

Digitisation within Irish Rail for improved safety and risk reduction



Perth, October 2019

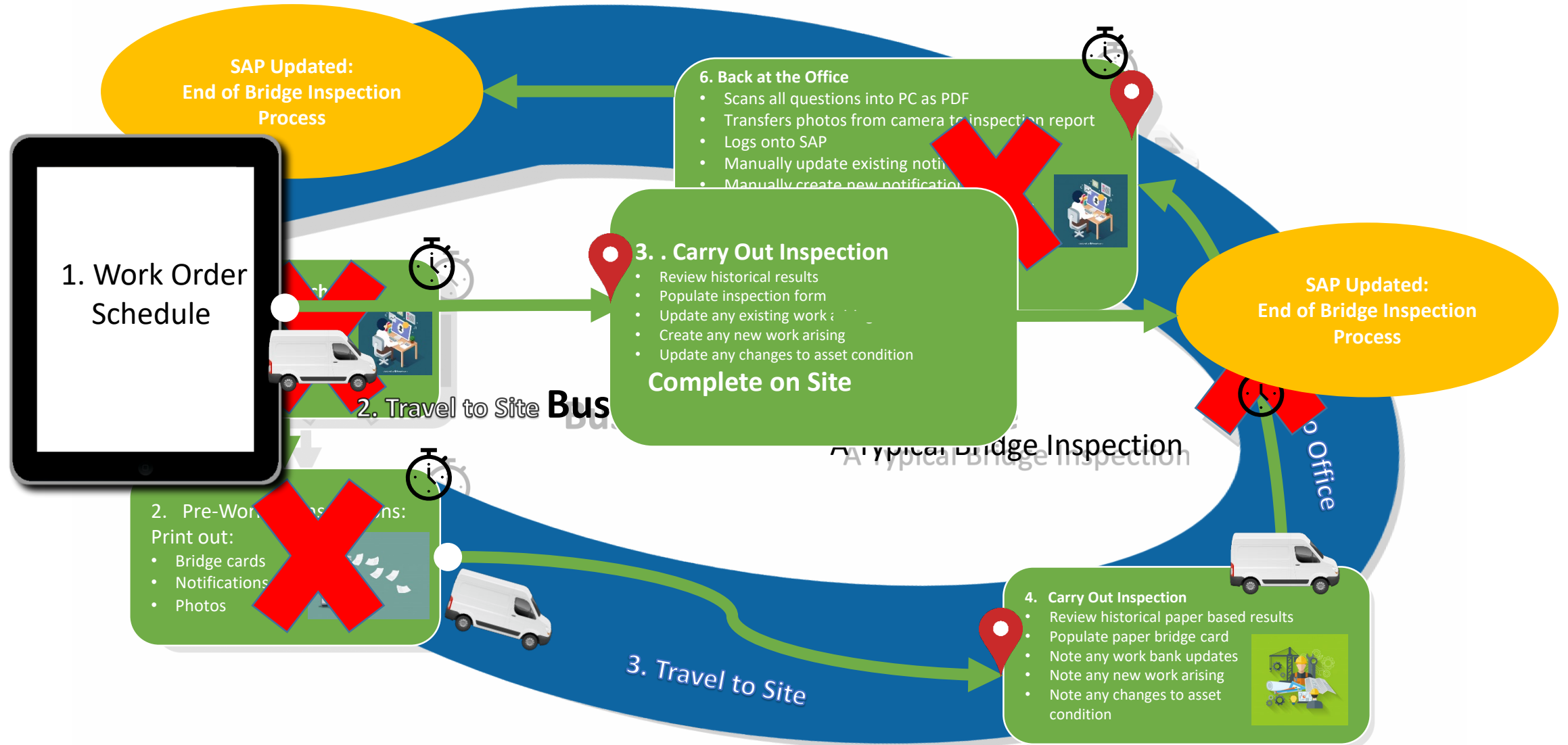
4 Key Questions



1. Why undertake a digital transformation?
2. What does our digital transformation look like?
3. What are our challenges?
4. What benefits have we realised?

