-style-type: none"> ○ Card Number, File Number ○ Tax office, Governorate ○ Expiration date of the tax card • Registration number with Sales Tax Department • Commercial register number • Industrial register number • Registration number in the Importers Register • Registration number in the commercial agents register • Registration Number and enrollment data in the Egyptian Federation for Construction and Building Contractors • Contractor's Classification in the Egyptian Federation for Construction and Buildings contractor • Specialty. • Category. • Card expiration date of the building and construction federation. • Registration number in any other registers which is required by law. • Names of banks that the contractor deals with. • Data on the technical and financial competence. 	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Other data required by the nature of the administrative authority. <p>Additional data includes at least:</p> <ul style="list-style-type: none"> Previous deals observations. Register (1) or Register (2) or both, or Register (3) prohibited from dealing or is not registered. Data of suppliers barred from doing business (in addition to the normal supplier data): The issuer of the decision to ban / allow the supplier. The date of the decision to ban / allow the supplier. Decree number of the decision to ban / allow the supplier. Number of the Circular issued by the General Authority for Government Services published the ban / remove the ban. The reasons for debarment. 							
	<p>The classification of the supplier, should include the following data:</p> <ul style="list-style-type: none"> Supplier ID Classification of the supplier, where suppliers are divided as follows: Local / foreign Suppliers of services or goods / assets purchase creditors Public sector / private sector 	✓	✓			M	M	
	<p>Issue the following registers and information:</p> <ul style="list-style-type: none"> The complete data for suppliers / contractors registered in the Register No. 1 purchases. The complete data for suppliers / contractors registered in the Register No.2 purchases. The complete data for suppliers / contractors registered in the Register No. 3 (debarred suppliers). The complete data for suppliers / contractors who not registered in the registers. The complete data for suppliers / contractors in general clarify the status of their enrollment in different registers. Printing suppliers / contractors registered in a certain type of activity. 	✓	✓			M	M	M
	Ability to record the supplier under different types of activities..	✓	✓			M	M	M
	<p>Ability to record the basic data for the tenders. It contains the following:</p> <ul style="list-style-type: none"> Method of tender. Tender number. Tender year 	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> The type of operation (supplies / projects Etc.). Name of the tender. Classification (local / external). Date of approval Date of announcement of the tender or invitation of the bidders. Value of the primary guarantee. The date fixed for the opening in the technical offers (day and hour). 							
	<p>Recording of contracts data. This function is used to save the terms of the different contracts, and include the following data at least:</p> <ul style="list-style-type: none"> Contract Number Reference to the contract text document Type of contract (maintenance / projects / supplies / services) Supplier ID Tender number, Tender year The type of tender Tender method Reference e to obligation number Value of the contract Date of the contract Reference to the project number (in case of contracts for projects) Sanctions in case of delay in supply Delivery schedule Expenses related to contract Terms of the contract The type of final guarantee 	✓	✓			M	M	
	<p>Data Entry of the purchase order which contains, at least, the following data:</p> <ul style="list-style-type: none"> Purchase order number (serial number) Tender number, Tender year The type of Tender Issuance Method Date of the hearing session Contractor / Supplier ID Obligation number Date of the obligation Date of approval Description of commodities / services Date of purchase order 	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • Terms of supply • Delivery period • Payment terms • Receiving terms • Delivery terms • Delivery Address • The type of final guarantee (cash / letter of guarantee / check / goods) • Guarantee value • The requesting party Specifications of each item needed: <ul style="list-style-type: none"> • Serial, • Item, Unit, Quantity, Unit Price, Total price 							
	Follow up contract amendments	✓	✓			M	M	
	The possibility of registering the completion of the purchase order, and contains the following data: <ul style="list-style-type: none"> • Purchase order number • Completion date • Completion Status: • Supply has been completed • Purchase on account of supplier • Confiscation of a letter of guarantee 	✓	✓			M	M	
	Follow-up data and the final letters of guarantee. This task is used in the registration of the data of the final letters of guarantee issued by in favor of the company to ensure the delivery of the goods from the supplier or to ensure the completion of the agreed services contract, and include the following data: <ul style="list-style-type: none"> • Letter of guarantee number • The bank issuing letter of guarantee • Supplier ID • Contract number • Tender method • Tender number • Tender year • The type of operation • The value of the letter of guarantee • The proportion of the letter of guarantee to the contract value • Expiration date of the letter of guarantee 	✓	✓			M	M	
	Extend or liquidate letter of guarantee.					M	M	
	Follow-up the expiry date of the letters of guarantee. Agendas are issued to the company to take decision about extending					M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	or liquidating the letter of guarantee.							
	Obtain data from accounts payable system of documentary credits and can be entered into the task in this system in the case of independent operation, these include the following data: <ul style="list-style-type: none"> • Letter of Credit number • Issuing Bank • Contract number • The value of credit and currency • Expiration date 	✓	✓			M	M	
	Register the sanctions placed on suppliers due to delay in delivery or their causes.	✓	✓			M	M	
	Print various reports on demand, such as: <ul style="list-style-type: none"> • Report includes the existing purchase orders • List of contracts that were opened during a certain period • The status of existing contracts • List of amendments made to the contracts • Supply a list of orders that will end within a certain period • Supply a list of orders, which ended during a certain period • List of documentary credits issued during a certain period • List of outstanding documentary credits • List of documentary credits ended during a certain period and were not used in full • Statement of sanctions against a particular supplier • List of suppliers delayed in delivery • The list of final letters of guarantee ending within a certain period • List of outstanding final letters of guarantee • List of letters of guarantee final confiscated 	✓	✓			M	M	
	Follow up purchase orders	✓	✓			M	M	
	Integration Requirements							
	Ability to integrate with the Inventory Control System to retrieve the items data and stock receipts data.	✓	✓			M	D	
	Ability to integrate with the Projects System to retrieve the project data.	✓	✓			M	D	
	Ability to integrate with the Budget and Obligation System to retrieve obligations data.	✓	✓			M		-
	Ability to integrate with the Accounts System to retrieve payments data and provide suppliers data	✓	✓			M	D	
	Ability to integrate with the Electronic Document Management System to retrieve contracting documents, suppliers checks, suppliers documents, etc.	✓	✓			M	D	

Accounts Payable System:

Introduction

Accounts payable system is aims to:

- Follow-up dues to third parties for the commodities and service providers, contractors, and other government agencies such as the Taxes Authority and Social Insurance Organization
- calculation of the aging of credit balances
- Follow-up of cash flows based on the due dates of future invoices
- Follow-up of final and advance payments letters of guarantees, and follow-up extending the expiry date before the end of their maturity date

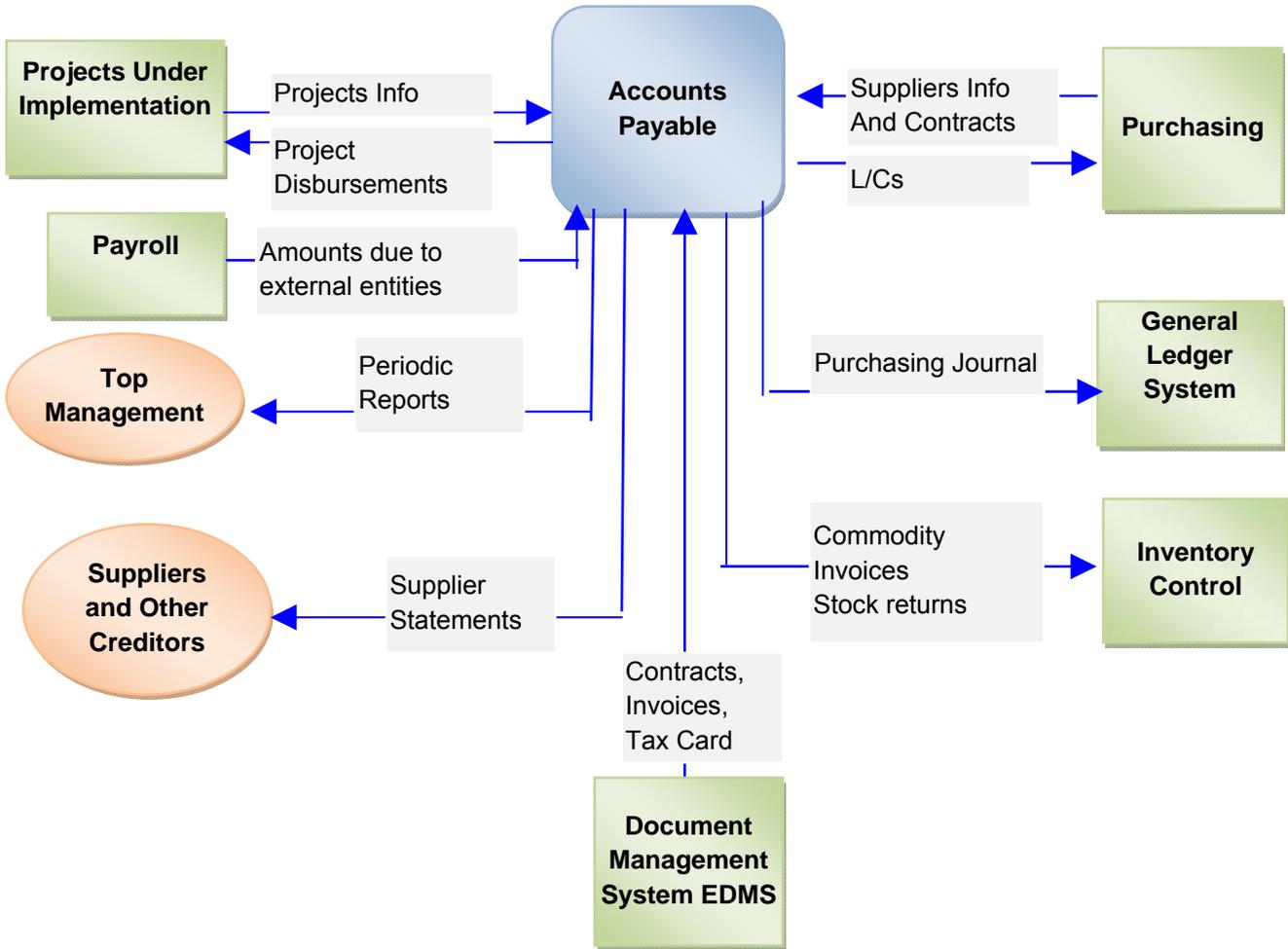
The automated accounts payable system provides the ability to work using the accrual principle, in the sense that recording expenditures or expenses due to the supplier when the invoice or other claim document is due, a separate transaction will be recorded for settlement of the liability. This will allow the system to follow up on commitments, and the aging of outstanding balances according to aging periods.

The system also provides the possibility of following-up of taxes withheld from suppliers and issuance of Taxes Form 41 "discount and collecting" required by the Tax Authority.

The automated accounts payable system is integrated with other systems such as the projects under implementation, procurement system, and the general ledger system.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	General Specifications							
	The possibility of following-up the accounts of local and foreign suppliers.	✓	✓			M	M	M
	The possibility of dealing with the accounts of suppliers of commodities and services accounts, or creditors of the purchase of the assets (suppliers of fixed assets and projects under implementation)	✓	✓			M	M	M
	The possibility of following-up more than one account for the same supplier such as: advance payments, purchase of assets account creditors, etc.	✓	✓			M	M	M
	The possibility of running different types of transactions of the accounts of suppliers, such as advance payments, invoices, payments, and debit and credit advices.	✓	✓			M	M	M
	The possibility of dealing with the accounts of suppliers using the accrual principle.	✓	✓			M	M	M
	Prevent the possibility of cancellation of suppliers accounts that have balances in place.	✓	✓			M	M	M
	The possibility of suspension of payment to the supplier or to a particular invoice as requested by the user.	✓	✓			M	M	M
	The possibility of automatically matching the invoice with the purchase order using purchase order identification number	✓	✓			M	M	M
	The possibility of the implementation of the tax deducted at source, fiscal stamps, progressive stamps, development tax, and the checks stamp	✓	✓			M	M	M
	The system Integrates with general ledger system, where the automated system for accounts payable provides the general ledger system with journal entries related to the daily operations of the accounts of suppliers and creditors of the asset purchase.	✓	✓			M	D	-
	The system Integrates with the procurement system, to get the suppliers data, and accounts payable system provides data of letters of credit to the procurement system.	✓	✓			M	M	-
	The system Integrates with the projects under implementation system to obtain data about the projects and provides it with the projects expenditures	✓	✓			M	D	-
	System functions:							
	Ability to access suppliers data through the procurement system, or incorporate it in this system in the case of independent operation, and include at least the following data: Supplier number and name Address of the supplier, the telephone, fax, and e-mail Tax Office, tax ID number, and tax file number Classification of the supplier	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Local / foreign Suppliers of services or commodities / assets purchase creditors Sector / Private Sector							
	The introduction of Suppliers account numbers , such as advance payments account, assets purchasing creditors account, and regular suppliers accounts.	✓	✓			M	M	M
	Keeps a summary record of the suppliers accounts containing totals year to date data for at least the following: Invoices received <ul style="list-style-type: none"> • Debit Advice • Credit Advice • Payments • Tax withheld at source • Stamps 	✓	✓			M	M	M
	Defining tax offices.	✓	✓			M	M	M
	Recording the final letters of guarantee and these data are as follows: <ul style="list-style-type: none"> • Letter of guarantee number • The bank issuing the letter of guarantee • Supplier number • Contract Number • The value and currency of the letter of guarantee • The proportion of the letter of guarantee value to the contract value • Expiration date of the letter of guarantee 	✓	✓			M	M	M
	Recording the letters of credit data as follows: <ul style="list-style-type: none"> • L/C number • Issuing Bank • Contract Number • The value of credit and currency • Expiration date 	✓	✓			M	M	M
	Follow-up advance payments related to the accounts of letters of credit.	✓	✓			M	M	M
	Record bank expenses related to Letters of Credit.	✓	✓			M	M	M
	Follow-up expiration dates of final letters of guarantee and take decisions regarding extending or cancelling the letter of guarantee.	✓	✓			M	M	M
	Follow-up expiration dates of letters of credit in order to take a decision to extend or cancel the credit.	✓	✓			M	M	M
	Recording the advance payments made to suppliers which contain at least the following data: <ul style="list-style-type: none"> • Letter of credit number 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • Payment date • The supplier's account number • Account number for the payment • Invoice number, or letter of credit number • Amount • Currency • Conversion rate • Equivalent in LE • Taxes withheld • Stamp 							
	<p>Recording the suppliers invoices which contain at least the following data:</p> <ul style="list-style-type: none"> • Invoice number • Invoice date • The supplier's account number • Amount • Currency • Conversion rate • Equivalent in LE • Taxes withheld • Stamp 	✓	✓			M	M	M
	<p>Recording the payments made to suppliers and contains at least the following data:</p> <ul style="list-style-type: none"> • Document number • Date • The supplier's account number • Account number of payments • Invoice number, number of letter of credit • Amount • Currency • Conversion rate • Equivalent in Egyptian Pounds • taxes withheld • Stamp 	✓	✓			M	M	M
	Recording debit and credit advices related to suppliers.					M	M	M
	<p>Issuing daily reports such as:</p> <ul style="list-style-type: none"> • Purchases journal by date. • Purchases journal by purchase order. • Purchases journal by G/L account number. • Daily cash payments journal by date showing the general ledger accounts that have transactions. 							
	<p>Issue various monthly or on demand reports, such as:</p> <ul style="list-style-type: none"> • Trial balance of suppliers • Balances due to suppliers in arrears 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Accounts Statements of suppliers Analysis of the size of dealing with the supplier showing the comparison with the previous year Existing outstanding invoices (unpaid) Statement of differences between the amounts approved for payment and amounts of checks issued Outstanding invoices during a certain period Aging supplier balances Payments by due dates 							
	Issuance of taxes withheld from the source every three months (Tax form No. 41) "withholding and collecting" containing details of tax deducted at source from the local private sector suppliers.	✓	✓			M	M	M
	Issuing report showing stamps deducted from suppliers per month.	✓	✓			M	M	M
	Posting of various journal entries to update account balances defined in the accounts payable system, as well as to update account balances for the sub-accounts of suppliers.	✓	✓			M	M	M
	The possibility of closing the end of the year so that the end of the year balance is posted automatically to the beginning balance of the following fiscal year on all the accounts of accounts payable	✓	✓			M	M	M
	Integration Requirements.							
	The system integrates with general ledger system, to post the following journals: <ul style="list-style-type: none"> Invoice accrual journal Invoices payment journal Suppliers advance payments journal 	✓	✓			M	M	-
	The system integrates with the projects under implementation system to obtain data for the projects and provides it with the projects expenditures	✓	✓			M	M	-
	The system integrates with the procurement system to obtain the data necessary to produce taxes form 41. The system also feeds the procurement system with the information of the letters of credit	✓	✓			M	M	-
	The system is integrated with the Document Management System in order to save the annual reports and review images of supplier contracts, invoices, and tax cards.	✓	✓			M	D	-
	The system is integrated with the payroll system in order to obtain amount due to external entities (syndicates, commercial shops, Tax Authority, Social Security, etc.).	✓	✓			M	D	-
	The system is integrated with the Inventory Control System in order to provide it with invoices for goods supplied to the stores	✓	✓			M	D	-

Accounts receivable

This system is used to follow-up customer accounts and accounts receivable other than subscribers in the billing system. It includes, for example: account for customers buying commodities, whether new or scrap, customers buying products made in the company's workshops, employee loans accounts, trust deficit accounts, etc..

