

Translink NI Railways - Resilience against the Snow

1/12



Key Points



Translink NI Railways - 2011 Winter preparedness project.

Winter 2010/11 - 12% of services delayed or cancelled.

Carried out major works in 9 months, which included installing barrier heating elements and training auxiliary staff.

In cold weather of March/April 2013, delays and cancellations reduced to a third of the figures two years previous.

High quality adaptation: reviewed situation and vulnerabilities, studied future projections, targeted key areas for adaptation.

This case study details Translink's strategy to build resilience on their railways after the extreme winter in 2010/11. This follows projections outlined in the Northern Ireland Adaptation Programme of further extreme weather.

Translink is the main provider of public transport in Northern Ireland for both rail and roads. The company works hard to achieve its high customer satisfaction rates. In the latest Annual Report, Translink note that their railways offer a "99% 'on-time' performance." In December 2010, one of the coldest winters on record began to severely affect their services. The company were unhappy with the network's ability to deal with periods of extremely cold weather. During a four week period stretching into early January 2011, 12% of NI Railways services were either delayed or cancelled.

Winter 2010/11 was one of the most severe in decades, with an average December temperature of -0.6°C , making it officially the coldest on record. Snow lay on the ground for weeks.

Due to this, railroad points on the network became jammed with compacted snow and level crossing barriers froze. This delayed train services. Furthermore, as many roads were impassable with snow, Translink saw additional demand on rail services from passengers who normally travel by road.



Overview

The project aimed to increase the resilience of NI Railways during periods of extremely cold weather. This was achieved through the production of a detailed report into the company's performance during 2010 and the subsequent actions taken to allow operations to continue in adverse weather.

Objectives

Performance reports demonstrated significant impacts to service reliability and punctuality resulting from the cold conditions. Key actions for improvement were identified by operations and infrastructure teams.

The following objectives were outlined to be achieved by November 2011.

Install heating elements in high risk crossing barriers to ensure they will not become frozen in position.

Ensure reserve stocks of salt and other de-icing products are in place at key locations around the rail network.

Train a 'reserve' team of employees on auxiliary duties to deal with adverse conditions and degraded working situations (e.g. to keep points with no heaters clear during heavy snowfall).

Make improvements to fleet air systems, preventing rolling stock from freezing up overnight.

Implementation

Translink also use a number of additional strategies in planning for its operations. It subscribes to a number of weather reporting tools from the MET Office. These are used to help inform decisions about resilience, such as stock ordering and creating a track work roster for employees.

Translink also regularly compares its winter preparedness level to that of its counterparts in Great Britain. This allows the company to identify best practice, review the challenges faced by similar organisations and assess the actions taken to mitigate them.

Challenges

The project required significant collaboration from multiple departments to achieve the objectives. These included Rail Services, Infrastructure and Marketing divisions.

There was no overall fund for the winter preparedness project, so it required careful management of funding streams from different areas of the business.

Translink employees with little or no experience of auxiliary winter preparedness had to learn new skills and gain certification to work safely on railway tracks.

Several internal stakeholders, as well as Translink's Government sponsor DRD, had to be constantly updated about progress on the objectives.

A nine month window was set in which to deliver the project.

Successes

By winter 2011 the following had been achieved:

Heating elements in high risk crossing barriers were installed.

More staff available to respond when snow is forecast. They manually clear snow from points where no heaters have been installed and deal with crossing problems.

Reserve stock of salt and other de-icing product (a product which is applied to the points to prevent snow and ice build-up).

In addition, to date:

All infrastructure vans are now supplied with snow socks to enable staff to access the network, as far as is safe or practical, in poor road conditions.

Of over 200 sets of points on the rail network, 106 now have 'point heaters' fitted which keeps the points free of snow/ice build-up.

Improvements to Translink's web-hosting allows them to deal with periods of increased demand.



A Translink employee gritting at a station

Climate Adaptation

Translink set an example by analysing the impacts of an extreme weather event on its infrastructure. It then acted to increase its resilience for the future.

The Northern Ireland Adaptation Programme states that “extreme weather events... are also likely to become more variable and more frequent” in the future. This means that, although winters are projected to generally be warmer, there will be periods of time when the climate will vary to make it extremely cold. For example, in 2013 the cold weather arrived, not in winter, but in March/April.

There is also evidence to suggest that because of reduced speed and increased variability in the jetstream, a period of cold or wet weather could be sustained for a longer period of time.¹ This was the case with the floods in England in early 2014.

Translink implemented measures to improve its physical infrastructure. It also improved equipment and training for additional staff to assist with poor weather conditions. NI Railways is now in a good position to cope with extremely cold weather, improving customer satisfaction and catering for the influx of new customers who may find roads impassable.

Lessons learned

Translink’s website experienced unusually high volumes of traffic during the 2010/2011 heavy snowfall period, which impacted on the availability of normal web services. In addition, due to the volume of calls to the contact centre, passengers were unable to speak to an operator. Translink had begun issuing travel updates via Twitter earlier in 2010. During this period it managed web availability by introducing a holding page that redirected traffic to social media for real time updates. The company has further invested in resources to manage its social media.

Installation of heaters on railroad points has so far worked well to keep services operating. There is an on-going project to install an additional 44, which is due for completion in 2015. This will give NI Railways 150 points with fitted heaters, the locations of which have been prioritised by Rail Operations.

Improvements have been made to the web hosting environment to achieve greater flexibility and deal with surges in demand. In March 2013 the site experienced a surge in visitors (exceeding that of December 2010), but the website sustained normal performance levels throughout the period.

A new Journey Planner was launched in March 2013 with versions available across desktop, mobile and app. The Journey Planner is hosted separately to the website. This provides further flexibility in managing demand across channels and across hosting environments by removing a single point of failure. The Journey Planner has incident control capability to assist with cancellations, diversions and disruptions. Work is on-going to introduce, as standard, real time information capability within the Journey Planner.

The call handling system in the Contact Centre was replaced in 2012 to increase call handling capacity and messaging flexibility. In addition, the server supporting information systems in the Contact Centre has been replaced.

The new telephone system is ‘cloud-based’ which provides greater resilience and business continuity. This also provides access to the phone system in the event of a Contact Centre communications failure.

The adverse weather in March and April 2013 was the coldest since December 2010. This allowed Translink NI Railways to put its actions to the test. 4.28% of services were still delayed or cancelled, but it was a significant decrease from 12% two years before.

¹ <http://www.bbc.co.uk/news/science-environment-26023166>



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