

Case Study: Audit Commission

Audit Commission

The Audit Commission is an independent public body responsible for ensuring that public money is spent economically, efficiently, and effectively in the areas of local government, housing, health, criminal justice and fire and rescue services.

The Commission employs around 2,500 people. Its corporate services, such as communications, human resources and payroll are based at its administrative centre in Bristol. It also has a network of regional offices where its auditors and inspectors are based, and a head office in Millbank, London.

"IPL brought a fresh and independent look at the way we develop systems and has helped us to take a valuable step back from the day-to-day detail. I am confident that, together, we will develop many more successful solutions that will help us to influence providers of public services to improve the quality of service delivery to the public."

Jeremy Boss
Chief Information Officer



Benchmarking NHS Payment by Results

Background

Data is the lifeblood of most organisations and nowhere more so than within the NHS. Approximately 12 million hospital admissions take place in England each year accounting for over 50 million bed-days across 172 Acute trusts. The accuracy of the data recorded for each hospital admission is imperative to ensure the smooth operation of the health service. Not only does it assist the planning and resourcing of future healthcare, but under the Payment by Results (PbR) system it also directly affects the way trusts are reimbursed for the patient care they provide, through a transparent, rules-based costing system with payments linked to a national tariff.

The Department of Health asked the Audit Commission to develop a Data Assurance Framework for PbR to support the accuracy of inpatient data underpinning the new financial regime.

A key element of the framework would be the development of the National Benchmarker – a central data warehouse and associated business intelligence tools to help identify anomalies in hospital activity data and target areas for further investigation.

IPL's Role

Benchmarking is a technique used to compare similar entities, looking for areas where an entity appears to lie outside the bounds of expected behaviour, known as an "outlier". Following an initial pilot study, a senior IPL solution architect was brought in under IPL's supply contract with Buying Solutions to assist the Audit Commission with putting together a formal benchmarking process for the Data Assurance

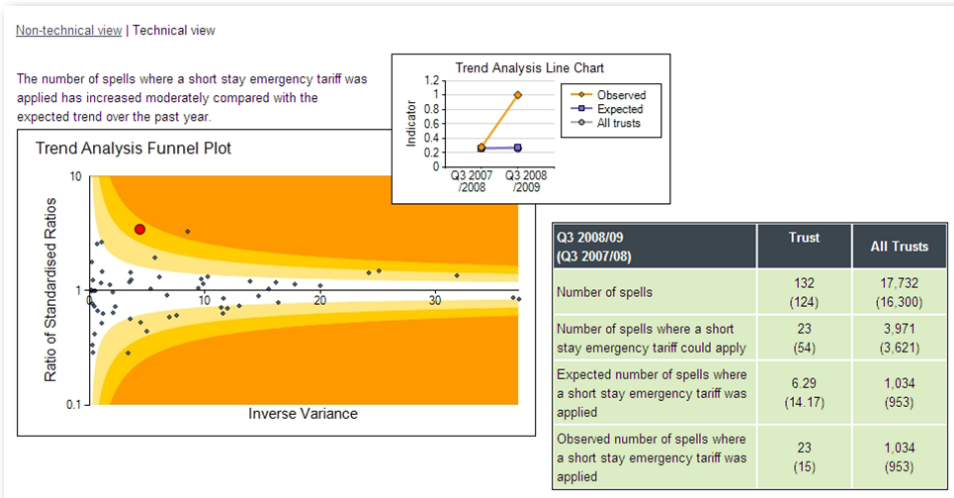
Framework. The goal was to define and develop a system that could be used to identify areas within each trust where data quality was most likely to be an issue.

