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PGPI

# Práctica 1

## Technical Specification

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# Technical Specification

## Title

IT Restructuring and Improvement Plan of medical management

## Description

The present technical specification document contains the technical specifications which will mandate the contract whose objective is the acquisition, implementation and exploitation of a software program integrated in a patient management system of a hospital which will enable the complete management of the IT Restructuring and Improvement Plan of medical management. This plan will enable total traceability of all drugs and prescriptions issued internally in the hospital and it will specify a direct communication channel between all clinical personal participating in the plan, enabling a way for information pertaining the drugs issued to the patients, the state of the patients and the doctors who issued said drugs to flow. Additionally, this system enables doctors and pharmacists to minimize possible drug misconceptions when treating patients with specific symptoms.

## Objectives

The main objective of the plan is for the implementation of a software program that enables all sanitary personal in the hospital for a better management of the drug prescriptions given to the patients as well as a more precise treatment of them.

The main objective of the plan will be distributed in 3 main categories:

- Acquisition of the software
  - The creation of a software program designed to contain the following functions:
    - Patient information management.
      - The software must show all patients information including, current status, symptoms, patient's medical history and previous treatments taken.
    - Drug prescription monitoring.
      - Doses to be taken.
      - Date of prescription.
      - Medical staff who issued the drug.
    - Communication channel between medical staff .
    - Emergency communication channel between medical staff.
    - Drug prescription management.
      - Current stock of drug.
    - Drug use statistics and reports.
  - The software to be developed must maintain an open approach in case new features have to be implemented.
  - Extensive testing of the software's most critical functions.
  - Creation of Manuals of Use of the software.
  - The software must follow the Spanish LOPD (Ley Orgánica 15/1999 de Protección de Datos).
  - The software must follow the WCAG 2 AA standard as a minimum.
- Integration of the software
  - Quick installation of the new software in the system.

- Teaching seminars to medical staff in order to teach the use of the new software.
- Maintenance of the software and monitoring of the plan
  - Observation of the software's effectiveness.
  - Creation of reports dictating the benefits and faults the new system might have caused in the hospital.
  - Creation of software updates in order to fix possible system faults.

### Planned Location

The plan will be executed initially using a small number of clinical centers in Granada. These will be:

- Hospital Universitario Virgen de las Nieves. Hospital General
- Hospital Materno Infantil
- Hospital de NeuroTraumatología y Rehabilitación
- Hospital San Juan De Dios
- Hospital Universitario Clínico San Cecilio
- Hospital HLA Inmaculada

### Planned objectives:

The project is expected to have the following functionalities:

- Patient information management.
- Drug prescription monitoring and management.
- Open communication channel between sanitary participants.
- Emergency communication channel between sanitary participants.
- Statistic and report creation automation.

This project is expected to maintain a level of quality following the standards of accessibility WCAG 2 AA and the Spanish law for data protection LOPD.

The project has been designed to be fulfilled in 3 main stages:

- The first stage will be the development of the software system, expected to last for 11 months and take up to 120 000€.
- The second stage will be the integration stage, expected to last up to 6 – 8 months and take up to 30 000€.
- The final stage will be the monitoring and maintenance stage, expected to last at least 8 months or until the software is deemed a failure or obsolete. It will take up to 10 000€.

### Team History

The current working team has been monitoring and assessing the situation relating to internal hospital management for the last 5 years. They have finished a software engineering career and have created similar software systems to the one proposed.

### Justification

The current medical management system being used in the hospitals leave too much room for errors to occur during a patient treatment. Currently hospitals give use to static information sources, such as books, in order to reach a consensus on treatments to apply to the patients. Problems arise when these static sources of information state contradictory treatments depending on source and patient's status, this can lead to improper treatments being delivered and possibly worsening of the patient's condition. This is where our current system enters, it creates a new

source of information for both doctors and sanitary staff for them to reach a more informed decision and correct possible mistreatments.

### Innovation

The new system will have quite the impact on the current doctor-drug-patient management system being used in hospitals. For starters a doctor in charge of a patient will be able to monitor the current medication being delivered to its patient and act upon noticing errors in the doses or even issue new or extra medication. This new system releases the total dependency for pharmacists to blindly rely on static sources of information and gives them a second channel of information by which they can attain a more adequate treatment.

### Planned Activities

As stated above, the system will be developed in 3 mayor stages, we will now define the main planned activities to be done during these 3 stages.

- Software development
  - Develop patient's management module
  - Test the patient's management module
  - Develop drug management module
  - Test the drug management module
  - Develop medical staff communication channels module
  - Test de medical staff communication channels module
  - Develop statistic and report automation module
  - Test statistic and report automation module
  - Creation of software documentation
- Software implementation
  - Education of sanitary staff on new system
  - Installation of new hardware needed for the new system
  - Installation of new system
  - Deployment of new system
- Software monitoring and maintenance
  - Monthly maintenance of system
  - Documentation of possible system weaknesses
  - Development of software updates for the system

Additionally, the team in charge of the development of the software will hold weekly team reunions in which they will share information regarding the progress of the system and how to approach any problems or possible issues encountered.

### Chronogram

During the process of development of the project the team in charge of development will be tasked with the delivery of the following documents.

- Upon finishing the software development mayor stage, the team must deliver:
  - A complete software program with follows all specifications described previously and possible future specifications to be given during the development stage.
  - All the documentation expected to be created in regards of the internal use and development of the software system and its maintenance.
  - User Manual.
- Upon finishing the software integration stage, the team must deliver:

- A successful deployment of the new system in the locations specified previously.
- Upon finishing the software monitoring and maintenance stage, the team must deliver:
  - A document stating all known issues and weaknesses the new system has shown in the period it was monitored.
  - A document specifying the future development plan needed to develop an update on the system in order to solve or minimize the problems found.

### Tracking channels

In order to give a better monitoring of the system being developed, our team will schedule weekly team sessions, in which details involving the current state of development of the project will be shared. Reports about the scheduled reunions will be developed, as well as monthly overall progress reports. Finally the client will always be informed of any milestones reached during the project or critical tasks finalized.

### Added Value

The new system will greatly improve the overall performance of hospital staff, reducing the number of wrong treatments given to patients and allowing doctors to be able to have a more dynamic when checking the patient's current condition. Reducing the workload of medical staff thanks to the new communication channel given.

### Benefits and benefited

The new system will initially benefit the small sample of hospitals selected previously and, if successful enough, will be able to benefit all hospitals in entire regions – countries. Being able to share all the data between the patients in these hospitals will further benefit both medical staff and patients, as it will create a positive feedback loop (the more accurate and correct the treatments the doctors make, the better the overall hospital management will function and the quicker the patients will hopefully regain their health).

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