This system aims to:

- Follow up accounts receivable owed to the Company (other than subscribers)
- Follow up on debit balances accumulated by aging dates (the purpose is calculating the reserve for doubtful debts)
- Follow-up future receivables owed to the Company by the date of maturity in order to calculate the expected cash liquidity.

The accounts departments keep registers of accounts receivable, and those records are classified as applied in the unified accounting system, and examples of those registers are:

- Customers register (Public sector / private sector)
- Miscellaneous debtors Registers
- Sundry debtors register

The accounts departments also keep a detailed register for each individual debtor account in order to follow up the account balance in addition to the daily movement that are on each account during the fiscal year.

Description of the automated accounts receivable system

Introduction

It is worth mentioning here, that there is a separate system for issuing consumers bills and contains a lot of detailed data.

The automated accounts receivable system aims to automate the work and functions of the accounts receivable so as to replace the manual labor work.

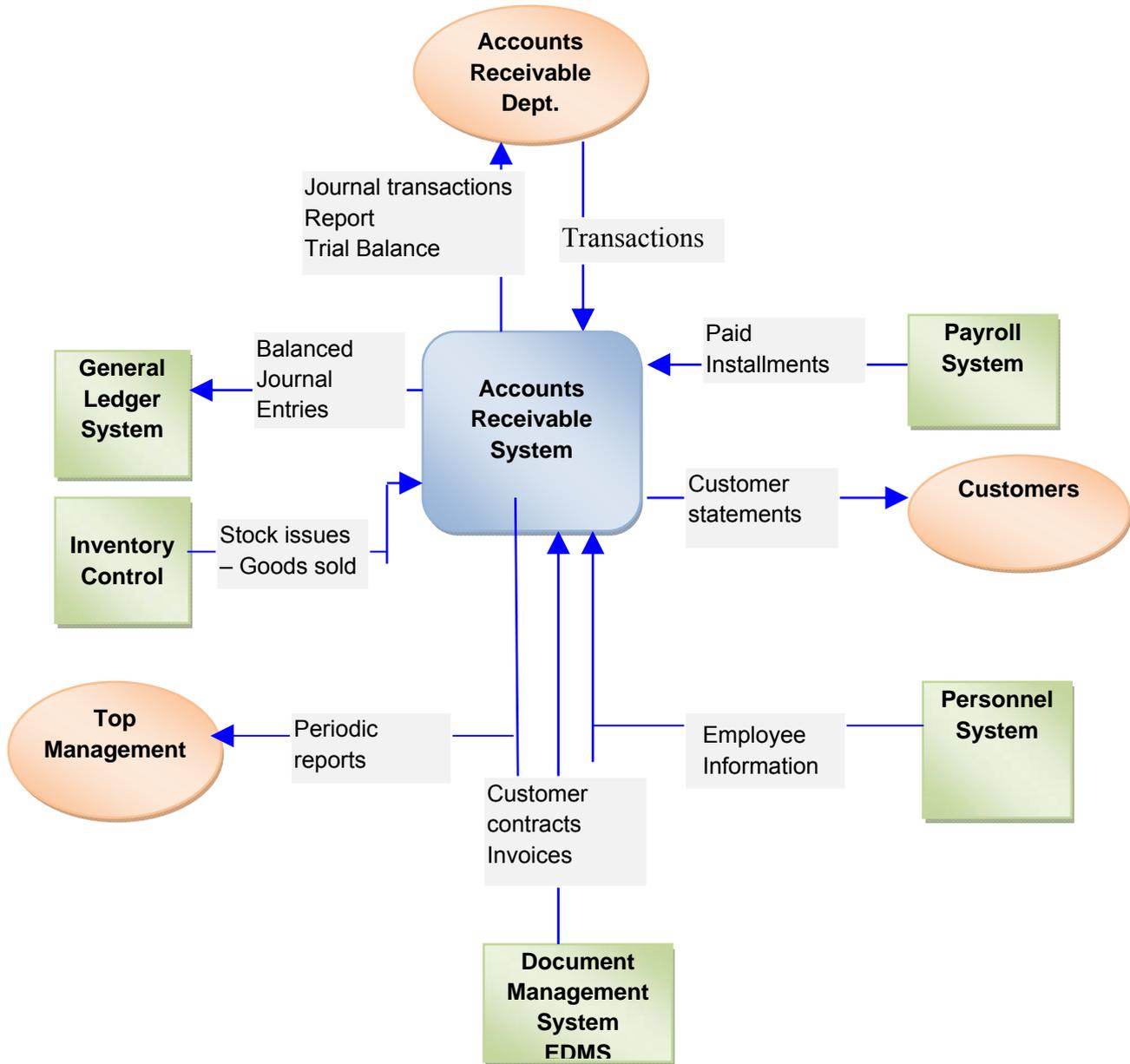
The automated system also provides the ability to record the transactions related to accounts receivable, in addition to the possibility of issuing daily and monthly reports on accounts receivable.

The system is integrated with other automated systems such as personnel system, so as to automatically obtain data on employees of the company. It also integrates with the automated payroll system, so as to obtain the amounts automatically deducted from the employees to pay the premiums trust deficit. It also integrates with the Automated general ledger System, which provides the possibility to post, accounting entries for the accounts receivable to the Automated general ledger System.

The System is also integrated with the Inventory Control System to obtain data on goods for sale for the issuance of sales invoices to customers. The System is also integrated with Document Management System to see the images of customer contracts, invoices, claims and purchase orders.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Accounts Receivable System	✓	✓					
	General Specifications							
	The possibility of following-up of public sector and private sector clients.		✓			M	M	
	The possibility of classification of clients by type of service provided (industrial wastewater, dredging, sales of goods, sales of scraps, etc.).		✓			M	M	
	The possibility of follow-up only one account for the sales operations or services which are paid in cash and in advance		✓			M	M	
	The possibility of keeping detailed accounts of employees debts related to trust deficit.	✓	✓			M	M	
	The possibility of following-up post remittances deposited as a bid bond.	✓	✓			M	M	
	The possibility of classification of customers according to the age of debt balance to facilitate the process of calculating provisions for doubtful debts and bad debts.		✓			M	M	
	The possibility of following-up due dates of installments owed by the customer.		✓			M	M	
	The possibility of running different types of transactions on the accounts receivable such as: advance payments, installments payment, debit and credit advices.	✓	✓			M	M	
	The possibility of integrating with the general ledger system, so that various entries can be posted directly to the general ledger system journals.	✓	✓			M	M	-
	The possibility of integrating with the personnel system to obtain data on the personnel of the company.	✓	✓			M	M	-
	The possibility integrating with the payroll system to obtain payments of trust deficit installments from the Automated Payroll System.	✓	✓			M	M	-
	Possible functions of the system:							
	Basic data entry for clients, and include at least the following data: <ul style="list-style-type: none"> • Customer Number • Customer Name • The customer's address, telephone, fax, and e-mail • Classification of the client (public sector / private sector / etc.) • Classification by type of customer service (industrial waste - Sweeping, connections, etc.) 		✓			M	M	M
	Basic data entry for the company employees is one of the functions of personnel system, but are placed here when the	✓	✓			-	-	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	system runs independently, and include at least the following data: <ul style="list-style-type: none"> Employee number Employee Name Number and the name of the work location 							
	The possibility of registration pricing of services, units, and categories		✓			M	M	
	The possibility of automatically calculating and producing the bills based on pricing of services, or in case of sale of goods data could be taken from the Inventory Control System		✓			M	M	
	The possibility of registration of the advance payments from customers, and include at least the following data: <ul style="list-style-type: none"> Customer Number Customer advance payment Account number, The amount of payment Date of payment A descriptive statement of advance payment Added fiscal stamps, and account numbers Added tax and the tax account number 		✓			M	M	
	The possibility of recording debit advice to the debts of customers, and include at least the following data: <ul style="list-style-type: none"> Customer Number Customer Account number Balance of the debt Date of debt A descriptive statement of debt Way of debt payments (per month / three months / six months / year) Date of the first payment of the installments The value of the installment 		✓			M	M	
	The possibility of data recording notices discount debt customers, and include at least the following data: <ul style="list-style-type: none"> Customer Number Customer Account number The amount paid The date of payment A descriptive statement of the payment 		✓			M	M	M
	The possibility of recording the deficit of the trust of company's personnel, and include at least the following data: <ul style="list-style-type: none"> Employee number. Employee account number The amount of the trust deficit Date of the trust deficit A descriptive statement of the trust deficit 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Decree Number. Decree Date Date of the first payment of the installment The value of the installment 							
	<p>The possibility of cancellation of employees trust deficit and include at least the following data:</p> <ul style="list-style-type: none"> Employee number. Employee account number A descriptive statement of the decree of cancellation Decree Number requested to be cancelled Requested cancellation date of the decree Cancellation decree number The date of the cancellation decree The trust deficit cancellation function to cancel the total value of the trust deficit. The accounting department refunds any amounts that have already been deducted from the employee based on the cancellation order. 	✓	✓			M	M	M
	<p>The possibility of recording debit advices for employees, the data include at least the following:</p> <ul style="list-style-type: none"> Employee number The amount paid The date of payment A descriptive statement of the payment 	✓	✓			M	M	M
	<p>The possibility of recording Post remittances, and include at least the following data:</p> <ul style="list-style-type: none"> Remittance number Post Office issuing the remittance Customer name Remittance amount 	✓	✓			M	M	M
	<p>The possibility of recording data about payment of post remittances. Data include at least the following:</p> <ul style="list-style-type: none"> Remittance number Post Office issuing the remittance Remittance amount 	✓	✓			M	M	M
	<p>The possibility of following-up the payment of Post remittances.</p>	✓	✓			M	M	M
	<p>The possibility of keeping a summary record of customer accounts containing totals year to date for the following data:</p> <ul style="list-style-type: none"> Advance Payments Debit Advice Credit Advice Paid Amounts 		✓			M	M	M
	<p>the possibility of keeping a summary of record of employees' debts, including year to date totals of the following:</p>	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Balance the deficit of trust Deficits added Amounts paid of the debt							
	Issue a report on the various journals, which include advance payments, payment, debit and credit advice, for review before approval and posting.	✓	✓			M	M	
	Posting of various journals to update account balances defined in the accounts receivable system,, as well as to update the Sub-account balances for customers accounts.	✓	✓			M	M	
	Issuing daily or monthly reports, such as: <ul style="list-style-type: none"> • Revenue accrual journal • Payment journal • Payment journal according to the type of service. • Payment of trust deficit journal. • Debit advice journal by date. • Debit advice journal by type of service. • Debit advice for trust deficit by employee number. 	✓	✓			M	M	
	Various reports are issued monthly or on demand, such as: <ul style="list-style-type: none"> • Clients trial balance. • Odd account balances (creditor account balance). • Arrears by client. • Arrears by the last date of payment. • Arrears by payment amount. • Arrears by the percentage of arrears compared to the balance. • Balances of the trust deficit and amounts paid by employee. • Customer Statement 	✓	✓			M	M	
	The possibility of implementing the year -end closing task of so that the end of the year balance is migrated automatically to the beginning balance of the following fiscal.	✓	✓			M	M	
	Inquiry Functions:							
	Ability to inquire on current balances and arrears, as well as the amounts paid by the customer.	✓	✓			M	M	
	Ability to inquire about the trust deficit balances and what has been paid, as well as the decision to abolish the value of the trust deficit.	✓	✓			M	M	
	Integration Requirements.							
	The system integrates with the general ledger system to post the following daily journal entries: Advances journal. Debts accrual journal. Payment of debts journal. Debit and Credit Advice journal (Adjusting entries).	✓	✓			M	M	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The system integrates the system the personnel system to obtain employees data.	✓	✓			M	M	-
	The system Integrates with the payroll system for obtaining the installments deducted from employees' salaries.	✓	✓			M	M	-
	The system is integrated with Document Management System in order to obtain images of contracts, invoices, claims and checks	✓	✓			M	D	-
	The system is integrated with Inventory Control System to obtain data on goods for sale, and the scrap sales for the issuance of sales invoices		✓			M	D	-

The budget and Obligations System

The Department of Budget prepares a draft current budget by projecting the operation revenues of the company and also projecting the operation expenses at the company level, as well as prepares the draft budget at the level of investment projects of the company. The budget department registers the estimated annual budget before the beginning of the fiscal year, it also registers all the budget amendments that are on the appropriations of budget items. On the other hand, the budget department keeps a record of the obligations on the current budget, in addition to another record for the obligations on the investment budget.

Description of the Automated System for budget and obligations

Introduction

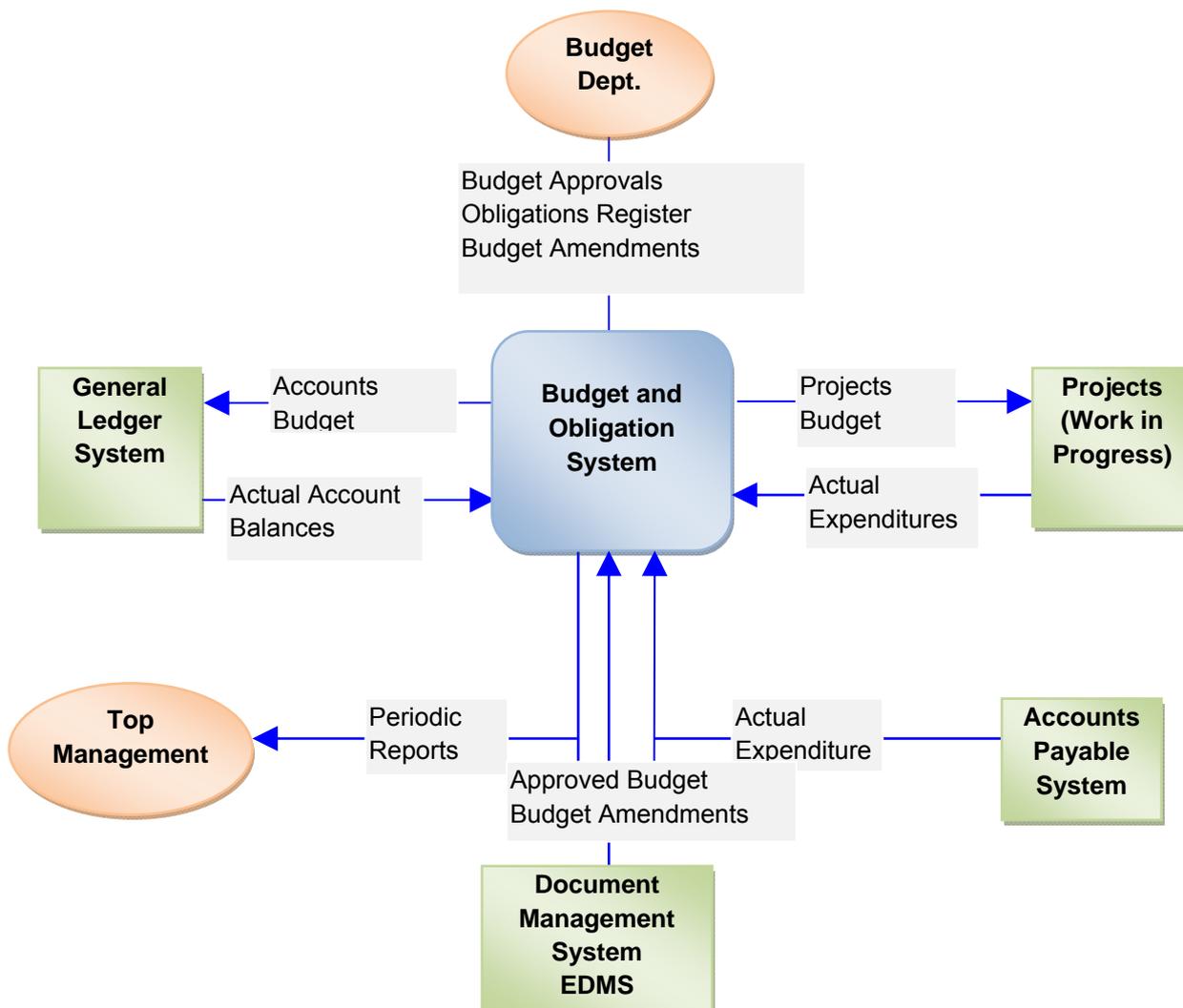
The system provides an automated procedures for recording data of the current and investment budgets at the level of each company. It also provides the possibility of recording any amendments to either increasing or decreasing the appropriations of budget items. The system provides the possibility of automatic registration of detailed data for obligations to the terms of current and investment budgets.

The system provides the possibility of issuing detailed and summary reports for the proposed and actual budget and the amendments made to the terms of the budget, and also obligations register.

