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STRAT7 JIGSAW

PREPARED FOR:

CMA Competition & Markets Authority

Qualitative Research with Civil Engineers

Final Report

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MAKING SENSE OF HUMAN COMPLEXITY

Contents

1. Executive summary

1.1. Background

In June 2025, the CMA launched a market study into the design, planning and delivery of railway and public road infrastructure by the civil engineering sector in the UK. The market study is examining whether there are opportunities to improve market interactions so that both the public sector and industry are incentivised to build more cost-effective infrastructure and enable economic growth; and whether public procurement and regulatory processes could make it easier for firms to enter, expand, invest, and innovate.

In broad terms, the civil engineering supply chain operates in several “tiers”. Tier 1 refers to the principal (main) contractor working directly with public authority procurers of road and rail infrastructure projects, who frequently subcontracts work to firms in Tier 2, that, in turn, may subcontract to Tier 3 (and so on). This research focused on businesses operating at Tier 2 and Tier 3 in the supply chain. The initial working definitions of each tier used for recruitment was based on this hierarchy, but the reality on the ground proved less clear, as discussed later in the findings.

1.2. Research approach

At the outset of the market study, the CMA set out three questions for exploration:

- How can public authority procurers access and assess the right information to make well-reasoned decisions when procuring roads and railways, and how can they effectively work with the market to deliver best value projects?
- Do any procurement, planning, or other regulatory processes create significant barriers which limit companies’ ability and incentive to enter, expand, invest, and innovate in this market?
- What market structures and features will best allow the civil engineering market to deliver road and railway infrastructure that supports UK productivity and growth?

The CMA’s evidence-gathering includes extensive engagement with Tier 1 businesses in the form of information requests and meetings. This research focused on Tier 2 and Tier 3 businesses only, potentially harder-to-reach audiences with less direct or regular interaction with public authority procurers. The target sample was **decision-makers in civil engineering businesses who have worked as Tier 2 and Tier 3 subcontractors on public road or rail infrastructure projects in the last 6 years**. As HS2 and light rail (metro/underground) systems were not in scope of the market study, those interviewed as Tier 2 or Tier 3 rail subcontractors had wider experience than just the aforementioned projects.

The aim in this research was to uncover Tier 2 and Tier 3 perspectives on their experiences and any challenges faced when bidding for and delivering public road and rail infrastructure subcontracts, and any suggested changes to achieve better outcomes in this market.

Jigsaw carried out 60 hour-long online interviews, with decision-makers in firms offering a range of civil engineering services in Tier 2 and/or Tier 3, in rail and public road, from different nations and regions, and business sizes. Relevant participants were free found from open sources including: trade association membership lists, contract award notices and corresponding trade news articles for a list of in-scope public infrastructure projects; Companies House information on firms with civil engineering-related Standard Industrial Classification (SIC) codes (e.g. 42110 Construction of roads and railways); civil engineering company websites; and LinkedIn.

Qualitative research focuses on understanding and describing issues, experiences, and motivations rather than providing percentages or numbers. The findings are indicative of the market rather than representative. Participants in this research have provided personal views in their roles as decision-makers on bids for, and the delivery of, public road and rail infrastructure contracts. Each response should be interpreted as being from an individual with relevant knowledge rather than as an official collective submission from their organisation.

1.3. Summary of findings

1.3.1. Context

Interviews with participants in a good spread of Tier 2 and Tier 3 firms working on public road and rail engineering projects were achieved. However, in comparison with the CMA's working understanding of the sector's profile at the outset of the market study,[1] there was difficulty in recruiting participants from certain types of business, particularly Tier 3-only and smaller businesses (2-49 employees[2]), but also those based in nations other than England, and those working on rail. This recruitment difficulty provided insight in itself and may relate to:

- Fewer smaller firms working on public road and rail infrastructure projects in scope of the market study than anticipated; and/or
- Their level of interest or availability to take part in research.

[1] For example, BEIS business population estimates published in October 2023 indicate that c.80% of all businesses engaged in the construction of roads and railways (n=2,840) are micro enterprises (see Table 7).

[2] See DBT (2025): Business population estimates for the UK and regions 2025: statistical release. Small and medium-sized enterprises (SMEs) are businesses with 0 to 249 employees. A small business is a business with 0-49 employees; a medium-sized business is a business with 50-249 employees; a large business is a business with 250 or more employees. Small businesses may be further categorised as comprising micro businesses (fewer than 10 employees) and small businesses (10-49 employees).

The overall outcome was that most participants interviewed were from Tier 2 firms and over half were from firms that operated as both Tier 2 and Tier 3 subcontractors. Few (8 of 60) were Tier 3 only.

The sample included those in firms that were independent and those owned by/ part of a group. Independent firms generally (though not always) had fewer than 250 employees. Firms that were part of a larger group were likely to be owned by major, Tier 1 civil engineering companies, but operating autonomously, competing independently with other Tier 2 and Tier 3 firms for tenders. Although job titles and responsibilities varied widely in our sample, everyone interviewed had a civil engineering background, meaning their answers were well-informed and detailed.

Projects they worked on tended to be maintenance and renewal rather than enhancement schemes. Some firms worked on a mix of the above, but most focused on either maintenance/renewal or enhancements.

All participants described their firms as either specialists or generalists, with the majority tending to see their firm as specialist. There was a good mix of those whose firms worked on rail and/or public road projects. All of the issues described in this report occurred across both rail and public road sectors, sometimes to the same extent, but often to differing degrees.

Tier 1, Tier 2 and Tier 3 were universally used terms but there was variation in the ways in which different participants defined what it is to be a Tier 2 or a Tier 3 contractor. Everyone understood the term Tier 1 to mean that firm’s place in the contract chain, i.e. as principal (main) contractor. However, when participants described their firm as a Tier 2, this could relate to:

- **Hierarchy –** where the firm tended to operate in the contract chain i.e. as a firm subcontracted by the principal contractor (as defined for recruitment – see below).
- **Being a specialist –** meaning the firm could not play the role of principal, general contractor on a large project, but could still be directly commissioned by a public authority for some tasks.
- **Size –** of firm (some see Tier 1s as ‘the really big firms’), or of projects the firm can bid for (meaning it was either not eligible to bid, or it carried too much risk for the firm to be a principal contractor).

Overall, Tier 2 firms tend to be larger, multi-discipline businesses that deliver substantial civil engineering projects, maintain closer relationships with principal contractors, work under more collaborative contract models, and have greater influence in project shaping. Tier 3 firms tend to be smaller specialists providing niche construction services or products, with some mentioning that they also offer advisory and consultancy services. They are more likely to operate further down the supply chain, with less influence, tighter margins, and more subject to risk.

1.3.2. Businesses' view of the market

Participants reported changes in the last 5 years in the public road and rail infrastructure market. These were driven by uncertainty around public infrastructure policy, the impact this has on what is commissioned and, in turn, on the supply side of the market. Key changes mentioned were:

- An increasing sense of unpredictability in the public road and rail infrastructure market, with policy and planning feeling short-term, financially constrained, and liable to delays or cancellation.
- A greater proportion of renewal and maintenance rather than enhancement work being commissioned, and an overall reduction in spend on enhancement, particularly for rail.
- The processes around commissioning becoming more bureaucratic and time-consuming.

These trends were leading to financial uncertainty in some firms. They were making it more difficult for some smaller firms to compete, putting pressure on pricing, the ability to attract and retain talent, and making it harder to enter new markets. They also drove consolidation, with large civil engineering firms acquiring smaller firms to build their capacity, skill base, and their resilience.

The public road and rail markets are seen to share many characteristics, but there were also some key differences noted by participants:

- The road infrastructure market is characterised by a fair degree of certainty, consistency and collaboration when working on a major strategic project commissioned by National Highways in England or equivalent bodies in the other nations. However, there are notable differences (less certainty, more variability, and less collaboration) when working on a local authority-procured project.
- The rail sector is characterised by higher (often technical) barriers to entry and much less certainty in terms of planning and funding than is seen in the public road sector. This makes it a hard sector to operate in for Tier 2 and Tier 3 firms, exacerbated by Tier 1 firms bidding for work previously seen as too small for them, due to the overall lack of projects in the sector.

The nature of the market influences Tier 2 and Tier 3 firms' choice of whether to bid, but so do internal business needs and goals. It was commonly described by participants as a multi-faceted decision, where they make considered judgements in each case about the risk versus the rewards. Key factors in their decision-making were stated to be:

- **Likelihood of success given the context:** The level of competition, any previous experience with the public authority or contractors higher up the supply chain and the strength of the working relationship, whether there was an incumbent already in place, whether there was a chance to discuss and negotiate, and whether there was a chance of any ongoing work beyond the initial project.

- **Feasibility of the brief:** The level of risk to be taken on by the participant's firm (e.g. the percentage of liability for ground risks or consequential loss), how realistic the budget was for the work and the firm's ability to deliver in the location.
- **A range of internal factors:** Including the need for cashflow, to keep manufacturing running, to retain the workforce, their capacity to bid as well as to deliver, and the business desire to expand and/or diversify.

1.3.3. Key barriers which limit firms' access, entry, expansion, and innovation

Many participants felt that the main barriers affecting the ability for firms to compete include project **uncertainty** given recent government and policy changes on public road and rail infrastructure. If there was some certainty that a project was going ahead and worth considering, the **transfer of risk** down the contract chain was then one of the most commonly mentioned barriers to bidding. Tier 2 and Tier 3 firms perceive risk to be passed down by public authorities, consultants, and Tier 1 and Tier 2 contractors, all of whom want to reduce their own risk by transferring it to others.

Insufficient access was another barrier for many and related to lack of business relationship with the client, lack of eligibility based on the bidding criteria, and inconsistent use of Early Contractor Involvement (ECI)[3] or lack of early input in general for specialists in Tier 2 and Tier 3 businesses. **Insufficient budget** was also a common barrier mentioned, when it was not seen as realistic or worthwhile given the cost of doing the work or level of risk.

Participants felt that the bidding process itself could also hinder competing for public road and rail contracts. The **rigidity of frameworks** and online portals that public authorities are increasingly using to tender work can mean a lack of access to that type of work for several years for those outside the frameworks and a lack of direct engagement between the end-client and potential suppliers. The level of **bureaucracy** was reported as a challenge, with requirements for repeated submission of the same evidence, experience specifically on previous public infrastructure projects rather than similar private sector projects, a range of accreditations required across different projects that seemed similar or overlapping, and more. Less top-of-mind, but raised by some participants, was the perceived **administrative burden during delivery** of public infrastructure projects in addition to the burden of the initial bid.

One other aspect that was often cited as an issue was **inexpert or insufficiently advanced design**, at bid stage and at the start of contracts. This could cause hesitation from firms on whether to bid knowing there is higher chance of extended negotiation, contract variations, and delay throughout the project.

[3] Defined as Early Supply Chain Involvement (ESI) in the Construction Playbook (see Government Commercial Function (2022). Market, Supplier & Supply Chain Engagement in Construction - Guidance Note) but consistently referred to as ECI by participants in the research.

1.3.4. Subcontracting process and the challenges at each stage

Participants described the challenges above manifesting during each stage of the subcontracting journey as follows:

Pre-engagement

Access: Public authority commissioning could start with ECI, which forewarned contractors of planned projects and allowed early discussion about the requirement (and potential input into a project's design) before a brief was issued, but this was not seen to occur as much as it should or, even when it did occur, Tier 2 and Tier 3 contractors may not be included. Even if working collaborative relationships exist between the public authority or the higher tier contractor and the subcontractor, the pipeline of work can be unpredictable with little early discussion or forewarning on tenders. The outcome is often that, even before there is a brief, many feel the market favours incumbents with existing relationships, making it harder for newer firms to bid or win work. The unpredictability also makes it hard for firms to plan but is more easily weathered by larger firms.

Design: Poor initial design was a common issue reported and could lead to a variety of challenges, such as extended contract negotiations to refine the scope, and issues being uncovered on the ground that led to stoppages, late changes, multiple contract variations, and disputes during delivery, all of which add cost and delays.

Brief

Frameworks: Participants reported that often significant time and resource are required to tender to get onto a public authority framework. This could bring no guarantee of work and usually there were further, allegedly onerous, mini competitions to win projects through the framework. The pipeline of potential work was regularly seen to vary or be unpredictable, and to include lulls at the start and end of framework tendering processes, between different planning cycles or rail control periods. Firms that did not succeed in joining the framework cannot access work for that public body or project type for several years. Evidence of previous work on similar public (not private) infrastructure was often required (or presumed to be preferred) to join frameworks and this is seen to favour incumbents. How frameworks are implemented is seen by some firms to advantage larger players, for example, via the bundling of projects, limitations based on company size or level of liabilities, and the burden of information required (see the section below on information requirements). Finally, framework tendering processes via online portals were also felt by some to hinder detailed discussion between potential suppliers and the end-client on what are often complex projects.

Contracts: Many tenders from public authorities and Tier 1 firms were noted to be contracted using one of the New Engineering Contract (NEC) suite of contracts.[4] This was seen as helpful in principle as these contracts are standardised, familiar, and fit-for-purpose, but there was often extensive use of subclauses (in particular Z clauses) that increased complexity and liability for Tier 2 and Tier 3 contractors. Participants felt risk can be transferred using these clauses by contractors higher up the supply chain, consultants, and/or public authorities. It was not always clear which organisation was driving the risk transfer, but they believed it might come from any or all of the parties in the mix. The subclauses often resulted in added legal time and costs. Too much risk was often seen to be carried by contractors lower down the supply chain who are the least able to shoulder it or influence initial design. Subcontractors sometimes priced higher to cover risks (especially where NEC Type A lump-sum contracts are used). Contract complexity is seen to favour larger firms able to commit resource at bidding and negotiation. It can lead to increased risk of variations or disputes. Contracts were sometimes said to include clauses that delay payment which can hinder cash flow. Financial pressure and uncertainty in general can hinder the ability of Tier 2 and Tier 3 firms to bid and to invest in new methods and innovations. For smaller firms, the level of liabilities was sometimes described as existential.

Pricing: Participants mentioned that contracts were often focused on finding the cheapest bidder, although some public authority framework tenders now put more value on quality not just cost. Renewal and maintenance project budgets can be tight, especially in rail, and can focus on minimum upkeep to maintain service in the short term rather than more thorough fixes or enhancements for the long term. Pricing models were seen to vary based on scale and type of service provided. In most participants' experiences, contracts were fixed price (NEC Type A), particularly for renewal and maintenance, but they could take other forms (e.g. target cost, cost-plus etc). Fixed price contracts can feel a significant financial risk for firms, especially if the project scope and designs are unclear or insufficiently developed. Some reported that their firm would decide not to bid on price-driven contracts if they felt they could not deliver a high-quality service for the price. This was also to avoid a 'race to the bottom' on price (and avoid existential risk). Some participants alleged that competitors may under-price to win work, sometimes in error but on other occasions intentionally, with the aim of renegotiating variations at a later stage or delivering to a lower quality – this was seen to add cost in the long term.

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[4] First developed in 1993, NEC4 was launched in 2017. NEC contracts include six main options (Options A-F) for procuring work (these act to vary aspects like the degree of risk assumed by the parties to the contract depending on which option is selected). Further information on each option may be found on the NEC website, as follows: Option A – priced contract with activity schedule; Option B – priced contract with bill of quantities; Option C – target contract with activity schedule; Option D – target contract with bill of quantities; Option E – cost reimbursable contract; and Option F – management contract.

