

Project Management

LCBB5005

Assessment 1

Evaluating Cross Rail Project (Elizabeth Line)

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Introduction

The Crossrail project, which involves building a new railway line under the name Elizabeth Line, is the most significant infrastructure endeavour now under progress in Europe. It has been the subject of detailed analysis in this paper. A megaproject is defined by its scale, budget, and difficulty level (Muruganandan et al., 2022). The report's first section highlights the project's history and the parties involved. Local railway authorities, political parties, the Department for Transport, Her Majesty's Treasury, etc., are among the project's most important stakeholders. Financial unpredictability, infrastructural breakdowns, a lack of adequate local skills, and the inherent risks of construction activity were all identified as potential threats. The report's communication section delves into the proposed railroad's routes and access points. This Crossrail project connects east and west London with the Elizabeth line. The phases of a project's lifecycle have been examined, beginning with the planning stage and ending with the closure. Benefits to society and the economy have been briefly discussed. Finally concluded with the reason for the project delay and the financial impact of that delay.

Background of the Project

The UK government initially proposed a privately funded concession as the delivery option for such a Crossrail project to build the Elizabeth line east-west railway across London (Dulake, 2017). When this wasn't possible, the Government capped the central exchequer contribution at about a third of the total cost and demanded the rest come from the project's "beneficiaries."



The sponsors, the Transport for London (TfL) and Department for Transport (DfT) worked with the London business and commercial property groups to put together a financial and funding package. The concept of Crossrail was first introduced to the public in 1974. Crossrail wasn't officially approved until 2009, and construction didn't begin until 2009 (Davies et al., 2014). By 2022, the system's annual passenger count is projected to exceed

220 million. When it comes to revamping London's transit system is a monumental undertaking. London's Elizabeth line, which will run east to west, will be completed as part of the Crossrail project. There will be 42 kilometres of tunnels, upgrades to the surface trains, and ten brand-new stations, including the necessary depots and maintenance buildings. The new line, built with an initial investment of £15.8 billion from 2007 to 2019, would greatly expand the rail system's capacity serving central London (Crossrail, 2022). The buoyant financial economy of the UK is estimated at £42 billion, based on a 60-year time horizon.

Stakeholders of the Project



Figure1: Stakeholders of this project; Source: (Crossrail.co.uk, 2022)

In 2022, when Elizabeth's new Cross Rail is fully operational, London will have the most advanced public transportation system, surpassing even the groundbreaking Underground. Because of this, underground structures and train services will see less of a rise in ridership, London will have 10% more rail capacity, and travel times within the city will decrease. An estimated \$25 billion was spent building London's newest subway line. The Elizabeth line, which traversed the city for 60 miles from east to west and took 13 years to construct, is the most extended rapid transit system in the world (Lobo and Abid, 2019). In March, select individuals were given a sneak peek at the new route and a chance to ride the train. People's feelings against Greenfield projects are likely more negative than those around HS2.

Risk Management

Crossrail's early foresight into the need for risk management to the program's outcome was crucial. With these three goals in mind, Crossrail implemented a company-wide risk management system:

Influence the understanding of unpredictability and danger to enhance choice and budgeting; Reduce the likelihood and possible impact of activities that might damage the Crossrail program and increase the likelihood and impact of events that might advantage the program; Reassure multiple stakeholders that each project is cognizant of its risks identified and actively addressing those; Implementing the preceding required establishing an independent panel for the risk management strategy, receiving the necessary permission from Crossrail's governance, and having access to performance visibility provided by a full range of measures and an assurance system. Crossrail has integrated Potential health risks into its entire risk management strategy, which is different from the standard practice of splitting the safety and business risk models (Lawrence and Black, 2019). Early in its creation, Crossrail showed its innovative spirit by eschewing optimism bias on the part of (QRA)Quantitative Risk Assessment techniques. By prioritising risk mitigation and uncertainty from the get-go, this approach helped me understand that outcome costs should always be presented as a range.

In addition to setting up proper risk management practices within the client business, these measures were applied across the entire supply chain. The Supply chain management learning archive document describes Crossrail's strategic plan of demanding a structured approach to risk management through the Statement of work and communicating and cooperating with the supplier teams to construct their expertise beyond basic needs. Crossrail's assurance and insurance teams worked with the risk management team to reduce potential hazards. A study on managing risk emphasises the value of identifying and discussing potential significant risks with top-level leaders (Mars and Weir, 2019). At this point in Crossrail's risk management process, the newly developed risk strategy and the modified operations are fully displayed.