The automated system of the budget and obligations integrates with other automated systems such as the projects under implementation, to feed the latter with the annual budget of the projects by funding sources as well as by investment compositions. The system also integrates with the General Ledger system, to issue a report comparing between the actual balances and the budget balances. The system also integrates with Document Management System in order to save the annual reports.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Budget and Obligations	✓	✓					
	General Specifications							
	The possibility of following-up of two types of budgets: the current and investment budget.	✓	✓			M	M	-
	The possibility of following-up figures and details of the approved budget and its amendments (increase / decrease / transfer of budget from one item to another)	✓	✓			M	M	-
	The possibility of following-up obligations related to the budget line items and bookkeeping of the obligations Register	✓	✓			M	M	-
	The possibility of following-up investment budget at the level of each of the Subsidiaries and HCWW, according to the source of funding and investment components of projects.	✓	✓			M	M	-
	Provide the data necessary to prepare the draft budget proposed for the following fiscal year.	✓	✓			M	M	-
	Integration with the accounts payable system for the suppliers of services or goods for the actual expenditures from the current budget.	✓	✓			M	M	-
	Integration with the projects under implementation system for retrieving actual projects expenditures on the investment budget line items.	✓	✓			M	M	-
	Integration with the projects under implementation system to retrieve the project data necessary to produce reports to monitor investment projects by detailed project.	✓	✓			M	M	-
	providing the general ledger system with the required data to produce the various financial reports.	✓	✓			M	M	-
	Main Functions - the current budget:							
	Data recording the approved detailed budgets: The budget figures are recorded in the same method of chart of account. The following are various budget levels: <ul style="list-style-type: none"> • Section number and name • Group number and name • Item number and name • Type number and name 	✓	✓			M	M	-
	Recording the values of the budget (balances) at the company, according to the same levels of budget mentioned in the preceding item.	✓	✓			M	M	-
	Recording budget amendment: Increase the approved budget of a specific item, which includes at least the following items: <ul style="list-style-type: none"> • Transaction date • Budget Item number to be increased (section / group / item / type) • Amount of the increase • Reason for the increase • approval number of the competent authority • Date of approval by the competent authority 	✓	✓			M	M	-
	Transfer the amount of the approved budget between budget line items: including the following items at least: <ul style="list-style-type: none"> • Transaction date • Item number required to transfer from (section / group / item 	✓	✓			M	M	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • / type) • Item number required to transfer to (section / group / item / type) • Amount • Reason for transfer 							
	<p>Record the obligations transactions, which include the following data at least at least:</p> <ul style="list-style-type: none"> • Obligation number • Date of the obligation • Section • Group • Item • Type • The requesting party for the obligation • Amount • Statement of the reason for the obligation 	✓	✓			M	M	M
	<p>Record the movement to change the amount of obligation (increase or decrease):</p> <ul style="list-style-type: none"> • Obligation number • Transaction date • Amount of increase / decrease • The reason for the increase / decrease 	✓	✓			M	M	-
	<p>Retrieve the actual expenditures from the current budget items from the accounts payable system</p>	✓	✓			M	M	-
	<p>Issuing the following reports at least:</p> <p>Balance sheet at the group level: This report shows the status of the monthly budget. This report covers the following at least:</p> <ul style="list-style-type: none"> • The budget Section • Budget Group • The original appropriation • Adjusted appropriation • Total obligations - Year to date • Total obligations during the month • Total actual expenditure - Year to date • Total actual expenditure this month • The remaining amount <p>The budget status at the level of line item: This report shows the status of the monthly budget. This report covers the following at least:</p> <ul style="list-style-type: none"> • The budget Section • The budget Group • Line Item • The original appropriation • Adjusted appropriation • Total obligations - Year to date • Total obligations during the month • Total actual expenditures - Year to date • Total actual expenditures - this month 	✓	✓			M	M	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> The remaining amount <p>Statement of the budget at the budget section level: This report shows the position of the monthly budget. This report is similar to the previous report, but at the budget section level.</p> <p>Statement of transfer between the budget items: This report gives a breakdown of movements that are made for the transfer of funds between budget items. This report covers the following at least:</p> <ul style="list-style-type: none"> Transfer date Item number transferred from (the section / group / item / type) Item number transfer to (the section / group / item / type) The amount transferred Cause of transfer <p>Statement of the changes of budget items: This report gives a breakdown of movements for new allocation of budget items. This report covers the following at least:</p> <ul style="list-style-type: none"> Budget item number Amount approved Date of increase Amount of the increase Reason for the increase New budget amount <p>Statement of the status of outstanding obligations: This report gives a list of obligations that have not been utilized in full. This report covers the following at least:</p> <ul style="list-style-type: none"> Budget item number Obligation number Obligation Date Obligation description Obligated Amount Amount utilized (spent) The remaining amount The requesting party 							
	Investment budget:							
	Record the utilization side of the investment budget: investment budget data include at least the following: <ul style="list-style-type: none"> Project number The investment component: investment main group and subgroup 	✓	✓			M	M	
	Record the resources side of the investment budget: investment budget data includes at least the following: <ul style="list-style-type: none"> Project number Type of funding: local / foreign exchange / facilities / loans / grants Source of Funding 	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Record the amendments that are on the budget in terms of increase or decrease: <ul style="list-style-type: none"> • Project number • Amendment date • The investment component of the project: (the main group and subgroup) • Amount of the increase / decrease • Reason for the amendment 	✓	✓			M	M	
	Record amendments that might occur on the sources of funding the investment budget in terms of increase or decrease: <ul style="list-style-type: none"> • Project number • Amendment date • Type of funding: local / foreign exchange / facilities / loans / grants • Source of Funding • Amount of the increase / decrease • Reason for the amendment 	✓	✓			M	M	
	Record obligations that are on budget allocations for projects. The obligation transactions contains the following data at least: <ul style="list-style-type: none"> • obligation number • obligation date • Project number • Type of funding • Source of Funding • Investment Group and sub-group • The requesting party for the obligation • Contract number • Amount • Description of the obligation • Execution location 	✓	✓			M	M	
	Record the increase / decrease in the obligation amount: <ul style="list-style-type: none"> • obligation number • Transaction date • Amount of the increase / decrease • Reason for the increase / decrease 	✓	✓			M	M	
	Retrieving the actual expenditures related to investment budget from system projects under implementation.	✓	✓			M	M	
	Issuing the following reports at least: Budget of projects by type of funding: This report contains the following at least: <ul style="list-style-type: none"> • Number and name of the project • Source of Funding • The approved budget for each funding source • the amendments to the budget (increase / decrease) • Adjusted appropriation Budget of projects according to the investment component: This report contains the following at least:					M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • Number and name of the project • The investment component • Location • Approved budget • Passed the amendments to the budget (increase / decrease) • Adjusted appropriation <p>The current status of the budget by type and source of funding: This report contains the following at least:</p> <ul style="list-style-type: none"> • Number and name of the project • Source of Funding • The approved budget for each funding source • Adjusted appropriation • Total obligations to date • Total obligations during the month • Total disbursed to date • Total disbursed during the month • The remaining amount <p>The current status of the budget according to the investment component: This report contains the following at least:</p> <ul style="list-style-type: none"> • Number and name of the project • The investment component • Approved budget • Adjusted appropriation • Total obligations to date • Total obligations during the month • Total disbursed to date • Total disbursed during the month • The remaining amount <p>The current position of the obligations: This report shows the obligations that have not yet been disbursed. This report contains the following at least:</p> <ul style="list-style-type: none"> • Number and name of the project • obligation number • Date of the obligation • Source of Funding • The investment component • Description of the obligation • Obligated amount • Total expenditure from the obligation • The remaining amount • The requesting party 							
	Inquiry Functions:							
	Ability to inquire about the obligations that have been made on any item of the current budget, as well as the actual expenditure of each budget item in order of budget item number or date.	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Ability to inquire on obligation of each project and actual expenditure for each obligation	✓	✓			M	M	M
	Integration Requirements.							
	the system Integrates with general ledger system, to retrieve the actual balances of the accounts. The system will also provide the general ledger system balances of budget accounts.	✓	✓			M	M	-
	the system integrates with the accounts payable system to retrieve data on the actual expenditures on current budget items.	✓	✓			M	M	-
	The system integrates with the projects under implementation system to retrieve data on actual expenditure on the projects components.	✓	✓			M	M	-
	The system integrates with Document Management System in order to save the annual reports.	✓	✓			M	M	

Projects under implementation – Work in Progress (financial component)

The projects accounting department prepares accounting entries for expenditure on projects, it also prepares accounting adjustment entries for the projects. The department opens a register for each project under implementation by type of investment compositions of the project, accounting entries are recorded in this register and to update the balances of work performed on the project.

Accounting entries are sent to the General Accounts Department which, in turn, registers these entries in the General Journal register, as well as in the sub ledgers.

The Department of Planning and Follow-up prepares a five-year plan for the company's projects, as well as an annual plan to implement the proposed projects, in addition to following up the implementation of their work by referring to the data prepared by the project accounting Department of.

Description of the Automated System for projects under implementation

Introduction

An automated system for the projects under implementation (financial component) aims to follow up on the actual expenditures on projects and compare them with the planned expenditures.

The system provides the possibility of automating the business tasks and projects accounting department. The system provides the possibility of automating data entry of the five-year plan for the company based on the investment composition of the projects, and also on the basis of funding sources for projects, with the possibility of following-up amendments made to the five-year plan. The automated system provides the possibility of the introduction of detailed data for each project, the system also offers the possibility of the introduction of detailed data for contractors and suppliers.

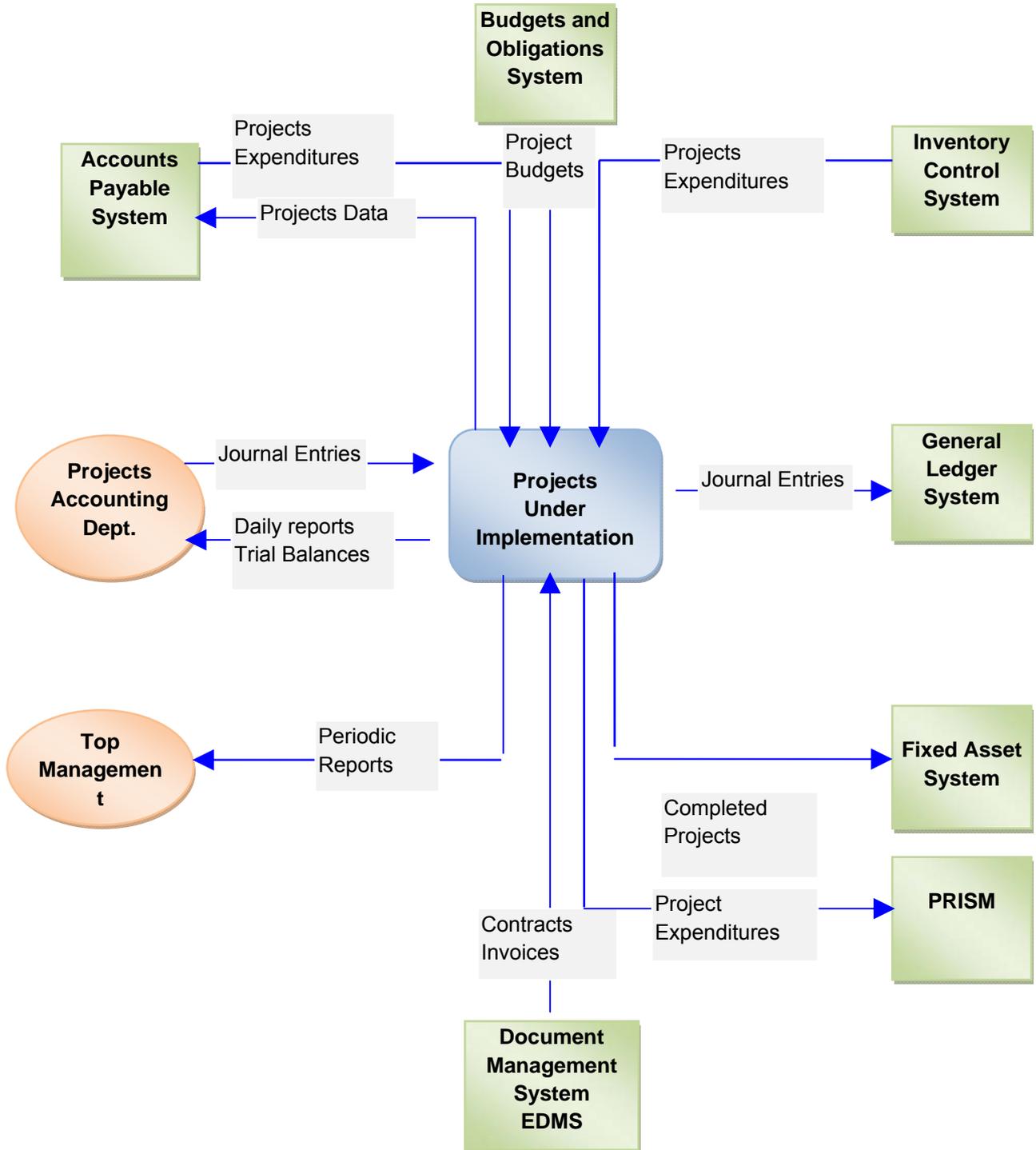
The system provides automated procedures for following-up to the different types of payments such as advance payment, payment of bills for the implementation of work, and debit and credit advices related to the projects.

The system provides the possibility of issuing reports on the management of planning and follow-up department, which contains detailed data on projects expenditures by funding sources or by investment compositions.