Bid

Information requirements: When responding to bids for public authorities and procuring contractors higher up the supply chain, many participants said they were required to provide a large volume of information to assure on the quality and experience of their business as well as how they would approach the project being contracted. This was often needed even when bidding on projects tendered within frameworks and appeared to be required by firms higher up the supply chain to feed into public authority quality monitoring, their own quality monitoring, or both. It can mean similar information is required multiple times and in multiple different formats across contractors and projects. This information was acknowledged as important, but how and when it was gathered was not always seen as efficient or effective. There were significant time and burden involved for many in assessing whether to even bid and then in preparing the proposals if there was a decision to proceed, with days spent by legal experts, quality experts, surveyors, estimators, engineers, and more. The requirement of evidence of previous work and the need or assumed preference for this to be on public infrastructure projects, not similar private infrastructure experience, is seen to favour incumbents and reduce interest in bidding for smaller or new entrants to the market. Accreditations were also nearly always required, as discussed next.

Accreditations: Participants reported that there are different accreditations and competency standards required by different public authorities and procuring contractors in higher Tiers. Accreditations are felt to be time-consuming and costly to acquire and may reflect that a firm has the resource to apply and demonstrate compliance rather than actual capability, excluding smaller, newer entrants. There were multiple accreditation schemes mentioned by participants.

Delivery

Contract management: Challenges from higher up the contract chain, such as changed funding or poor design, were often found to present issues during delivery, as could the delivery management approach. If contracts were delayed, the risk for many was that costs could stack up and/or staff could be lost to other projects. Poor design could often mean contract variations and increased disputes. Management processes are commonly described as burdensome, involving detailed reporting requirements, compliance checks before work begins, the need to liaise with multiple consultants and Tier 1 managers, and slow granting of access permissions by public authorities. Payment of Tier 2 and Tier 3 firms reportedly can be dependent on Tier 1 task sign-off and extended payment terms. A few of the research participants reported use of Project Bank Accounts (PBAs), ring-fenced bank accounts that hold the client funds for the project and pay all Tiers and contractors involved. These were reassuring in principle, but those familiar with PBAs also mentioned the administrative work they created and noted that they did not prevent slow payment.

1.3.5. Suggestions from business on improvements to the market

Research participants were asked towards the end of the interview for any improvements they would like to see to enhance the way in which the public road and rail infrastructure market functions. Some, but not all, provided suggestions. These suggestions broadly fell into five key themes, listed below from most to least commonly mentioned.

Financial certainty and better fiscal management

Firms operating at Tier 2 and/or Tier 3 would like to see greater certainty in the market from longer term, ring-fenced funding. This was mentioned in relation to both public road and rail, although in slightly different contexts.

In the rail market, commonly the feeling amongst participants was that Control Period 7 (CP7) was not delivering on its promise of ring-fenced funding over five years. The reality was reduced funding, greater volatility, and less work for all. Firms stressed the importance of certainty in helping them plan, grow and, in some cases, carry on trading. They asked for a return to previous funding guarantees and fulfilment of promises made over long-term funding.

In the road market, the issue related more to road projects procured by local authorities. Here, funding was described as sometimes being linked to 12-month cycles which did not fit with project life cycles and, therefore, baked in inefficiencies that firms felt were avoidable. They asked for these cycles to be extended to five years or more to allow for proper planning and execution.

In addition, firms asked for greater oversight of payment terms so that public authorities had some enforcement role over Tier 1 firms to ensure that Tier 1 firms paid subcontractors within the payment timelines agreed.

Shared liabilities

The issue of risk was a topic raised spontaneously in nearly all interviews. Many participants felt that risk was unfairly distributed within contracts, but there were best practice approaches which could be adopted to mitigate this.

Specifically, some participants pointed to NEC Option C or E contracts where they felt a sensible approach to risk was built into how these contracts were drawn up. Option C contracts worked on the basis of target cost so that all contractors in the supply chain shared the pain or gain associated with any cost overruns or underspends. Option E contracts (cost-plus) allowed contractors to add a margin to reasonable costs and worked well within a collaborative working model. These approaches contrasted with Option A (fixed price contracts), where the risk was pushed down the supply chain. Some of those interviewed asked that Options C or E were used more across the industry.

Related to this, participants in the research also asked that standard NEC contracts were adopted without any, or any significant, amendment. Too many NEC contracts were seen to be issued with multiple Z clauses which had the intention to push higher levels of risk onto subcontractors. This was felt to be unfair by most participants in Tier 2 and Tier 3 firms.

Early engagement

Where projects were seen as working ‘at their best’, this often involved an early engagement phase. In some cases, this was a formalised ECI stage, and in others it was more informal.

Some participants suggested this should be mandated across all public road and rail infrastructure projects as it benefited all parties in the long run. Currently, this was felt to happen most often where National Highways was the procuring authority, but far less frequently when this was being carried out by local authorities, or in the rail sector.

Reducing bureaucracy

Many participants in the research expressed frustration at the repetitive nature of many procurement processes. They felt they were repeatedly asked for the same information, particularly relating to general questions not specific to the tender in question (e.g. financial, accreditations etc). Several participants suggested that there should be a central portal where they could upload this information and only update it when it changed.

An alternative suggestion from some was to introduce a PQQ (Pre-Qualification Questionnaire) phase as standard, designed to reduce the number of firms that were invited to submit a full bid for the work.

Smaller/specialist firms also requested greater specialisation in the definition of Lots on frameworks. It was felt that too many Lots asked for general competencies which favoured larger firms and precluded specialist providers from accessing them.

Fostering innovation

Innovation as a topic rarely came up spontaneously as participants focused more on the risk aversion and risk apportioning within the sector. However, when asked specifically about innovation, it was one of the areas where some participants felt more could be done to encourage firms to innovate.

Participants from the Tier 2 and Tier 3 firms we interviewed would like to see incentives to innovate built into contracts. NEC Option C contracts were seen to incentivise coming in under budget, but not to explicitly incentivise innovation as a means of achieving this. No specific incentive mechanisms within contracts were suggested, but it could be inferred from general comments about the nature of contracts that one way to increase firms’ ability to use new techniques or products would be fairer sharing of risk.

There was also a feeling amongst some that innovation is hindered by procurers favouring tried-and-tested approaches and having slow approval methods, as they may not have the expertise, resource or appetite for trying newer products or methods (especially in the rail sector). Allied to high regulatory costs in rail particularly, some participants suggested the rail sector was being held back from benefiting from new technology. Some participants wanted these processes to be quicker to reduce cost of development. There were also some questions over whether Tier 1s and/or public authorities could be asked to co-fund new ideas to help get them off the ground.

2. Background, objectives and approach

2.1. Background to the research

In June 2025, the CMA launched a market study into the design, planning and delivery of railway and public road infrastructure by the civil engineering sector in the UK.

The market study aims to focus on:

- How market interactions between public bodies and the business supply chain could best incentivise cost-effective delivery of rail and road infrastructure; and
- Whether public procurement and regulatory processes could make it easier for firms to enter, expand, invest, and innovate.

In broad terms, the civil engineering supply chain can be characterised as operating in several “tiers”. Tier 1 refers to the principal (main) contractor working directly with public authority procurers of road and rail infrastructure projects, who then frequently subcontracts work to firms in Tier 2 and/or Tier 3.

This research focused on businesses operating at Tier 2 and Tier 3 in the supply chain. The initial working definitions of each tier are set out below, but the reality on the ground proved less clearcut (see section 3.1 for further discussion on the nature of the sample and tiering).

Tiers – the CMA’s initial working assumptions for research design

Tier 1

Tier 1 civil engineering firms tend to be international or very large national businesses with turnovers in excess of £500 million. As the main (general) contractor, they tend to have the direct commercial relationship with the public authority procurer (the end-client) for a given public road or rail infrastructure project and the responsibility for planning, oversight, and delivery of all or most aspects of that project. However, actual construction/engineering work on these projects is frequently contracted down to firms in Tier 2 and/or Tier 3.

Tier 2

These businesses tend to be small, medium, and large enterprises with a regional or national presence and a turnover of up to £500 million that focus on a specific construction sector or specialise in a particular aspect of a larger project (e.g. electrical maintenance work), usually operating as a subcontractor to the main contractor. (Larger firms in this category may sometimes take the Tier 1 role on a given project.)

Tier 3

These businesses tend to be micro, small, and medium enterprises with a local or regional presence that work exclusively in one specialist field (e.g. demolition debris removal). They may be contracted by a Tier 1 or Tier 2 firm, and they may provide labour only, or provide advisory or consultancy services as well as construction.

2.2. Research objectives

At the outset of the market study, the CMA focused on three key questions:

1. How can public authority procurers access and assess the right information to make well-reasoned decisions when procuring roads and railways, and how can they effectively work with the market to deliver best value projects?
2. Do any procurement, planning, or other regulatory processes create significant barriers which limit companies' ability and incentive to enter, expand, invest, and innovate in this market?
3. What market structures and features will best allow the civil engineering market to deliver road and railway infrastructure that supports UK productivity and growth?

2.3. Research target audience

The CMA's evidence-gathering includes extensive engagement with Tier 1 businesses in the form of information requests and meetings.

This research focused on Tier 2 and Tier 3 businesses only, potentially harder-to-reach audiences with less direct or regular interaction with public authority procurers. The target sample was agreed with the CMA as **decision-makers in civil engineering businesses who have worked as Tier 2 and Tier 3 subcontractors on public road or rail infrastructure projects in the last 6 years**.

Those interviewed as Tier 2 or Tier 3 rail subcontractors had to have wider experience than working on HS2 or light rail (metro/underground) systems to qualify, as these latter types of project were not in scope of the market study.

The aim in this research was to uncover Tier 2 and Tier 3 perspectives on their experiences and any challenges faced when bidding for and delivering public road and rail infrastructure subcontracts, and what would be their suggested changes to achieve better outcomes in this market.

2.4. Research method

An overview of the research process is set out below:

1. Set up	2. Recruitment	3. Fieldwork	4. Analysis
Immersion	Screening	Pilot	Interim analysis
Sample design	Recruiting	Main fieldwork	Final reporting

1. Set up

Immersion: The Jigsaw project team of five interview moderators received a detailed briefing from the CMA on the sector and background to the research. This enabled Jigsaw to design the research to take account of the complexities, ensure we would speak to a good cross-section of Tier 2 and Tier 3 businesses working on public road and rail infrastructure, and have an open and unbiased conversation about their views and experiences.

Sample design: The CMA wanted to speak to a wide range of Tier 2 and Tier 3 businesses working on public road and rail infrastructure, and specifically those that had not engaged with the CMA's market study through any other means. A target of 60 hour-long online interviews was set with the CMA, with minimum quotas on firms working in Tier 2 and Tier 3, rail and road, from different nations and regions and business sizes, to ensure a good mix of participants.

2. Recruitment

Screening: It was agreed with the CMA that participants would be free found by Jigsaw's recruitment partners Serrula Research. Relevant participants were free found from open sources including: trade association membership lists; contract award notices and corresponding trade news articles for a list of in-scope public infrastructure projects; Companies House information on firms with civil engineering-related Standard Industrial Classification (SIC) codes (e.g. 42110 Construction of roads and railways); civil engineering company websites; and LinkedIn. A screener questionnaire was developed by Jigsaw, working with the CMA, to be used by Serrula Research to identify the correct individuals for interview. *A copy of the recruitment screener is available in Appendix section 4.1.*

Recruitment: Progress against recruitment quotas was monitored weekly with the CMA to ensure a variety of firms were included and no voices were left out. Online interview appointments were scheduled and carried out via Zoom

3. Fieldwork

Pilot: An initial discussion guide was agreed with the CMA. The CMA listened to the first five interviews (with participant permission) as an informal pilot running from 20 August 2025 to 4 September 2025. This pilot led to some small refinements to the discussion guide. *A copy of the final discussion guide is available in Appendix section 4.2.*

Main fieldwork: Following the pilot, the remaining fieldwork ran until 10 November 2025. Each of the five Jigsaw moderators carried out around a fifth of the interviews to ensure each heard a range of different perspectives.

4. Analysis

Interim analysis: The interviews were audio or video recorded (with permission from the participants) and were uploaded and stored securely by Jigsaw. This meant the evidence was collated systematically and no voice was lost. Analysis was carried out collectively with input from all moderators involved in interviewing to identify key themes, supported by use of CoLoop AI tools, for example, to source quotes and examples based on these themes. Jigsaw presented interim headline findings to the CMA on 16 October 2025 based on the interviews completed at that point in time (47 out of 60 interviews).

Final reporting: Once all fieldwork was complete, Jigsaw presented overall findings to the CMA in a PowerPoint debrief presentation on 13 November 2025.[5] This report follows on from the debrief with further iteration and detail based on ongoing analysis of the data.

2.5. Methodological note on qualitative research

Interpretation and limitations of qualitative research

When carrying out qualitative research, the focus is not to quantify but to explore and describe views, experiences, and motivations. Qualitative samples are purposive and quota-driven in nature; they are designed to achieve specific outcomes such as including a good range of different groups relevant to the research. Consequently, they cannot be used to identify proportions of populations holding stated views. For these methodological reasons, it is not appropriate to present qualitative findings in terms of the numbers of participants expressing certain views. The responses should not be seen as representative of the universe but can be seen as indicative. The findings in this report are therefore described in qualitative terms. To give an

[5] A copy of the Qualitative research debrief was published with the CMA's Interim report on 17 December 2025.

indication of the strength of a finding from the interviews conducted we have used terms such as ‘a small number’, ‘some’, ‘many’, and ‘most’.

Participant recall

All information reported is based on interview participants’ recall and interpretation, and these are not always precise. Sometimes there is uncertainty because time has passed, or in other cases, participants may simply be unsure about key facts or events they convey. Their answers reflect their best and subjective understanding of their experiences. We asked participants to prepare for the interviews to encourage them to reflect on their views and behaviours. However, it was not part of the research objectives to fact-check, for example, to review any specific project briefs or outcomes.

Individual expert perspective

Participants in this research have provided their personal views in their roles as decision-makers on bids for, and delivery of, public road and rail infrastructure projects. Each response should be interpreted as being from an individual with relevant knowledge rather than as an official collective submission from their organisation. Participants also drew on their wider expertise and knowledge, garnered from the previous positions they have held and from industry sources and contacts.

Anonymity

Individuals who have taken part have done so with the understanding that the CMA will receive a research report based on aggregated data from which neither they (as an individual) nor their company can be identified. This is standard practice in social and market research (and an industry requirement of the Market Research Society Code of Conduct). It aims to encourage open and honest answers from those who take part without fear of any personal repercussions.

Verbatim quotes are annotated with the relevant tier in which the participant’s company mainly operates, to indicate the type of participant but preserve their anonymity.

3. Main findings

3.1. Context

Before looking at the main findings, it is helpful to understand the key attitudes and behaviours of those interviewed. An overview of key points is provided below, with detailed references where relevant throughout the main body of the report.

3.1.1. Sample profile

Interviews with participants in a good spread of Tier 2 and Tier 3 businesses working on public road and rail engineering projects were achieved, but the difficulty in recruiting participants from certain types of firm, particularly Tier 3-only and smaller businesses, provided insight in itself about the profile of firms that work on the types of contract in scope of the market study.

As mentioned in section 2.3, the target sample was agreed with the CMA as decision-makers in civil engineering businesses who have worked as Tier 2 and Tier 3 subcontractors on public road or rail infrastructure projects in the last six years.

We were aiming to interview participants from 60 firms in total and also agreed quotas within the overall sample that were purposive rather than representative, to ensure we included a range of different voices. These quotas set target ranges on the number of Tier 2 versus Tier 3 businesses recruited, how many worked on road versus rail, and on business size and location (country within the UK, and region within England).

The working definition for Tier 2 firms was that they mainly (or only) worked as subcontractors to Tier 1 firms, and in turn, Tier 3 firms mainly (or only) worked as subcontractors to Tier 2s. This tiering terminology was familiar to those that we recruited but definitions varied, as uncovered during the interviews and discussed in detail later in this section (see section 3.1.3 on tiering).

It did, however, prove challenging to recruit participants from Tier 3 businesses, particularly those that only work as Tier 3 (as defined for recruitment), and not in higher tiers as well. It was also generally harder to recruit businesses in both Tier 2 and Tier 3 that are smaller (2-49 employees – see footnote 2), based in nations other than England, and working on rail.