Budget and Funding of the Project

The new Elizabeth line east-west railway through London is the centerpiece of the £159 billion Crossrail project, the most significant transit project in the United Kingdom. Ground-breaking financing, funding, and value-capture programmes were required to become a reality. Around two-thirds of the total cost was covered by contributions from London's commercial sector and projected passenger revenues. In May, Queen Elizabeth II opened a new \$25 billion train route in London. The Elizabeth line, which traversed the city for 60 miles from east to west and took 13 years to construct, is the world's most comprehensive rapid transit system (Buck, 2017). In March, those in the know were able to have a sneak peek at the new route and ride the train before the general public.

In October 2007, the Prime Minister indicated that the authority and London businesses would cover the cost of Crossrail. This set the stage for the financial framework for Crossrail. The total price of completing the Crossrail project was agreed upon at £15.9 billion.

Funding and financing

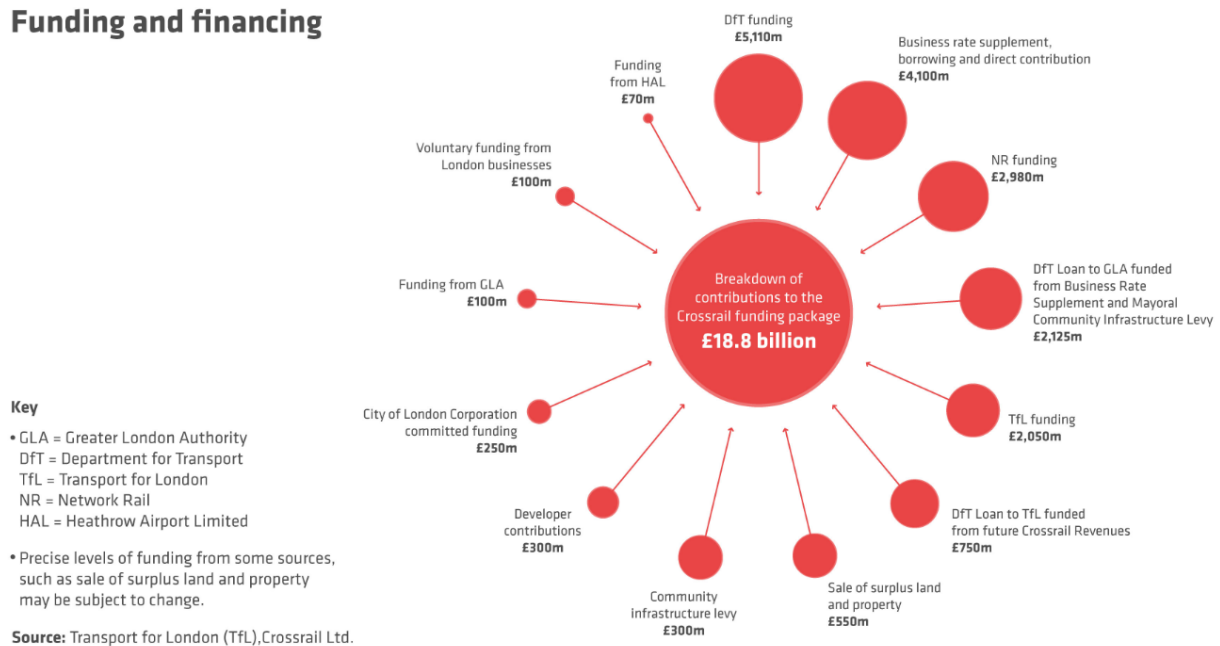


Figure2: (Transport for London, Crossrail Ltd 2022)

Communication channels and infrastructure facilities

Bond Street, Paddington, Tottenham Court Road, Liverpool Street, Farringdon, Canary Wharf, Whitechapel, Custom House, and Woolwich are just some of the new Elizabeth line stations completed as part of the Crossrail project. Abbey Wood, the central section's ninth stop, has undergone significant renovations thanks to work by Network Rail (Worsnop, Miraglia and Davies, 2016). The Elizabeth line stops at 41 different stations, 31 of which are connected to the east-west surface rail network. In order to have these stations ready for Elizabeth line services, Network Rail upgraded them. These projects have been finished.