The solution architect worked closely with the Audit Commission's statistical experts and those of the Information Centre for Health and Social Care, for a period of several months. During this time, IPL helped to identify suitable data feeds, develop a robust set of performance indicators and create a rigorous statistical process for identifying data quality issues. This involved acquiring a detailed understanding of health data and translating highly

The screenshot shows the 'PbR Assurance Portal - National Benchmarker (HRG4)' interface. It includes a navigation menu with 'Home', 'Data explorer', 'Scorecard viewer', 'Help', 'Contact us', and 'Extranet'. The main content area displays a scorecard for 'Inpatient Efficiency (Areas for Improvement)' for the period 'Q2 2008/09'. Below the scorecard, there are tabs for 'Headlines', 'Specialties', 'HRG Sub-Chapters', 'HRGs', and 'All Areas'. The 'Headlines' tab is active, showing two tables: 'High Revenue Top Scorers' and 'Biggest Climbers'. Both tables have columns for Level, Treatment Speciality, HRG Sub-Chapter / HRG, Overall Score, Quarterly Change, Spell Volume, and % of APC Revenue.

Level	Treatment Speciality	HRG Sub-Chapter / HRG	Overall Score	Quarterly Change	Spell Volume	% of APC Revenue
Specialty	430 - Geriatric Medicine		Low	▲	2,639	11.60%
Sub-Chapter		D2 - Thoracic Procedures and Disorders	Medium	▲▲▲	1,904	6.72%
HRG		PB02Z - Minor Neonatal Diagnoses	High	▲▲▲	254	1.11%

Level	Treatment Speciality	HRG Sub-Chapter / HRG	Overall Score	Quarterly Change	Spell Volume	% of APC Revenue
Specialty	100 - General Surgery		Low	●	4,880	11.50%
Sub-Chapter		AA - Venous System Procedures and Disorders	Medium	▲▲▲	798	3.87%
HRG		EB10Z - Actual or Suspected Myocardial Infarction	Low	▲▲▲	279	2.04%



The National Benchmarker has received significant acclaim, allowing NHS organisations to monitor their behaviour against over 40 performance indicators and helping to drive improvements in data quality throughout the NHS. Furthermore, the underlying benchmarking methodology has gained considerable respect in the health informatics community for its use of complex funnel plot analysis and is widely recognised for its depth and rigour.

IPL has provided invaluable expertise throughout the phased development programme and continues to do so. Enhancements to the data warehouse have consistently been delivered on time and to budget, responding to an ever increasing data volume and an enthusiastic user population.

IPL continues to support and promote the National Benchmarker through demonstrations at NHS roadshows and by running training sessions at hospital trusts.

complex statistical theories into a set of clear, unambiguous business requirements.

An IPL data architect was then brought in to lead the data warehouse design, producing the dimensional data model and turning the benchmarking methodology into a set of optimised data transformations on the target Oracle platform.

Finally, the data analysis tools were constructed by a team of IPL designers and web-developers using .NET and the Dundas charting and visualization package.

Throughout the process, IPL provided project management expertise, ensuring the fully tested system was delivered within the agreed time and cost constraints.

Outcome

Six months after IPL began work, the Audit Commission's PbR data warehouse was launched containing over 250 million records. This represented the biggest and most complex dataset ever compiled by the Commission – a remarkable achievement.

Two years on, the data warehouse now contains over 1 billion records (extended to cover both inpatient and outpatient activity) and the National Benchmarker online analysis tool has almost 2,000 registered users.

About IPL

Founded in 1979, IPL has a long history of successfully delivering excellent value consultancy and end-to-end software-intensive solutions to both the public and private sectors.

In recognition of these qualities IPL has been awarded a number of frameworks with Buying Solutions, the national procurement partner for UK public services and an Executive Agency of the Office of Government Commerce in the Treasury. The most recent of these awards are the following two lots under Software Application Solutions:

- Lot 1 - Bespoke Applications
- Lot 5 - Information Management Applications

These allow customers throughout the public sector to place orders with IPL under standard terms and conditions and at agreed rates.

IPL is certificated against three international standards:

- ISO 27001:2005 (Information Security)
- ISO 9001:2008/TickIT (Quality)
- ISO 14001:2004 (Environmental)

The company has a permanent workforce of 260, revenues of ca. £29M p.a. and 40,000 sq ft of secure office space in central Bath.



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