Where were we coming from?

 Non-Value Added Time



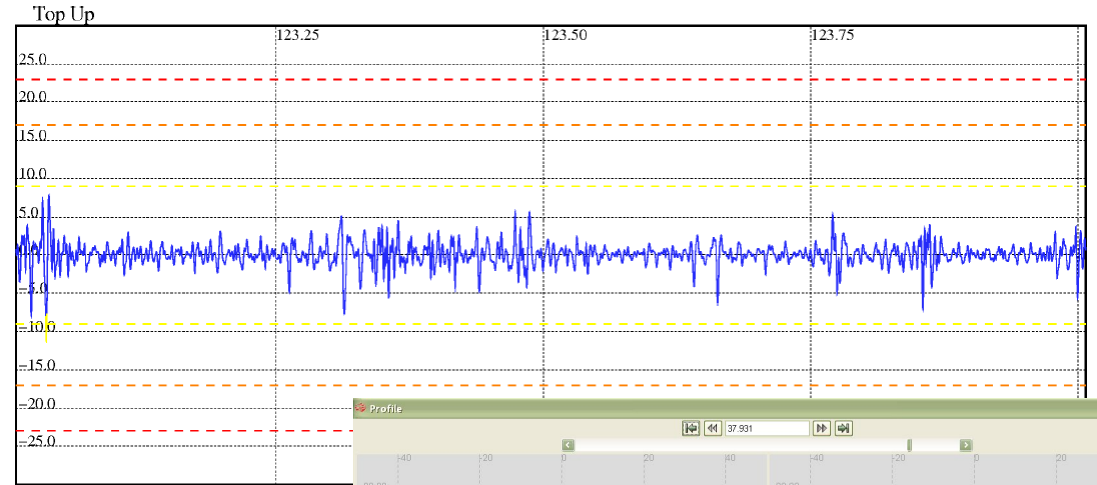
Where do we want to spend time?



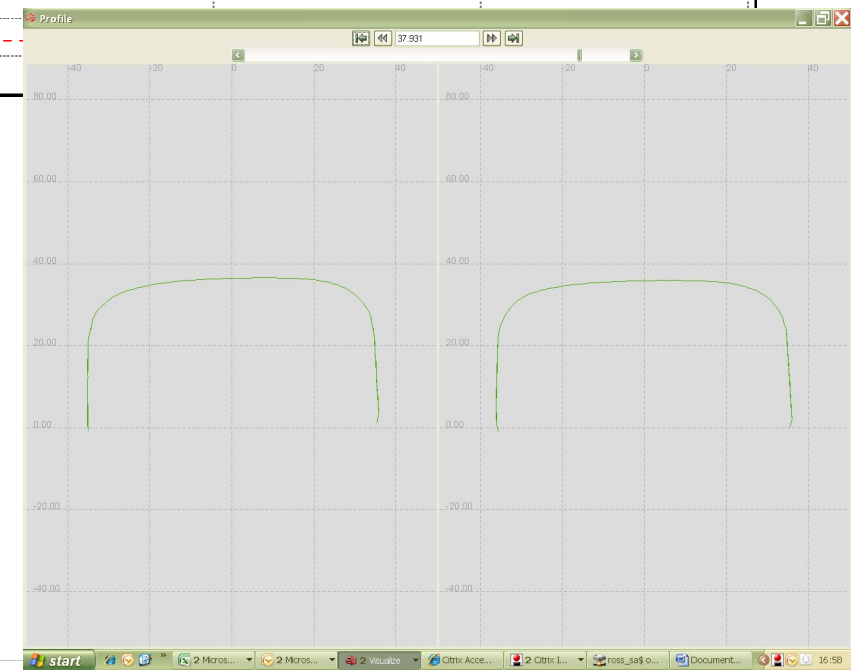
Or



Where do we want to spend time?



