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THE CHALLENGE OF SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACT IN THE UK RAILWAY SECTOR

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Extended Abstract

The UK railway sector is at various stages of digital transformation throughout the various disciplines within the organisation. Socio-economic and environmental goals are clearly defined with technology there to support and implement efficient solutions. There are many challenges that come with digital transformation especially when considering the socio-economic and environmental impacts, such as balancing budget cuts with reliability and performance and investing into digital innovations.

The aim of this research is to raise awareness on the challenges the UK railway sector is currently facing and inform the current progress of digital transformation where socio-economic and environmental value is concerned.

There is limited published research into the overall strategic management of socio-economic and environmental impact through digital transformation. The UK railway sector, more specifically Network Rail, have a clear view on what is to be achieved and the strategies such as the Social Value Framework (2021) and the Environmental Sustainability Strategy (2020), but getting there is not so clear. Although timelines are produced, and most likely internally tracked as to the progress that is being made, the public eye is none-the-wiser and are not informed as to how well progress is being made. As taxpayers, everyone would be interested to understand how their money is being spent and what difference it is making, especially in the current situation where inflation is rising, and costs are going up whilst wages do not seem to be increasing as fast.

The industry is struggling to recruit the younger generation and diverse backgrounds due to lack of awareness in the public eye of the opportunities that are available and there is still lots of room for improvement on the recruiting, training, and upskilling side of the sector. This is becoming increasingly important as the ageing workforce are not as tech savvy as the younger generations and are less aware of digital technologies, specifically the risk of cyber attacks that come with it. There are several factors at play which are negating any progress made to recruit, train, and upskill. The outreach of the opportunities available on the railway is very limited with too many people unaware of the several types of roles available within the railway sector. The demographic background and gender of employees is also an ongoing issue, with limited female representation and limited BAME representation.

Strategies can only do so much without implementation and awareness but function as a key enabler and provide guidance to the goals that are to be achieved. The industry needs to continue its current commitment to innovation and research and academia need to focus on the bigger picture rather than small niche engineering problems. Frameworks and decision-making tools are exceptionally good strategic processes, but they do not identify the strategic problem at hand along with the various interdependencies. It is good to solve a small problem one by one but solve one big problem and the small problems will follow.

The cost of digital transformation is clear to all, and the railway sector are doing whatever possible to manage and maintain the progress through the likes of Innovate UK and various other routes, heeding the advantages that SMEs can bring to the industry. Initial cost can be astronomical to begin with, but more often the industry is seeing the long-term cost benefits

and savings outweigh the initial investment. The UK railway sector should continue to invest in innovation as it is proved to have a positive impact from both a socio-economic and environmental perspective. With the cancellation of HS2 Northern Leg, the money that is going to be spent elsewhere should be put to good use and can have a greater benefit on local communities with the development of innovative solutions and projects that have been put on the back burner.

There is a heavy presence of perception that there is a serious lack of awareness for cyber security in the UK railway sector. Although the technology and processes may be very robust, the ever-changing nature of digital technology poses a higher threat as time goes by. The fact there is a lack of awareness is a causation for further lack of proactive and predictive cyber security defence systems. Everything in today's age has two-factor authentication and different hurdles to get over just to access certain accounts, but for internet of things sensors and remote monitoring equipment does not have the same capability and just sends data to a cloud. Penetrating this transmission of data for example, could be an easy entry point for hackers, and from the available literature there is no explanation as to how this is managed or protected. Strategic business plans are only a portrayal of guidance or advice, and there is no technical strategy for this area of the business, which is either something that is not available to the public or is just simply non-existent.

In recent year there has been lots of bad press surrounding the UK railway sector due to the likes of HS2 being massively over-budget, various incidents across the network portraying incompetence, and one of the most recent ones being the strikes. Passengers just want a service that is consistently reliable and cost effective, but everything is going against that at the moment. The UK railway sector needs to be more transparent and open up to the public in a way that informs efforts to improve and strategically maintain and manage the railway infrastructure.