These challenges may relate to:

- Fewer smaller firms working on public road and rail infrastructure contracts in scope of the market study than anticipated; and/or
- Their level of interest or availability to take part in research.

The overall outcome was that most participants interviewed were from Tier 2 firms and over half were from firms that operated as both Tier 2 and Tier 3 subcontractors (as defined for recruitment), as shown in the next table.

Sample profile: Tiers in which research participants' firms operate

Tier 2 or above	20
Mix Tier 2 & Tier 3	32
Tier 3 or below	8
Total	**60**

Alongside the sample quotas set, those interviewed came from a variety of decision-making roles, in firms offering varying types of service on rail and public road infrastructure contracts and operating via different business models.

The overall breakdown of those interviewed is set out below. It includes a very good spread of types of firm, but fewer firms than initially anticipated[6] that are small, are based outside England, and/or have rail rather than public road experience:

[6] Note that the original quota targets were modified as understanding of the types of firm that work on in-scope public road and rail projects evolved during fieldwork.

Sample profile: Quotas achieved vs target

Category	Sub-segment	Tier 2	Tier 2	Tier 3	Tier 3	Total	Total
		Achiev-ed	Target	Achiev-ed	Target	Achiev-ed	Target
	Totals	**28**	**25-30**	**32**	**30-35**	**60**	**60**
Nation (location of HQ)	England	19	14-18	24	20-24	**43**	Max. 47
	Wales	3	3-4	5	4-5	**8**	Min. 5
	Scotland	3	3-4	3	4-5	**6**	Min. 5
	Northern Ireland	2	1-2		3-4	**2**	Min. 3
	Ireland (but deliver relevant contracts in the UK)	1				**1**	
English region (main location of work)	North					**17**	11-16
	Midlands/SW					**16**	11-16
	East/SE/ London					**16**	11-16
Company size	Micro/small (2-49 employees)	1	1-3	9	8-10	**10**	9-13
	Medium (50-249 employees)	16	16-20	22	21-30	**38**	37-50
	Large (250+ employees)	11	8-15	1	1-3	**12**	9-18
Project experience[7]	Rail	15	15-20	15	10-15	**30**	30 min
	Road	17	10-15	20	15-20	**37**	30 min

3.1.2. Types of firm and individual interviewed

Alongside the sample quotas set, those interviewed came from a variety of decision-making roles, in firms offering varying types of service on rail and public road infrastructure contracts and operating via different business models.

[7] Note that some firms work on both road and rail, so the total sum of firms involved in rail and road is more than 60.

Those we recruited to participate in the research all worked in ostensibly Tier 2 or Tier 3 firms (we expand on this in sections 3.1.3 and 3.1.4 on tiering), but these labels covered a variety of ownership structures and participant roles as well as other important descriptive variables.

Firm typologies

In this research, it was not a specific objective to ask about business ownership, but some participants mentioned it without prompting during the interviews. Those who raised it described their firms as either independent or owned by/part of a group. Independent firms were generally (though not always) smaller, almost always SMEs (<250 employees). They could be family owned and managed, or they could be managed by a small board of directors, while others (at the larger end) would look like large Tier 2 group-owned companies, meaning separate departments, decentralised management, and aspirations to become a Tier 1 operator.

Firms that were part of a larger group were more likely to work on Tier 2 contracts and be owned by major, Tier 1 civil engineering companies, but would explicitly underline the point that they operated autonomously within their respective groups, competing independently with other Tier 2 and Tier 3 firms for tenders. A small number of firms were private equity-backed or even PLCs, but this was infrequently found within our sample.

Participants whose firms were part of larger groups did not state that the ownership status of their businesses conferred specific advantages on them when it came to competing for work. Neither did business structure appear to drive the views of participants as far as we can tell from feedback from those who shared their ownership model. However, it can be inferred that firms which are part of a larger group may have some advantage when it comes to aspects such as accreditations and financial resilience, which genuinely independent firms may not have.

Participant roles

Although job titles and responsibilities varied widely amongst the members of our sample, everyone interviewed had a civil engineering background, meaning their answers were well-informed and detailed.

A few participants were owners and/or senior leaders with job titles such as Group Commercial Director, Chief Operating Officer, Strategic Growth Director etc. Others were also in senior roles but more specifically in business development or bidding teams which they headed up. Job titles such as Business Development Director/Head were found here.

Many participants were in middle management roles, again often in bid teams or in an estimating/contract management capacity. Others tended to focus more on project management, delivering on contracts once they were won but also having an involvement in bid preparation.

Project types/scope

The projects that participants worked on tended to be maintenance and renewal projects rather than enhancement schemes. Some firms worked on a mix of the above, but most focused on either maintenance/renewal or enhancements. The type of work being conducted influenced responses as it was heavily linked to the way in which the projects were put out to tender. Maintenance/renewal contracts were nearly all procured through frameworks and so the firms working in these areas were very focused on getting onto the relevant frameworks (which are themselves often broken down into several Lots).

Although there were fewer mentions of enhancement contracts, this work was of much higher value meaning that winning just one of these tenders could guarantee jobs for several months, if not longer. These tenders were often issued directly by either the public authority or the principal contractor (almost always a Tier 1 firm), rather than through a framework. These types of contract were also the most vulnerable to funding cuts and uncertainty and so again, this shaped the responses of participants working in firms most reliant on this type of work.

Specialist vs generalist

All of the participants interviewed broadly described their firms as either specialists or generalists, with the majority tending to see their firm as specialist. This makes sense as the sample is comprised of Tier 2 and Tier 3 firms, where the specialist skills they offer make it more likely that principal contractors will ask them to bid to deliver certain parts of a project as a whole.

The type of specialisms varied quite widely, with some firms saying they specialised in structures like ‘bridges’, while others could be as specialist as ‘specialist steel fabrication’ or ‘precast bridge beams’. Other firms offered consultancy-type specialisms, which tended to be very technical or related to a regulatory area such as environmental monitoring.

Participants from generalist firms were less numerous in our sample and also at the larger end of the firms recruited. They offered general project management and were good examples of firms working on projects where multiple tiers were used to execute the work. These would be large Tier 2 firms, often on frameworks where their role on the framework would be to carry out all aspects of a project. As these projects were framework-driven, they tended by their nature to be relatively small, meaning that although the Tier 2 firm played a generalist, project management role which involved sub-contracting to others, they still described themselves as Tier 2 and not Tier 1.

Road vs rail

The final variable affecting response relates to whether participants reported that their firms operated primarily in the road or rail sector. All of the issues described in this report occurred across both sectors, sometimes to the same extent, but often to differing degrees meaning that whether a firm operated in the public road or rail sector this was often a determinant of response.

We devote sections 3.2.2 and 3.2.3 of the report to outlining in detail the differences reported between the sectors. In brief, our participants reported higher technical barriers to entry in the rail sector, as well as much greater uncertainty of future work and heavier regulatory burden. In addition to this, the culture of the rail sector was reported to be more hierarchical and less collaborative than the public road sector.

All of the above created a strong impression that, outside Tier 1 (where firms were regarded as having a much greater ability to absorb fluctuations in workstreams, higher regulatory burdens, and tighter operating margins), rail was a difficult sector in which to operate, currently.

3.1.3. Tiering

Tier 1, Tier 2 and Tier 3 were universally used terms but there was variation in the ways in which different participants defined these terms. Everyone understood Tier 1 to mean the principal contractor. However, whether a firm was Tier 2 or Tier 3 could relate to their position in the subcontracting hierarchy, whether they were specialist rather than generalist, and/or their size.

When we began this project, our working assumption was that the tiering descriptor reflected a civil engineering firm's place in the contract chain for a particular project. We understood that any one firm could operate in different tiers depending on the nature of the contract, and that is precisely what we found. However, what was unexpected was the varied ways in which different participants defined what it is to be a Tier 2 or a Tier 3 contractor. We briefly expand on this point in this section.

Firstly, it is important to note that the understanding of what it means to be a Tier 1 contractor was near-universal amongst the research participants, so that virtually everyone used the terms Tier 1 and principal contractor almost interchangeably. In that important sense, this showed that everyone understood the term Tier 1 to mean that firm's place in the contract chain, i.e. as principal contractor.

When participants described their firms as Tier 2, this could also mean where the firm tended to be placed in the contract chain, i.e. as a firm subcontracted by the principal contractor. However, it did not always mean this. It could also mean a broader description of the firm's place in the civil engineering landscape, perhaps because of its size or the nature of the work it did.

A number of participants from Tier 2 firms that were on frameworks used phrases such as 'We're a Tier 2 firm but sometimes we can operate in a Tier 1 role as principal contractor'. When pressed, they emphasised this meant they were contracted directly to the public authority issuing the original framework, with no Tier 1 firm above them in the contract chain but, despite this, they were still firmly a Tier 2 firm in a Tier 2 role, albeit as a principal contractor. In these situations (which were relatively frequent across the sample) firms were often delivering maintenance or renewal contracts awarded through a framework and the participants did not feel this was what was meant by Tier 1, hence their insistence that they were a Tier 2, but also principal contractor.

Where their firm offered specialist construction and/or consultancy services, again sometimes direct to a public authority such as Network Rail or National Highways, participants would again always describe the firm as Tier 2 or very occasionally Tier 3, even though there may be no Tier 1 firm above them in the contract chain. This tended to be because the value of these specialist contracts might be quite small and not part of a much larger contract.

Value and size of firm was also another way in which the definition of what it meant to be a Tier 1, Tier 2 or Tier 3 firm could become blurred. Tier 1 could be used interchangeably as a descriptor of size of the firm, or of the size of contract being tendered. This became an important distinction when speaking to participants whose generalist Tier 2 firms were looking to expand and pick up more of the larger, principal contractor roles currently going to Tier 1s, but felt their size either explicitly or implicitly prevented them from pursuing those large contracts. These participants felt the only thing distinguishing their firms from the Tier 1s was size, rather than skillset.

> *"The way I see it is Tier 1 is, you know, the guys right at the top of the food chain, they're the ones in charge of the project. And then everybody below that, sort of subcontractors, will go with the Tier 2s, and the guys below that will be the Tier 3s, who will be probably, you know, in the supply chain to provide specialists support so they can build whatever they're building."*
> **Tier 2**

> *"We're certainly not a main contractor. We are a subcontractor. We will occasionally work directly for a local authority on a small job, but we'll normally work subcontracted to a Tier 1. It's pretty clear who the Tier 1s, Tier 2s and Tier 3s are, I guess. I always have it in my mind as size of the business, and whether you're a main contractor or a subcontractor that specialises."*
> **Tier 3**

3.1.4. Nature of Tier 2 and Tier 3 firms

Tier 2 firms are significantly larger, multi-discipline businesses that deliver substantial civil engineering projects, maintain closer relationships with principal contractors, work under more collaborative contract models, and have greater influence in project shaping. Tier 3 firms are smaller specialists providing niche services or products, operating further down the supply chain, with less influence, tighter margins, and more onerous risk transfer.

Tier 2 firms

The majority of participants in the research classified their firms as Tier 2, which reflected the general view that outside of the Tier 1/principal contractor role, there was not much to distinguish between a Tier 2 and a Tier 3 firm, and whenever a firm operated in both tiers, this tended to be mainly at Tier 2, but occasionally Tier 3 by exception. There were very few firms in our sample who saw themselves as solely Tier 3.

Tier 2 firms tended to be larger, sometimes with national coverage. Where we spoke to participants who described their firms as generalists, the firms concerned were always Tier 2. Only Tier 2 firms had the breadth of coverage, skills, access to manpower, and financial resilience to be able to deliver full service, end-to-end project management.

Even when offering these generalist services, participants were clear that their firms were doing this in a subcontracted capacity where the principal contractor was overseeing an infrastructure project large enough to warrant subcontracting entire project management elements of it to one or more Tier 2 firms. In other cases, participants from Tier 2 firms that were on frameworks spoke about being used in a principal contractor role by public authorities but still as a Tier 2 firm to deliver a mid- to small-size piece of work specific to that particular framework.

As Tier 2 firms were always closer to the principal contractor than Tier 3 firms, participants also felt their firms had, on average, a greater ability to influence contracts and specific clauses, often due to being part of the ECI stage. This degree of agency was highly variable and dependent on a lot of other factors which are covered later in the report, but it is true that participants from Tier 2 firms generally felt they had more control over their contracts than participants in Tier 3 firms.

> *"We can manage all the process from the pre-construction phase where, you know, we undertake the ECI. So, it's like early contract involvement and then from that early contract we are able to advise the client, which stages of the contract or which stages of the temporary design needs to be undertaken to follow the internal process."*
> **Tier 2**

> *"So, we're there at the beginning, you know, what's the plan, what do we need? What's the constraints – they're multifaceted, could be land, could be access, could be whatever. But we're there and we're trying to engineer in collaboration, with other stakeholders, the right outcome. So that's brilliant. That's a great place to be."*
> **Tier 2**

> *"Tier 2, I think is a bit more manageable for us in terms of pipeline expectations on work. Tier 3 can be a bit more reactive. Tier 2 is definitely a lot more preferential, strategic position where we're able to plan work in, work with the client to develop work programmes. Whereas Tier 3, you're reacting all the time."*
> **Tier 3 (sometimes working as Tier 2)**

Tier 3 firms

Tier 3 firms were much smaller on average than Tier 2 firms. For example, the small number of firms identifying as Tier 3 had turnover up to c.£30 million, whereas Tier 2 firms could report turnover of £500 million or more.

Tier 3 firms were always providers of specialist services, often very niche within the field of civil engineering. As an example, a participant from one Tier 3 firm explained, "we are a specialist temporary traffic management design company – we are not a traffic management installation company". The point being made here was that a traffic management installation company would be larger and overseeing all aspects of traffic management, whereas this participant's firm offered niche specialist design, project management and surveying services within the overall (but still specialist) field of traffic management.

Given their position of being at least two steps removed from the principal contractor, there was a prevailing feeling among participants from these Tier 3 firms of a lack of any control over the types of contract agreed up-front or any kind of ECI. This meant that even where the contract shared the risk between the public authority and the Tier 1 and Tier 2 firms, by the time the very specific aspect of work being subcontracted to a Tier 3 was procured, this almost always tended to be on a fixed cost basis. At best, Tier 3 firms worked on a ‘day rate’ basis but generally it was more likely they had to work within a fixed budget.

Participants from Tier 3 firms reported all of the same burdens as those in Tier 2 firms, such as the pass-down of risk, long payment terms, accreditation requirements, and uncapped liabilities requirements. But, relative to their size, any one of these burdens could lead to a Tier 3 firm considering whether or not to bid for work.

Tier 3 participants did also report more personal relationships as being key in winning work – especially at the operational level rather than the senior level.

> *“This literally happened to me today. I’ve been told I need to go to site next week, install instruments, get everything sorted before Friday before they start piling a bridge. And I haven’t provided a quote, haven’t got an order, haven’t purchased the equipment, I haven’t written a risk assessment method statement and that’s how this industry works. A lot of the time I’ve got to get a quote to them tomorrow, try and get everything sorted, get an order off them, get resource, get equipment and get on site and get it all installed by Thursday.”*
> **Tier 3**

> *“We never get to challenge the scope of the project. Our scope by this point has narrowed and we’re told, you know, you’ve got to put in a new cycle lane. Whether we do or don’t or what the cycle lanes parameters are, we have no input into. That’s been decided before us. And that usually gets decided in-house.”*
> **Tier 3**

> *“They will ask me to send a quote over. They’ll send me the project specifics. “We’ve got this amount of holes to do this deep. Can you send me a quote based on this?” Yeah, I’ll literally knock up a quote in about 20 minutes, depending on the intricacies of the project, send it straight over and they usually come back within two to three weeks and we get this project.*
>
> [On control]: *For example, we turn up on a site and they want us to lay a surface course at 2 inches deep, but in actual fact, the road is failed down 4 inches deep. So, we need to change the laying depth and the specification. That’s very difficult to do because contractually we’re Tier 3. We’ve got to raise it with the Tier 2 contractor that’s got to raise it with Tier 1, Tier 1’s got to raise it with the client, and it’s got to come all the way back down the chain again.”*
> **Tier 3**

3.2. Businesses’ view of the market

3.2.1. Changes in the market

Participants noted an increasing sense of unpredictability in the public road and rail infrastructure market, with policy and planning feeling short-term, financially constrained, and liable to delays or cancellation. The focus was reportedly more on renewal and maintenance than enhancement, with greater scrutiny of firms’ credentials and ability to offer value for money, and tendering processes becoming increasingly bureaucratic and time-consuming.