Or

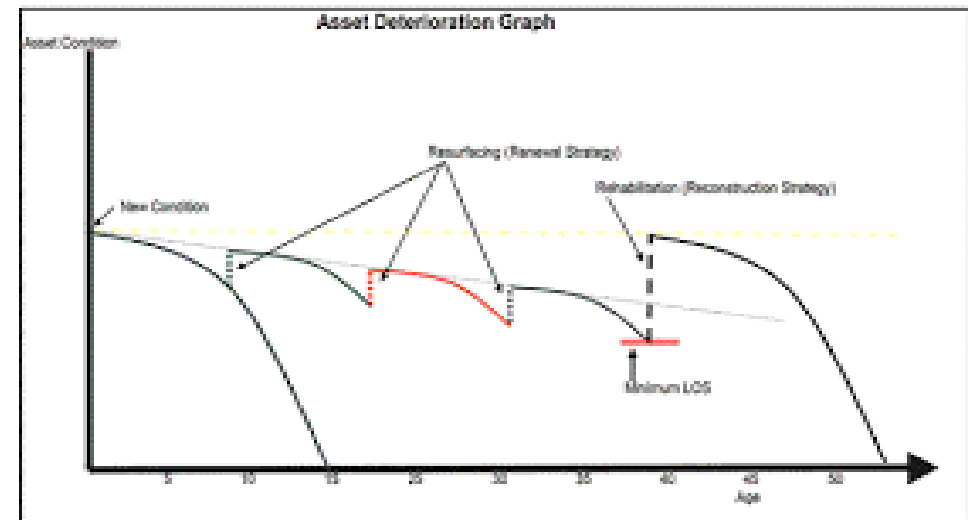


Spending more time with the asset

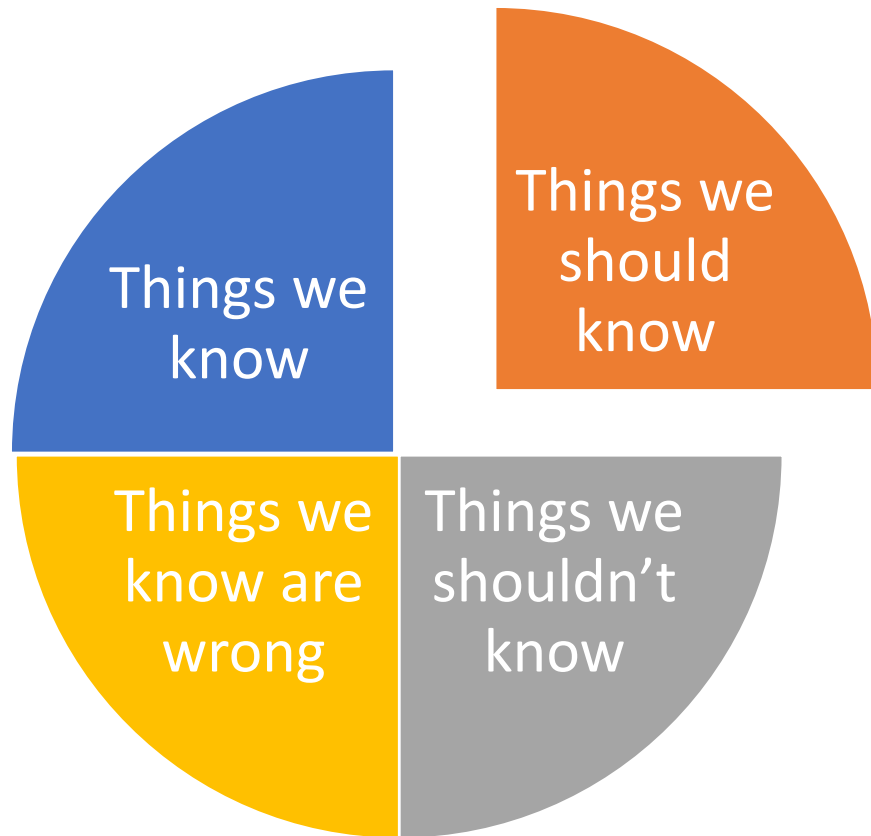
- Facilitates the quality of the asset inspection to increase
- Identify root issues or medium and longer term interventions
- Allows us to do more of the things we should be doing
- Move towards 'best practice' for asset management – what we should do instead of what we can do
- All this leads to risk reduction and a safer asset

