

# The Ardú Project

## Vision Statement

11th March 2016

Institiúid Teicneolaíochta Cheatharlach



INSTITUTE *of*  
TECHNOLOGY  

---

CARLOW

At the heart of South Leinster

**Name:** Aaron Tse

BSc (Hons) in Software Development

**Year:** 4th Year

**Student ID:** C00172925

**Supervisor:** Paul Barry

# 1 Project Overview

The concept of the project is in our time, large quantities of data are being stored on the cloud, whereas in this particular case Ardú a HSE Substance Misuse Service in Carlow to this day store all information in the form of physical paper files.

Our goal is to take routine clinic processes, integrating them into a system to stimulate standardisation, quality control and retrievability of confidential clinical data.

## 2 Target Audience

The proposed solution is aimed towards the Ardú clinic in Carlow which require a means of reducing the amount of storage space used within the clinic. This particular system can also be used by small to medium community clinics around Ireland that meet the same requirements.

## 3 Problem Description

Healthcare is complex, it involves significant amounts of information on different client sources and rapid changes in illness over possible short periods of time. Managing health records on paper can become difficult and is known not to work.<sup>1</sup>

This project aims towards optimizing pre-existing processes within rehabilitation clinics.

The problems with traditional paper based processes range from:

### **3.1 Costs of manual medical records**

There are several types of costs associated with physical medical records. One sample, creation, duplication, distribution of records is a costly expense which require a lot of paper and other supplies.

The most costly and disadvantageous aspect of paper records comes when duplicate test results are needed if results are lost or have gone missing.<sup>2</sup> The time to repeat these procedures may very well jeopardize a patient's health.

### **3.2 Lost productivity of manual medical records**

The time used for searching filed paper records and the inability to sort data fields on a paper record can be labour intensive, we can also note that inaccuracies can occur easily with these common tasks.

### **3.3 Accessibility of manual medical records**

With manual medical records comes the disadvantage of only one person having a hold of the record at any given time or the record itself has to be in one single location. This can also lead

into updating any record information and any delayed access to the record under the right authority disrupts the processes of the clinic.

### **3.4 Quality of manual medical records**

There are limitations to the physical quality of manual medical records, the fragility of paper needs to be considered in terms of water/fire damage, fading of ink over time and handwritten information may be illegible.

## **4 Solution**

The solution proposed in this document uses an existing clinical management system (CMS 3X<sup>3</sup>) as a means of direction into creating a system that meets the functional requirements of users from Ardú. The project will be a web application hosted online on the cloud.

The web interface will allow an application user to perform the following tasks:

- Login securely (request approval for login request if the user is not already registered).
- Create new records for Patient, Pharmacy, Clinic Doctor and General Practitioner.
- View all Patient, Pharmacy, Clinic Doctor and General Practitioner records.
- View an audit trail of which application user did what.

### **Measure of Success**

I will consider this project a success when the following two landmarks are met:

1. A cloud based solution is hosted and the application is of a satisfactory standard as a proof of concept technology for Ardú to consider moving forward.
2. The final landmark for this project is if Ardú expresses serious interest in implementing a solution in their clinic.

## **5 Proposed technologies**

The server side of the web interface will be created using Python web framework, Flask. The client side will take advantage of one of the most famous front-end frameworks, Bootstrap, as well as JavaScript libraries such as JQuery and then we have HTML and CSS.

After some brief research and a meeting with a member of the Ardú clinic I was able to determine that the data I will be dealing with is tabular data. Observably, tabular data is well suited to a SQL database solution and so a MySQL database was decided on.

## Appendix

<sup>1</sup> Dhruv Patel. Retrieved March 16, 2017, from

<http://blog.softwaresuggest.com/why-upgrade-hospital-software/>.

<sup>2</sup> Smith, P.C., Araya-Guerra, R., Bublitz, C., Parnes, B., Dickinson, L.M., Van Vorst, R., Westfall, J.M. and Pace, W.D., 2005. Missing clinical information during primary care visits. *Jama*, 293(5), pp.565-571.

<sup>3</sup> CMS 3X [online] Available at: <http://cms3.hkma.org/pages/index.asp> 13 Jan. 2017