Participants were asked to share any changes they had seen in the last c.5 years in the public road and rail infrastructure market.

Most changes mentioned by those working in Tier 2 and Tier 3 firms were driven by or related to uncertainty around public infrastructure policy and the impact this has on what is commissioned and – in turn – on the supply side of the market. An overview of these changes is set out below:

3.2.1.1. Changes in public road and rail infrastructure commissioning

Increasing uncertainty around infrastructure policy and spend: Tier 2 and Tier 3 participants frequently mentioned an increasing sense of unpredictability in the public road and rail infrastructure market. For many, planning felt increasingly short-term, for example, being driven by government planning cycles, annual spend cycles, or control periods within commissioning frameworks, rather than driven by long-term strategic needs and priorities. Some also reported government plans being financially constrained, slow to materialise, or being commissioned then unexpectedly paused.

“What’s not helpful the last three, four years, is a sort of change of direction every three, six to 12 months. The fact that you [public sector] *make clear commitments and then you take them away down the line, where a whole supply chain and I’ve been mobilising. I’m talking about major projects. But that is that. So, I think that clarity, sticking to your plan, sticking to the timeline and basically not going back onto decisions without properly thinking about the consequences to supply chain.”*

Tier 2

“I mean the government talks about spend reviews and you know, there’s quite a lot of plans around how they’re going to invest. But the reality of this spend review is, what, five, 10% of that actually happens.”

Tier 2

Shift away from major infrastructure enhancement towards renewal and maintenance: Many reported a greater proportion of renewal and maintenance rather than enhancement work being commissioned, and an overall reduction in spend on enhancement. This was seen as a consequence of both financial constraints and short-termism, but potentially more expensive in the long run and, in the view of at least some participants, increasing operational safety risks. This focus away from enhancement projects was particularly notable for, but not limited to, public rail contracts (see sections 3.2.2 and 3.2.3 below for more detail on the differences between public road and rail commissioning).

> *"We've seen a big shift from major capital investments in those two sectors (road and rail) to towards sweating the assets, building less major projects, basically, or actually focusing on maintenance, renewals, sort of smaller interventions rather than that. National Highways Major Roads programme has clearly been cut quite a bit over the last five years … You know, Transpennine 9, HS2, TfL's new lines – there's been a lot of talk about those, but realistically, there's very few of those projects now happening."*
> **Tier 2**

More bureaucracy and scrutiny: The processes around commissioning were seen by many as becoming increasingly over-bureaucratic and time-consuming in the last few years. There is increasing use of commissioning frameworks by public authorities, requiring provision of evidence around quality of service, examples of previous experience, and accreditations to be eligible – to bid overall to be on the frameworks and then again to bid for individual contracts let through them. There was also increased scrutiny on price and value for money. More tenders were seen to evaluate based on quality as well as price, which most participants welcomed. However, tight budgets in the public sector meant often the process remains overly focused on low-cost options.

> *"The procurement, getting onto contracts and getting accredited and through the vetting process to work for a Tier 1 – it's becoming more lengthy, there's a lot more work involved and it's a lot more onerous. The amount of paperwork and documentation and accreditations that you need and policies and procedures in place is growing exponentially. The amount that you've got to produce now is probably, about 30%, 40% more than what it was five years ago."*
> **Tier 2**

> *"The main* [Tier 1] *contractors, they all have their own certified partners. One of the examples is Constructionline, another one's Builder's Profile. I think that works up the chain as well – I think, Tier 1 clients have to have that for working for National Highways. Different clients of ours want a different accrediting body but the accrediting bodies do the same thing. So, if you imagine a small business like myself, we have to have five different accrediting bodies that all do the same thing that we have to pay annual subscriptions for. That has been brought in recently, probably over the last three years to be honest, where every contractor seems to have a different accrediting body that we have to then spend a lot of time, I would say a needless amount of time on."*
>
> **Tier 2**

3.2.1.2. Changes on the supply side

Business financial uncertainty: Some Tier 2 and Tier 3 participants mentioned a general sense of financial uncertainty. Participants' firms commonly work on both private and public sector projects and both are seen as restricted in terms of spend at present. Some have experienced reduced or uncertain private sector work and say this can raise their interest or reliance on public sector contracts.

> *"Tier 1, Tier 2 contractors do not make a lot of money, despite what people think. They see £100 million pound jobs and they think that they're going to be making £20 million quid on it and you're not. If you're making five per cent these days, you're doing well and that five per cent has to pay for your overheads as well, so your net profit's two to three per cent. I think the market leaders are three to four per cent, but they're the really big boys …"*
>
> **Tier 2**

Increasing pressure and risk for smaller firms: Fewer and more uncertain contracts and the increased requirements to qualify to bid can make it feel harder for smaller firms to compete. It can put pressure on pricing and the ability to attract and retain talent when the pipeline of work is uncertain. It can also make it harder to enter new markets, for example, for a smaller regional firm to bid effectively for work in another area.

> *"It makes it incredibly difficult because you cannot predict what's going to happen or when. Well, last year we had to make between 10 and 15 redundancies. We saw a drop off in work. We did carry a lot of people over a period of time, which was a burden on the company, but we couldn't carry everybody, so we did have to kind of right size. They're the types of impacts that we're seeing. That lack of continuity leads, unfortunately, to job losses. And I'm sure that (work) will come back round, but as a company, we just can't sustain it indefinitely.*
>
> *… It impacts things like hiring, confidence in bringing new people in. We're still firmly behind our apprenticeship scheme and we've continued to bring apprentices in every single year, but I do know that some companies have backed off a bit because they just aren't seeing the work materialise. So that affects the job market, affects opportunities, and I think the biggest risk that we're going to have is that a lot of the big infrastructure projects are going to concertina up and there just isn't going to be enough resource across the UK to deliver them."*
>
> **Tier 3**

Consolidation: Participants mentioned consolidation within the civil engineering sector, with large firms acquiring smaller firms, building their scale, skill base, and their resilience.

> *"The business has gone through some changes in the last couple of years. We were a privately owned business owned by myself and my business partner up until two years ago, and we sold the business to a PLC. They integrated us into another business. So now we've been integrated into that business, some of the restrictions we had on winning work before the acquisition have sort of disappeared. We had some financial constraints before. There's quite a few different tests in place. One of them's turnover-based, one of them's profitability, strength of the balance sheet, you know, certain protections in place for the client. So, we've got a greater ability now to bid for larger contracts because we've got, you know, a PLC behind us."*
>
> **Tier 2**

3.2.2. Nature of the public road infrastructure market

> The public road infrastructure market is seen to be characterised by a fair degree of certainty, consistency, and collaboration when working on a major strategic project commissioned by National Highways in England or equivalent bodies in the other nations. However, there are notable differences (less certainty, more variability, and less collaboration) when working on a local authority-procured project.

The public road and rail markets shared many characteristics, but there were also some key differences noted by participants. We look at the public road market first, breaking out the observations on this market depending on whether the procuring organisation is a national body or a local authority, as this distinction was noted by some participants.

It is worth noting that we explored whether participants' experiences of road and rail commissioning in different parts of the UK varied, for example, in England compared with the devolved nations at national compared with local level. We detected very few differences in the views and experiences of participants, although the achieved sample size in the devolved nations is small. The key differences mentioned for devolved nations were that commissions tended to be fewer and smaller in size, for both road and rail, and the perceived need to have a local base there to win bids.

3.2.2.1. Public road commissioning across UK nations

Many participants delivered major strategic road projects for National Highways in England. A few also worked on projects for Transport Scotland, and/or for the national bodies in Wales and Northern Ireland which were mostly referred to as the national 'government' rather than the relevant bodies, the South Wales Trunk Road Agent (SWTRA), the North and Mid Wales Trunk Road Agent (NMWTRA) or Department for Infrastructure Roads (DfI Roads) in Northern Ireland. The different nations were noted to have their own frameworks for commissioning.

We focus next on key insights about National Highways. As far as it is possible to tell from the interviews, these also apply to the other devolved national commissioning bodies as few differences were noted by participants.

3.2.2.2. National Highways

Frameworks are prevalent across the public road sector, with much larger frameworks tending to be published and managed by National Highways compared with local authorities. Participants noted that National Highways tended to issue frameworks for longer durations and via more formal portals (SDF – the Scheme Delivery Framework – was mentioned several times).

It was also reported that National Highways tended to favour NEC Option C contracts, which incorporates a risk-sharing model that was generally spoken about in positive terms by contractors. This was seen as evidence of a more collaborative approach favoured by National Highways, including more early engagement and a transparent way of working that filtered down from National Highways, through the principal contractor (Tier 1) to the subcontracting firms in Tier 2 and Tier 3.

National Highways were seen as operating in a more certain funding environment than local authorities, although delays and cancellations were mentioned by a few (e.g. A66, Lower Thames Crossing and Stonehenge Road Schemes). This funding was seen as both higher and guaranteed for a longer period of time than was the case for local authority funding and this had positive consequences. It was felt that, as a result, National Highways was able to hire technically competent procurement teams, invest in their training, and retain them for long periods, which contributed to the more collaborative culture that trickled down from National Highways through Tier 1s into the subcontracting firms. This collaborative way of working was given tangible backing via the prevalence of Option C or Option E contracts but was also evidenced in day-to-day working practices. Reports of collaborative teams with representatives from National Highways, Tier 1 and Tier 2 firms throughout the project, ensured it was closely managed and reduced risk of nasty surprises later in the project.

All of the above meant that working on National Highways projects was said by participants to be more likely to lead to innovation as some firms felt the space and flexibility offered by an Option C or Option E contract lent itself to experimenting with new ways of working. The actual impetus for innovation would come from the Tier 1 (principal) contractor, rather than National Highways, but it was felt that the latter ‘set the tone’ for the overall collaborative environment, which allowed innovation if relevant.

> *“I’ve got a framework at the minute with National Highways where we got in at the outset. And those schemes actually were built on time on the ground because we have the design fully finished and fully understood with National Highways before we even put a bucket in the ground.”*
>
> **Tier 2**

3.2.2.3. Local authorities

Local authorities in England, Scotland and Wales were also reported to issue frameworks, but these tended to be of much lower value than the nationally issued frameworks and, inevitably given the number of local authorities, more numerous. In some cases, local authorities grouped together to issue a framework, but this did not seem to be common practice.

Participants mentioned that the contracts issued and managed by local authorities tended to be fixed price or NEC Option A. This meant that working on a local authority-procured project felt much less collaborative than working on a project where National Highways or equivalent national body was the public authority procurer. There was less opportunity for early engagement on local authority work and the focus tended to be more on price than anything else. Without knowing why for certain, participants assumed that local authority procurers perceived less need for early engagement or more involved types of contract when the projects concerned are often lower value.

Working with local authorities was also seen as being characterised by a degree of variability in the nature of their procurement, e.g. in submission requirements, emphasis on price and quality, or in standards to be met. To an extent, this variability is explained by the number of different local authorities with each having their own approach. It also points to the lack of a standardised approach across local authorities and a difference in the way they operate compared with the centralised national bodies.

It was also notable that participants working in both Tier 2 and Tier 3 firms felt the absolute competency levels across local authorities was both variable and, on average, lower than they found at national bodies. This lack of in-house technical expertise meant that local authorities were more prone to hiring external consultants or relying on less-experienced staff to procure work. This, allied to the tighter/uncertain funding environment in which local authorities were operating, was felt by participants to explain local authority procurers' reliance on simpler, fixed price contracts, something they did not describe in positive terms. Participants also cited local authorities as likely to amend standard NEC contracts via their lawyers, with no opportunity for challenge.

All of the above meant that working on local authority projects was seen as unlikely to encourage innovation as the constraints around the contracts did not leave space for anything other than pure delivery.

> *"The design changes five, six, seven, eight times and there's a cost to that. Now whether that's due to a lack of competency in the designers that are picked or how they're managed because local authorities don't carry in-house people like they did at the beginning of my career."*
>
> **Tier 2**

3.2.3. Nature of the rail infrastructure market

> The rail sector is seen to be characterised by higher (often technical) barriers to entry, and much less certainty in terms of planning and funding, than is seen in the road sector. This makes it a hard sector to operate in for Tier 2 and Tier 3 firms, exacerbated by Tier 1 firms bidding for contracts previously seen as too small for them, due to the overall lack of projects in the sector.

Our research suggests that the rail infrastructure market differs in a number of important ways from the public road infrastructure market. The most commonly mentioned characteristic of the rail market is a strong sense among the subcontractors interviewed of a lack of certainty at the centre. By this, Tier 2 and Tier 3 firms meant there is considerable volatility in the rail market which makes planning and investment very hard to embark upon.

3.2.3.1. Public rail commissioning across the UK nations

Many participants delivered rail projects for Network Rail in England, and a few for equivalent organisations in Scotland and Wales. Two also worked on projects for Translink in Northern Ireland. The different nations were noted to have their own frameworks for commissioning.

We focus next on key insights about Network Rail. As far as it is possible to tell from the interviews, these also apply to other devolved national commissioning bodies as few differences were noted by participants.

3.2.3.2. Network Rail

It was recognised that, in theory, the government/Network Rail have attempted to bring greater predictability by applying a series of ‘Control Periods’ to rail building. These are five-year plans at the outset of which Network Rail outlines its plans for rail building, so that suppliers from Tier 1 down can plan accordingly. They are currently in Control Period 7 (CP7). Participants felt that in previous Control Periods, this approach had worked reasonably well. However, the experience during CP7 is that the certainty in the rail market is no longer there. Participants reported being on frameworks for 12+ months and seeing no tenders, or projects being pulled, with others waiting to start as the funds are not being unlocked.

The nature of the rail market meant that firms see the barriers to entry as higher than for public road due to requirements such as specialist certification costs, lengthy approvals processes, and higher insurance/professional indemnity requirements. To some extent, there was an understanding that the risk to public safety is potentially greater in rail than road, due to it being more reliant on specific equipment and the infrastructure itself, rather than the behaviour of users of the infrastructure (as is the case in road). Nevertheless, it was felt that these higher barriers to entry were a deterrent to smaller firms who might otherwise consider entering the market.

Participants said the low volume and unpredictable nature of rail infrastructure work has meant that larger Tier 1 firms have been pursuing and winning tenders that previously they would have viewed as too small to be worth their attention. This has further impacted the volume of work available to Tier 2 firms to competitively bid for.

Fixed price or NEC Option A contracts seemed to be more prevalent in the rail market than in public road for national bodies, who may use Options C and Option E, for example, for smaller schemes. These contracts often included a number of Z clauses which our participants felt further advantaged the principal contractor to the detriment of the subcontractors. It was not clear to most participants if inclusion of these clauses was driven by the public authority, the Tier 1 firm, or any consultants, but they suspected it could be driven by any or all of these, and the effect was to transfer a disproportionate amount of risk. The only response for subcontractors in this situation is to either walk away from the work or to increase their prices to hedge against the fixed price contract and risks they were being asked to absorb.