The automated system for the projects under implementation integrates with other automated systems such as general ledger system providing the possibility of posting accounting entries on the projects under implementation directly to the Automated General Ledger System, it also integrates the automated budgets and obligations system to retrieve the investment budget. The system integrates with Inventory Control System in order to obtain data about issues from the warehouse to the projects. The system integrates with the Fixed Assets System to provide detailed data for the full implemented projects after commissioning. The system integrates with the accounts payable system to standardize the system suppliers numbers and retrieve projects expenditures. The system also integrates with Document Management System in order to retrieve contracts and bills of suppliers.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Project Under Implementation (Work in Progress)	✓	✓					
	General Specifications							
	The possibility of follow-up planned and executed amounts the five-year plan for the company, with the possibility of follow-up planned and executed the annual plan for the company.	✓	✓			M	M	
	The possibility to follow-up projects under implementation from the contract stage through to completion of implementation.	✓	✓			M	M	
	The possibility of follow-up the expenditure disbursement of projects under implementation in terms of the investment composition (in kind) for the project in terms of sources of funding for the project.	✓	✓			M	M	
	The possibility of classification of types of investment composition of the projects under implementation according to main general ledger account numbers, according to the unified accounting system, so that each type of investment composition corresponds to a main account in the general ledger system, in addition to the possibility of defining sub account or each type of investment composition at the project level.	✓	✓			M	M	
	The possibility of data entry of the suppliers, or to deal with them through integration with Accounts Payable system.	✓	✓			-	-	
	The possibility to follow-up more than one account for the same supplier, for example, the creditors of the asset purchase, the advance payments, insurance account, contractors account, and the suppliers account.	✓	✓			M	D	
	The possibility of integrating with the investment budget through the budget and obligations system to get the budget of each project in terms of the investment composition and funding sources.	✓	✓			M	D	-
	The possibility of integrating with the Fixed Assets System to post the projects that were fully implemented to fixed assets, with the possibility of distribution to the investment groups.	✓	✓			M	D	-
	The possibility of integrating with the Inventory Control System to obtain data about stock issues from the stores on the projects.	✓	✓			M	D	-
	Possible system functions:							
	Definition of the general ledger account numbers used in the preparation of accounting entries, and includes the account numbers of tax deduction at source, and account numbers for the different types of stamps withheld, payment accounts, such as banks, in addition to the account numbers of suppliers and account numbers of projects.	✓	✓			M	D	
	Define the types of investment composition and the	✓	✓			M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<p>corresponding general ledger accounts, according to the unified accounting system, and include at least the following data:</p> <ul style="list-style-type: none"> • Type of investment composition (land, buildings, networks, equipment, etc.). • Account number of investment composition, which is a general ledger account number within the major asset accounts. 							
	<p>Basic data entry for projects under implementation (work in progress), for each project of the company, and include the following data at least:</p> <ul style="list-style-type: none"> • Project type (new / replacement / renewal / update) • Project number and description • The date of commencement of the project • Planned end date of the project 	✓	✓			M	M	
	<p>Definition of the general ledger account numbers for the project, by defining general ledger sub-number corresponding to each type of investment composition at the project level, and include the following data at least:</p> <ul style="list-style-type: none"> • Project number. • Type of investment composition (land, buildings, equipment, etc.). • Account number, investment composition is a general ledger account numbers within sub-asset accounts. 	✓	✓			M	M	
	<p>Data Entry of the five-year plan for the projects under implementation in accordance with the composition of the commodity, for each project of the company, and include at least the following data:</p> <ul style="list-style-type: none"> • Project number • Type of investment composition (land, buildings and networks, equipment, etc. ...) • Total cost by type of investment composition 	✓	✓			M	M	
	<p>Data Entry five-year plan for the projects under implementation in accordance with the funding sources, for each project of the company, and include at least the following data:</p> <ul style="list-style-type: none"> • Project number • Source of funding (self-financing, domestic loans, grants) • Total cost by source of funding 	✓	✓			M	M	
	<p>Integration with the budget and obligation system to obtain data on the annual plan for each project in terms of investment composition or funding sources.</p>	✓	✓			M	D	
	<p>The possibility of defining contractors and creditors of the asset purchase, in case of lack of integration with accounts</p>	✓	✓			-	-	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	payable system, and include at least the following: Supplier number and name. Correspondence with the supplier data (address, phone, fax, etc.). Tax data (tax card, tax office, tax file, etc.).							
	The possibility of defining suppliers account numbers, and numbers that correspond to the general ledger sub-accounts in the general ledger system, and include at least the following data: <ul style="list-style-type: none"> • Supplier number • General ledger account number for creditors of asset purchase • General ledger account number for contractors • General ledger account number for advance payments • General ledger account number for insurance 	✓	✓			M	M	
	The possibility of recording advance payments made to suppliers, and include at least the following data: <ul style="list-style-type: none"> • Supplier number and contract number • The amount requested for advance payment and the date of disbursement • Value of the tax deducted at source • Types of stamps and the value deducted for each type of stamp • Account numbers for other deductions and the value of each deduction • Payment account number and the net paid amount after taxes and deductions 	✓	✓			M	M	
	The possibility of recording data related to projects expenditures, and include at least: <ul style="list-style-type: none"> • Supplier number, project number, the type of investment composition, and source of funding • The amount disbursed and the date of disbursement • Value of the tax deducted at source • Types of fiscal stamps and the value deducted for each type of stamp • Account numbers for other deductions and the value of each deduction • General Ledger account number for the supplier and the credit amount • Payment account number and net paid amount after taxes and deductions 	✓	✓			M	M	
	The possibility of recording settlements data that include credit and debit advices for the project.	✓	✓			M	M	
	Ability to enter opening balances for each project according to	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	the investment compositions (project accounts). This function is required during the transition from manual system to automated system only, so the opening balances are entered using the existing manual records available at the Projects Accounting Department.							
	Ability to enter project expenditures by funding sources during the transition from manual system to automated system only.	✓	✓			M	M	
	Ability to issue a report on the various journal, which include advance payments, disbursements, and credit and debit advices, for review before approval and posting to general ledger system.	✓	✓			M	M	
	Post various journal entries to update the sub-account balances previously defined in the projects under implementation, as well as to update account balances for each sub-project, and also sub-account balances for suppliers accounts.	✓	✓			M	M	
	Issue the monthly report of accounts containing at least the following: <ul style="list-style-type: none"> Account number and name Balance at the beginning of the month Detailed transactions for each day during the month Balance at the end of the month 	✓	✓			M	M	
	Issue the monthly report for projects containing at least the following: <ul style="list-style-type: none"> Project number and details Balance at the beginning of the month Detailed transactions for each day during the month Balance at the end of the month 	✓	✓			M	M	
	Issue a monthly statement on detailed projects expenditures by type of investment composition, and according to sources of funding.	✓	✓			M	M	
	Issue a statement of monthly gross projects expenditures at the level of each project, containing at least the following: <ul style="list-style-type: none"> Type of projects (new / replacement / etc.) Project number and name Total monthly expenditure by type of investment composition Total monthly expenditures by sources of funding 	✓	✓			M	M	
	Produce a statement to follow-up on a projects expenditures on quarterly basis, containing at least the following: <ul style="list-style-type: none"> Required quarter, and the type of projects (new / replacement / etc.) Project number and name The annual allocation of funds 	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Total expenditures according to the sources of funding until the end of the required month The proportion of the expenditure to the allocated amount 							
	The possibility of automatically closing the year, so that year-end balance are posted to the beginning balance for the following fiscal year on all the accounts related to projects under implementation.	✓	✓			M	M	
	Inquiry Functions:							
	The ability to inquire about the daily transactions and financial adjustments that are made to each project in the order of transactions date.	✓	✓			M	M	
	Ability to inquire about the plan and the actual expenditure of each project.	✓	✓			M	M	
	Integration Requirements.							
	The system is integrated with the general ledger system, to post the following daily journals: <ul style="list-style-type: none"> The projects disbursement journal. The advance payment journal. The payment journal. The adjustment journal (debit and credit advice) for projects. 	✓	✓			M	D	
	The system integrates with the accounts payable system to get suppliers data, and also feed the accounts payable system with the data necessary to produce Taxes Form 41.	✓	✓			M	D	
	The system is integrated with the Fixed Assets System for the detailed data the completed projects.	✓	✓			M	D	-
	System is integrated with Inventory Control System to get stock issues related to the projects, which include data such as: <ul style="list-style-type: none"> Project number Type of investment composition General ledger account number for store Issues value from the stores on the project Date of issue 	✓	✓			M	D	-
	The system is integrated with the Document Management System in order to save the annual reports, review the contracts and invoices of suppliers, and the project plans.	✓	✓			M	D	-
	The system is integrated with the PRISM system tom provide it actual project expenditures.	✓	✓			M	D	-

Customer Service and Billing System

Introduction

The automated Customer Service and Billing System aims at:

- Providing better service to the customers
- Accurately calculating the bills
- Following up collections
- Following up arrears

The system provides automating all the work and functions of the departments related to all categories of the company's customers service for drinking water and sanitary service (individual subscribers, large subscribers, government agencies, and participants affiliated to the governorates) at the level of the company headquarters and at the level of branches.

The system provides automation of the work and functions of the counters Section, the collection Section, the Cashier and Accounts Section, the Subscriptions and inspection Section, the complaints Section, the Department of billing and claims Section, and the Engineering Section, and sewage clients service Section at the branch level as well as the headquarters level.

It also provides system monitoring and follow-up mechanism for all the work that is performed within the sections of the branch and through the provision of the possibility of direct query on all functions and work of the various sections of the branch. This is made available for the audit section as well as the branch manager, where they can discover the problems in the work in any section of the branch and to correct and rectify those problems quickly.

It is recommended that the possibility of providing the service to pay bills for consumption of water directly through the website, as well as the possibility of payment through the bank accounts of the consumers, or using the means of direct payment by the companies providing the service through the shops or pharmacies, which reduces the need to maintain a high cash balance in the branch and with the collectors.

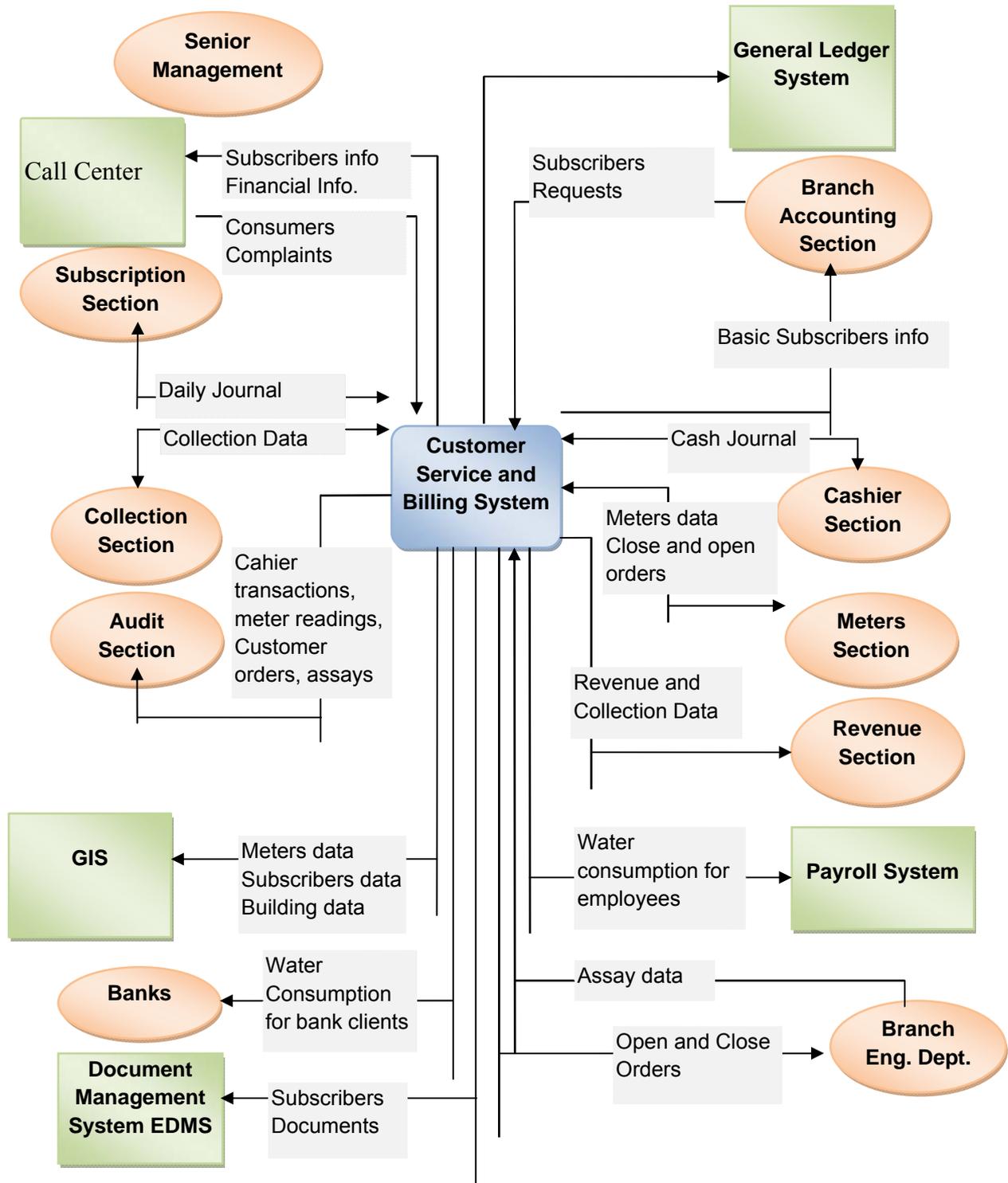
The system integrates with the automated call center (or complaints system) to receive complaints of subscribers and through direct query to the current and historical data of subscribers, to use in responding to complaints and inquiries of subscribers quickly and directly, as well as the possibility to query some data through the Web site.

The system also integrates with the automated General Ledger, Payroll, and Inventory Control Systems. The system also integrates with the geographic information system (GIS) to locate the meters on the maps. It also integrates with Document Management System (Archiving System) to store customer contracts and contract documents.