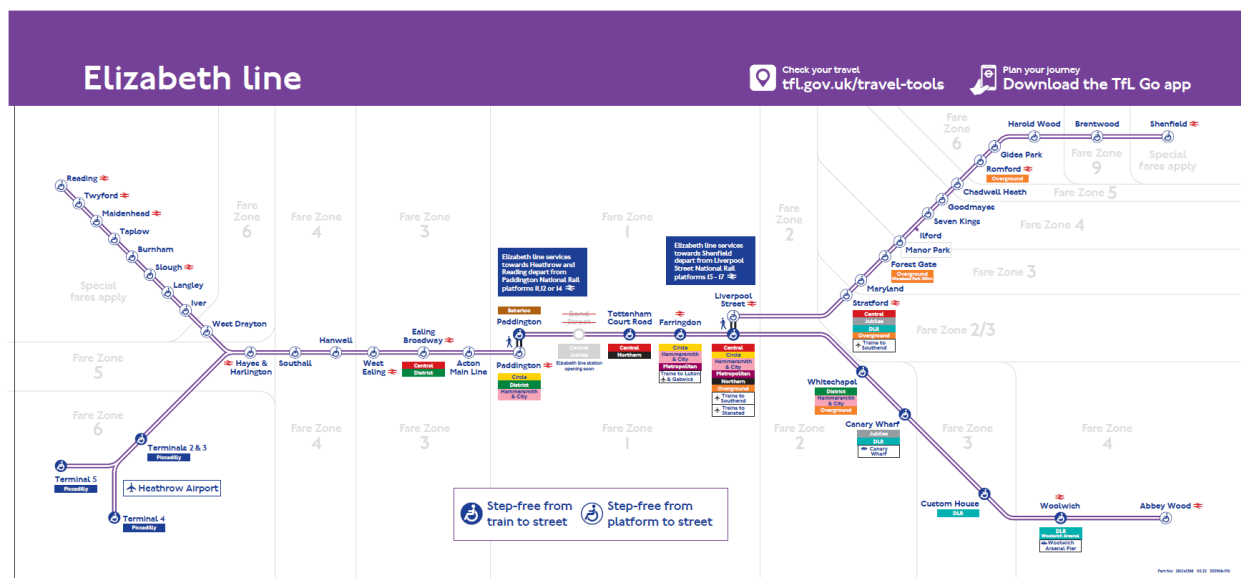


Figure3:Source: (Transport for London, 2022)

As part of the Crossrail project, brand-new Elizabeth line stations were built at Bond Street, Paddington, Farringdon, Tottenham Court Road, Whitechapel, Liverpool Street, Canary Wharf, Custom House, Canary Wharf, and Woolwich. Abbey Wood is the central section's tenth station, and it has undergone significant renovations thanks to the efforts of Network Rail. In the east and west, the Elizabeth line connects to 31 stations on the metro rail network (Khan, 2017). Network

