



# Using bowtie to plan for contingency

How The London North Eastern Railway developed a Bowtie as both a risk assessment and a project plan.

## Summary

### The need

Set up a substitute organization to use in event of a strike, ensuring safe operations.

### The solution

Bowties as a method to check assurance and as a plan for the contingency teams to deliver.

### The benefits

BowTieXP helps create an overview of the risks, acts as a visual, countdown plan, checklist, and as a reminder of all the obscure barriers. BowTieServer allows to involve more people in the organization.

**The London North Eastern Railway, formerly known as Virgin Trains East Coast, developed a bowtie to be used as both a risk assessment and a project plan. In case of a strike, the company has two weeks to organize contingency operations. Using the bowtie ensures the operations are just as safe as during normal operations.**

“We want to be able to set up a substitute organization to use in the event of a strike. Our goal is to deliver a full service, without any impact for the passenger. This has to be done in exactly the same safe manner as every other day of the week. Every replacement needs to meet the same strict requirements; everyone has to be trained and assessed as we would do to every other member of staff”, explains Anthony Pateyjohns, Safety and Sustainability Risk Manager at London North Eastern Railway (LNER).

# LNER

LONDON NORTH EASTERN RAILWAY

*London North Eastern Railway (LNER) is a UK railway company based in York. The company was formerly known as Virgin Trains East Coast and employs 3000 people. LNER serves the whole east coast route from London*



## Both risk assessment and project plan

The railway company developed a bowtie to be used both as a method to check assurance and as a plan for the contingency teams to deliver. “This bowtie was created to assess every set of critical roles needed to be able to keep the trains rolling, from catering to dispatchers. For instance, the role of train manager has to be covered by a member of the management team who is to be trained as a train manager. Each barrier is a business process which ensures that a train manager is competent to do the job,” says Anthony.

The bowtie gives an overview of the risks at a glance. “We mapped out our significant safety issues, such as accidents, infrastructural problems and maintenance issues. On top of the day job, we recognized that this would be a relatively inexperienced work force, so we have to be extra careful. We created additional controls in areas where we thought we could be quite weak.”

## Two weeks to set up a substitute operation

Under UK law, companies must receive a strike warning two weeks in advance. If that happens, a multitude of actions must happen at once. “This bowtie sits on a shelf ready to be dusted off when we need it. When we get the 14-day notice, every barrier would be red, which means we don’t know whether the controls are in place. Throughout the two week period the business works on turning all the barriers yellow (in place/ready) and as soon as something changes the Safety and Sustainability Team go out and do our assurance checks before finally turning it green (in place/ready and checked).”

Responsible people within the organization use the bowtie as a checklist as well: what needs to be done to get ready? “The people responsible for our customer experience function can go through the bowtie and when all signs are green, they can say ‘we can assure a safe operation’.”

## Proven during a strike

The bowtie has already proven itself during one strike and two near misses (two strikes which were called off). “During the strike, the contingency team fulfilled their contingency roles according to the strict controls and requirements we had in place. The other two times we were prepared and could assure a safe operation, but the strike was called off,” says Anthony.



*Anthony Pateyjohns (CMIOSH DipNEBOSH) is the UK Rail Safety Professional and Safety and Sustainability Risk Manager at London North Eastern Railway (LNER).*

*He worked on both sides of risk management, from train to training room. He has seen really good risk management and some not so good. He believes however that any risk management, good or bad, is something if it's brought to life for the people exposed to the risk.*

*"Every effort you make, big or small, keeps you moving forward." Fundamentally he wants to see people from ballast to board room talk about risk in the same language and to demystify some of the dark arts around risk management.*

The plan gives structure to the two-week period. "In the first seven days, we send updates to the people who are responsible for the contingency teams and to our safety & operations director as well. In the second week, we revert to a daily update; a daily breakdown of each threat line to each of the lead people we have in that threat line. This daily update also goes to our safety & operations director. We display this bowtie on the wall of the 'war room' as well, which gives everyone who works on it the status of each control measure at a glance."

The bowtie contingency plan worked well. "It allowed us, as a team, to be resilient and efficient. We had a high degree of confidence in using the contingency work force. It also helped us to ensure that we did not introduce any new risks."

## Best practice

The Office of Rail and Road (ORR), the independent safety and economic regulator for Britain's railways, kept a close eye on the use of the bowtie method for a contingency plan. "Initially, they were a bit skeptical, as no-one had done this before, but in subsequent events they were much more comfortable. The first time, they wanted to check everything. Now, they consider this best practice in our industry and it's so much simpler to walk them through than a narrative risk assessment," explains Anthony.

Using the bowtie visualizes the plan. "We can show that we do exactly what the standard prescribes and that we're not jeopardizing anything. Also, we can show that we're not introducing any risks to the wider business." The plan helps from a consistency perspective as well. "We don't need to make a new plan every time. Also, it helps to remind us of all the obscure barriers."



*Hazard & Top event of LNER's contingency bowtie diagram*

*“BowTieXP is a next generation risk assessment tool that uses the bowtie method to assess risks. BowTieXP is unique in its ability to visualize complex risks in a way that is understandable, yet also allows for detailed risk based improvement plans. Many global companies have chosen BowTieXP.”*

**Anthony Pateyjohns**



## Efficient software

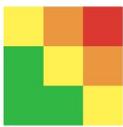
LNER chose BowTieXP software to support this bowtie, and the other bowties the company uses. “I don’t think we would have attempted the contingency plan without the software. It would have been too resource intensive to create the plan and to put it out to everyone. We tried to do it in PowerPoint, but it was incredibly frustrating and slow.”