There appeared to be far less collaboration in the rail sector than was seen in road, despite the vast majority of rail projects being procured by one central authority – Network Rail. The view of the research participants was that the Tier 1 firms in the rail sector were ‘gatekeepers’ to accessing Network Rail and essentially it was the Tier 1 firms that created the culture within the rail sector, not Network Rail. This contrasted with the public road sector, where it was felt that national bodies' collaborative approach trickled down through similarly collaborative Tier 1s to the rest of the sector.

Participants noted that when their Tier 2 firms had any exposure to Network Rail, the experience was generally positive and their view was that Network Rail was unlikely to be aware of the 'top-down' culture created in the rail industry by the Tier 1 firms. Nevertheless, this culture was seen as stifling for innovation as well as difficult to operate in from a financial perspective.

Finally, the other key difference noted in the rail sector compared with public road was the prevalence of maintenance contracts over renewals or enhancement work. This was seen by some participants as symptomatic of MVP (Minimum Viable Product)[8] policy in the sector having replaced the previous Whole Lifecycle Cost (WLCC) framework,[9] and they felt it led to reduced investment overall. In this context, we noted the strong concern expressed by some of those we interviewed that an over-reliance on making life-extending repairs to existing infrastructure assets increased the likelihood of their deterioration and eventual failure, posing a significant risk to passenger and workforce safety.

> *"So, you take what it's got to do in the specifications and if it meets that specification, performs that in the cheapest possible way, that's what Network Rail procure now. And that's a state of policy. We can't afford anything that goes over and above that because we haven't got the money. So, everything is let on minimal viable product."*
> **Tier 2**

3.2.4. Drivers of decision-making about whether to bid for subcontracts

> The nature of the market influences choices by Tier 2 and Tier 3 firms about whether to bid, but so do internal business needs and goals. It is a multi-faceted decision, where businesses make considered judgements in each case about the risk versus the rewards.

Whether Tier 2 and Tier 3 firms chose to bid for a contract or not was driven by many factors, both external and internal.

[8] A product which meets users' needs without unnecessary features or complexity; the most pared down proposition that can be delivered to meet the agreed outcomes specified by the client. The application of MVP principles as an efficiency initiative is described in: Network Rail (2023). Delivering an Efficient Railway – Our National Efficiency Plans 2024 – 2029; Network Rail (2024). Our delivery plan for Control Period 7 – A high level summary; and Network Rail (2025). Our updated GB delivery plan for Control Period 7 (CP7) – Year two update.

[9] Whole Life Cost considers the overall cost of a piece of infrastructure across its usable life, from installation to operation, maintenance, and eventual replacement (including disposal costs).

3.2.4.1. External drivers

Likelihood of success given the context: A key assessment that Tier 2 and Tier 3 participants said their firms make is how likely they are to win a bid based on:

- The level of competition, for example, is the contract being let through a framework where there are likely to be fewer competitors than in an open competition.
- Any previous experience with the public authority or contractor higher up the supply chain, the strength of the working relationship with any key individuals or teams, and overall level of trust in their reliability.
- Whether there was an incumbent or regular supplier already in place that their firm would need to outperform (often ascertained in early conversations with the potential client).
- Whether there was a chance to discuss plans, ask questions and negotiate, not just to understand more about the brief, but also to gain a sense of the effectiveness of any future working relationship.
- Whether there was a chance of an ongoing pipeline of future work beyond the initial project, for example, ongoing maintenance further along a road or track.

> *"For a good portion of our work we're looking at future potential. So, you might be looking at one job now, but are there five similar jobs down the line that you might be in a good position for if you take this one? So, it's looking at future potential, it's looking at clients. Is it a client we've worked for before, is it a client we haven't worked for before? Have we got confidence in that client? If they're a bad client, they're known for not paying well or paying late things. Right, no, we'll ignore that one. There's a lot that goes into it and also at that point in time, we're also looking at our workforce internally. So, have we got the workforce available to deliver it? We do a lot of work, but everyone has a limit. How many contracts managers, surveyors, estimators have you got? Can you even spend the time to price it right now or are we busy?"*
>
> **Tier 2**

Feasibility of the brief: Another key judgement was how realistic and achievable a project specification was deemed:

- Crucially, the level of risk that had to be taken on by the participant's firm, e.g. the percentage of liability for ground risks or consequential loss.
- How realistic the budget was for the work, and whether it seemed sufficient or the procurer was just looking for a low-cost option.
- How realistic the timeframe was to respond to the bid and/or to deliver, if, say, a slow design process or a need to use up annual budget meant tight time for delivery.

- How the project proposals would be evaluated in terms of priority given to quality versus price.
- The location of the work, the firm's ability to deliver there, and whether there was a stated or implicit preference for local suppliers. This was reportedly the case for all parts of the country, but a few mentioned that it seemed more difficult to win work in Scotland compared with elsewhere without having a local presence.

> *"We review tenders and we make a decision – go or no go. So, if risk is potentially coming with the value, then the managing director will make the decision, that's kind of how we're protecting ourself as a business. It depends if it's an open tender. Where do we see ourselves on that tender, how can we win first, where's the opportunity for us. Second, we go through it and if something there's not a fit for our skills then we're going to say no, or if there is a too much risk or it's a really non-defined scope."*
>
> **Tier 2**

3.2.4.2. Internal drivers

Need for income: In terms of internal drivers, Tier 2 and Tier 3 participants said that whether they bid and how they priced work was driven by the following:

- The extent to which cashflow was needed, in that the greater the need for cashflow, the more likely firms were to bid and sometimes to price keenly to increase their chances of success.
- The need to keep manufacturing running and the workforce busy to meet base operational costs, and to retain workforce as it is expensive to lose then rehire and train new staff.

> *"We are now looking at smaller jobs for other people just to be able to keep our people and turnover going. When the supply chain and the work levels are good, then that's easier to do. But like anywhere, when that work dries up, you then have to take those little bits of work that you wouldn't have looked at six months ago."*
>
> **Tier 2**

Capacity: The resource to bid and deliver were also important in the decision to bid or not:

- Whether there was capacity to bid, in terms of staff available to review the brief, plan their approach, estimate and price the work, all of which can take firms a significant amount of time.
- Whether there was capacity to deliver in terms of the range and availability of staff and equipment, but also their location, given the cost to set up a new local base and relocate or recruit in new regions can be considerable.

> *"In a mini competition you're in possibly a 12-week process for £250 grand worth of work. You need to find work for the people that aren't working before you find out* [the outcome]*. So, then those people might not be available. When you're on less than 10% margin, you can't have people sat around doing nothing for two weeks, two months."*
>
> **Tier 2**

Desire to expand: Some firms also chose to bid if there was a goal or opportunity to expand their business. This could be through:

- Diversifying the types of work undertaken, including working for new clients in sectors they are familiar working with, e.g. for a new local authority having worked on similar types of work for other local authorities nearby.
- The potential to use the project to enhance their credentials and track record to bring in other similar projects longer term.

> *"Five years ago, we were not doing bridges because the market was dominated by another company. They went bust and we saw an opportunity to go into the bridge market. You know, if we see an opportunity, we go into it."*
>
> **Tier 3**

3.3. Overview of key barriers which limit firms' access, entry, expansion, and innovation

Participants were asked to share barriers or challenges they faced in bidding for public road and rail infrastructure contracts.

A range of interlocking challenges were mentioned by those working in Tier 2 and Tier 3 firms, some that affected the choice or ability to compete for contracts, others that made the process of bidding or delivering the work harder and more costly. An overview of these is set out below.

3.3.1. Barriers to ability to compete

> Public road and rail contracts with too much uncertainty, too much risk, and insufficient budget commonly deterred firms from competing, alongside insufficient access or ability to collaborate with clients at the early stages of a project.

Project uncertainty: Government and policy change raised uncertainty for many participants. Hearsay or previous experience of projects being cancelled, delayed, or poorly managed sometimes also made firms cautious about bidding for projects from the client concerned. Perceptions of uncertainty about the future pipeline, not just around the current project, could put firms off bidding. In particular, for firms new to a market or location, it did not always feel financially worthwhile investing in extra headcount, bringing in new skills, or acquiring new equipment if there was insufficient chance of work long-term. The lack of certainty could feel reduced if firms were on a public authority framework but was still an issue. Being accepted onto a framework did not guarantee future projects and the flow of work through frameworks was also seen as variable, with lulls at the start and end of planning cycles or ‘control periods’ that are difficult for smaller firms to ride out.

> *“It took nearly a year for* [Public Authority] *to decide on some of those frameworks. And so they carried on with the incumbents …”*
> **Tier 2**

Too much risk: The issue of risk was a topic raised spontaneously in nearly all interviews. If there was some certainty that a project was going ahead and worth considering, the transfer of risk down the contract chain was then one of the most commonly mentioned barriers to bidding. Tier 2 and Tier 3 firms perceive risk to be passed down by public authorities, consultants, and/or Tier 1 and Tier 2 contractors, all of whom want to reduce their own risk by transferring it to others in the supply chain. This was typically done through adding multiple subclauses, in particular Z clauses, to standard NEC contracts. The exact nature of the clauses and risk being passed down the contract chain varied by public authority, contractor, and project. Firms cited examples of unlimited liabilities or liabilities apportioned too heavily towards Tier 2 or Tier 3 firms around aspects such as ground risks or consequential loss. The upshot was often that smaller firms were cautious about bidding or chose not to bid in some cases to avoid the potential for heavy financial losses relative to their business size. Some smaller firms also reported that certain projects required minimum liabilities that a business of their size was unable to provide, as it was not cost-effective or the insurance market would not insure up to those levels.

> *“You only need one bad job and that can destroy your year, and it has done for the last couple of years in the businesses I’ve worked for.”*
> **Tier 2**

> *"Some clients focus on trying to push as much risk as they can onto the contractor. I'll give you an example. If a physical condition leads to a design change, it's not a compensation event. So, for instance, you could find an underground cable that nobody knew was there that could prevent you from being able to install a key piece of infrastructure. And because the design change has come about from a physical condition, that's not a compensation event for the contractor. We basically refused the contract that we were awarded, which was a £12 million pound contract, which is not a small contract for a company of our size. That's a tenth of our annual turnover. It would have kept about 150 employees busy for 18 months. And we refused to take that contract on because of that particular Z clause. So that was quite disappointing. The client acknowledged that we were the best positioned to do it, best price, best programme, best quality, but that they wanted to ensure that those risks stayed with a contractor, and it just made the job untenable for us."*
>
> **Tier 2**

Insufficient access: Lack of access was a barrier in two ways: lack of business relationship with the end-client and lack of eligibility based on the bidding criteria. Some Tier 2 and Tier 3 participants felt that their firm was capable of doing the work described in project briefs, and had appropriate experience in their view, but there were still barriers to bidding or winning the bid. ECI did not always happen or (when it did happen) include specialists in Tier 2 and Tier 3 businesses. Commissioning often appeared to be done informally or formally through existing relationships, with some contracts sent out to invitation-only shortlists of established contractors. In addition, some briefs required specific accreditations or ways of proving competency, which vary by contractor, and a track record with a specific type of public authority work that is not easy to provide if you are new to a market.

> *"People have got their preferred suppliers; they've been in place for a long time and they're just going to pick the same people. You know, they're going to be told ahead of time the tenders coming out, the tender comes out and it's going to them, and that's going to be the case every time. So, I don't know what happens on the back end, you know, but obviously there's some clients who we will have better luck with than others. You know, some people are just doing it because I think they have to do the tender and put it out there, but they already know who they want."*
>
> **Tier 3**

Insufficient budget: Project budget was a common barrier, when it was not seen as realistic or worthwhile given the cost of doing the work or level of risk. Low or fixed price contracts for projects with unknown levels of risk on the ground were of particular concern. Bid evaluation scoring that put more weight on cost and lower consideration on quality were also seen as problematic and off-putting.

> *"I would say that companies' expectations of the price are usually on the low side. At the budgetary stage they'll go to a commoditised, high-volume manufacturer for a product and get a rough guide because it's quick to get a quotation off them. But actually, what they then require is something on top of that. So, price and expectations are usually on the low side, which does set a budgetary problem for many contractors, if they've under-specified and under-budgeted for those things."*
>
> **Tier 2**

3.3.2. Barriers within the bidding process

The bidding process itself is commonly cited as a barrier to competing for public road and rail contracts, including the rigidity of frameworks, the burden of information required to bid (and reporting required on an ongoing basis if you win the work), and the quality of design information in briefs.

Framework rigidity: Public authorities' increased use of frameworks was seen to bring some positives for civil engineering businesses that were on the framework roster but meant a lack of access to that type of work for several years for those outside them. Frameworks were sometimes said to bundle projects or types of work meaning it was not feasible for smaller firms to bid. As already mentioned, there were also specific limits on who could bid based on level of company liability or size. Frameworks and portals for bidding were also seen by many to hinder direct engagement or discussion of detail for projects that by their nature are quite complex and technical.

> *"The people that are procuring aren't construction people, they're specialist procurement people, and they're doing their job at the end of the day, trying to keep their local authority or business as safe as possible. And that often means passing more and more risk to whoever they're tendering it to, which isn't always the best answer. The person that should get the risk is the one that's best placed to manage it. And I think that gets lost with local authorities and with national bodies. As soon as the tender's out, the shutters come down and the only way you can interact is through portals asking tender queries that are shared with everybody. And that's right, because you, you've got to have a credible tender process. But where they could probably improve it would be mid-tender meetings, and a bit more open dialogue around the terms."*
>
> **Tier 2**

Bureaucracy: Information required in bids was reported not just to relate to the bidder's approach and price for the work but also evidence of previous public infrastructure projects and fulfilment of wider criteria including quality accreditations and ethos, and policies around health and safety, sustainability, modern slavery and so on. This type of information was required multiple times in different formats, even by those who were already on frameworks or have already provided this information to attain some industry accreditations. This could add to the time and cost burden of preparing bid proposals. We heard examples of firms spending £10,000s to £100,000s, or 5-20% of the tender value, just to compete.

> *"We spent £150,000 to try and win a job. And that particular job got shelved. They want you to break up your costs and there are presentations and pages and pages of quality submissions. It takes time, resource and money."*
> **Tier 2**

> *"And there's so many sort of 'white tapes' to work in rail with competency cards and stuff like that. We've had to let them go because there's basically no work. To go out to work in construction probably costs about £300 in competency cards in terms of the highways. With rail, you need a thing here, we call 'PTS'. So, if you're working near a site, or online on track, lineside on track, you can't go on there without special competency, and it costs thousands of pounds to renew."*
> **Tier 2**

Inexpert or insufficient design: Some cited cases where project scope or design in briefs is poor or insufficiently advanced, and in a few cases unfeasible. This could be at the bid stage and at the start of contracts. Coupled with the fact that framework portals were felt to limit detailed discussion, this could cause hesitation from firms on whether to bid knowing there was higher chance of extended negotiation, contract variations, and delay throughout the project.

> *"They wanted us to quote for removing 150 trees. So, we priced it based on that and got awarded it based on that. We got there; there were only 10 trees left. No one had actually gone out to site to have a look at it. They looked at Google Maps from two years ago or whatever. Someone had wasted their days preparing a specification, sending it out to tender. Wasted all of our times bidding and everything. And in the end, you go from a £200,000 job to a £10,000 job that you've secured labour for three months and you end up doing in three weeks. It's bureaucracy I guess, very fat, heavy organisations that rely on process rather than common sense. That's probably unfair but, you know, normally we would go out and spec a job by looking at it."*
> **Tier 2**

Future reporting burden: Less top of mind but also raised by some participants was the perceived administrative burden of delivering public as opposed to private infrastructure projects in addition to the burden of the initial bid. This could be in the form of invoicing, compliance reporting, and change documentation, all of which add to the cost of delivery.