Management of deterioration

- The management of assets is cyclic by nature – new assets deteriorate over time until they are eventually replaced
- The objective therefore is the **management of deterioration**
- This is a repetitive cycle – therefore it presents the opportunity for learning from previous cycles
- This requires digitisation to facilitate learning from previous cycles



Supplement our knowledge base



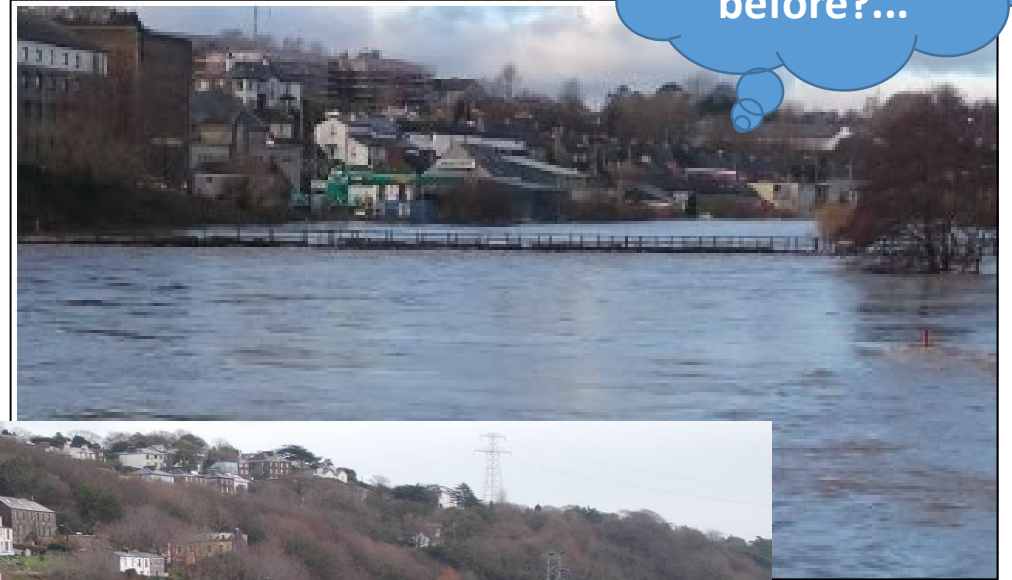
1. The use of technology and decision supports can transform how we look at assets
2. Traditional condition based assessments are transformed into multi-dimensional views of the asset
3. It facilitates a risk based evaluation that ensures the safety prioritisation is in those areas that most need it

Why undertake a digital transformation?

"I remember when....."

