Case Study:

Client & Web-based Application for SASP Patient Data of Workflow

Healthcare Industry

Client Situation

Client wanted to develop a Data Platform that will extract data captured from the EasyPod injection device, annotate and extend this data with further metrics added by a Health Care Professional (HCP) and store all this information in a web-enabled database.

The key challenge was to provide a solution, which would:

- 1. Help the HCP track the progress of all their patients, as well as manage the metrics and data for each patient via a secured, online website.
- Enable Client to use the system to run registry studies to collect and report EasyPod adherence and outcomes data in multiple regions, over a 3-5 year period (to be defined by the study protocol).
- 3. Allow the Client to use the data collected to publish studies and generate marketing claims within each region and internationally.

Experis IT Solution

The application was based on a 3-tier architecture with .NET 3.5 (Visual Studio 2008) used to develop the presentation layer, business layer and data access layer. Web services were used to interface between the presentation layer and business layer. The data was stored in an MS SQL SERVER 2008. Custom controls were used to enable reuse of components. The application and database were optimized to enhance performance. AJAX was used to enrich user experience.

Experis IT classified the overall requirement into 2 categories, namely:

- SASP Client Application
- SASP Web Application



About Experis IT

Experis IT is a leading provider of customized IT staffing, technical and business process solutions with offices across major markets in India and Singapore.

Now a ManpowerGroup company, Experis IT leverages its expertise by providing clients with a single source solution for highly skilled talent and technology solutions in IT.

SASP Client Application

The SASP client application refers to the desktop application needed to be installed in individual HCP's PC. This would be a windows based application, which would be launched when a HCP docks the EasyPod device and transfers the patient data from the existing ECK application. The process would begin with the HCP logging in the SASP application. On successful authentication, the SASP application would follow three alternative process flows, depending on the EasyPod device that has been docked.

- a) New Device & Patient Not in SASP The HCP would be required to enter the patient's name, and then complete a consent gathering process. Once consent is obtained, the EasyPod adherence data would be uploaded and the HCP would be transferred online and asked to enter all the required *non-identifiable* details for the patient. The HCP would then enter patient outcome data i.e. height, weight, bone age, tanner stage.
- b) New Device & Existing Patient already in SASP The HCP would be asked to link the new EasyPod to an existing patient record, and then the EasyPod adherence data would be uploaded, the HCP would be transferred online and asked to enter patient outcome data i.e. height, weight, bone age, tanner stage for that patient.
- c) Existing device associated with Patient in SASP The HCP would be asked to confirm that the patient associated with the device is correct, and then the EasyPod adherence data would be uploaded, the HCP would then be transferred online and asked to enter patient outcome data i.e. height, weight, bone age, tanner stage for that patient.

In each of the process flows above, no data would be transferred until consent has been obtained for that patient. All patient data would be encrypted and transferred to the remote database using Secured Socket Layer (SSL) as the transport channel.

SASP Web application

The SASP web application refers to the website and all web screens that any registered user of the SASP can access. Access to all areas of the SASP site would be strictly controlled via User Account Control (UAC), which was managed in the system via the Administration module.

The three key areas of the v1 web application are:

- a) HCP Dashboard & Reports HCP users would always be directed to a special area of the SASP that would allow them to manage all aspects of their SASP patient data. This section of the site would contain patient listings, ability to select and open any individual patient file, functionality to edit patent data online (including both patient set up data such as birth height etc, and outcome data such as current and historical weight, Tanner Stage etc) and functionality to view patient data and reports. The reports available to the HCP are detailed under SASP-FS-WB1 VIEW BMI REPORT and SASP-FS-WB02 ADHERENCE REPORT later in this document.
- b) MS Bio Statistician Aggregate Reports Both Partizan System Administrators and MS Bio Statisticians would be able to view the four aggregated patient data reports as requested by MS in September. These reports are detailed under SASP-FS-WB03 MS Bio Stat reports later in this document

c) Administration Module – In SASP v1, this would only be accessible by users assigned to the Partizan System Administrator (PSA) role. This section of the site would contain tools and screens that allow the PSA to configure and manage the SASP system; including creating and managing users, assigning and managing user security groups, creating, and managing Sites.

Technology Specifications

Experis IT developed and deployed the Workflow applications using the following technology and services platforms:

Particulars	SASP Client Application	SASP Web Application
Operating System	Windows XP Professional, Windows Vista Business Desktop	Windows 2008 Server
Framework	Microsoft .Net 3.5	Microsoft .Net 3.5
Language	C#	C#
Web Server		IIS 7.0
RDBMS		MSSQL Server 2008 Standard
Browser		IE 6 and above, Firefox 3.0 and above (to current release)

Sample Screenshots

connect		
- Login		
Hea	Ithcare Professional Login HEALTHCARE PROFESSIONAL LOGIN User Name tim Password *******	
	Confirm Cancel	

Connect Desktop Appli	ication	
connect		
E Please S	Select a Patient	
New e	easypod™ Device	
	PLEASE SELECT A PATIENT FOR THIS DEVICE	
	Confirm Cancel	

USER LO	GIN		
User Name			
Password			
	Forgot Password?	/ I	

SITE INFORMATION	: A * Denotes incomplete / No data	ə *			Last Patient Date / Time:30	-Nov-2009 09:49 AM
Name: MS Lyon Address:	Patients Enro	Patients Enrolled In The Registry				
	Name	Last Visit	% of performed injections	Reports	Data	Patient Detai
HELP LINKS	10004-0002-0000010-AM	29 Nov, 2009	11	Adherence BMI	Profile 🛕 Auxiological	4 Years , Female
User Manual	10004-0002-0000016-ER	30 Nov, 2009	58	Adherence BMI	Profile 🛕 Auxiological 🛕	0 Years ,

Logical System Flow



Project Audit by Client & GxP Certification

External Audit conducted by approved Auditor of Client for SDLC process in May, 2010. The Audit committee approved the processes followed and WDC was GxP approved. This Certification is mandatory for any Software implementation in Pharmaceutical Industry.

Client Benefits

Our client and web based applications for patient data provided client with the following benefits:

- · Health care professionals' easy access to SASP patient data
- Reduced time and cost
- Enhanced security to the process
- Improved user experience
- Enhanced performance and reusability

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