> *"You get asked to do all of your carbon footprint reporting, you get asked to do all of your diversity reporting, you get asked to do modern slavery reporting in and above your modern slavery statement, you get asked to do it on every single framework I look at. There's probably six random quarterly reports that I will get asked to do on matters that, as a Tier 2 or a Tier 3, I probably don't have that many people in overhead to sit around collating reports on. So, where you have a lot of that, you might decide not to tender."*
> **Tier 2**

3.4. The subcontracting journey and the challenges at each stage

Tier 2 and Tier 3 firms recounted their experiences of bidding and delivering work on recent public road and rail infrastructure projects. The process and some of the benefits and challenges are described next at each of the following stages:

Pre-engagement	Brief	Bid	Delivery
1. Access 2. Design	3. Frameworks 4. Contracts 5. Pricing	6. Quality requirements 7. Accreditations	8. Contract management

Pre-engagement

3.4.1. Access

> Access to public rail and road briefs can feel restricted for some and unpredictable in terms the volume and timing of work, especially if firms do not already have a strong relationship with the public authority or contractor doing the commissioning.

Nature of the process

Participants reported that public authority commissioning can start with ECI, which forewarns contractors of planned projects and allows early input into project design and questions to be raised before a brief is issued. In some cases, Tier 1 firms will also discuss projects formally or informally with firms lower down the supply chain. In other incidences, for example, when a project is smaller or simpler, firms are asked to bid or send a quote by a contractor higher up the supply chain without any earlier engagement or input.

Tier 2 and Tier 3 firms often have some established relationships with businesses who tend to operate higher up the supply chain tiers. Having an existing relationship can feel like an advantage and mean early conversations and input on design are more likely. However, this can be seen as restrictive by those outside of any partnership (formal or otherwise). Some participants felt that their firm may not gain access to new work if:

- It is not perceived as sufficiently large or experienced enough
- There is invitation-only tendering to established contractors

Tier 2 and Tier 3 firms also may have direct relationships with public authorities. This can stem from various factors, including being on their framework, operating sometimes as a Tier 1 business, or having specialist services and knowledge that are important during project design, planning, and costing, for example, traffic management or demolition.

Even if working collaborative relationships exist between client and contractor, the pipeline of work can be unpredictable. Government policy was often described as short-term, unclear, or changing. Sometimes briefs can appear at short notice and the turnaround time for bidding can feel tight for complex work. Different public authorities and Tier 1 and Tier 2 contractors also have different qualification criteria and different ways of working.

Benefits mentioned by participants

- Established relationships and access to frameworks was seen to help increase the likelihood of finding bid opportunities and stability from regular work.
- Firms felt they had more influence and control if they were involved in early conversations around design or if they could access ECI, and this added the advantage of greater knowledge when it came to the bidding stage.

Challenges/barriers mentioned by participants

- Access to frameworks and established relationships were seen to favour incumbents, making it harder for newer firms to bid or win work.
- Unpredictability made it hard for firms to plan but is more easily weathered by larger firms with many established relationships and the ability to move or commit resource at shorter notice in order to deliver work.
- It was said to be harder to gain experience and credibility in new areas as ways of working can vary and the requirements of bidding can present a learning curve, e.g. variations in use of ECI across public authorities, different frameworks, differences in criteria to bid among local authorities or different regions within Network Rail, differences in criteria to bid for major firms higher up the supply chain.

> *"It's very much driven by major frameworks and typically driven by contractor-engineer relationships in that space. Or then you've got the local authority space, which is very much about, you know, having a local office, a relationship and that element. So, I think you've got a limited number of firms actually that can compete for any sort of local authority projects."*
> **Tier 2**

> *"There are rules and no one would ever admit to it, but certainly there are favourites, I know we're one of* [Public Authority's]. *It can be approached now only through quality scoring, but it can (still) be approached in a way that favours who you want to do the work, albeit generally it still comes down to price."*
> **Tier 2**

> *"A lot of times we don't get invited or we're not able to bid for frameworks, Again, we're not quite geared up because we're not a Tier 1 contractor. You tend to find frameworks are overarching and it says, right, you will maintain this stretch of highway, the next 10 kilometres, or the next 10 kilometres of this rail section, and you tend to find they're Tier 1 contractors because they're a jack of all* [trades], *master of none."*
> **Tier 2**

> *"I think it's a real mix. Some contracts are better than others, but a lot of the time it comes down to the actual team and the personnel involved there. Generally, the earlier you get involved, the more successful the outcome. And you know, I've been a Tier 1 myself and I've always said that to the end-customer, you know, get us involved early and you'll get a better outcome. But then I think a lot of the Tier 1 contractors don't necessarily practise what they preach in that regard. I think that's got to flow down right through the supply chain and then everybody gets a better result. The customer does, the taxpayer does. It just works out better for everybody."*
> **Tier 2**

3.4.2. Design

Participants said that Tier 2 and Tier 3 firms commonly experience cases where early designs are inexpert or insufficiently advanced in their view. This can deter firms from bidding and can increase likelihood of delays and inefficiency during the contracting process and subsequent delivery if the firm wins the project.

Nature of the process

Some Tier 2 and Tier 3 participants referred to a loss of public sector in-house project managers and design expertise in recent years. In many cases, this means that consultants and Tier 1 firms are involved in project design and management. Tier 1 firms also regularly subcontract all or most of the delivery work to Tier 2 and Tier 3 businesses.

Sometimes specialist Tier 2 and Tier 3 firms may feed into early design work. This is more likely the case for firms who sometimes operate as Tier 1 firms, those who agree joint ventures or have ongoing working relationships with Tier 1 firms, or specialist firms that bring skills lacking in the Tier 1 business.

A common situation reported by participants is that early project designs are unclear or not prepared to a sufficiently detailed level. They allege this may be driven by several factors:

- Insufficient knowledge and understanding of delivery on the ground among consultants and Tier 1 firms.
- Insufficient in-house skills in public authorities to scrutinise and challenge designs prepared by consultants or Tier 1 firms.
- Insufficient input from appropriate specialists.
- Insufficient site surveying or understanding.

There is understanding that sometimes design is progressed to a level that enables funding to be secured or to start the process of bringing in contractors. However, when designs do need more work, there is added pressure on firms lower down the supply chain when this is combined with fixed price contracts and liabilities being passed down (see below on challenges and in sections 3.4.4 and 3.4.5 on contracting and pricing models)

Benefits mentioned by participants

- Being involved with early design as well as delivery increased most participants' sense of control and influence, and had the added advantage of greater precision in terms of approach and costing when it came to the bidding stage.

Challenges/barriers mentioned by participants

- Poor designs were felt by many to bring the risk of extended contract negotiations to refine the scope.
- Poor designs were also commonly linked to issues being uncovered on the ground, stoppages, late changes, or multiple contract variations during delivery, all of which can add cost and delays.
- In a few cases, poor designs were said to have led to disputes about liability for any extra costs.
- Some described a lack of imperative to improve designs, as there seemed to be fewer negative consequences for consultants or Tier 1 firms if they 'designed in'

issues at the start of projects than for the Tier 2 and Tier 3 firms who have to implement them. Participants suggested that poor designs might reflect consultants' inexperience on the ground and understanding of potential pitfalls (i.e. a lack of practical, rather than academic or theoretical delivery experience), but some alleged it could be done intentionally in that later design revisions were additional, billable work for the consultants concerned.

"And so, what happens is you end up getting so far and then you're like, "actually, it doesn't work", so you've got to go back to the drawing board and start all over again with the design. And then it ends up costing everybody a lot of money because, obviously, we have to get our cost reimbursed, as design is not our fault."

Tier 2

"You end up coming up with problems like you've got to do some work, and they say, 'oh we can't do that work because that work's blocked up, we need a new line there' and before you know it, your price of £1 million has doubled to £2 million because the design has failed, and they've not researched the job enough."

Tier 2

"The contracts are often let before they're fully designed, and the designers change them. And when you change it, when you've got a construction site there with preliminary costs of say £100,000 a week just to be there, whether it's producing work or not, it's a lot more expensive at that stage in the process to be changing designs and Tier 1s and Tier 2s are seeing it over and over again where you get to site and then it changes and it changes and it changes and you almost end up with change on change on change, rather than spending that bit more time getting it right, making sure you can build it before you actually go there and do it efficiently."

Tier 2

"It's actually a cost-plus design and build and I still see it as quite risky. Even though it's a 50:50 split in profit and loss over a certain point with the client. It's still very risky when a design isn't fully developed. There's a lot of comments on a design that you inherit, and you take it forward to AFC [Approval for Construction] *stage. I find that very risky from a cost certainty perspective and from a contracting perspective."*

Tier 2

> *"Now the innovation that we've come up with, it does stuff faster and it does it cheaper. Now we've got contracts on two roads, annual contracts to use our patented technology because they know it's saving money. Whereas if we go to a Tier 1 with it, who's on a 15% uplift on whatever, if we go to them and say, "well look, you don't need to do it that way anymore, we can do it this way and it'll give you a 25% saving", they're completely turned off because they're only going to make 15% of the lesser figure, right?"*
>
> **Tier 2**

> *"So, you've got projects where the local authority, for example, engages a principal designer who has come in on a great price, but actually their technical civils background is not as strong as it should be. So, they're sending out design scopes which are coming out just absolutely bonkers. Now, the problem with that is we need to change it to work. But then that's a design change that's then going to go back to the principal designer. Nine times out of 10 they're going to go, "yeah, that's fine, crack on". But that's still four weeks' worth of programme loss. On a small programme, fine. But when you're talking major infrastructure where there's countless people down the chain waiting, the cost starts spiralling."*
>
> **Tier 3**

Brief

3.4.3. Frameworks

Participants noted that public authority frameworks are becoming more common and can help to drive and/or hinder Tier 2 and Tier 3 firms' resilience and productivity but were alleged by some to favour incumbents and larger firms in the way they are implemented.

Nature of the process

Participants reported that frameworks are increasingly used by public authorities to procure public road and rail infrastructure services.

Frameworks are typically accessed through online portals. They require an initial competition to join and often subsequent mini competitions for individual projects being tendered.

Frameworks tend to work on planning cycles (sometimes referred to generically as 'control periods') with specific funding and goals for a set time, followed by reviews and retendering. These arrangements can last several years, with options to extend if the public authority requires, with examples cited of lengths of anything between 3-15 years.

Some frameworks are reported to have additional eligibility criteria or Lots within them, e.g. limitations on what firms can bid on based on company size, level of liability, or specialism.

Several firms are normally accepted onto frameworks (or onto each Lot), so there is still competition for contracts that are tendered through the framework process. There were a few cases where firms were so specialist that, in effect, they had no or little competition for their type of service.

Some participants mentioned that they received feedback on failed bids, but information can feel limited and come via procurement teams or non-specialists.

Benefits mentioned by participants

- Frameworks were seen by many to help provide stability and repeat work for eligible firms, especially, for example, with ongoing maintenance contracts.
- A steadier pipeline of work often helped keep firms' resource in use and build skills (with less need to spend time and money to release, rehire, or retrain staff).
- It typically felt like a fair playing field within the framework, as there was more transparency in terms of the brief and the criteria for evaluation.
- There are often perceived to be better odds of success for firms on the framework, as fewer firms are eligible to bid, avoiding excessive number of bidders and lower win rates experienced on some open tenders

Challenges/barriers mentioned by participants

- Significant time and resource were often said to be required to tender to get onto a framework, but there was still competition subsequently, with what participants often characterised as onerous mini competitions to win work through the framework.
- Being on a framework was reported by some to bring no guarantee of winning work.
- The pipeline of potential work allegedly can also vary or be unpredictable, with lulls common at the start and end of control periods and planning cycles, and policy changes affecting what is tendered.
- Firms who do not succeed in joining the framework (or a particular Lot) said they cannot access work for that public body or project type for several years, sometimes for extended periods.
- Evidence of previous work on public infrastructure was often required (or perceived to be preferred) to join the frameworks operated by public authorities and this was seen to favour incumbents.
- Framework tendering processes via portals reportedly hinder detailed discussion with the end-client on complex projects.

- How frameworks are implemented is seen by some firms to advantage larger players, for example:
  - The bundling of projects
  - Placing limitations based on company size or level of liabilities
  - The burden of information required to join the framework and to bid for projects tendered (see section 3.4.6 on information requirements)

> *"They seem to be getting longer and longer, these frameworks. If you don't get on them, you're going to be out for a long time."*
> **Tier 2**

> *"We've got a really innovative project here and we've been working on it for five years now with* [Public Authority] *and we've been losing money during that time and we're only just about to get into a framework where they can really buy it and really leverage it. So, I think it takes too long to get innovation embedded and used and to see the benefits from it. And another thing I've seen, which is quite common, is people ask for innovation and then they ask for three to five examples of where you've used it previously. So, you know, if I've been using it for five, 10 years, it's not really innovation anymore. So, people need to be willing to take a chance with new technology and try it out and see if it works, rather than – where have you used it before?"*
> **Tier 2**

> *"I prefer Tier 1, but it's hard to do that because of the way the frameworks are set up. They're aimed at bigger contractors. There's a lot of barriers to entry to the market in terms of being able to provide the information these guys are requesting, a lot of which is irrelevant, I'll be honest with you. Once you've got over the hurdle, many of those aspects that they've asked for are never referred to or used again. So, a lot of this is about window dressing. And as a £20 million business, we just do not have the resources to spend £250,000 on returning a tender or a framework document. It's just very difficult for us to compete … well, for instance, they're saying you've got to provide 70% local labour and that is absolute* [✂]*. You know, they're using PO boxes, they're setting up temporary local offices, but nobody's actually really checking, or making sure it's actually happening. And the main contractors are really good at kind of presenting information to say they're doing stuff when they're not."*
> **Tier 2**

"We're constantly asked to commit to so many things to get onto a zero-value framework. You promise that you will do all of these things for carbon emissions, you promise that you'll make efficiencies, and we do not promise you £1 of work. I just sometimes think maybe [Public Authority] *needs to take a little bit of a step back and think, are we starting to take the* [✂] *a little bit now? We're going to ask you to commit to things that cost thousands of pounds and we're not going to guarantee one bit of work."*

Tier 2

"The world of portals is something that's definitely changed. Again, there's a lack of personal engagement, face-to-face meetings and discussions, a lot less than used to go on and it makes it a lot harder to say, "well, I've spotted this is wrong.""

Tier 3

3.4.4. Contracts

Many projects were reportedly contracted using one of the New Engineering Contract (NEC) suite of contracts. This was seen as helpful in principle by participants as these contracts are standardised, familiar, and regarded as fit-for-purpose, but extensive use of subclauses (particularly Z clauses) was cited that increased complexity and liability for Tier 2 and Tier 3 contractors, adding legal time and costs, and leading to avoidance of certain projects or pricing in risk.

Nature of the process

NECs are commonly used to let contracts but many in Tier 2 and Tier 3 firms cited regular inclusion of substantial numbers of variations to these standard contracts via extra subclauses, particularly Z clauses. Multiple participants described excessive use of these variations.

Subclauses can:

- Pass on liabilities, e.g. ground risk
- Restrict change mechanisms
- Amend payment terms, e.g. include payment retention or slower payment terms for Tier 2 or Tier 3 firms than the Tier 1 contractor has agreed for themselves with the procurer, e.g. payment in 60 not 30 days.

Participants felt risk can be transferred by contractors higher up the supply chain, consultants, and/or public authorities. It was not always clear for most which organisation was driving the risk transfer, but they believed it might come from any or all of the parties in the mix, and it varied based on public authority or business, but also individual preferences within institutions. It could also vary depending on the scale of project and type of service being supplied. The main outcome was that Tier 2 and Tier 3 firms often felt they carried a disproportionate amount of risk for their size of business relative to public authorities and those higher up the supply chain.

The UK government's Construction Playbook was not well-known amongst participants in the research. For the few that were familiar with the guidance, there was little detailed knowledge. It also tended to be seen as helpful in principle but not practice, as its application by those commissioning public road and rail infrastructure was seen as inconsistent across different organisations and different departments or individuals within them.

