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Digitalisation reducing Risk in Irish Rail

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Digitalisation offers the prospect of a transformative impact on how business is conducted in the live railway environment.

New and emerging technologies are constantly being developed and offered which provide opportunities for efficiencies, transparency and risk reduction. The journey of digitisation is one that has been undertaken by Irish Rail and while the transformative benefits are being realised, this journey is itself not without its challenges.

Ultimately there are 3 interrelated areas to a digitalisation transformation in a live railway. Each area is dependent on the next for the successful achievement of the overarching goals of meaningful risk reduction, a safer working environment and a transparent system for the management of our assets, systems and people.

For Irish Rail's digitalisation journey, each key area presented different challenges along the road to the overarching goals. These are set out below:

Key area 1: The Development Phase

The initial point of understanding in the digitalisation journey of Irish Rail was crucial and can be juxtaposed to any other similar railway, or other industry, environment – that is that this is Not an IT project. Instead it is a Business project that relies on and is facilitated by IT. While this may seem basic, it is a key point of understanding that can be lost in the developmental aspect of this type of endeavour. Previous historical examples of failed IT system development and implementations testify to this point where the focus was on the system, its capabilities and all its inherent complexities but with less focus on the actual business requirement, its practicalities, ease of use and so on.

Having realised this early on, the Irish Rail response has been consistent – put the end users, those embedded in the business, at the heart of the development of the systems. For example, for each asset inspection type that was to be converted from traditional paper based system to digitally recorded, a working group was established with representatives of those

who undertook the asset inspections regularly – whether it was bridges, earth structures, platforms, ultrasonic rail defects etc. These representatives were directly responsible for defining the content, visual context and overall business process. In other words, they defined the scope, which was then developed by the IT expertise.

If the objective is risk reduction through digitalisation, those who can most inform how this is achieved are those carrying out the works currently.

Another key objective in this area is in defining the actual business requirements and not over-subscribing based on the capabilities of the digital systems.

The temptation often with new technologies and IT systems is to embed them into the management systems with all their capabilities but without looking at what the actual business need is. For example, data capturing solutions are often infinitely unlimited in the amount of data that can be captured but does the business requirement really need reams of data fields on every single aspect of every asset? The concept of 'less is more' is key here – the more data that is captured on an asset, and therefore extrapolated against every asset of its type on the railway system, the more data that needs to be maintained and kept up to date. This can be one of the key downfalls which leads to swathes of empty or half-completed data fields which ultimately leads to an undermining of the integrity and confidence of the data within.

This can ultimately be counter-productive and instead of actually reducing risk and providing greater transparency, can lead to a higher risk situation where information is unreliable or decision making becomes compromised.

Underpinning good decision making is the integrity of the data that informs those decisions. If the risk reduction strategies that are developed are done so based on incomplete, incorrect or ineffective data, those risk reduction strategies will invariably not work.

The capability of the system should not be the driver but instead the realistic and achievable data requirements that the business needs.

Therefore, the development phase of digitalisation in Irish Rail concentrated very much on the 'need to know' over the 'nice to know'. This led to a rationalisation of information held within the data management systems which immediately became more reliable and easier to maintain. As a result confidence in the asset data and therefore in the decision making based upon that data has grown.

Key Area 2: The Implementation Phase

The implementation phase of a digital transformation also provides unique challenges. In certain organisational areas, the Irish Rail experience is one of a seamless transition in particular amongst the technically proficient who were keenest for the technology to be available. Other areas of the organisation present more difficulties in implementation such as user groups that are typically less IT savvy or more reliant on traditional methodologies. Initial roll-out of digitalisation concentrated on the captive audience, those technically proficient

groups who actively sought out the technologies. This allowed momentum to be created for roll-out to those more challenging groups. By having the business users embedded and immersed in the technologies from an early stage, this allowed the creation of an environment of competent people helping colleagues who require a greater deal of learning.

Key Are 3: The Embedding and Utilisation Phase

Ultimately, the measures of success of a digitalisation initiative are in the degrees of take up of the new systems, the integrity of information available and a demonstrable reduction in risk that the various facets of the organisation are exposed to.

While the digitalisation provides greater efficiencies (a typical betterment experienced here is that traditional paper based means of asset inspection and data management required 1.5 days of office work for every 1 day of on-site asset inspection; this has transformed to less than 0.5 days of office work for each 1 day of asset inspection) and a host of other 'organisational' type of benefits, the key achievements in the digitalisation compared to traditional methods are in the overall risk reduction associated with our activities across the network and the transparency that is afforded by digitalisation which allows better informed decision making.

Linking of our asset information to our various decision support tools and asset management softwares is also a critical component of our digitalisation initiative. We need to ensure that managers of the various disciplines and areas are making decisions on the most informed basis possible. Indeed, the criticality of this is not just in making informed decisions based on accurate information, but rather of the consequences of making those decisions on inaccurate information. In this context, it is therefore clear that digitalisation is an imperative and that the potential consequences without it can become intolerable.

One of the key challenges still remaining is in promulgating these benefits further across the business such that they are optimised. Digitalisation not only offers the transformative benefits already provided but facilitates further opportunities for continuous improvement and meaningful positive change for the betterment of our organisation. An example of this in Irish Rail includes the introduction of a Lone Worker App which can be vital for this particularly vulnerable group. Further benefits being rolled out include the digitisation of safety critical site briefings, digitally recording, and making available, key information on staff and road rail vehicles such as the various competences required and the vehicle authorisations and check lists.

Summary

The digitalisation journey for Irish Rail has been transformative. As well as the efficiencies and operational benefits, meaningful risk reductions are being achieved. Quality of information that informs decision making is improving. The digitalisation journey is also self-propagating in that further improvements and betterments are being identified on the back of those changes already implemented.

The journey is not without challenges and lessons have had to be learned along the way. One of the key lessons is the need to concentrate less on the system and more on the end-user and to involve these end-users in the development of the product which they will ultimately have ownership of.

Having better digitised information and systems allows more transparency in the decision making process, helps to identify shortfalls in processes so that they can be addressed and provides confidence to all users and stakeholders as to the risk reduction strategies that are being developed and implemented based on better information. This all in turn leads to an overall reduction in risk across the rail network.