The system also integrates automated systems for the management and reporting (such as MARS) to provide statistical data collected at the level of each branch on the revenues of drinking water and sewage, for each specific period of time and the volume of the arrears and analysis of each branch revenue and collections during certain periods according to need and which serve the work and functions of the central administration and collection of revenue of the company, as well as other senior management as it helps in making decisions on the company's work and future plans to improve its service to subscribers.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Customer Service and Billing System			✓				
	General Specifications							
	The possibility of the definition of accounting categories and determine the tariff according to consumer category			✓		M	M	M
	Possibility of defining the items of the invoice			✓		M	M	M
	Possibility of defining the of periodic of issuing the bills			✓		M	M	M
	Functions of subscription and inspection section:							
	The possibility of registration and issuance of daily subscribers requests.			✓		M	M	M
	The possibility of issuing a series of reports that serve the daily work of the department, for example: a statement of the requests issued during a specific time period, a statement on the open orders issued during the period of time, a statement close orders issued during the period of time, a statement on the inspection orders issued during the period of time, a statement opening orders executed during the period of time, a statement that opening orders under execution, statement on the closing orders executed during the period of time, a statement the closing orders under execution.			✓		M	M	M
	The possibility of the query directly about the data that serve work of the department, for example: the status of request for a specific time period, the status of a specific request, transactions of a particular consumer, historical data for a specific subscriber, data for a specific open order, items of a specific assay for a specific request, open orders for a specific time period, close orders for a specific time period).			✓		M	M	M
	Function of the branch meter section:							
	The possibility of downloading data to readers HHU devices, and to record the readings automatically, providing the possibility of issuing a statement to review the reading of the meters, for the building meters, individual meters, block meters, and pumping stations meter.			✓		M	M	
	The possibility of using default or assumed reading automatically according to the rules of the company for the meters which did not have actual readings.			✓		M	M	M
	The possibility of calculating the amount of consumption and differences in the meters automatically.			✓		M	M	M
	Possibility of producing meter readings lists for use for manual data collection.			✓		M	M	M
	Possibility of issuing daily reports to help in the work of the section, for example: the meters with readings, the meters with no readings, a the meters with a high consumption, the meters according to the meter status, statistical report about meters for the group of current subscribers.			✓		M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The possibility of issuing a set of reports for the top management, for example: Quantitative statistics about cubic meters consumed at the level of regions of the branch. Statistical report of the monthly work for a billing cycle for the branch.		✓	✓		M	M	M
	The possibility of issuing periodic statistical reports that serve the section, for example: a statement of monthly work for a specific reader meter register for the current and previous billing cycle, historical reading for a specific meter, data about subscribers according to subscription status, or the meter status, a statement of consumption which is less than a certain limit, a statement of consumption greater than a certain limit, a statement of monthly work for a certain reader for previous billing cycles, statistical report about meters according to the meter diameter, for a certain block or zone, statistics about meters with no readings, consumer information according to sanitary service status, consumers with possible leakages for consumers with modern meters equipped with the AMR or AML.			✓		M	M	M
	The possibility of recording the names and codes of readers.			✓		M	M	M
	Readers can be distributed to different regions of the branch to determine the route.			✓		M	M	M
	Registers can be distributed to readers to determine the areas of the branch according to the route.			✓		M	M	M
	Possibility of providing the functions of the query data for meter readings and subscribers, and serving the section, for example: readings for a specific subscriber meter, readings for a specific building meter, data about the bronze number for a certain meter, data about the bronze number for a building meter, readings of a particular register for the current cycle, readings of a particular register for previous cycles.			✓		M	M	M
	Functions of the branch collection section:							
	Possibility to download collection record for consumption and installments bills from HHU with the possibility to use the Bar Code devices to perform this task.			✓		M	D	
	The possibility of recording the names and codes of inspectors and collectors who collect the arrears.			✓		M	M	M
	Collectors can be distributed on the different sections to determine the route of collectors.			✓		M	M	M
	The possibility of distributing deposits registers to sections of the branch.			✓		M	M	M
	The possibility of querying about the collection of a certain batch of bills (consumption and installments) for the current billing cycle.			✓		M	M	M
	The possibility of querying the deposits of about a certain bills			✓		M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	collector (for both consumption and installments) to measure the degree of efficiency of the collector.							
	The possibility of inquiring about the data of certain bills (consumption or installment) for previous accounting periods.			✓		M	M	M
	Possibility of issuing the daily reports, which serves the daily work of the department, for example: paid bills for consumption and installments, returned consumption and installments bills, deposits of a certain region for consumption and installments bills for the current billing cycle, bills delivered to the collector of consumption and installments.			✓		M	M	M
	Functions of the branch Cashier Section:							
	Ability to record all types of receipts paid at for the cashier section, for example: payment of bills by the subscriber, deposits by collectors of bills, deposits by collectors of arrears, payment of assays related to consumers requests, payments for claims of large consumers and government agencies.			✓		M	M	M
	The possibility of issuing the cash receipt automatically.			✓		M	M	M
	Possibility of issuing the daily reports, which serves the daily work of the department, for example: daily receipts journal, daily cancelled receipts journal, detailed and summary journal of the movement of a certain cashier window, issuing summary journal combined movement, journal bills returned from the Cashier section to the audit section, a statement of invoices that were paid at the Cashier.			✓		M	M	M
	The possibility of the query for some data, which serves the daily work, for example: data about a specific subscriber, a particular invoice, payment of certain invoice, payment of cash receipts.			✓		M	D	
	Functions for the Branch accounting section:							
	The possibility of registration and issuance of detailed items dues for particular consumer request.			✓		M	M	
	The possibility of registration and issuance of assay detailed items (primary and final) for a particular request.			✓		M	M	
	The possibility of issuing a journal accounting entries, such as: daily accrual journal, daily receipts journal, daily financial adjustments journal.			✓		M	M	
	The possibility of issuing a set of reports to control of the cashier daily work, such as: statement of detailed movement and consolidated movement of the cashier section, the statement of daily receipts of cashier section, the statement of daily receipts cancellations, analysis of daily receipts according to the type payment and the type of general ledger account, analysis of receipts for consumption bills and installment bills, claims of large consumers and government agencies, a statement of the position of the daily closing of the cashier at			✓		M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	the end of the day.							
	The possibility of issuing a set of reports for following-up collections by collectors, for example: a detailed statement of the items of bills delivered to the collectors, a statement for the proceeds of bills or installments for the current billing cycle, a statement for proceeds of bills or installments for previous billing cycles, the statement of the amounts collected by collectors.			✓		M	M	
	The possibility of issuing a series of special reports for following-up branch consumers requests and assays, such as: assays analysis report, outstanding claims, statistical report of the cash receipts, , analysis of daily receipts journals.			✓		M	D	
	The possibility of issuing a set of reports for the top management in the Head Office, such as: statistical statement of arrears by aging period, statistical report of collections of large subscribers and the government agencies during a particular billing cycle, statistical report about collections of consumption bills and installment bills for a given year on the region level, as well as the branch level, statement report about the analysis of the gross receipts by branch, statistical report about balances of arrears, statistical report about claims related to large subscribers and government agencies.		✓	✓		M	D	
	The possibility of issuing a set of reports and statistics revenue and collection department, such as the: statistical report of the result the collection of consumption bills and installments, statistical report of the amounts to be collected according to the subscribers type, statistical report about the amounts collected by subscriber type, statistical report about the amounts that are not collected by subscriber type, statistical analysis about consumption bills and installments bills, statistical report comparing the current billing cycle and previous billing cycle collection, statistical report about the collection of claims comparing the current billing cycle and previous billing cycle, accrual report for the consumption bills and installment bills, statistical analysis of arrears subscribers.		✓	✓		M	M	M
	The possibility of issuing a set of reports for the purpose of following up the daily work of the department, for example: subscribers insurance, consumption or installment payment transaction of for specific subscriber, statement of balances of large customers and government agencies, a statement of balances and installments of subscribers, a statement of balances of insurance paid by consumers at the level of regions of the branch, statement of analysis of refunds to subscribers grouped by each activity type, maturity of consumption bills and installments bills, maturity of claims for large customers and government agencies.			✓		M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Functions of the complaints section:							
	Ability to record complaints data directly into the computer.			✓		M	M	
	The possibility of directing a complaint to the competent authority automatically.			✓		M	M	
	The possibility to follow up the complaint automatically.			✓		M	M	
	The possibility of recording the status of the complaint automatically.			✓		M	M	
	The possibility to respond to queries from subscribers.			✓		M	M	
	The possibility of providing a set of query functions that enable the department employees to respond rapidly to the consumers, for example: a specific account data, the consumer status related to the payment of various dues (bills, installments, primary assays, and the final assays, etc.), meter readings, bill for consumption or installments for a specific subscriber, stock data for the premiums a specific joint, arrears balance, the status of a particular request, the status of open order or close order, detailed items dues from the subscriber, etc.			✓		M	M	
	Functions of the billing and claims department:							
	The possibility of computing the consumption bills and installments.			✓		M	M	M
	Possibility of issuing consumption bills and installments bills.			✓		M	M	M
	Possibility of processing claims of large subscribers and government agencies.			✓		M	M	M
	Possibility of issuing claims of large subscribers and government agencies.			✓		M	M	M
	The possibility of recording the movement of various financial adjustments to subscribers accounts.			✓		M	M	M
	The possibility of dealing with all the various system lookup tables.			✓		M	M	M
	The possibility of implementing the task of closing the billing cycle for consumers bills and installment bills.			✓		M	M	M
	The possibility of implementing the task of closing the billing cycle of the large subscribers and government agencies.			✓		M	M	M
	Functions of the audit section:							
	The possibility of providing a set of query functions to monitor the work of the Counters Department, for example: a certain meter, meter readings of the current session, meter readings of a previous session with the possibility of printing the statements.			✓		M	D	
	The possibility of providing a range of queries to monitor the work of the Collection Department, for example: bills by collector, collections by collector, collections deposits by collector, collections related to arrears, the status of the deposit register for current billing cycle and previous billing cycles.			✓		M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The possibility of providing a range of tasks the query to monitor the work of the Subscribers and Inspection Department of, for example: data about close orders in a particular day, the status of consumer requests to the Subscribers Section, the status of consumer requests at the branch level of section, the data about cost items dues from the subscriber related to the request, the detailed items for a certain assay the possibility of printing the statement, the data about a certain open order, or open orders for a particular day.			✓		M	D	
	The possibility of providing a set of query functions to monitor the system work in the Cashier Department, for example: data on cash receipts for a particular day, data on cash receipts for a specific cashier window.			✓		M	D	
	The possibility of providing a range of query functions to serve the daily work of the audit department, for example: data related to a particular invoice, balances of a specific subscriber, financial transactions for a specific subscriber, the statements of large participants and government agencies, the historic statement to the requests of a specific subscriber with the possibility of printing the statement.			✓		M	D	
	Engineering Section Functions:							
	Possibility of preparing a primary engineering assays as per the subscribers request.			✓		M	M	M
	The possibility of data recording the final engineering assays for the requests of subscribers.			✓		M	M	M
	Inquire about daily opening orders, issued from the Subscribers Department.			✓		M	M	M
	Inquire about daily closing orders, issued from the Subscribers Department.			✓		M	M	M
	The possibility of updating data and orders to open or close a connection after implementation.			✓		M	M	M
	Inquire about the complaints of subscribers related the Engineering Department and was directed from the Complaints Department or the Call Center of the, and to follow up the resolution.			✓		M	M	M
	The possibility of updating the status of complaints of subscribers after resolving them.			✓		M	M	M
	Customer service department –sanitation- Functions							
	The possibility of registration and issuance of customer requests, which include for example: <ul style="list-style-type: none"> • Service request delivery of sewage service to the property. • Service request for building permits to connect the sewage service to the property. • Industrial licensing service request. • Central lab service requests 		✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> Request services of industrial waste, sludge and re-use. Service request commercial scavenging. Scavenging compulsory service request. Service request related to infringements and stealth. 							
	The possibility of preparing, recording and printing of cost items due from the client.			✓		M	M	
	The possibility of preparing, recording and printing of primary assay data items according to the request of the client.			✓		M	M	
	The possibility of preparing, recording and printing of the final assay data items according to the request of the client.			✓		M	M	
	<p>The possibility of printing a series of reports, which serve the division's work, such as are:</p> <ul style="list-style-type: none"> Report about requests issued during a specific time period for each type of request. Report about requests executed during a certain period of time for each type of request. Report about requests under implementation during the period of time for each request type. 			✓		M	M	M
	Integration requirements							
	Integration with the GIS system by direct connection or file transfer. Data about meters locations for each branch by region and block is collected and sent through the issuance of an electronic file.			✓		M	M	
	Integration with the General Ledger System through the preparation of a balances journal entry for both revenue accrual and payments.			✓		M	M	
	Integration with the automated payroll system by issuing a statement about the amounts to be deducted from the subscribers who are employees of the company related to water consumption.			✓		M	M	
	The possibility of issuing a statement about the amounts to be collected from subscribers for the consumption of water for those subscribers benefiting from customer payment through the bank, where they are issued a separate statement for each bank, with the availability of the possibility of an electronic connection with the Bank, or through the issuance of an electronic file such amounts for each bank.			✓		M	M	
	The possibility of integrating the customer database with the automated management and reporting system so that to issue the various statistical reports for each branch and at the level of the company.		✓	✓		M	M	
	The possibility of integrating with the Document Management System to save subscribers' contracts and other contract documents (national ID card - the commercial register - tax card – the premises purchase contract or lease, etc.).					D		

Computerized Maintenance Management System (CMMS)

Introduction:

The Computerized Maintenance Management System aims at:

- Following up preventive and corrective maintenance activities.
- Ability to predict the future maintenance requirements form labor and spare parts.
- Discovering repeated failures and analyzing its causes.
- Calculating the job order cost accurately which allows monitoring the maintenance efficiency.
-

The CMMS controls the maintenance management activities and follows up the job orders and allows for in sight monitoring of the all the maintenance activities. It also allows to unify the preventive maintenance procedures for all the company plants. It also helps adjusting the labor schedules for conducting the maintenance, controls spare parts consumption, tracks the consumption of specific spare parts.

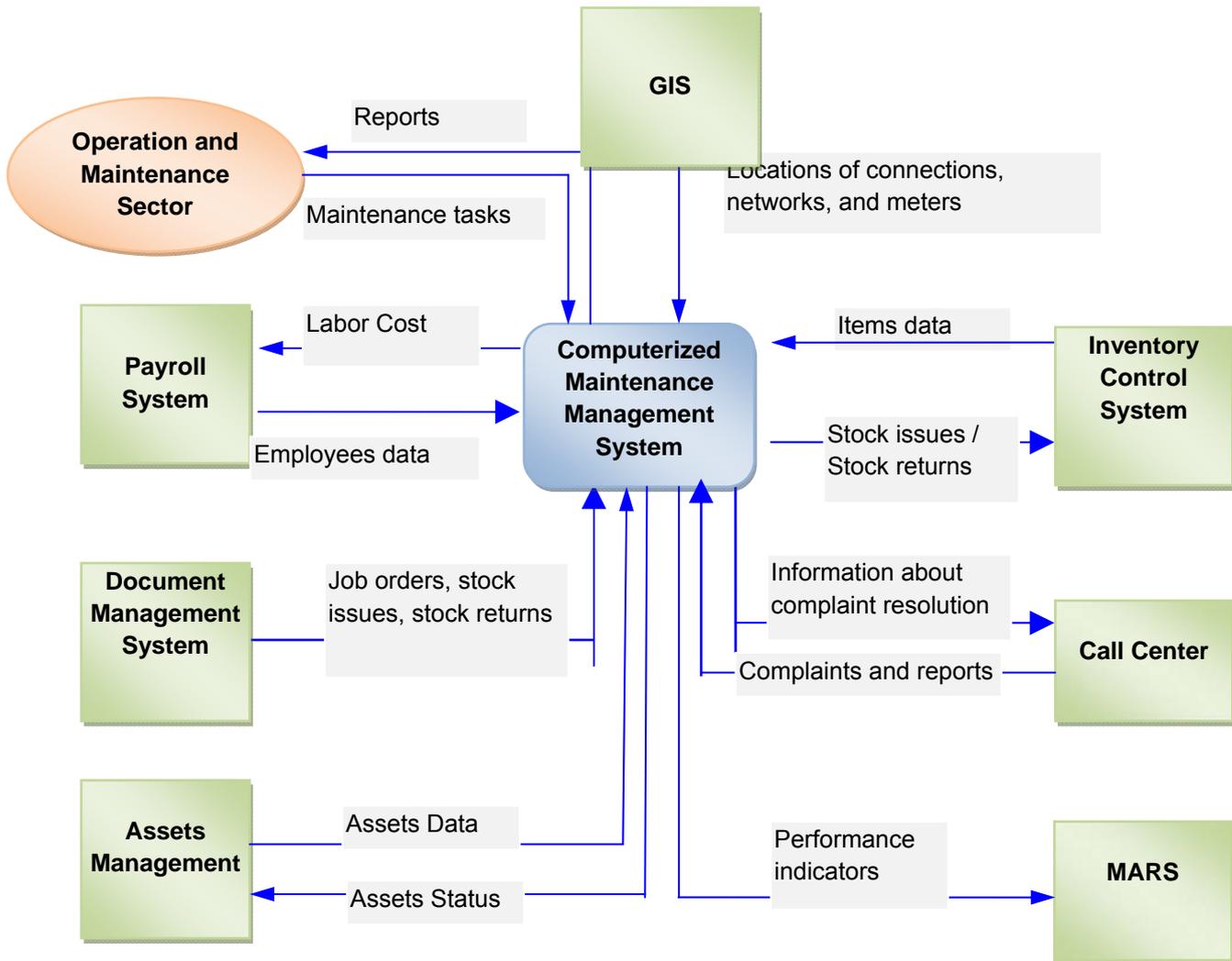
The system allows the plant operators to plan for the equipment or plant future down times which leads to proper plan operation.

The system integrates with the Inventory Control System, the Call Center System, Payroll System, Asset management System, MARS System, Document Management System, GIS, and SCADA.

It is recommended to develop a central database for maintenance procedures so as to eliminate repetition of work and standardize the maintenance procedures.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Computerized Maintenance Management System			✓	✓			
	General Specifications							
	Registration and follow up of malfunctions			✓	✓	M	M	M
	Follow-up of preventive maintenance.			✓	✓	M	M	M
	Producing job orders based on the reports of malfunctions or based on preventive maintenance tasks and then follow up these job orders.			✓	✓	M	M	M
	Knowledge of the costs of maintenance or a job orders.			✓	✓	M	M	M
	The possibility of issuing reports for a number of choices and ranges of data reporting ranges selected by user.			✓	✓	M	M	M
	Possible system functions:							
	<p>Malfunction reporting, which include at least:</p> <ul style="list-style-type: none"> • Report number • Status of the report • date of receipt • Reported by • Type of required work • Description of fault / problem • the action that has been reported before • Date and time of malfunction • importance • Location • Asset • Stoppage 			✓	✓	M	M	M
	<p>Assets data which includes at least:</p> <ul style="list-style-type: none"> • Asset ID • The name of the asset • Asset data (manufacturer, model, serial number) • Status of the asset • The importance of assets (critical - not critical) • Warranty Information • list of materials or spare parts • counters (which are used to initiate the preventive maintenance, such as car mile meter) • Location • Safety procedures • Crews • The category of the asset or equipment • Officer in Charge 			✓	✓	M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • Supplier • Operation Date • Date of scrapping • Purchase price • The present value 							
	<p>Job orders management::</p> <ul style="list-style-type: none"> • Job order number • Job order status • Job order description • job Order priority • Assets Downtime • type of work (preventive maintenance, therapeutic, safety, etc.) • Problem, the item, the reason and treatment • Classification of work • The required implementation date • Requested by • Asset • Location • The labor involved (employee, number of regular hours, and the number of overtime hours) • Materials, raw materials and spare parts used and their quantities 			✓	✓	M	M	M
	<p>Preventive maintenance:</p> <p>Consists of four sub-units:</p> <ul style="list-style-type: none"> • Tasks / procedures • Scheduling • Create job orders • Industrial security functions 			✓	✓	M	M	M
	<p>Tasks or procedures:</p> <p>Create a pre-actions that can be linked to preventive maintenance, or is the job which include:</p> <ul style="list-style-type: none"> • Procedure code • Name of the procedure • A list of tasks to be performed • The number of hours expected • Resource assignments • A list of materials, raw materials or, spare parts • Safety or security instructions • Stop status 			✓	✓	M	M	M
	<p>Create planned periodic maintenance scheme</p> <p>Create actual periodic maintenance scheme</p> <ul style="list-style-type: none"> • Active / inactive 			✓	✓	M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • Period • Procedure • Recurring period • Repetitive • Days • Working days • Effective Date • Planned commencement date • Planned completion date • Next Start Date 							
	<p>Reports. and including, for example:</p> <ul style="list-style-type: none"> • Open job orders • Faults and their causes • Job Orders status • Total cost of job orders • Assets and what was included on in the maintenance • Preventive maintenance schedules 			✓	✓	M	M	M
	<p>Employment or personnel data: The employee data in the payroll system, but this is the data required by the maintenance system, including access to a list of staff and their qualifications</p> <p>Ability to identify specific work crew or department of the employee</p> <p>Ability to identify a particular craft or specialty of the employee</p> <p>The ability to set the usual hourly wage and overtime for employees</p>			✓	✓	M	D	
	<p>Materials, raw materials and spare parts, stores data:</p> <p>The data in the Inventory Control System, but this the data required by the maintenance system.</p>			✓	✓	M	D	
	The ability to determine the minimum, maximum, and reorder levels of inventory and location within the store			✓	✓	M	D	
	Tracking items through a unique ID for alternatives			✓	✓	M	D	
	Ability to follow up on items stored in multiple warehouses			✓	✓	M	D	
	<p>The possibility of linking one item number to many of the manufacturers and manufacturer part numbers</p> <p>Follow up on the stock issues and returns of job orders</p> <p>Follow up transfer between stores</p> <p>A leading supplier and its data and contact data</p> <p>The ability to know the cost of stocks for pricing the job orders</p>			✓	✓	M	D	
	Integration Requirements							
	Integration with Inventory Control System for the retrieval of items and the provision of stock issues and stock returns on			✓	✓	M	D	-

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	the job orders							
	Integration with the payroll system for retrieving data of workers and their wages to be used in costing of job orders			✓	✓	M	D	-
	Integration with call center system for the retrieval of complaints and provide information on the resolution.			✓	✓	D	D	-
	Integration with MARS system to provide technical performance indicators.			✓	✓	D	-	-
	Integration with Document Management System to provide: <ul style="list-style-type: none"> • Copies of job orders • stock issues • images of the equipment • equipment manual • install and dismantling instructions 			✓	✓	D	-	-
	Integration with GIS, to retrieve places of connections, networks, and meters.			✓	✓	D	-	-
	Integration with SCADA			✓	✓	D	-	-
	Integration with asset management system for data about equipment and networks							
	Ability to connect a hand held unit (HHU) to download the job orders electronically from the system to the device and upload the results of the maintenance from the mobile device to the system					D	D	

The Web Portal

Introduction

The aim of establishing a website, is to provide an opportunity for citizens to identify the activities of the Holding Company for Water and Wastewater, and its Subsidiaries. It also allows companies to provide some services to citizens, consumers, and suppliers.

This is done by providing the possibility of publishing a variety of contents for each of the Holding Company and its Subsidiaries.