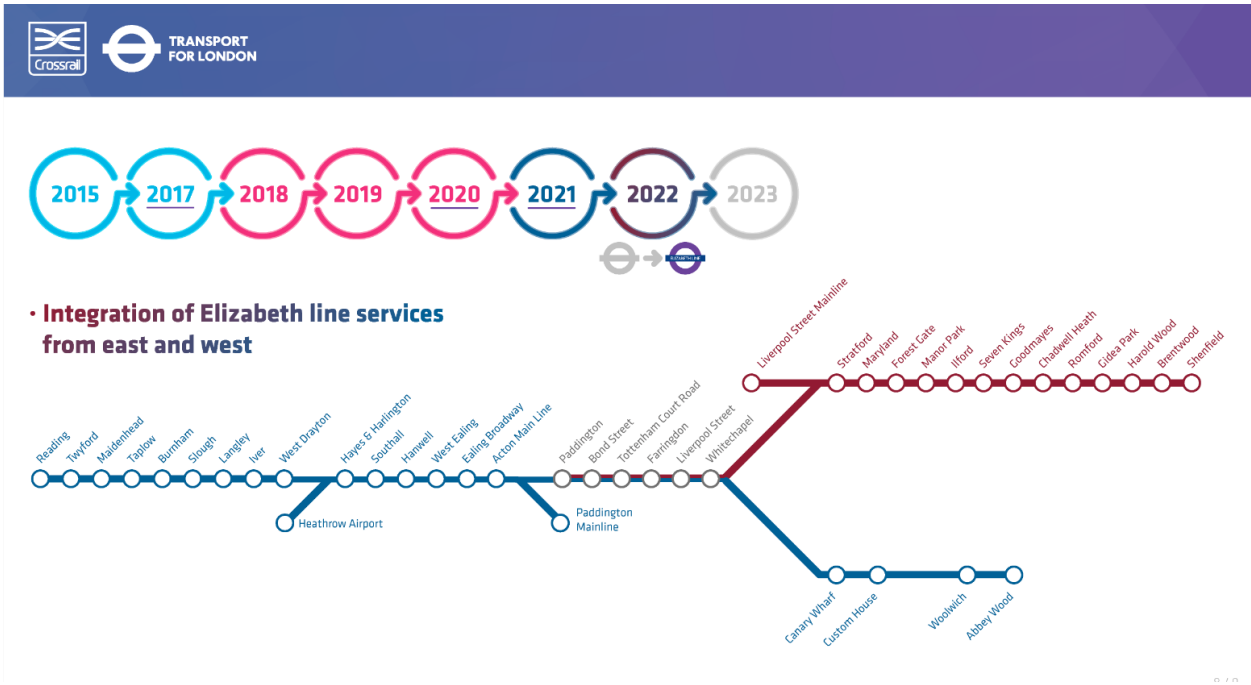
Rail updated these stops in advance of the Elizabeth line's arrival. All of this work has been finished.

Regarding accessibility for people with disabilities, every single high-speed train in Crossrail's fleet will meet or exceed all current European regulations. They will also meet or exceed all recent UK performance and safety requirements and all relevant European Interoperability requirements. Upgraded obtainable features, such as newly designed signs and increased safety measures, will be present at each station that Crossrail serves. This includes completely independent, step-free access from the Crossrail platforms. Crossrail's interchanges with several existing Underground lines, notably Thameslink, will provide step-free access. As the largest civil engineering project on the continent, Crossrail's main construction will have far-reaching economic consequences, even more so in light of the current economic scenario. An estimated 14,000 employees will be needed at its peak for the construction of the Crossrail, and another 1,000 will be required for the ongoing maintenance and operation of the railway (Mohanty, 2018).

Supplying the project at all stages of its development and providing services to those already employed by Crossrail will generate more job opportunities. Furthermore, Crossrail will leave a more long-lasting legacy of skills. CRL is committed to the skills policy. As such, the company has devised a strategy to encourage new talent, strengthen local labour, revitalise our skill level, and guarantee the program's security.

This project's Timeline

On May 24, 2022, the Elizabeth line debuted for operation, bringing passengers from Abbey Wood to Paddington via nine new stations and the Class 345 trains zipping under new city tunnels. On Monday, October 24, 2022, the Bond Railway station opened to the public (Thomas,



2021).

Figure 4 Elizabeth Line till 2022 (Crossrail, 2022).

<i>p r o j e c t ' s d e v e l o p m e n t Phrases</i>	<i>Timeline</i>
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<i>Initial planning</i>	• In 2001, serious planning began for what would eventually become the Elizabeth line. Crossrail Limited, a wholly-owned subsidiary of TfL, was established in December 2008 under a contract between the DfT and the TfL (Tunncliffe, 2022). • Money for the Crossrail project was set aside at 15.9 billion pounds in October 2007. • The Overall Budget Proposal in October 2010 reduced the funding budget from £19.2 billion to £14.8 billion. Some of London's twenty-six miles and found close to forty meters below the surface, weaving their way through the city's complicated underground topography.
<i>Execution of the Project</i>	• 2009-12: The business began construction on Canary Wharf in May 2009, and tunneling began in May 2012. • In May 2015: TfL Rail began operating between Liverpool Street and Shenfield, kicking off the section that would become the Elizabeth line's eastern branch. Some stations along the route were given brand-new ticket offices and other upgrades to serve passengers better (Matters, 2022). • 2016: Construction workers on the Elizabeth line's central tunnels applauded as their queen unveiled the line's new roundel in February 2016 (Thomas, 2021). • 2017: There will be a newer train service in 2017 between Shenfield and Liverpool Street.

