Enhancing and promoting the use of safety performance indicators

T953 - January 2014

Background

In September 2011 RSSB published a guidance document Measuring Safety Performance - How to develop and manage safety performance indicators for Britain’s railways. This was a deliverable from research project T852 'The application of leading and lagging indicators in the rail industry'. T852 was commissioned to investigate and support the railway in responding to recommendation 7 of the Baker Report, which followed the Texas City Refinery explosion in 2007; that is improving safety performance indicators (SPI) through considering proactive measures and monitoring process safety in addition to personal safety.

T953 was implemented to continue the research and develop the application of SPIs within the rail industry in Great Britain.

Aims

There are three main objectives of this follow-on research:

- To develop training and briefing materials to support the industry's understanding of SPIs, and promote the outputs from T852 by improving access to the materials and resources already created.

- To test and develop the guidance further with respect to its application and appeal to the wider rail industry through the:
  - Running of trials with other rail industry companies to develop case studies or examples.
  - Continuing trials with the train operating companies (TOCs) from T852 to further test steps 5 to 7 of the guidance's SPI process: analysis, reporting, and review.

- To extend and enhance guidance on SPIs by:
  - Considering relevant new developments and understanding SPI use within the rail and major hazard industries.
  - Exploring analysis and reporting techniques to maximise the benefits from using SPIs.
Identifying good practice principles to support benchmarking, including when it is appropriate, how it should be done and how it can inform the decision making process.

Findings and deliverables

A number of workstreams have been pursued in this project, which have resulted in a number of different outputs for the industry's use:

**Training and briefing**

There was a need to provide briefing materials to inform the industry on the Measuring Safety Performance guidance. Therefore briefing packs were developed for:

- Senior managers
- Staff involved in implementing the guidance
- Other employees

In addition, a 1-day training package was developed for people who are championing the SPI process in their companies to provide in-depth coverage of the steps involved in developing and managing SPIs.

**Access to supporting materials**

The outputs of T852 and T953 include a number of supporting materials such as case studies, template forms and more in-depth guidance. These have all been brought together into an SPI tool kit and made accessible through the RSSB website.

www.rssb.co.uk/SPR/Pages/Measuring-Safety-Performance.aspx

After February 2014:


**New trials**

The process for developing SPIs outlined in Measuring Safety Performance was previously supported by trials involving passenger train operating companies. The trials were subsequently documented as case studies. In order to expand the appeal and experience of the guidance further trials were held with companies involved in differing railway activities. Work with an infrastructure contractor and a rail plant hire company, along with input from another TOC, has resulted in the production of 4 further case studies. These have involved developing SPIs to help with the following areas of risk:
Fatigue management
Possession planning
Delivery and collection of road-rail plant
Train driving

Supporting T852 trial companies
The project team continued to offer support to the companies involved in the T852 trials. One of the findings of this is, because the work was ‘branded’ as a trial, it wasn’t fully embraced by the companies and the full benefits were not realised. A common theme that emerged from the research is that commitment throughout an organisation is essential to implement a successful SPI programme.

New developments
New developments were explored by means of a literature review, 2 inter-industry expert seminars, and subject expert interviews. The latter 2 activities enabled sharing with and learning from other industries. Other industries have varying degrees of experience in implementing SPI programmes and face the same questions and challenges as the rail sector. The literature review did not identify any new methods that required changes to the basic SPI process. However, some of the information was used to support the existing guidance and provide additional guidance; for example, in the areas of risk control visualisation and prioritisation.

Analysis and reporting
The research sought to identify good practice approaches to analysing, presenting, and communicating SPI data. This led to the production of associated guidance documents for use by railway companies.

Additional guidance
Work with industry partners identified the need for simpler guidance that was easier to digest. The positive feedback received with respect to the original T852 guidance document meant that very few changes were required.

Investigation of benchmarking found that good use was made of benchmarking outcome indicators, but that the real value would potentially come from benchmarking activities in order to learn and implement best practices. Currently there is very little experience and demand for this type of benchmarking.
Method

The majority of the deliverables prepared during this project (including: briefing packs, training course, case studies, and supporting tools) have been developed using a collaborative approach. This involved review by the project team, pilot testing, and further review by the project steering group.

Two expert seminars were held to share good practice; these involved representatives from: aviation, oil and gas, power generation, non-UK rail, the HSE, and academia. Industry interviews were also held with companies that came to our attention as having implemented their own SPI programmes. The seminars and interviews provided learning points that fed into the development and update of guidance material.

20 relevant papers from conferences attended by the research team, and an internet search using ‘Google Scholar’, provided the majority of the source material for this review, along with follow-up of relevant reference material.

Next Steps

RSSB will continue to support the industry in developing safety performance indicators. This will be part of RSSB core services, responding to requests from member companies for training and advice, and continuing to promote the guidance and facilitate sharing of industry experience.

There are no immediate requirements to develop further guidance and tools with respect to SPIS. Some parts of the rail industry still need to be convinced of the benefits of running SPI programmes, and there are challenges relating to the implementation and integration of SPI programmes into established reporting arrangements. The recent introduction of the Common Safety Method for Monitoring may provide renewed industry focus on SPIS.

Contact

For more information please contact:

Michael Woods
Head of Operations and Management Research
R&D Programme
RSSB
enquirydesk@rssb.co.uk