These contents are summarized in:

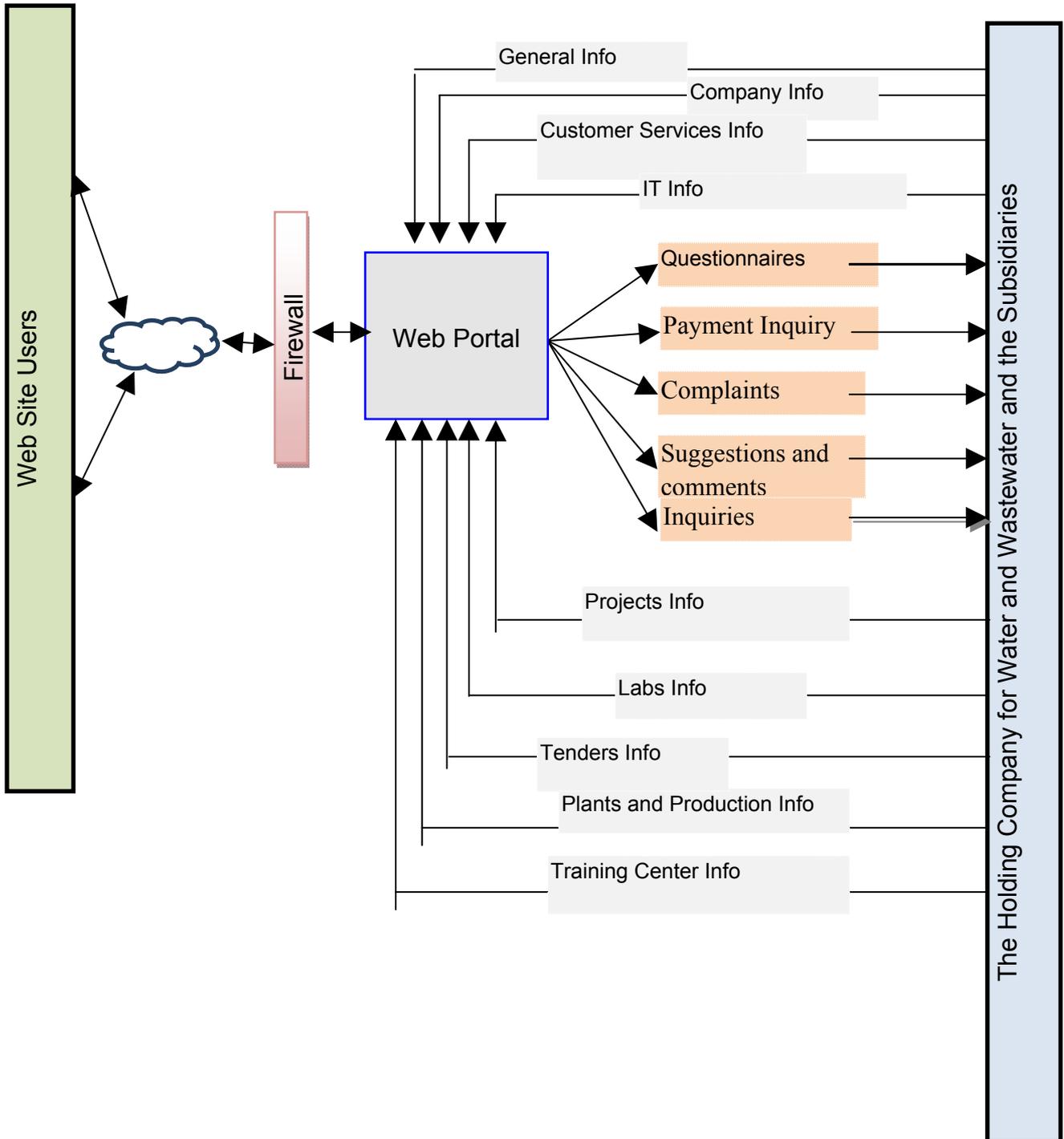
- About each company with the presentation of the activities of each of them with photographs and maps
- The ability to display the available types of services carried out by the company to their citizens
- Information on projects that took place during a certain period
- Projects currently under implementation,
- Future projects plans in various fields which are specific to each company, such as projects to extend water and sewage networks, pumping stations. Etc..
- The overall structure of the company, presented with descriptions of senior management

It also includes services that can be provided by the company through the website:

- The provision of direct interaction between the citizens and the company to submit suggestions
- Present subscribers application for services
- Query about and payment of bills
- Presenting complaints and follow-up
- Advertising for bids and tenders
- Advertising vacancies and receive applications for appointment

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The Web Portal	✓	✓					
	General Requirements							
	Arabic contents	✓	✓			M	M	M
	English contents	✓	✓			D		
	Historical background about the governorate supported with some pictures.		✓			M	M	M
	Ability to provide an area for advertisement.	✓	✓			D	D	
	Questionnaires to consumers about the services provided by the company	✓	✓			M	D	
	Periodic site updates after proper auditing and proof reading	✓	✓			M	M	M
	Content management tools.	✓	✓			M	D	
	The ability to view information on the water where, components, and its nature and methods of treatment supported by some of the illustrations.	✓	✓			M	D	
	The ability to view some of the notices of the alarm and raising awareness of epidemics such as cases of avian influenza, swine flu, and show how to deal with.	✓	✓			M	D	
	The ability to register questions directly and allow for comments by users of the site, and view the answers and comments by the company next to each question (FAQ).	✓	✓			M	D	
	The ability to view ways to contact company (the address of the company and its affiliates, the phone numbers of each branch, and fax numbers of all branches).	✓	✓			M	M	M
	The ability to view the company's Annual Report for the ending year.	✓	✓			M	D	
	Possibility of retaining the previous annual reports and enable the user to choose to view the annual report for any previous year, supported by presentation.	✓	✓			M	D	
	Ability to show archived images about plans, labs, and other important locations of the company.		✓			M	D	
	Ability to publish public awareness messages from the senior management to explain services provided to consumers and to show progress on water and wastewater sector. Message could be supported by images, voice, and videos.	✓	✓			M	D	
	Ability to provide external links to related web sites	✓	✓			M	D	
	The ability to display a glossary of the terms of used for drinking water, to help consumers understand the terms used in the context of their daily lives.	✓	✓			M	D	
	Contents related to the company:							
	The ability to view a brief history of the company, supported by some historical photos of the company.	✓	✓			M	M	M
	The ability to display information about the leadership positions in the company supported by photos.	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The ability to view the current company news and to be updated regularly.	✓	✓			M	D	
	Presentation on the possibility of interactions of the company with the local community.	✓	✓			M	D	
	The ability to display awards, medals and certificates (e.g. ISO) obtained by the company, with panel of honor for the company's employees since its inception.	✓	✓			M	M	M
	The ability to display a statement of Subsidiaries, where the description includes some general information about each company, with the presentation of a map showing the location of each company, using tools such as Google earth.	✓				M	D	
	The possibility of presenting information on the branches and stations of the company, which includes a description and some general data for each branch or station, displaying a map of the branches and affiliated stations, using tools such as Google earth.		✓			M	D	
	The ability to display a statement the number of subscribers each branch of the company.		✓			M	M	M
	The ability to display a statement about the investments of the company to improve the service to the society.	✓	✓			M	M	M
	The possibility of the query about company's current suppliers register.		✓			M	M	M
	The possibility of automated registrations for supplier who wants to register its data in the company's supplier register.		✓			M	D	
	The ability to display a statement of special security measures to prevent pollution of water sources, and environmental role played by the company in the field of sanitation or drinking water and to help the environment and public health.	✓	✓			M	M	M
	The ability to display a statement of how the company continues with customers to ensure better service is provided to them, supported of pictures and presentation.	✓	✓			M	D	
	The possibility of the presentation on the responsibilities and obligations of the company to its customers, supported by means of pictures and presentation.	✓	✓			M	M	
	The ability to display the organizational structure of the company's various departments, supported by photos of heads of departments and senior management, in addition to the organization chart.	✓	✓			M	M	M
	The ability to view the activities of the company, which is provided for employees, such as union activity, sports activity, and social activity, and charitable activities, etc .	✓	✓			M	M	M
	The ability to present the company's goals, mission and vision.	✓	✓			M	M	M
	Customer service requirements:							
	The ability to view the consumer bill, while providing the possibility of using a secret password for each participant, to ensure the privacy of the data to be displayed.		✓			M	M	
	The ability to display a brief explanation of some data items of the invoice.		✓			M	M	
	The possibility of providing methods of e-payment service for bills.		✓			M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The ability to present a guide about services offered by the company for citizens, with the presentation of a detailed description for each type of service.		✓			M	M	M
	The ability to display the tariff of drinking water, and sanitation proportion of the value of consumption of each type consumer.		✓			M	M	M
	The ability to display the types of services available, and documents required for each type of customer service, with the presentation of a tariff of these services.		✓			M	M	M
	The ability to instructions to subscribers on how to rationalize the consumption of drinking water.	✓	✓			M	M	
	The ability to present a guide showing the subscribers how to discover of the leakage of water, and how to address this problem, supported by means of illustrative presentation with sound and image.	✓	✓			M	D	
	The ability to display a statement of the degree of purity of the drinking water by area or a particular neighborhood, or the nearest place to the subscriber, while providing an easy means to choose the desired location.	✓	✓			M	D	
	The ability to display some data on the client, using secure password protection to maintain the privacy of the data, such as: <ul style="list-style-type: none"> • Account statement for a particular client. • Information about a particular building links. • Statement on the balances of a particular client. • Statement on the meter readings of specific connection. • Consumer financial position statement on the specific payment of receivables (bills, installments, primary and final connection chargers, etc.). 		✓			M	D	
	Ability to record complaints data directly by the citizen through the web site.	✓	✓			M	D	
	The possibility of registering citizens' suggestions directly by the user through the web site.	✓	✓			M	D	
	The ability to follow-up complainants by the consumers.	✓	✓			M	D	
	The ability to present how to use hotline to serve the citizens, and the type of services it provides.	✓	✓			M	D	
	The ability to display a cautionary statement about interruption of drinking water service in a specific region, and specify the type of failure, and the time required to resume the service.	✓	✓			M	D	
	The ability to display a statement of rights and duties of customers to the company.	✓	✓			M	D	
	The possibility of the presentation on the means used by the company to protect the privacy of customer data when using the Web Site by others, and to reassure customers about the privacy of their data.	✓	✓			M	D	
	Contents related to information technology:							
	The ability to display an overview of the available information systems and personnel in the company.	✓	✓			M	M	M
	The ability to view the applicable sections of business automation in the company.	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The ability to present a detailed statement of all computers and networks used in business information systems of company, and distribution in departments and branches supported by pictures of the equipment.	✓	✓			M	M	M
	The ability to display a statement programs used in the operation of computers and the types of programs used in databases and applications.	✓	✓			M	M	M
	The ability to present the types of applications used in the business	✓	✓			M	M	M
	Contents related to the projects:							
	The ability to display a statement about the projects have been implemented recently.	✓	✓			M	M	D
	The ability to display a statement about the projects under implementation, the aim and expected completion time.	✓	✓			M	M	D
	The ability to display a statement the company's plan of projects to be implemented in the coming years, with the presentation of the purpose of these projects.	✓	✓			M	M	D
	The ability to display a statement the source of funding of these projects.	✓	✓			M	M	D
	Contents related to plants and production:							
	The ability to present information on the steps that are implemented in the water treatment process, for both drinking water or sewage.		✓			M	M	D
	The ability to display data on treatment plants (such as number, the total production capacity, average daily production, the highest daily output, ... etc.).		✓			M	M	D
	The ability to display a graph of the design capacity for the production of water in cubic meters per station.		✓			M	M	
	The ability to present a brief for each station (such as date of its establishment, supported by its map, a space station, the number of employees, production capacity, the development projects, etc ...) supported by modern and legacy images of each station for comparison.		✓			M	M	
	The possibility of the presentation on the development of water production during the last five years, supported by Graph.		✓			M	M	
	The possibility of the presentation on in-sourcing facilities of the company, supported by pictures.		✓			M	M	D
	The ability to present the work of maintenance and operation of the stations and workshops in the company.		✓			M	M	D
	Contents related to the company's laboratories:							
	About the ability to present the company plants and their role in the service of the production process, for both drinking water plants or sewage plants.		✓			M	M	D
	The ability to present the departments and sections of plants with the presentation of the company's work assignments for each section, supported by images of these sections, as well as pictures of the equipment used.		✓			M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	The ability to present the laboratory development plan, in terms of equipment, infrastructure, or the quality of workers.		✓			M	M	D
	Requirements related to tenders and procurements							
	The ability to present an advertisement which is required by the company and published in the Official Gazette, which contains the following: <ul style="list-style-type: none"> • Tender number. • Name of the tender. • Bid date. • Deadline for submission. • Details of the tender in brief. 	✓	✓			M	M	D
	Special requirements for the company training center:							
	The ability to present the activities of the company's training center, supported by picture to display the possibilities of the Centre and the methods and devices for use in training.	✓	✓			M	M	D
	The ability to present a statement about the training courses available and carried out by the company, and the services performed by the Center to the company's employees.	✓	✓			M	M	D
	The ability to present a statement about the training courses available and carried out by the company, and the services of the Centre for trainees from outside the company.	✓	✓			M	M	D
	The ability to present a statement about the training courses plan, the dates, and venues of the company's training center.	✓	✓			M	M	D
	Detailed data on the lecturers from inside or outside the company. and their experience and competence of each type of session	✓	✓			M	M	D

Document management systems and Workflow:

The need for document management systems and Workflow:

Corporate activity includes dealing with the great quantity of documents, including, for example:

- Customer contracts and its attachments
- Personnel and recruitment documents
- Financial documents
- Incoming and outgoing correspondence
- Legal Affairs Documentations
- Equipment catalogs
- Standard Operating Instructions
- Training guides
- Rules and regulations

These documents could be in the form of paper documents or electronic documents sent via the Internet or recorded on optical or magnetic media, (CD or tape). Electronic documents can take different forms such as:

MS Word documents, MS Excel spreadsheets, HTML files, Adobe files, Image files, etc.

The document management systems and workflow must provide a method to specify different levels of access to information that is stored, and must also offer the possibility to publish the information on the company's Web Server.

Working with document management systems and workflow will require some effort to standardize the forms and the unification of similar documents.

A commercial off the shelf document management systems usually covers the needs of the company. The workflow system will be an added value.

The desired objectives of the application of document management systems and work flow and the advantages of these systems:

With the increasing number of documents, the need for an effective system for organizing, classifying and archiving these documents increases. The existence of electronic document management system will help to:

- Improve work efficiency within the company
- Encourage the development of a classification system appropriate and systematic for the documents within the company
- Facilitate document storage, retrieval, and review, which facilitates access to documents
- Facilitate the process of searching through documents
- Facilitate access to documents for the largest number of users in different departments
- Improve the process of securing data and documents
- Enable the existence of links to documents and other databases
- Get rid of extra copies of the same document
- Retain the status of paper documents and not expose it to damage as a result of the large number of dealing

The work flow management system is automating the process of circulation of documents, information, and tasks between the parties concerned, according to certain rules to reach the desired goals.

The primary advantages of work flow management system:

- Improve efficiency as the automation of processes lead to the elimination of unnecessary steps
- Better management of operations by following the standard methods of work
- Better service to the consumer, where the presence of systematic processes lead to the commitment to better levels response
- Flexibility of operations re-planning when changing business needs
- Improve operations as focusing on the work flow leads to its facilitation and simplification.

The work flow system could be acquired separately or as a part of the Document Management System.

Assumptions and constraints:

- The documents types and forms are to be standardized.
- The receipt of the documents is done in a timely manner
- Documents can be received in different forms: paper documents or electronic documents sent through the Internet or from documents recorded electronically on magnetic or optical media,
- Some documents and parts of some other documents are not allowed to be made available to the public

Document Workflow:

The following is a top-level work flow of a general document management system:

- Paper documents
- Receiving Documents
- Review the completion of documents
- Scan the document and convert it to editable text (OCR)
- Sort documents by classification
- Determine the indexes and search keys
- The ability to get different versions depending on the sequence of the documentary cycle
- The ability to enter comments on the documents with the ability to retrieve these comments with the original document
- Provide a way to change the documents previously archived

Electronic documents

- Receiving Documents
- Examination of documents in terms of the presence of viruses
- Review the completion of documents
- Sort documents by classification
- Determine the indexes and search keys
- The ability to have different versions depending on the sequence of the document cycle
- The ability to enter comments on the documents with the ability to retrieve these comments with the original document
- Provide a way to change the documents previously archived
- Provide an opportunity for interactive inputs

Functional requirements:

- The ability to use the names of documents and the keys in Latin and Arabic.
- The ability to define the structure of archived documents by the user.
- The possibility of modifying the structure after its definition.
- The possibility of transferring documents and change its position within the structure.
- Ability to deal with different types of documents (scanned images, word processing files, spreadsheets, etc.) Within the same structure.
- The possibility of pursuing different types of movement (to add a document, cancel a document, modify a document, display the document, printing a document, etc.)
- A secure and controlled access to documents recorded (accounts and passwords to users, determining the level of user, role, etc.).

