

Improving operations at Gatwick

Systems thinking is supporting one of Europe's busiest airports in delivering better efficiency and effectiveness in the management of its assets across its whole operation.

Gatwick Airport is the ninth busiest airport in Europe handling over a quarter of a million flights and 40 million passengers in 2015.

The owners, Global Infrastructure Partners (GIP), are responsible for the management of all of the airport's operations, from baggage handling to terminal retail shops and the inter-terminal shuttle train to Human Resources. In order for Gatwick to operate smoothly and efficiently all of these different elements need to be well integrated to deliver operational needs.

In 2004, the British Standards Institution (BSI) published a Publicly Available Specification (PAS 55) to cover the management of physical assets. This specification has been refined into the international ISO 55000 series of standards providing a framework for asset management policy, objectives, strategies and plans which operators can use to develop a best practice approach to asset management. In a complex asset management environment such as an airport,

how is it possible to achieve and maintain compliance to such standards across different departments with varying responsibilities and needs?

What the IDC did

The challenge for the IDC was how to create a simple and easy process which could readily be mapped across different departments, with very different assets, that met ISO 55000 requirements, whilst also delivering operational efficiency and cost savings.

The IDC researcher adopted a systems perspective and built upon LEAN and six sigma conceptual frameworks to develop a new model for improving value in repetitive processes. Through a number of case studies across different airport operations, a mixture of Action Research methodologies were applied and a Value Improvement Model (VIM) was created, which advanced existing approaches of lean and six sigma by providing additional

review layers and, importantly, considered human interactions with the processes being mapped.

The VIM comprises of eight steps; Define, Plan, Do, Measure, Check, Analyse, Act and Control, and includes built in feedback loops to constantly improve the cycle. The VIM approach was successfully applied to 5 projects at Gatwick, including the shuttle train, airport security body scanners and baggage handling systems.

The Impact

The outputs of the project have helped operational and efficiency savings at Gatwick Airport improving overall service delivery:

- The outputs of the project supported Gatwick in achieving its ISO 55000 certification.
- Applying the VIM to the shuttle train and body scanner projects not only improved these systems' efficiency but also identified potential savings of up to £10 million based on savings in staff time and equipment purchases over a 10 year period.
- The inclusion of people within the process provided human capital benefits in terms of the recognition of the complexity of certain processes within the airport e.g. security and baggage handling.
- Improvements in performance through systemising capital projects, operations and change management into a systems approach.
- Increasing compliance for statutory inspections of equipment, facilities and infrastructure from 95% to 100% reducing the need for follow up inspections saving time and associated resources.
- Increased transparency through established asset management reviews which were visible at board level which acted as a report on the health of assets across the business.
- The IDC researcher through training courses educated over 500 employees and got people from diverse backgrounds and departments working together on common challenges.

The Future

The underlying research from the project is currently being applied by the IDC researcher and their supervisors to challenges across a wide range of scenarios from refining the equipment used in Olympic cycling, to improve performance, to ensuring that brewing processes and packaging systems remain operational, to whole life cost approaches to asset management for Highways England and with world leading engineering companies such as Vestas and Rolls Royce.

Related publications

Gibbons, P.M., Kennedy, C., Burgess, S.C. and Godfrey, P, The Development of a Value Improvement Model for Repetitive Processes (VIM): Combining Lean, Six Sigma & Systems Thinking, International Journal of Lean Six Sigma, Vol. 3 Iss: 4, pp.315 – 338, 2012.

Paul M. Gibbons, Colin Kennedy, Stuart C. Burgess, Patrick Godfrey, (2012), "Developing an asset management value improvement model (VIM) approach for an airport operational engineering environment", International Journal of Quality & Reliability Management, Vol. 29 Iss: 7 pp. 819 – 841, 2012.

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