

Acuma helps Scottish Ambulance deliver a faster, more efficient service

Background

The Scottish Ambulance Service provides emergency and scheduled ambulance services to a population of over 5 million people, serving the whole of the mainland and island communities. The scheduled service undertakes over 1.6 million journeys a year.

The Service has a number of key performance indicators (KPIs) including incident response times and application of clinical best practice for certain types of incident. Whilst the Service had implemented a Business Objects based solution to process data and present reports in support of these KPIs, the system was cumbersome, unreliable and inflexible in terms of allowing ad hoc analysis.

Acuma was engaged to provide a long term solution that addressed these issues, built on the existing investment in technology and skills and allowed for future expansion into new subject areas.

Solution Overview

Acuma designed and developed a Data Warehouse based on the Service's preferred technology of Microsoft SQL Server. This is populated with data from three Command & Control systems (these collect emergency call and related incident data) and a Clinical Assessment system (this collects data generated from tablet PCs carried by paramedics to record clinical data such as vital signs, treatments administered etc.)

The data warehouse is loaded over night every night using Extraction, Transformation and Loading (ETL) routines developed using Business Objects Data Services. A "lite" version of the environment is also updated every few minutes giving managers almost real-time performance statistics.

Business Objects Web Intelligence is used for end user reports, building on the existing investment and skills. The project included production of a "starter pack" of standard reports to support KPIs but the requirement also demanded that the Business Objects Universe be designed in such a way as to allow trained users to easily create ad hoc reports.

The key technical issue was highly variable data quality (this is partly an inevitable consequence of the nature of the environment in which the data is generated). Whilst a certain level of incomplete data was considered acceptable a number of methods were found to interpret the data in order to automatically "fill in gaps" and improve the utility of the reports.

As a separate but related strand of the project, Acuma also reviewed the Services existing Information Governance policies and procedures and recommended and helped implement some changes to these to bring the Service into line with best practice.

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Project Approach

In common with all Acuma projects, the project methodology used was Acuma's own IVM (Information Value Model) which has been developed specifically for IM projects. It uses robust requirements gathering and design modules followed by an iterative development phase.

This allows for some flexibility in adjusting requirements and design (for example to handle unexpected data quality issues) without the need to invoke protracted and expensive formal change control.

Apart from the usual project phases, this particular project included a strong element of Educational Services. This covered both technical training (see "Management and Support" below) as well as training for a number of ad hoc report writers. The challenge was to introduce them to both the functionality of the product (many of them had no prior experience) and their own data. The training team therefore consisted of product specialists and consultants who had worked on the requirements and design phases.

Management and Support

Rather than opt for a managed service to support the solution, the Service was keen to become self-sufficient in on-going management and development. The project therefore included on-the-job training during the development phase for the Service's technical team as well as a number of educational workshops both before and after this phase.

This meant the development team included a mix of both Acuma and Ambulance Service people. Whilst this extended the project time-scales, it has proved a highly effective approach to ensuring deep knowledge transfer.

Further phases are now being planned, including incorporating data for Scheduled services. Whilst the Service's technical team is now in a position to lead this initiative, Acuma remain available for advice, guidance and implementation resources as needed.

Business Benefits

As a result of implementing the solution Scottish Ambulance are now able to:

- Update performance managers throughout the day so that they can take corrective action before bottlenecks build up in the system
- Identify performance trends and make more informed strategic decisions about the most effective way to deploy limited resources
- Improve clinical procedures by integrating clinical data with performance data
- Provide individual crew members with personal performance feedback
- Provide statutory data much faster and with a greater degree of accuracy
- Quickly identify data quality issues and correct them before they have a significant impact on statistical accuracy.