Scan Function Requirements:

- Scan multiple-page documents.
- The ability to view and print, copy, erase and comment on documents.

Indexing requirements:

The possibility of indexing documents by: document type, date of the document, other keys, or any other data within the document.

Requirement of data retrieval:

- Ability to review the contents of the documents structure efficiently and easily.
- The ability to search at all levels of the contents of the documents structure efficiently and easily by using: the type of document, the date of the document, other keys, or any other data within the document already in the index.
- Ability to search for documents efficiently and easily, using the recorded comments on the documents.
- the possibility of Enlarging or reducing of documents, images turnover documents, print documents.

Other requirements:

- Arabic Menus
- Ability to linking to databases and external applications.
- Save images in a compressed form.
- Version control feature to allow different versions of the same document.
- Tools to improve the scanned images.
- The ability to search within the full text in Arabic.
- The possibility of hiding part of the document.
- Web based application.
- A workflow system

Optional:

Arabic Optical Characters (Arabic OCR)

Payroll System

Description the automated Payroll System

Introduction

The automated system aims to facilitate the process of payroll calculation as well as other disbursements to the employees. It also aims to facilitate the process of allocating staff salaries to the cost centers to produced cost statements quickly and accurately.

The system provides automating all the work and functions of the Payments Section, providing the possibility of calculating all disbursements to be granted to employees over the month, and follow up on all kinds of deductions which is deducted from employees salaries every month. Example of the deductions are all kinds of loans, internal loans and those due to external entities. As well as the possibility of tax and stamp duty, social insurance for individuals each month. Also the processing of financial adjustments for all employees.

It is recommended that the system provides the possibility of feeding some of the other automated systems with the financial data related to salaries and other disbursements, such as the ability to prepare general journal for each payment.

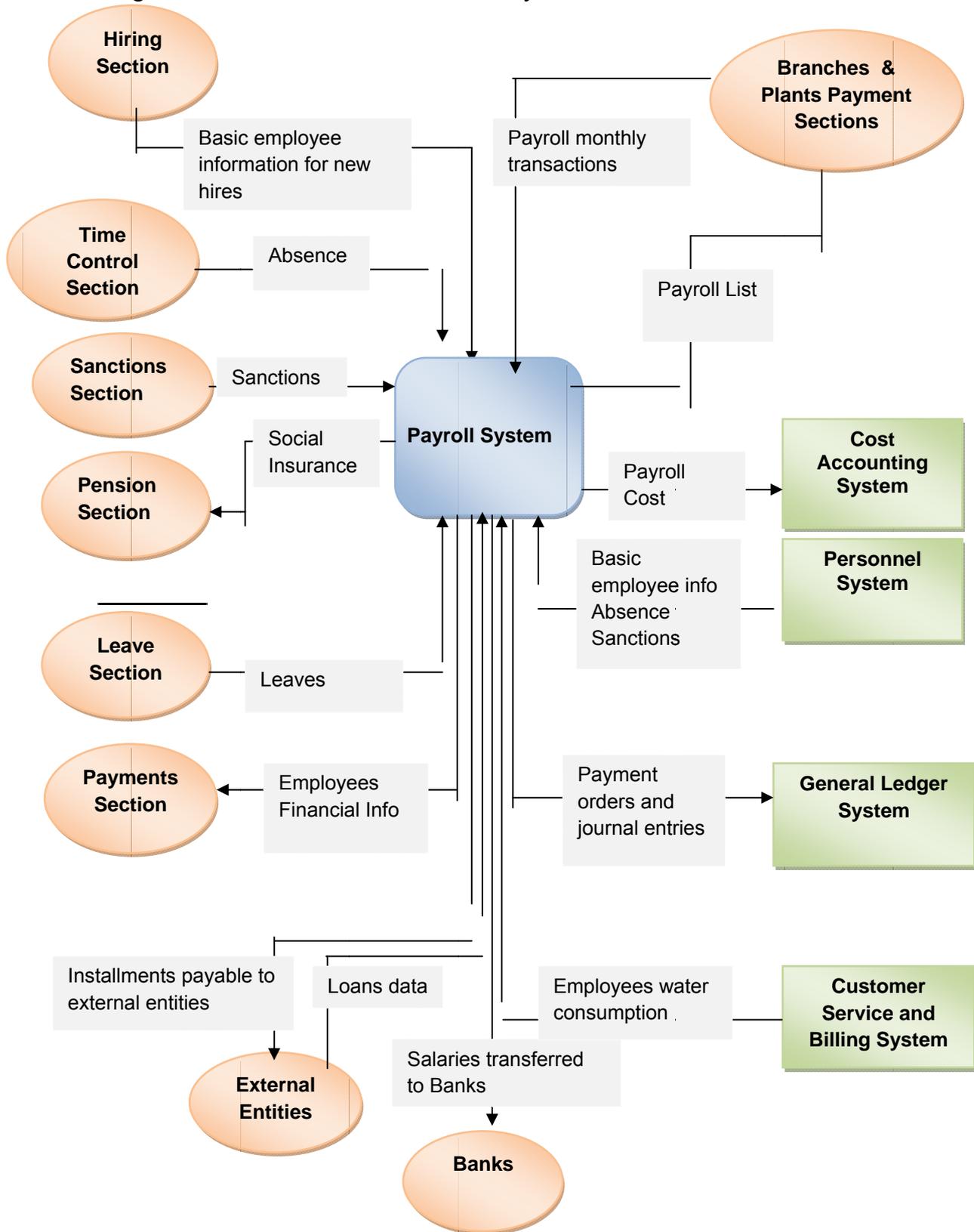
It is recommended that the system provides the ability to prepare a statement of an integrated cost report automatically, so that it produces statement of the labor cost for each cost center on the unit without the need for manual work.

It is also recommended that the system provides the possibility of integration with the automated personnel system, so as to automatically change the personnel basic data which affects the processing of the monthly payroll, for example, change the social status of employees and that impact in the calculation of taxes, as well as the financial degree, that affects the calculation of the annual raise. The work status of the individual holds payment automatically when the employee goes on leave without pay, as well as the account for the sanctions automatically.

The system also integrates with the Computerized Maintenance Management System to provide it with a cost of hourly salaries for a worker so the labor cost is calculated on the job orders.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Payroll System	✓	✓					
	General Specifications							
	Ability to process different payments, such as: <ul style="list-style-type: none"> • Monthly salary payment • Monthly overtime payment • Monthly incentive payment • Monthly bonus payment • Individual payments during the month 	✓	✓			M	M	M
	Ability to define payroll calculation rules for taxes, fiscal stamp, social insurance, annual; special; and incentive raises, without a need to reprogram the system.	✓	✓			M	M	D
	Ability to follow up the employees' loans and amounts due to external entities.	✓	✓			M	M	
	Ability to calculate the special annual raise automatically.	✓	✓			M	M	
	Ability to handle social insurance treatment for female employees that are on child care leave.	✓	✓			M	M	
	Ability to calculate the premiums for covenants to be delivered to Finance Service Authority.	✓	✓			M	M	
	Ability to store employees financial data for multiple years.	✓	✓			M	M	
	Ability to process and calculate annual raises.	✓	✓			M	M	D
	Functions:							
	Ability to deal with different salary payments, such as: Fixed payments (amounts), such as: <ul style="list-style-type: none"> • Basic salary • Special raises (past 5 years) • Social raise • Allowances Variable payments (amounts / days / hours), such as: <ul style="list-style-type: none"> • Overtime • Incentive • Holidays • Pension and sanctions refund 	✓	✓			M	M	M
	Ability to deal with different salary deductions, such as: Fixed deductions (amounts), such as: <ul style="list-style-type: none"> • Previous insurance • Insurance loan • Colleagues' fund Variable salary deductions (amounts/days/hours), such as: <ul style="list-style-type: none"> • Absence and sanction days • Miscellaneous deductions • Taxes, social insurance, and Fiscal stamp. 	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<ul style="list-style-type: none"> • Deduction items represented as installment and balance, to external entities, such as: • Company loans • Schools loans • Pilgrimage loan • Bank loans • Commercial loans • Life insurance loans 							
	Ability to register the data of month payments and deductions reported as amounts, which includes at least: Employee number, payment or deduction item number, and amount.	✓	✓			M	M	M
	Ability to register the data of monthly payments and deductions reported as days/hours, which includes at least: Employee number, payment or deduction item number, and number of days/hours.	✓	✓			M	M	M
	Ability to register the monthly deductions (fixed installment and balance) data which includes at least: Employee number, deduction item number, installment amount, and balance.	✓	✓			M	M	M
	Ability to register the monthly deductions (fixed installment) data which includes at least: Employee number, deduction item number, and installment amount.	✓	✓			M	M	M
	Ability to register overtime data which includes at least: Employee number, overtime item number, number of overtime days or hours.	✓	✓			M	M	M
	Ability to register incentives data which includes at least: Employee number, incentive item number, incentive percentage or amount, and incentive disqualification reason (if applicable).	✓	✓			M	M	M
	Ability to register and process individual payments, calculate its taxes and insurance.	✓	✓			M	M	M
	Ability to register or automatically calculate annual raises which includes: Raise month, employee number, and raise amount.	✓	✓			M	M	M
	Ability to produce monthly transactions report for review before payroll calculation.	✓	✓			M	M	M
	Ability to calculate and process monthly payroll to calculate salary taxes, social insurance, fiscal stamp, deducted installments, remaining balances, absence and sanctions amounts.	✓	✓			M	M	M
	Ability to calculate and process overtime payment (independent of the monthly salaries).	✓	✓			M	M	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Ability to calculate and process incentive payment (independent of the monthly salaries)	✓	✓			M	M	
	Ability to calculate and process separate individual payments independent from the monthly payroll.	✓	✓			M	M	
	Ability to calculate the incentive raise to the beneficiary.	✓	✓			M	M	
	Pay slip for each type of payment (salary, overtime, incentive, bonus), containing employee basic data as well as the payment details. The pay slip is given to the employee upon receiving the salary.	✓	✓			M	M	M
	Cash payment report (Cashier report) for different payments showing employee name and number, net salary, and a place for employee's signature	✓	✓			M	M	M
	Ability to produce detailed reports analyzing the different payment items for individuals.	✓	✓			M	M	
	Ability to produce detailed reports analyzing the different deduction items for individuals.	✓	✓			M	M	
	Detailed payroll items report showing detailed payment items, detailed deductions, taxes, social insurance, fiscal stamp for each payment at the individual employee level.	✓	✓			M	M	M
	Monthly installments payable to external entities, including: entity name, employee name and number, installment amount, remaining balance.	✓	✓			M	M	M
	Monthly social insurance reports showing individual payment items (fixed and variable), total fixed insurance pool, total variable insurance pool, and employee share divided into the different premium types. The report is produced at the individual employee level.	✓	✓			M	M	M
	Social insurance report showing, on annual basis, individual payment items (fixed and variable), total fixed insurance pool, total variable insurance pool, and employee share. The report is produced at the individual employee level.	✓	✓			M	M	M
	Yearly income statement for each employee showing total payments, deductions and net salary.	✓	✓			M	M	
	A report showing the effect of absence and sanctions on fixed payment items (itemized and total)	✓	✓			M	M	M
	An exception reports showing discrepancies in fixed payment items in current month vs. previous month.	✓	✓			M	M	M
	Processing Control							
	Incentives are received only by permanent and temporary employees.	✓	✓			M	D	
	When processing payroll, employees whose work status is not "on duty" should be excluded from the calculation. Those who are seconded to the company must receive only the extras and not the basic salaries. Those who are seconded to	✓	✓			M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	external entities receive only the basic salaries.							
	When processing payroll, the following must be taken into consideration: <ul style="list-style-type: none"> • Social insurance calculation should not exceed the maximum level indicated in the law., • Taxes should be calculated based on the all taxable items 	✓	✓			M	D	
	Installments deducted from an employee should not exceed the total payments to the employee since this will lead to a negative net salary. Total installments should not exceed the maximum limit set by the company.	✓	✓			M	D	
	Inquiry Functions:							
	Ability to inquire about installments of certain employee	✓	✓			M	D	
	Ability to inquire about the financial data for a certain employee during a specified period of time.	✓	✓			M	D	
	Ability to inquire about social insurance (employee and employer shares) for a certain employee during a specified period of time.	✓	✓			M	D	
	Integration Requirements:							
	Ability to prepare general ledger journal entries and payment orders for different disbursements to integrate with the general ledger system	✓	✓			M	M	
	Ability to produce monthly salaries distributed over the different cost centers to integrate with the cost accounting system.	✓	✓			M	M	
	Ability to produce net salaries transferred to banks which includes for each bank the employee name and number, and net salary. Possibility of electronic connectivity through network or media is highly recommended.	✓	✓			M	D	
	Ability to produce a report with the monthly installments deducted to external entities. The report should include entity name, employee name and number, installment amount, and remaining balance (if applicable). Possibility of electronic connectivity through network or media is highly recommended.	✓	✓			M	D	
	The personnel system is used as the primary source for registering employees' basic information integration with the payroll system.	✓	✓			M	D	
	The personnel system is used as the primary source for registering transactions such as: absence, sanctions, leaves, transfers, etc. for the employees through integration with the payroll system	✓	✓			M	D	
	Integration with the billing and customer service system to allow for discounting the employees' water consumption from their salaries.		✓			D	D	

Personnel System

Description of the Automated Personnel System

Introduction

The automated personnel system aims to provide electronic records for the employees of the company including their personal data, educational and functional data, thus making it easy to choose the appropriate personnel for the posts, grades, and appropriate places suitable for them.

The automated personnel system provides the possibility of automating business tasks and records of all sections of the personnel affairs department. Usually the human resources department consists of a number of sections, such as, Pensions Section, Budget Section, Settlement Section, the Files section, Sanctions and penalties Section, leaves Section, Service Affairs Section, hiring Section, the time control section, and salaries section.

These sections are responsible for following-up of Personnel at the central level, as well as at the personnel working at the level of branches, stations and units of different companies that make up the water and wastewater companies.

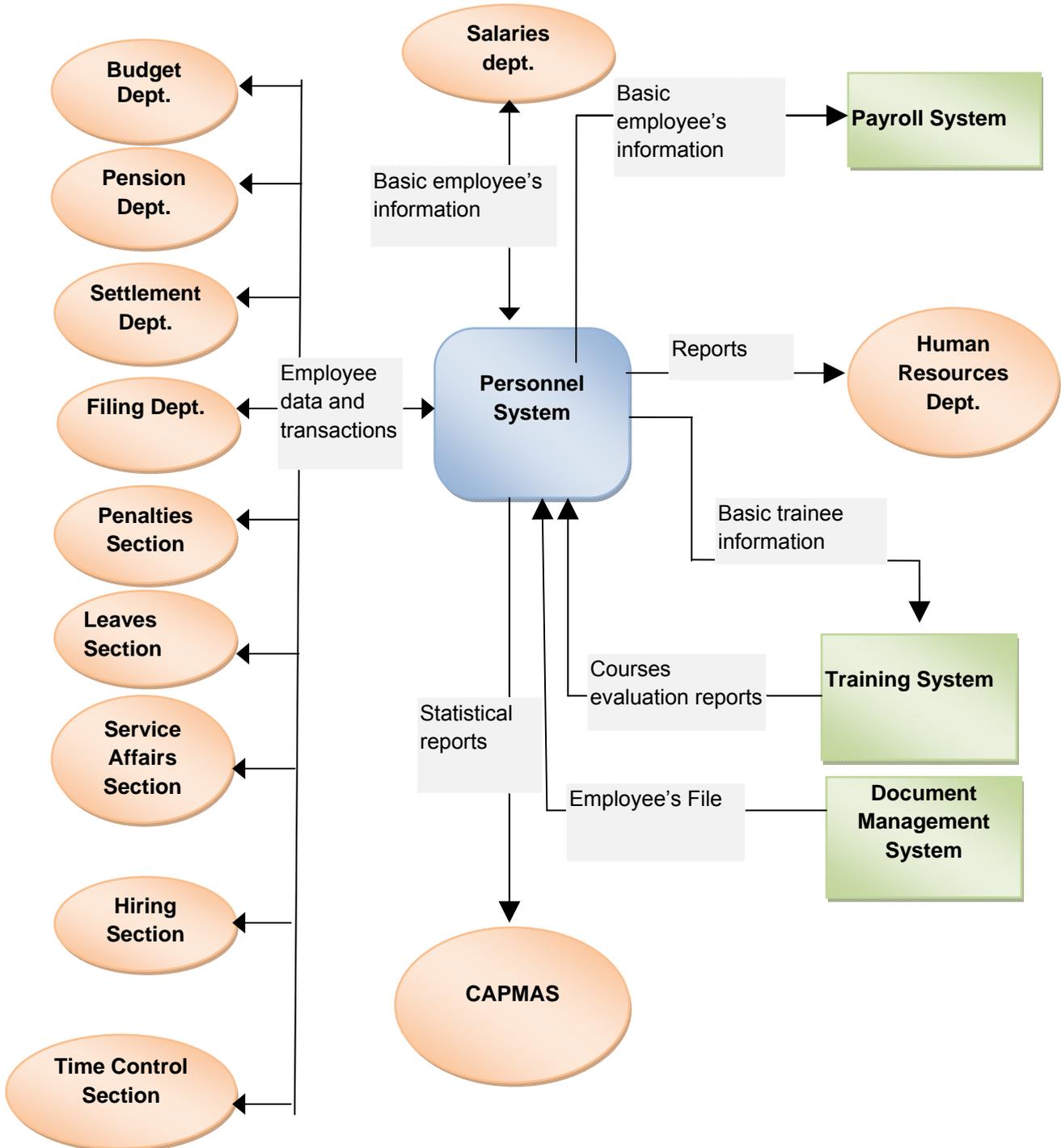
The automated system serves senior management through a mechanism of producing statistical reports issued by the system as requested by these parties and appropriately to their needs. This contributes to making important decisions on employment.