In a few cases, with smaller projects and specialist Tier 3 businesses, the contracting process can be as simple as providing a quote via email, based on fixed day rates or equipment costs, with the services quickly agreed and delivered.

Benefits mentioned by participants

- Civil engineering for public road and rail as a whole is commonly seen to carry less risk than private work, as public bodies do not go bankrupt.
- Participants acknowledged and appreciated that there is value for us all in public bodies reducing risk to the public purse, although the approaches used are not always seen as the right way to do this.
- Larger, more experienced Tier 2 and Tier 3 firms with the resource to review, negotiate, and manage risk said they felt better placed to bid and have better odds of success. Contract styles used on frameworks or by contractors higher up the supply chain can also become more familiar with time, making review and response easier.

Challenges/barriers mentioned by participants

The challenges presented to Tier 2 and Tier 3 firms were seen as significant and costly:

- Many felt that too much risk was often carried by contractors lower down the supply chain, firms that are the least able to shoulder it or influence initial brief or design. In some cases, the level of liabilities was said to be existential for smaller firms and meant they chose not to bid.
- The inclusion of multiple Z clauses was said to add legal cost and time to review non-standard aspects of potential contracts, in particular the level of risk being taken on.
- Subcontractors often priced higher to cover risks (especially where NEC Type A lump-sum contracts are used and risks were perceived as high or unknown).
- Some reported or feared an increased risk of disputes.
- Many felt the process favours larger firms able to commit resource at bidding, contract negotiation, and during any contract variation, and could make smaller firms without this resource more selective on what to bid for.

- Delayed payment terms were said to hinder cash flow and sometimes lead to financial struggle.
- Low profit margins and/or delayed payment terms were felt to hinder the ability of Tier 2 and Tier 3 firms to bid and to invest in new methods and innovations.

"It's NEC, but they've put 100 pages of amendments to an NEC contract which is 50 pages long … NEC is actually great, I don't mind operating in NEC at all. The Network Rail-amended NEC is fine. They amend a couple of things that make it sensible for the railway, and they add in all of the like Clause 100 [payment terms] *and things like information security and stuff that NEC didn't contemplate when it was made. But when it goes into the Tier 1s, then they stick 50, 70, 90 pages of horrifying amendments just to stop all of the principles of NEC operating in the way that they were intended to."*

Tier 2

"So, a good example, we had a job which was really, really, small, like £10,000, and they wanted it to be unlimited liability. And we're like, "no way!". You could sue us for millions. So, yeah, we had to walk away from the contract. So that's a big sticking point. And it's a big problem."

Tier 3

"The New Engineering Contract (NEC), that's a great contract, but not many people truly know how to run them. The clients are employing legal people, and they are applying court clauses [that dictate how legal disputes will be handled] *to NEC. They are what you call Z clauses. The devil is in the detail. They're getting lawyers to overwrite in these Z clauses which are basically removing all the benefits of an NEC contract. It's absolutely ridiculous. You know, the market is just not functioning smoothly because of all this sort of designer chaos, legal chaos. If people were more simple and straightforward, they would save so much money."*

Tier 2

> *"The other thing to mention, actually, these NEC contracts, they're supposed to be standard forms of contract that everybody knows what the wording is and what the risk is. By the time you get that contract, it's probably been – I want to use another word, but I can't – bastardised about 10,000 times and been amended so much that it doesn't resemble the original form of contract. And that is a big problem, you know, in terms of, again, people mucking around with liability, and mucking around with a form of contract. And if that didn't happen, that would make procurement a lot quicker. And it's not what's supposed to happen with the standard formal contract."*
>
> **Tier 3**

> *"So, they're always playing with the contract. And what that means is it doesn't always work. When you've got your experts from maybe the six largest contractors in the country or the six largest consultancies, they're looking at this contract and how it's actually going to work, through the winning strategy right the way through the delivery, people pick holes in it because it's been changed so much. So, one Z clause might impact 10 standard core clauses."*
>
> **Tier 2**

> *"We are getting sometimes asked for levels of PI insurance which aren't readily available. So most professional indemnity insurances are on an aggregate basis. So that could be basically five claims at £2 million. Whereas some, some public bodies, I'm sure are looking for £10 million each and every."*
>
> **Tier 3**

> *"The problem with the Construction Playbook is it's meant to be mandatory across all government public spend departments and it isn't. It isn't enforced. And where it is enforced, departments cherry-pick the bits that suit them rather than implement the whole piece."*
>
> **Tier 3**

3.4.5. Pricing

Budgets can often be seen as tight for the nature of working being undertaken. Pricing models are said to vary based on scale and type of service being provided, but not necessarily in ways that promote efficiency or innovation.

Nature of the process

Many participants mentioned that contracts focused on finding the cheapest bidder were common, although some public authority framework tenders now put more value on quality not just cost.

Renewal and maintenance project budgets reportedly can be tight, especially in rail, and focus on minimum upkeep rather than fixing issues for the long-term.

Participants said that use of pricing models varied based on scale and type of subcontract and service being procured:

- Fixed price contracts e.g. NEC Type A – described as commonly used for renewal or maintenance work where costs are more predictable.
- Target contracts e.g. NEC Type C – typically said to be used for higher risk enhancement and ad hoc projects.
- Some use of other types of contract, e.g. bill of quantities, day rates for labour, cost-plus.

Benefits mentioned by participants

- Participants often acknowledged that fixed price contracts can offer cost control and value for money for the public purse.
- Target cost contracts tended to be viewed as more collaborative, offering shared risk and enabling better problem-solving. They tended to be preferred alongside other styles of contract where extra cost was covered or shared, e.g. cost-plus.
- A few mentioned they valued the use of activity schedules within contracts as a way to highlight the expertise of their business and show the quality and feasibility of their approach.

Challenges/barriers mentioned by participants

- Some participants said that fixed price contracts can be a significant financial risk for firms if the project scope and designs are unclear or insufficiently developed.
- Some reported that their firm would decide not to bid on price-driven contracts if they felt they could not deliver a high-quality service for the price. This was also to avoid a ‘race to the bottom’ on price (and avoid existential risk).
- A few participants alleged that some competitors may under-price to win work, which made competing hard and added cost in the long run. This could be:
  - Intentional under-costing – firms trying to win work at a loss or no profit to generate experience in a new sector or to keep staff working, sometimes with the aim of renegotiating variations at a later stage.
  - Unintentional under-costing – due to error or inexperience and failure to understand risks, which can lead to variations, renegotiations, or disputes, or in the worst case, a failure to deliver.

  - Delivering lower quality work – e.g. using lower-cost, less-experienced staff, or lower-quality or less resilient materials that require more maintenance or have shorter lifespan.
- There was one case of a contractor in Ireland allegedly offering prices for projects in the UK that could not be matched by the participant's firm or, they implied, any UK competitors as it receives Republic of Ireland government subsidies.

"And when you get asked to tender for works, a lot of the time you won't get a contract. So, you'll ask the company you're tendering to, what form of contract is it? Is it FIDIC?[10] Is it NEC? Is it Option A, B, C or D? So, I've tendered for works where we received the offer. The contract that was offered was an Option B, then it became an Option A, then it became an Option C, then it eventually became an Option B. It took six months to negotiate that contract before we could start our works."

Tier 3

"I was in this situation at my previous company whereby we went for a framework, we won a place on it. And then what they ran out of that framework, rather than commissioning jobs through the rates on that framework, they would send out what we call mini-competition tenders. So, each job was a mini-competition tender. You had all the scheduler rates for the items that were needed to do the job, and you had the chance to reprice them. And the idea of that was you would reprice it as cheap as possible at the time to try and win it."

Tier 3

"I think when we're in a competition we're always mindful of price and they need to be as competitive as possible. It is still a cost-driven sector. People talk about value all the time, but in reality it is still very cost driven. And I think whatever your role as a subcontractor, I think that's still a big part of it."

Tier 2

Moderator: *"How do you start* [working for a new client]*?*

Participant: *"Really? You have the best price ever."*

Tier 3

[10] Fédération Internationale Des Ingénieurs-Conseils (or The International Federation of Consulting Engineers).

> *"Right now, there is a company who's trying to move themselves up, so they are bidding stuff very low to win some more work. So, they'll lose money on a couple of contracts, but then you'll get the evidence of working on those contracts, so they'll make the money further."*
>
> **Tier 2**

> *"We can go on different versions of (NEC) and there has been a few targets costs which are Option E where we would tell the client we expect to spend £150k and then that can vary where things go wrong or things go better. But the preferred option* [among procurers] *everywhere we go is Option A which is a fixed lump sum."*
>
> **Tier 2**

> *"The scope may still be a bit wishy-washy because an activity schedule is basically you will do this type of work, whereas if you have a bill of quantities,* [NEC] *Option B, that is the type of contract I prefer. It's a bit more granular in terms of the breakdown and then the thing that changes, the quantities go up and down and you price for 10 days and it takes five days or it takes 12 days, but you've got an agreed rate."*
>
> **Tier 3**

Bid

3.4.6. Information requirements

The information requirements during bidding were often described as wide-ranging, frequently onerous and repetitive, and as adding to the cost of bidding.

Nature of the process

When responding to invitations to tender, participants said they needed to provide a large volume of information to assure on the quality and experience of their business as well as how they will approach the project being contracted. This is needed even when bidding on projects being let through public authority frameworks and needed by firms higher up the supply chain to feed into their own quality monitoring.

For bid teams within Tier 2 and Tier 3 firms, this could mean similar information was required multiple times and in multiple different formats across contractors and projects.

Alongside information on how firms would approach the core project, additional tender information requirements could include:

- Evidence of previous work on road and rail infrastructure (with a requirement or assumed preference for this to be on public infrastructure not just similar private infrastructure experience).
- Evidence of policies and fulfilment of wider evaluation criteria (Health & Safety, Social Value etc).
- Accreditations, e.g. Constructionline Gold (see section 3.4.7).

The type of information required was often acknowledged by participants as important but how and when it was gathered was not always seen as efficient or effective.

Benefits mentioned by participants

- For established firms, many felt there were better odds of success, as they have quality and assurance teams and policies, and the experience and resource to provide information in the right way.
- Some felt there was a sense of reassurance if they could meet the eligibility and credentials required.

Challenges/barriers mentioned by participants

- There are reportedly significant time and burden involved in assessing whether to even bid and then in preparing proposals if there was a decision to proceed, with days spent by legal experts, quality experts, and others alongside those who are core to determining project approach such as surveyors, estimators, and engineers.
- The requirement or perceived preference for evidence of previous work on public infrastructure was seen to favour incumbents and reduce interest in bidding for smaller or new entrants to the market.

> *"What we find difficult is the willingness to invest the time to come up with a proposal. Also doing this with a finite set of resources – how can we use those resources to our best value? A good bid, because I have a team of six people looking at it, is a couple of months of £200k."*
>
> **Tier 2**

> *"I think it takes too long, that would be my overall summary, that the process takes too long. It probably does go into a level of detail beyond which is actually required as a competent company because, you know, we've delivered time and time again. We could land on most of these projects and just get on with stuff and do it, but we actually get involved in very long, drawn-out processes to win the work."*
>
> **Tier 2**

"So, for the larger frameworks, I feel it's a bit difficult to break into them when you don't have experience on larger frameworks."

Tier 2

"It will ask you, what's your previous experience? What have you done like this before? Can you show us the jobs that you've done before? And if you're new into it and you can't, a lot of the time it's a black mark against your name. You're not going to start, especially with the public sector, that's not going to be where you start doing it. They're expecting you to have been doing it 10, 15, 20 years and have big experience on jobs of a similar nature so that they know, yes, you can deliver that. So, that's the first stumbling block for a lot of people getting into it without that experience."

Tier 2

"One other one is experience with clients because a lot of them look for experience with a specific client, as in like Network Rail. They look at experience in the industry, whereas you might have all experience in the world as a Tier 2, but you don't have as a Tier 1, and then you struggle to pass that element of the PQQ [Pre-Qualification Questionnaire]*."*

Tier 2

"They're all looking for basically the same information. They want to know can you do the job? Are you qualified? What's your health and safety like? Those kind of standard things. If there was a, you know, a kind of a central database of all this to negate some of that, I think that would help both of us, as a supplier and the contractor as well."

Tier 3

"You know, you can say that you've got, 9001 and you've got the 14001, environmental, health and safety etc. You have all these in place, but then you've also then got to say, this is how we will manage this particular project. You know, you're having to put a programme together for projects. It can be very, very time-consuming. Say you're interested in the project, then get invited to tender and then go through the tender process. The amount of money that we spend on the quality side of it. I think it's important but maybe there should be a recognised standard, one-off for our type of contractor, where you prove that you can meet certain quality standards. So, if you've got the ISO tickets, why do you then have to demonstrate?"

Tier 3

3.4.7. Accreditations

There are multiple accreditations and competency schemes mentioned by participants.

Nature of the process

As mentioned in section 3.4.6, participants often reported that proof of accreditations, competencies, and meeting of regulatory requirements is requested in many different ways in tenders from public authorities or firms higher up the supply chain. These different ways of assuring competency are seen by many in Tier 2 and Tier 3 bid teams as repetitive, overlapping or sometimes unnecessarily prescriptive in terms of the standards required. Participants did not typically mention a desire for standards to be lowered, more to increase efficiency and to reduce the time and cost involved in proving capability or compliance.

Benefits mentioned by participants

- Accreditations are seen to provide a useful shorthand for quality and credibility. When the tables are turned and firms are themselves subcontracting to a third party, accreditations help with their own need for assurance and eligibility checks.

Challenges/barriers mentioned by participants

- Accreditations are reported by many to be time-consuming and costly to acquire and may reflect that a firm has the resource to apply and demonstrate compliance rather than actual capability, excluding smaller, newer entrants.
- Accreditations are not centralised and there are said to be different accreditations or competency standards required by different contractors, sometimes overlapping, with an example of one firm being registered on 15 or more accreditation platforms in order to bid for work.

Examples of the variety of accreditations and qualifications mentioned by participants are listed below (with costs where these were mentioned). Note, this is not an exhaustive list, but gives an indication of the range and variety:

- Pre-qualification quality and safety accreditations:
  - ISO 9001 (Quality Management)
  - ISO 14001 (Environmental Management)
  - ISO 45001 (Occupational Health & Safety)
  - SSIP (Safety Schemes in Procurement), including Constructionline Gold (c.£7,000 annually)
- Site access and competency credentials:
  - PTS (Personal Track Safety for rail)
  - Competency cards (highways c.£300)
  - Rail risk certification (c.£15,000 annually)

- Sector-specific qualifications:
  - Sector Scheme qualifications (e.g. for painting, steel fabrication)
  - Execution Class 3 (minimum for steel work on roads)
  - PADS numbers (Network Rail Product Approval Data Sheet)
  - CE marking (product certification)
  - Manufacturer approvals (authorised installer status)
- Professional qualifications or trade body memberships:
  - Association of Geotechnical Specialists
  - British Drilling Association
  - British Geomembrane Association
  - British Tunnelling Association
  - Federation of Piling Specialists

"Some of it's fairly onerous in what's been looked for from an accreditation perspective. And even getting on some of the frameworks, it's fairly onerous for some of the smaller companies who may be best placed to do them. Look, I know the accreditations are there for a reason, but I think if a company has justification or suitable experience to do a framework, they should be considered."

Tier 2

I think my rail risk certification last year was about £15,000. It was like, well, I've got to do a lot of work to make that back in profit, so I'll just go and do something else. It actually puts you off."

