



## What is it?

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A rail system comprises many parts. On the engineering front, in each of the disciplines of Track, Electrical, Rolling Stock, Command and Control Systems and Civil, change is constant. Systems, products and technologies, many with safety critical functions, are constantly being tweaked and optimised to squeeze performance improvement or to bring about rather more significant change. The challenges in bringing together and integrating safely a range of systems and technologies, hardware and software, old and new, within the desired timescales are huge.



Today's rail system in Great Britain comprises 28 passenger train operating companies, 7 freight train operating companies, 3 rolling stock companies, 1 regulator, 1 infrastructure manager, many infrastructure maintenance companies, various supply chains, the UK Government, the public and a plethora of industry bodies, associations and working groups.

Each year approximately 87,000 staff use over 100 different classes of rolling stock to 20,000 services each day to 3.35 million commuters. 1.5 billion journeys are made by passengers travelling 58 billion passenger kilometres across 32,000km of track to 2,500 stations, and 110 billion tonnes of freight are carried each year.

In addition, there are European and UK legislations, associated duties and obligations, Railway Group Standards, the Rule Book, company specific safety management systems, operating procedures and maintenance plans. All these parts come together to make the whole that is the rail system; the socio-technical paradigm is immense. One of the properties of this system is safety and Rail System Safety is about adopting a structured approach to make sure that nothing falls through the gaps.



## Why is it important?

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It is a legal duty. In 2009 the Common Safety Method for Risk Evaluation and Assessment legislated engineering safety management requirements in European law and includes in its scope, the management of change to operations and organisations. Prior to this, UK manufacturers had been practicing the engineering safety management detailed in CENELEC EN-50126/8/9 since 1999, and before that the Yellow Book.

People want to use safe railways. Passenger journeys rose by more than 50% between 2003 and 2013 and the railways carry 17% more freight than in 2001. In the face of this increase in utilisation the GB rail system has established itself as one of the safest in the world. It has achieved this through

rigorous safety management, adopting a structured approach to managing safety risk. As demand continues to rise, with 14% more passengers and 19% more freight forecast by 2019, so the risk profile increases. It is imperative that all technical, operational and organisational change and innovation be brought about maintaining current system safety levels or improving them, where reasonably practicable.

## What we do

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CRA is here to help you create a safer and more cost-effective railway. We do this by providing a range of consultancy services during all phases of the lifecycle. Whether you are an operator, an infrastructure manager, an engineering company or an industry body, CRA can help you get to the next stage in your journey.

Our team of consultants has a combined experience of over 60 years providing Rail System Safety services to clients in the UK and internationally. Our capability statements describe each of our Rail System Safety capabilities.