<i>Closing of the Project</i>	• 2018: A portion of the Great Western inner suburban route is replaced by TfL Rail services between Paddington and Heathrow. • 2019: Beginning in 2019, there will be service between Paddington and Reading. • 2020 - The new Series 345 train service will launch from Heathrow. • 2021 - Improvements to the Liverpool Street mainline platform are scheduled • 2022 - The Elizabeth Line will begin service.
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Work on the line started in 2009, and after several obstacles, Her Majesty Queen Elizabeth II will officially open it on May 18, 2022. On May 24th, 2022, the Elizabeth line will begin operating (Tucker, 2017). Passengers using the line, which runs 12 express trains between the stations (in both directions) from 06:30 to 23:00, Monday through Saturday, saw an immediate improvement after the launch. TfL Rail routes were renamed the Elizabeth line, including those that operated between Reading and Heathrow, the Paddington mainline, and those that ran between Shenfield and the Liverpool Street mainline.

Project delay reasons and Impact of delay

Crossrail has been in the works since before the turn of the century, so it has been under construction for almost a decade. The brand new Class 345 trains have resumed service on the Elizabeth Line's outer reaches, between Abbey Wood and Paddington, even though the line's central core remains closed to the public (Zaman et al., 2022).

Reasons for Delay

- ❖ As a line that uses traditional and cutting-edge equipment, signaling has long been considered problematic for the Elizabeth Line. The ECTS controls the train between

Paddington and Heathrow; between Heathrow and Stratford, an automatic warning system is used in conjunction with a train safety warning system (Eades, 2018). Furthermore, a cutting-edge communication systems train controlling system is employed in the core portion.

- ❖ The problem has been mentioned before; in 2015, The Independent reported that architects and rail specialists had trouble developing the "interfaces" necessary for trains to transition from older to modern signaling systems.
- ❖ Given that the delayed Paddington to Abbey Wood segment is virtually a "self-contained" Crossrail part, it is highly improbable that the delay was caused by dynamic testing alone.
- ❖ The central core motions will be controlled by Siemens' CBTC control system, which is not being tested because it is a proprietary system (Tetsuya Takata, Akira Asano, and Hideo Nakamura, 2019). However, this system has been widely used in other metro systems. At this point, work on the station's infrastructure should be far advanced, and the unreadiness of a single escalator shouldn't derail the project.
- ❖ No one involved in the planning of Crossrail could predict that a global pandemic would postpone the project (Jallow, Renukappa and Suresh, 2020). Covid-19's arrival in the UK effectively halted all development of the program.

Results of Delay and additional action

- ❖ It's understandable to feel this way, but it's unclear what will become of TfL now that it has a £1 billion operating deficit after government funding was cut (Park, 2021). The project was supposed to bring approximately £926m in revenue for the company by 2022.
- ❖ The initial sponsor agreement for Crossrail was signed in 2008. It included a condition allowing the UK's Department of Transport to take over the project should it meet or exceed a specific budget threshold (Badi, Rocher and Ochieng, 2020).
- ❖ Due to a lack of openness, it is clear that more open communication is required. The lack of belief in the revised deadline of autumn 2019 has been attributed to questions about whether or not the delay was concealed.
- ❖ Initially, Crossrail was estimated to cost £14.8bn, but the final budget was that amount. Instead, it cost £18.8 billion. The majority of the cost overruns were covered.

Conclusion

The railway system is vital to transporting goods and people in London. Trains make long-distance shipping of goods possible and facilitate various other pursuits, such as business travel, vacations, and religious journeys. Spending on transportation as a percentage of total expenditure is more common in urban regions than in rural areas. London is likely to face disadvantages relative to the other part since other regions typically include urban and rural areas, but London is primarily an urban center (Pollalis, Lappas and Taylor, 2019). In London, transportation costs comprised a similar share of GDP in Wales and Scotland. However, they performed about as well as the national norm in the United Kingdom. This suggests that transportation expenditures in London and its immediate vicinity were commensurate with the size of the local economies. In the Crossrail Elizabeth Line project analysis, we can conclude that this project will bring much economic development to the city. But the over-budget and the high project cost will hamper the

planning of getting early outcomes from the project. Mega projects like this always have drawbacks in finishing on time and maintaining a budget. But some natural causes and external environmental factors affect this project's time budget and risk factors.

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