It is recommended that an automated personnel system serves the automated payroll system through the integration between the two systems in terms of automatic reporting of absences, sanctions and of suspension work as well as reporting the changes that occur on the personnel data which affect the payroll directly.

It is also recommended that the automated personnel system provides the possibility of integration with the automated training system to update the data of individuals from the training received by the individuals during their tenure the company, both of the courses provided internally by the company or provided through third parties. Personnel data should also be available to the automated training system.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Personnel System	✓	✓	✓	✓			
	General Specifications							
	Ability to record the basic employee information and update it when applicable.	✓	✓			M	M	M
	Ability to track employee's leave and calculate leave balances including balances carried over from previous years according to the labor law.	✓	✓			M	M	M
	Ability to deal with different types of work status: permanent, seconded, lent, temporary, consultants, etc.	✓	✓			M	M	M
	Ability to track previous social insurance period for the employees to be able to process their pension upon retirement.	✓	✓			M	D	
	Ability to produce a report about the employees expected to go on pension during a certain period of time.	✓	✓			M	D	
	Ability to choose employees nominated for promotion according to the regulations prepared by the company.	✓	✓			M	D	
	Ability to choose employees nominated for special encouragement raises according to the regulations prepared by the company.	✓	✓			M	D	
	Functions							
	Ability to enter basic employee information including at least: employee number, name, address, National ID number, birth information, hiring information, military service status, religion, social status, number of children, social insurance number, etc.	✓	✓			M	M	M
	Ability to enter job qualification data to include at least: certificate date and number, disability type and date, position, registration date at the Job Qualification Authority.	✓	✓			M	M	M
	Ability to enter education certificates date which should include at least: certificate type, certificate level, location, and date. Multiple education certificates should be allowed for each employee.	✓	✓			M	M	M
	Ability to enter previous experience. Data should include at least: start and end date, job title, location, and job details.	✓	✓			M	M	M
	Ability to update the transfer from a location to another and update the cost center accordingly.	✓	✓			M	M	M
	Ability to update the promotion data. Data should include at least: Promotion date, new degree, and new job title.	✓	✓			M	M	M
	Ability to update the employee's job transition. Data should include at least: job title, job group, functional group.	✓	✓			M	M	M
	Ability to update the social status (single, married, divorced, widow, number of children)	✓	✓			M	M	M
	Ability to update employee work status to include the following data at least: work status (on duty, on a leave without pay,	✓	✓			M	M	M

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	retired, etc), status date, and period (if applicable)							
	Ability to enter annual appraisal of the employees including at least: Appraisal year, Appraisal grade	✓	✓			M	M	M
	Ability to enter the employee leave data including at least: Leave start and end dates Leave type (annual, sick, without pay, etc.) Location while on leave (in-country, outside the country) Leave reason	✓	✓	✓	✓	M	M	M
	Ability to enter penalties, absences, and fines. Data should include at least: penalty decree date, penalty execution date, penalty type, description, and number of days discounted from salary.	✓	✓	✓	✓	M	M	M
	Ability to enter job termination data including at least: decree number and date, termination reason (retirement, firing, medical cause, etc.).	✓	✓			M	M	M
	Sample Reports							
	Statistical report about employees (males / females) distributed by financial degree. Should include at least: Financial degree, number of employees (males/females), and total number of employees.	✓	✓			M	D	
	Statistical report about employees (males / females) distributed by job type / financial degree. Should include at least: Job type, financial degree, number of employees (males/females), and total number of employees.	✓	✓			M	D	
	Statistical report about employees (males / females) distributed by education / financial degree. Should include at least: Financial degree, education level, number of employees (males/females), and total number of employees.	✓	✓			M	D	
	Statistical report about employees (males / females) distributed by work status / financial degree. Should include at least: Financial degree, work status, number of employees (males/females), and total number of employees.	✓	✓			M	D	
	Statistical report about employees (males / females) distributed by leave type (educational, secondment, etc.). Should include at least: Leave type, number of employees (males/females), and total number of employees.	✓	✓			M	D	
	Statistical report about employees (males / females) distributed by Financial Degree. Should include at least: Financial degree, number of employees (males/females), and total number of employees.	✓	✓			M	D	
	Statistical report about employees (males / females) distributed by job group. Should include at least: Job group, number of employees (males/females), and total number of employees.	✓	✓			M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Statistical report about employees (males / females) distributed by location / cost center. Should include at least: Location / Cost Center, number of employees (males/females), and total number of employees.	✓	✓			M	D	
	Index of employees by employee number show basic information. Produced at the zone/branch level.	✓	✓			M	M	M
	Alphabetical index of employees show basic information. Produced at the zone/branch level.	✓	✓			M	M	M
	A report showing the top management jobs distributed by work location.	✓	✓			M	M	M
	Staffing planning report showing the occupied and vacant positions for each job group and financial degree. The report should include at least the following information: <ul style="list-style-type: none"> • Number of working employees (males/females) • Number of non-working employees (males/females) • Occupied positions (males/females) • Vacant positions • Available positions (according to the budget) 	✓	✓			M	M	M
	End of service report for the employees. A report showing the employees whose employment has been terminated showing at least: employees' name and number, job title, job termination date, job termination reason, job termination decree date and number.	✓	✓			M	M	M
	A report about the training course obtained by the employee (an employee level report)	✓	✓			M	D	
	A report about the previous experience of the employees (an employee level report).	✓	✓			M	M	M
	A report about the penalties applied to the employees during the year.	✓	✓			M	M	M
	A report about the leaves taken by the employees during the year	✓	✓			M	M	M
	Degree promotion report by employee	✓	✓			M	M	M
	Salary history report.	✓	✓			M	M	M
	Employees sorted by degree and degree date	✓	✓			M	M	M
	A report showing the confidential evaluation of each employee classified by job group, degree, etc. The report should include the penalties applied on the employee during the year.	✓	✓			M	M	M
	A report about the employees due to go on pension during a specified period of time. The report should include at least: employee name and number, location, degree, birth date, hiring date, retirement date.	✓	✓			M	M	
	A report showing the military service status for each employee.	✓	✓			M	M	M
	A statistical report about the distribution of employees	✓	✓			M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	according to profession, education status. The report is produced at the company level and should include the number of employees according to each classification.							
	A statistical report showing the number of employees classified by : <ul style="list-style-type: none"> • Work location • Job group • Degree The report is produced at the company level and should include at least: <ul style="list-style-type: none"> • Work location • Job group • Degree • Number of employees for each classification 	✓	✓			M	D	
	Data control requirements							
	In all transactions having a beginning and end data, a validation must be made to ensure that the beginning date is prior to the end date, (such as in case of leaves, penalties, training, employment dates, etc.)	✓	✓			M	D	
	When entering the leave transactions, a validation should be made to make sure that the remaining leave balance is more than or equal to the request leave days. This applies to annual, casual, or sick leaves.	✓	✓			M	D	
	When entering the leave transactions, a validation should be made to make sure that the employee status is "on duty. When an employee is approved to take an education leave, leave without pay, spouse joining leave, family care leave, etc., the employment status should be changed to reflect this new status. Statistical reports are produced on the current employment status.	✓	✓			M	D	
	At job termination, the work status should be changed accordingly.	✓	✓			M	M	
	In case of termination of the employment, the employee data should not be deleted. Employee number should not be reused. No transaction should be accepted on the terminated employee (i.e. promotion, raises, statistics, budget, etc.)	✓	✓			M		
	Ability to inquire about the employee's education information using the employee number or name. Example for such information are: <ul style="list-style-type: none"> • Certificate description • Certificate date • Location • Grade 	✓	✓	✓	✓	M	D	
	Ability to inquire about employee information using the	✓	✓	✓	✓	M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	<p>employee number or name. Example for such information are:</p> <ul style="list-style-type: none"> • Employee name • Work location (zone, sector, department, section, etc.) • Work status • Job group, Position group • Cost center • Employment type • Education • Degree 							
	Integration Requirements:							
	<p>The ability of integration between the personnel system and the payroll system, it is recommended that all employees information to be completed before starting the operation of the payroll system, and the required data is at least:</p> <ul style="list-style-type: none"> • Financial degree, is used when calculating the annual raises. • Workplace (Sector , Department, Section, Location), where is the issuance of all payroll reports are on the basis of the distribution of individuals according to their work place / cost center. • Work status, which is used to control the possibility of disbursement / non-disbursement of the individual salary. • Cost center on which the individual is allocated, it is used when issuing the monthly salaries allocated into various cost centers. • Position (job title) of the individual, where individuals are sorted according to the different job titles. • Social status, which is used when calculating the salary taxes (when applicable). • Functional status of the individual, which is used calculating the payroll. • Social insurance status, which is used when calculating the social insurance for each individual. • The bank and account number to which the salary of the individual is transferred (if applicable). 	✓	✓			M	D	
	Ability to integrate with training system to retrieve the information about the training courses conducted to the personnel, including at least: course dates, course type, grade, venue, etc.	✓	✓			M	D	
	Ability to integrate with the Electronic Document Management System (Archiving System) to store and retrieve personnel files, including for example, hiring documents, leave requests, penalties, certificate of experience, training certificates,, etc.	✓	✓			M	D	

Training System

Description of the Automated Training System

Introduction

The automated training system aims to register the training courses delivered to the employees of the company, which are considered the key element when choosing an employee for some specific jobs or for promotion. It also helps when selecting personnel to attend the new courses to make sure that they did not attend that session before or that they had attended preparatory courses required for that session.

The Training System deals with the data of training courses offered by the training center of the company to the company's personnel and trainees from outside the company, as well as to deal with the training courses held by other authorities and other training organizations.

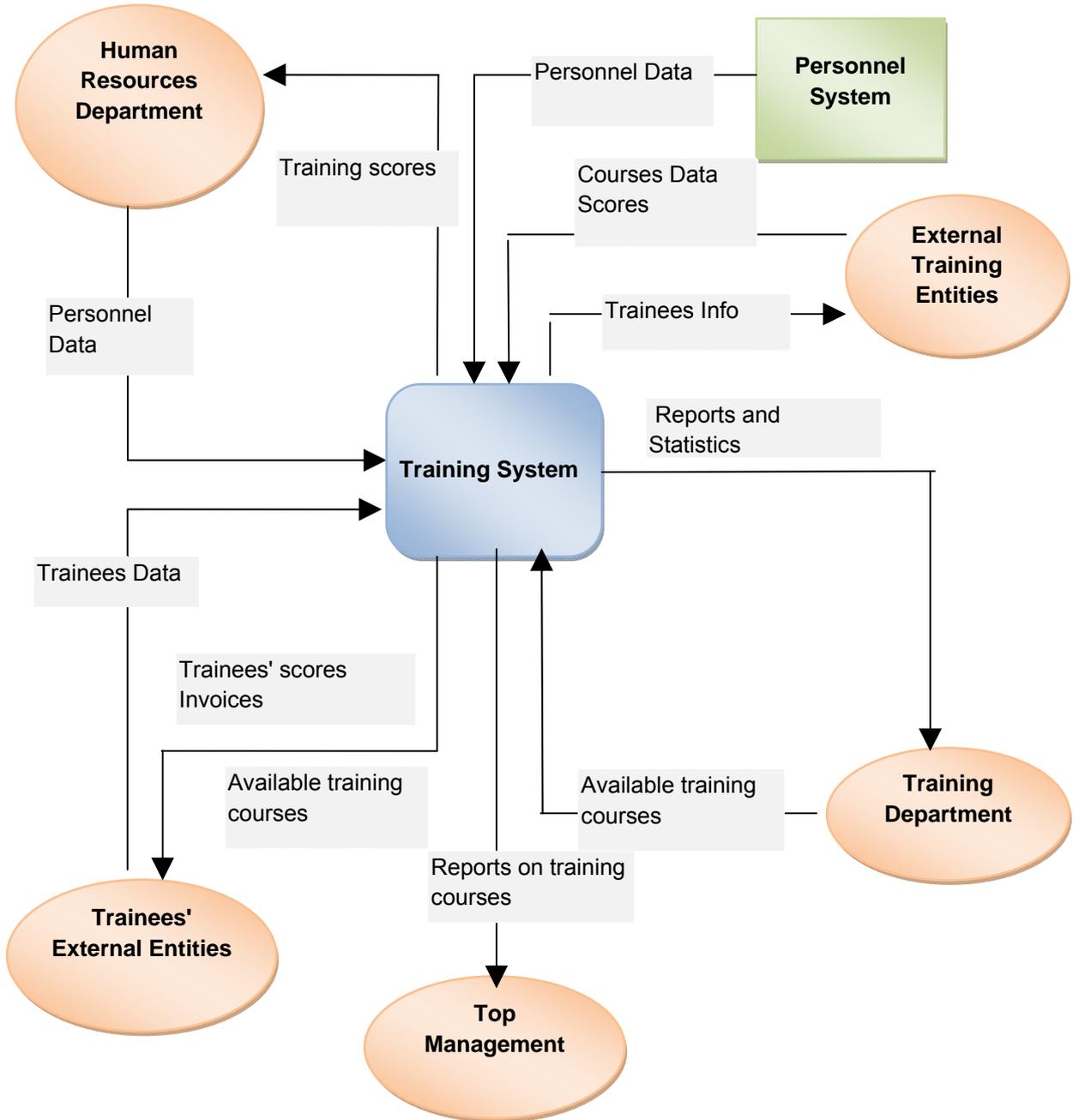
The system also deals with the personnel system, which is considered the essential source for key data for individuals who receive training from within the company, where it is recommended that having the possibility of integration with the Automated System for Personnel to update the data of individuals from the training received by the individual during the period presence of the company, both internal company courses or courses for third-party. It is recommended that the training system should have access to the automated personnel system to retrieve all the personnel information for the trainees.

It is recommended that the system available to deal with the possibility of training data as well as data of the lecturers for these courses as well as data and dates of periods and places of holding such sessions.

It is recommended that the system supplies external entities that receive training in the company's training center the status of training sessions and the results of these sessions for the trainees. Such data can be made available through the website of the company.

System Context Diagram:

The following diagram represents a high level context diagram explaining the system and its integration with external entities and other systems:



Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Training System	✓	✓					
	General Specifications							
	Ability to record detailed information about available training courses including: course description, duration, trainers, course requirements, prerequisites, training aids required, etc.	✓	✓			M	M	M
	Ability to record detailed information about trainers and their experience (for internal and external trainers)	✓	✓			M	M	M
	Ability to record information about external training centers	✓	✓			M	M	
	Ability to record courses offered by external training entities	✓	✓			M	M	
	Ability to record the budget training courses costs using standard cost of each cost item	✓	✓			M	M	
	Ability to record the annual training plan	✓	✓			M	M	
	Ability to record trainee information (for company's trainees as well as external trainees)	✓	✓			M	M	M
	Ability to record the trainees grades	✓	✓			M	M	M
	Ability to produce a report about the training classes	✓	✓			M	M	M
	Ability to produce a report comparing actual cost with budget	✓	✓			M	D	
	Ability to produce a report about the training plan including dates and venues	✓	✓			M	D	
	Ability to produce statistical reports about trainees and training sessions	✓	✓			M	M	M
	Ability to produce an evaluation report for the trainees	✓	✓			M	M	M
	Ability to produce names and description of the training conducted to a certain trainee	✓	✓			M	M	M
	Reports produced by the system							
	Information about previous coursed conducted to each trainee	✓	✓			M	M	
	Information about a specific training session	✓	✓			M	M	
	Data about the lecturers of the training courses held in the center including their experience in the training of trainees. This information is considered important for any training center for the proper selection of the appropriate trainer for each type of session.	✓	✓			M	M	
	Integration Requirements:							
	IT Is recommended to use the Automated personnel System as the main source for recording basic personal data for the trainees from the company through the integration with the system.	✓	✓			M	D	

Ref. No.	Requirements	HCWW	Subsidiaries			Level		
			Headquarters	Branches	Plants	A	B	C
	Ability to update data about training courses (in the personnel system) to contain the following data: Date of start and end of the session, the type of the session, the grade, place of the session and for each individual in the company directly through integration with the personnel system.	✓	✓			M	D	
	Integration with the web site to publish the available training courses, courses agenda, and cost. Allow the registration in the courses	✓	✓			D		
	Integration with office automation system to allow to place the training course on the common calendar and also to use email to disseminate the agenda and training course results to the trainees.	✓	✓			D		