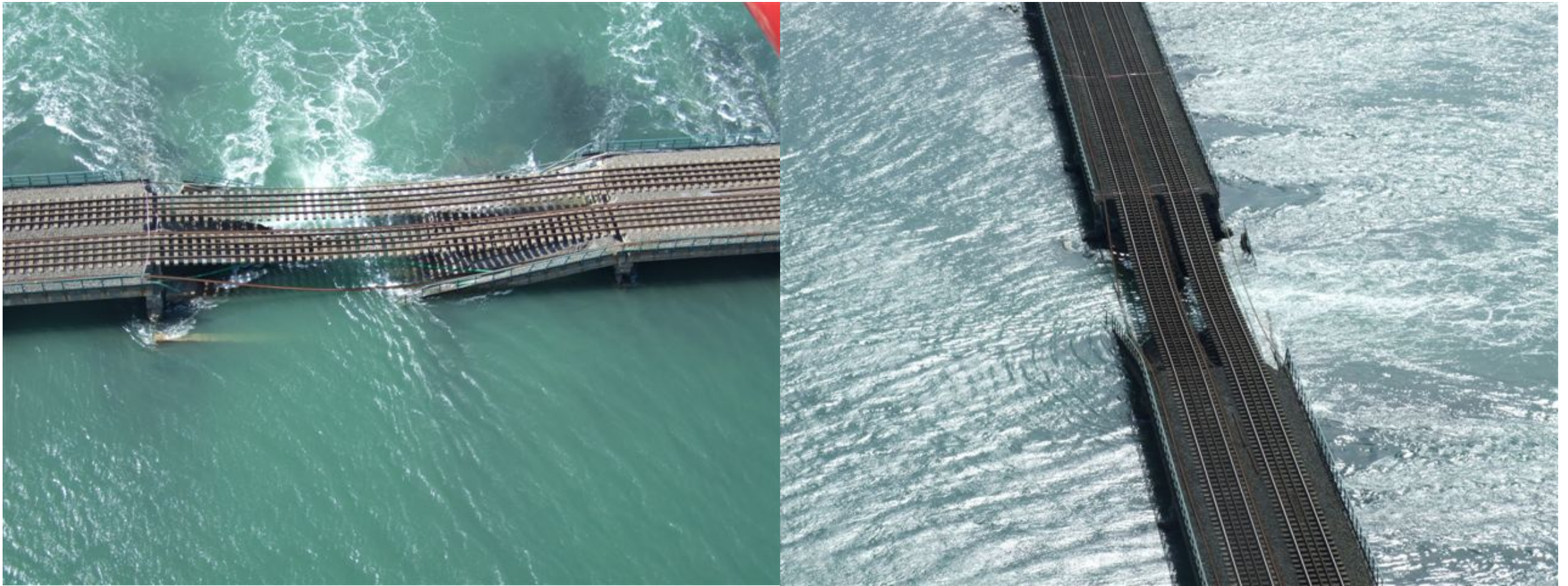


"I think this happened before?..."



"I'm not sure of the details of the asset..."

The potential consequences of lack of asset knowledge.....



The role of digitisation

- An evidential based suite of systems provides clear, unambiguous information on health of assets
- A reduction in subjectivity – but need to retain the key balance between subjective expertise from competent people vs. an over reliance on data in the decision making
- Digitisation provides the tools to manage assets better – it does not however manage them for you
- A crucial point of understanding is the digitisation provides the capabilities to support the decision making process – it does not replace the existing decision making process

Getting our staff off track

- A range of technological investments have facilitated a removal of people from the live railway
- Drone technologies not only remove people from the line but also allows inspection in areas not easily reachable by inspectors
- Other examples include remote monitoring of assets and adverse weather event warning technologies



What does our transformation look like?

Possession
management
and mapping

Mobile
solutions

Control
rooms and
planning

Lone person
working

Risk Models

Information
on plant &
equipment
certification

Vehicle
Management
Systems

Suite of
decision
support tools

Remote
Monitoring

Competency
Management
& Training

Challenges - Before you leap.....