Keeping the end users in mind is important, believes Anthony. “It needs to be accessible and understandable for all our end users.” The railway company started with a trial license for BowTieXP. “When you start to use it, you notice how mature it is. We soon realized the capabilities of the software, and how easy it is to use.”

As the next step, the rail company wants to add BowTieServer to their risk management structure. “Using BowTieServer will enable us to involve more people in the organization. Also, we would like to use it to control and visualize other risks as well.”

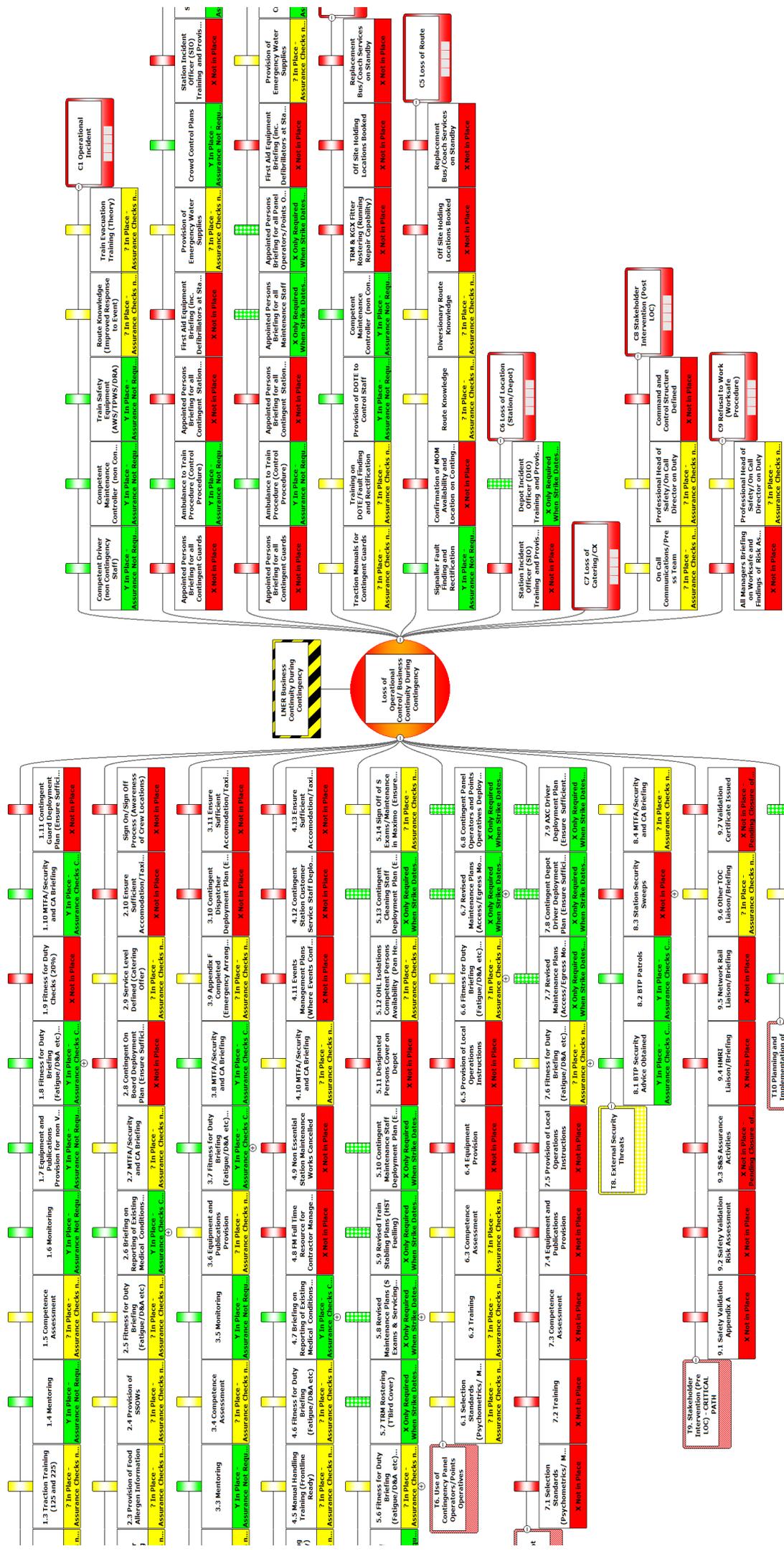
## Easy to use

Looking back, Anthony is enthusiastic about using the bowtie method and BowTieXP software. “The first time we needed to think about properly using a contingency plan, we had some plans in Excel and some plans in people’s heads. We were reliant on the experience of three to five people in our organization. To do a plan in Excel or non-bowtie software meant it was difficult for people to use. If you use something every day, Excel works just fine, but the contingency plan is something that possibly won’t be used for years. We needed to have something very simple that people could just pick up and use as a countdown plan. The detail is there, but it is hidden.”

 **CGE**  
**Risk Management Solutions**  
 Making risk understandable

[www.cgerisk.com](http://www.cgerisk.com)

Vlietweg 17v  
 NL-2266 KA, Leidschendam  
 The Netherlands  
 Phone: +31 (0) 88 100 1350



Part of LNER's contingency bowtie diagram in BowTieXP