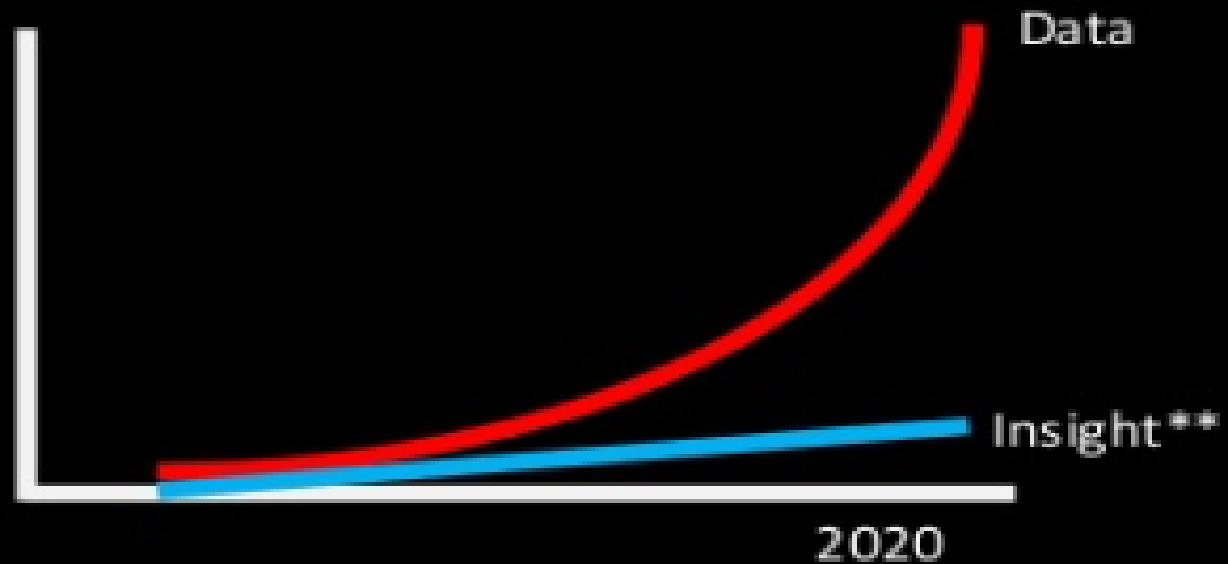


- Involve the end user
- Resist temptation to get all functionality – develop what you need!
- Don't cheap out on the tools and equipment required to carry out the job
- Identify and put in place the necessary supports
- Did I mention to involve the end user!

What are the challenges?

THE PROBLEM WITH (BIG) DATA

35 Zettabytes



Assurance and compliance – the risk of over dependence on technology

- A key objective is that of demonstrable assurance and compliance of our whole system
- This is key so as to offset the real risk of dependence on technology or digitisation – the balance of dependence is crucial
- This is offset by having all processes contain relevant assurance checks and programmes of compliance verification
- These take the form of formal assessments of our people as well as programmes of compliance checks on all our asset groups
- Each process is developed as a cycle and this crucial element of assurance and compliance verification closes this cycle (for people and assets) and helps offset potential dependence on technology, data, systems etc.
- Technology supports the decision making process – it does not replace it!



What benefits have we seen?

- More time with the asset
- Quicker decision making on asset maintenance and renewal interventions
- Building and documenting a better profile of the asset – future performance of the asset influenced by previous cycles of inspection and maintenance
- Provides a sound basis for funding as decision making is complimented by objective evidence
- Ensures that prioritisation is optimised
- Assists with Continuous Improvement by easily highlighting shortfalls
- Promotes standardisation and sharing of knowledge which in turn increases the competence level of our people
- Confidence to all levels and all stakeholders!



How does this transformation impact safety?

- More time to concentrate on the quality of the inspection – if the quality is improved, the safety of the asset improves
- Asset data is available, configurable, interrogate able
- Information available to all levels
- Information is retained – no corporate loss of information when someone leaves or retires
- Time spent on the assets, not on the process
- Offers transparency and assurance to all stakeholders



Benefits and Risk Reduction in numbers!



20,000 Assets to inspect annually

3990 Annual days saved

9,000 Bridge and earth structure assets

16% Total reduction in high risk failure

2400 Track kilometres

74% Reduction in safety imposed restrictions

750 Level Crossings that require the user to manually operate the gates

64% Risk Reduction in user worked level crossings

Benefits and Risk Reduction in numbers!



7% Reduction in total Network wide risk

0 Number of track buckles in 5 years

14% Net improvement In track quality

55% Reduction in Platform over-runs

31% Reduction in road traffic accidents

100% Level of our business that has been transformed through digitisation

THANK YOU!