Tier 2

"We have SSIP accreditation, so Safe Systems [sic] *in Procurement accreditation. And that is a good standard to have. And it's the whole construction and civil engineering industries behind it. But that is where the compliance firms have said, "oh, we'll offer the gold rating now", where you have to pay £7,000 a year for Constructionline Gold. And some contractors say you have to be gold, which they don't really have to say. And that limits a lot of smaller and medium enterprises if they're a Tier 2 or Tier 3. We actually meet* [SSIP] *standards. The gold is really a marketing thing. Some companies – thankfully, I don't think the public sector have – but some Tier 1s or principal contractors have said, yes, we need Constructionline Gold. And it's a nonsense."*

Tier 3

> *"It's a third-party accreditation that basically does the work for us. So, had we done it ourselves for every member of our supply chain (and there will be hundreds, if not thousands), we would need to go out and accredit whatever quality* [standards], *9001-140001-45000. We would need to go and make sure they have all that and they are keeping it up to date, they're maintaining it. That's a lot of work on our procurement department. Whereas Constructionline Gold are set up as a business who will do that for you. If you get the accreditation, then we know that they are checking up on all that stuff. So, it means we don't have to do it. So that's why we use them."*
>
> **Tier 2**

> *"So, what we have is product approval in the rail industry, managed by Network Rail. So, it's a very, very stringent set of rules, processes and procedures you have to go through where you demonstrate that your signal, or whatever equipment, meets the relevant standards for the railway industry, has been obviously produced correctly, in a form where there's traceability within it and it demonstrates it can meet those standards and any performance requirements. Once you've done that, you're given a* [PADS number]*, that the industry can use as a standard. So, if a Tier 1 or Network Rail says, right, we need PADS, then that actually means I can order our kit. So that's a very lengthy and expensive process to go through and has and still remains constantly a barrier to entry for other people getting into the rail industry."*
>
> **Tier 2**

Delivery

3.4.8. Contract management

> Challenges around uncertainty of public policy, lack of clarity in scope or design, and the tendering process can have an impact later on implementation costs and productivity.

Nature of the process

The focus of the interviews was on the process of bidding for public road and rail infrastructure contracts. However, participants also referred to the repercussions of policy and tendering approaches on later delivery. Factors that had repercussions include:

- Examples of projects put on hold or delayed due to policy change, e.g. local road enhancements.

- Some report a high degree of contract variations on projects where initial designs had been poor or insufficiently advanced.

There were descriptions of the management approach and constraints during implementation including:

- Some mentions of compliance checks from public sector and Tier 1 firm specialists before certain equipment can be used on site.
- A few mentions of regular, detailed project reporting to support quality monitoring.
- A few mentions of multiple consultants and Tier 1 managers on site who are not involved in delivery, more so than in the past.
- Slow government processes, e.g. granting access permissions.

The approach to financial management can also vary by project, bringing different benefits and drawbacks:

- Some use of extended payment terms by Tier 1 firms that are longer than the terms set by the public authority.
- Tasks needing to be agreed as complete before payment.
- A few cases of use of Project Bank Accounts (PBAs): ring-fenced bank accounts that hold the client funds for the project and pay all Tiers and contractors involved.

Benefits mentioned by participants

- Overall, there is an appreciation that civil engineering work for public road and rail carries less risk as public bodies will not be declared bankrupt (unlike private ventures, e.g. the recent case of Carillion).
- There were fewer mentions of issues in general of contract management day-to-day by public authorities or contractors higher up the supply chain. Where there was frustration, it was more with the original policymaking, contracting and terms.
- Project Bank Accounts (PBAs) were said by some to provide more financial certainty and enable better collaboration.

Challenges/barriers mentioned by participants

- Some said time/staff can be lost to other projects/firms if contracts are delayed significantly or cancelled.
- If there are delays, and firms are already on site, participants said the cost of keeping delivery staff and equipment available could mount.
- Many said contract variations can require significant time and cost to renegotiate.
- The burden of reporting and compliance can be hard for some, with an example of one project requiring two members of staff whose only role is to fulfil these requirements.
- A few participants reported extended payment terms or lack of adherence to agreed terms (which can just be poor management) affecting cashflow.

- Participants said the rationale for multiple consultants and Tier 1 managers on site seemed unclear and could make liaison inefficient for Tier 2s. Plus, some alleged that managers and consultants seemed less incentivised to stick to timetable and avoid delays as they could get ongoing management fees.
- A few with experience of Project Bank Accounts said they were a good idea in principle but could create yet more administrative work and be inconsistently applied. They felt there was still room for the principal contractor to dispute or delay payments, and one firm cited an example of one PBA being ‘empty’ when there was an issue.

“When you [public authorities] *cancel something or delay it, what am I supposed to do? These people, because I haven’t got work for them, just go on something else.”*

Tier 3

“I mean, in some cases, we could be waiting, let’s say 12 months to get paid for a variation because we’re wrangling over, you know, what the value of that change would be and that can put a Tier 2 and Tier 3 under a significant cash flow pressure. We have seen that in the past on infrastructure projects, mainly rail, to be fair”

Tier 2

“All right, so a lot of the Tier 1 have set up a Project Bank Account with National Highways. When National Highways pay the Tier 1, they pay the money into the project bank account. So, the Tier 1 can’t access that money. All they can do is pay the Tier 2s out of it. So, if any of the Tier 1s go bankrupt like Carillion did (this was the reason why they were set up, because of what happened at Carillion), in theory, that money’s still in the project bank account, so all the suppliers can get paid.”

Tier 2

“We’re doing loads of work, and we’re not getting paid for it. Even though we’re invoicing, the debt’s going up, we need money in the bank. So then do you stop work and say, “we’re not doing any work”? That could put you in breach of your contract. So how that works is, you have to work that out between you as the project’s going on.”

Tier 3

> *"The client (Tier 1) at the moment's got an easy ride of it. They just give it to someone (Tier 2) and let them sort it. I think a lot of jobs you could miss out the, the principal contractor, the Tier 1 and go straight to the subcontractor because there's a lot of management on site. So, we have an engineer, they have three engineers. Why do they need three engineers when we're delivering the works? … Plus, you've got 45-day payment terms. So, you've got to be cash rich to have a business this day in construction to sort of wait for money. You're always running behind two or three months."*
>
> **Tier 2**

3.5. Suggestions from business on improvements to the market

Research participants were asked towards the end of the interview for any improvements they would like to see to enhance the way in which the public road and rail infrastructure market functions. Some, but not all, provided suggestions. These suggestions broadly fell into five key themes, listed below from most to least commonly mentioned.

3.5.1. Financial certainty and better fiscal management

> Some felt that greater funding certainty, or funding being committed to for longer periods, would make planning and operating in this sector easier for many, especially smaller firms.

The issue of funding was typically expressed slightly differently by participants from firms working in the public road sector than in the rail sector, but across all interviews, it was one of the most strongly expressed areas for improvement.

Some working in the rail sector wanted to see greater certainty and ring-fencing of multi-year funding so that plans published in CP7 (and future Control Periods) were honoured by Network Rail/central government. This could be existential for some small businesses and could stifle innovation and growth for many others working in this sector.

In the road sector, the issue centred more on funding cycles feeling too short for some types of work. Specifically, enhancement projects often took more than 12 months, but some funding was only allocated on a 12-month basis. This sometimes led to rushed or poor decision-making, with 'build' phases being squeezed or decisions to proceed being forced through without proper investigation of ground conditions. This was seen as especially true of work procured by local authorities and participants felt there would be benefit from ring-fenced multi-year funding to nullify these issues.

Linked to the financial/cash flow issue was a desire from some to see better enforcement of payment terms. Participants from both Tier 2 and Tier 3 firms felt that their payment terms were not always honoured and, where it was a principal contractor not paying within the specified time, they wanted to see enforcement from the procuring public authority. A couple of participants mentioned 'project bank accounts' as a potential solution to this issue, though these did not seem widespread.

> *"So having continuity or a longer-term idea of that will A) enable companies to plan better and B) would significantly reduce costs within the industry and the price to the taxpayer. So, a more long-term view on these kind of things and having a rolling programme that works across many things in the industry would be better and it's doable."*
>
> **Tier 2**

3.5.2. Shared liabilities

Some participants said they would like to see a standardised approach to contracts so that risk is shared, either equally by all parties, or in proportion to the size of the financial element of the contract allocated to each party (i.e. Tier 1s would bear more of the risk than Tier 2s etc).

Some participants reported that there was no standard approach to contracts and, therefore, to the allocation of risk. Many projects were awarded using one of the NEC suite of contracts, but the specific type of NEC contract seemed to be down to the preference of the awarding body, rather than standardised across the industry. Participants in Tier 2 and Tier 3 firms commonly said they prefer to work on contracts which either explicitly share risk (Option C) or cost-plus (Option E). However, many projects are awarded on a fixed cost basis (Option A), which can impact subcontractor behaviour. The use of fixed price contracts is understood and more accepted by participants for simpler renewal and maintenance work but means Tier 2 and Tier 3 firms may avoid bidding or increase prices where there are too many unknown ground risks and/or risk transfer is too high.

Related to this is a desire from some to see the reduction or removal of Z clauses from NEC contracts. Typically, participants' understanding is that NEC contracts are designed to be used as is or with minor amendments where relevant to the project, but instead some public authorities and those higher up the supply chain insert multiple clauses which push the risk down the chain. This is regarded by the firms concerned as unfair and is used more widely in rail, where Tier 1s know there is less work and Tier 2 and Tier 3 firms are in a weaker position to negotiate or turn the work away.

> *"There is no job that we have done for the public sector, I would say in the last 10 years, that hasn't been in an unamended form. So, you'll never get to do a contract in the standard form of that contract, so to speak. For example, an NEC job will have numerous Z clauses in it"*
>
> **Tier 2**

3.5.3. Early engagement

> Early engagement – either formally through an ECI stage, or a more informal type of early discussion – was seen as best practice, and some participants felt it would be beneficial to make this a standard practice.

Some participants in Tier 2 and Tier 3 firms felt that one of the fairest ways of pushing the risk back upstream in the life of a contract is to include an early engagement phase before contracts are signed. These participants not only saw this as best practice, but also as a way of ensuring that risk was shared more fairly. If early engagement happened, then participants in subcontracting firms often feel they have a much clearer idea of the risks involved and what they are taking on. They can then price fairly and assess risk more accurately. They may also be better able to feed into the design and provide ideas for new techniques or products that could be used. A suggested improvement would be to incorporate an ECI phase into every publicly procured infrastructure project as standard and to include Tier 2 and Tier 3 contractors, not just Tier 1 providers.

Linked to this was a belief from some participants that projects which involve digging into the ground should be based on designs that have benefitted from ECI, including discussion and information around ground risks. This would mean that the Tier 2 or Tier 3 firms involved have had sight of those conditions. This request would reduce the risk of Option A contracts which, as well as being fixed price, include the clause that the contractor 'has to deal with ground conditions' without knowing what they are, which commonly leads to higher prices in order to try to cover all eventualities.

> *"The most important part of a contract is scope. Get the scope right and you can get fair prices from everybody. The scope is the best way of levelling the playing field."*
>
> **Tier 2**

3.5.4. Reduce bureaucracy and increase standardisation

Some felt that reducing administrative burden should increase efficiency and enable smaller firms to bid for projects that, currently, they are deterred from pursuing, given the amount of time and resource some bids can consume in order for firms to be competitive.

Another key area for improvement suggested by participants from Tier 2 and Tier 3 firms was around reducing bureaucracy. This could benefit everyone but disproportionately benefit smaller firms, as this was more likely to be considered a barrier to entry for those firms when bidding for certain tenders.

One suggestion was to remove the need for repetitive submission of the same information in order to bid for tenders. Firms wondered why it was not possible to submit this once to a central portal so that each bid submission only focused on the specific bid in question. The current system was felt to favour larger firms with central bidding teams.

An alternative suggestion was to introduce a PQQ stage, requiring key information, which would reduce the number of contractors invited to submit a full bid.

Another suggestion was for frameworks to be split into the specialisms which better reflected the work being procured. The feeling among those in smaller Tier 2s and Tier 3s that often provided niche, specialist services was that frameworks were divided in such a way that they favoured generalist contractors. This may be because of financial requirements, or accreditations which larger firms would have, but the sense was that it was harder to gain access to a framework if you were a small, specialist contractor.

Allied to the idea of reducing bureaucracy was a more specific desire from some participants to see greater standardisation when working with local authorities. The hope was that this part of the infrastructure sector could benefit most from standardisation, as the variability that currently existed was putting some firms off bidding for their work at all. As part of this, some suggested that local authorities should adopt practices elsewhere in the industry relating to price/quality weighting. The suggestion was that price should be capped at 30%.

> *"There needs to be joined up thinking with a central digital platform. And that could be used by, I should think, not only government, but be open to Tier 1s, Tier 2s, Tier 3s, because it contains the same amount of information as Safe Systems* [sic] *in Procurement (SSIP) platforms which everybody has to pay for. That's all it is, compliance, you're paying for compliance, which is something you've already done, but you have to pay for a platform that shows that you've done it. And so I'd like to get rid of that and integrate in a common data platform or the central digital platform run by the government."*
>
> **Tier 3**

3.5.5. Foster innovation

Participants felt more could be done to encourage innovation within the sector. This view was most strongly expressed by those who work in smaller, specialist firms where innovation could make a real difference to their specialist area. However, these same firms were also more vulnerable to what they saw as harsh contract terms, and to cash flow issues, both of which undermined the desire to innovate.

Innovation as a topic rarely came up spontaneously as participants focused more on risk aversion and risk apportioning within the industry. However, when asked specifically about innovation, it was one of the areas where some participants felt more could be done to encourage firms to innovate. This was especially true in smaller, specialist firms where their specialist expertise meant they were well-placed to develop new products or ways of working. However, it was these same firms that were most vulnerable to cash flow issues, late payments, and risk being pushed down the chain, meaning innovation was deprioritised in favour of more existential factors.

Some participants felt there was a lack of incentive to innovate (outside of R&D tax credits which were acknowledged by one individual interviewed). Some in Tier 2 and Tier 3 firms would like to see incentives to innovate built into contracts. NEC Option C contracts are felt to incentivise firms to come in under budget, but not to explicitly incentivise innovation as a means of achieving this. No specific incentive mechanisms within contracts were suggested, but it could be inferred from general comments about the nature of contracts that one way to increase firms' ability to use new techniques or products would be fairer sharing of risk.

There was also a feeling from some that innovation is hindered by procurers favouring tried-and-tested approaches and having slow approval methods, as they may not have the expertise, resource, or appetite for trying newer products or methods (especially in the rail sector). Allied to high regulatory costs in rail particularly, some responses suggested the rail sector was being held back from benefiting from new technology when, it was argued, this was a sector which could most benefit from innovation to improve efficiency.

Some participants acknowledged that national road-commissioning bodies do convene innovation sessions, but the feeling was that public authorities or Tier 1s do not necessarily follow these up with adequate co-funding in order to get some of the ideas off the ground.

> *"It's a new technology and they have this lengthy process of approving machines or asking, 'where is the operation and maintenance manual?' There are not enough industry experts available to vet and verify the stuff that we are doing, at least within the rail space."*
>
> **Tier 2**

4. Appendix: Fieldwork materials

4.1. Recruitment screener

Screener

Introduction

Good morning/afternoon/evening. My name is ________________, and I work for Serrula Research. We have been commissioned by Jigsaw Research to organise some research on behalf of their client, the Competition and Markets Authority (the CMA). The CMA is the UK's principal competition and consumer protection body responsible for promoting competitive markets and tackling unfair behaviour.

You may be aware that in June, the CMA launched a market study into the design, planning and delivery of railway and public road infrastructure by the civil engineering sector in the UK.

We are recruiting representatives of civil engineering firms to take part in an important research project which aims to identify any opportunities to improve the way in which this market works. By getting involved in the research, you will make a key contribution to the evidence considered by the CMA, ensuring that the views and experiences of businesses like yours are fully and accurately reflected in the CMA's conclusions.

The study is not a solicitation for business now or later. Neither you nor your firm will be identifiable in the findings of the research shared with the CMA.

I'd like to ask you some questions to determine if you qualify for this particular study. The answers you give to me today will be shared by **Serrula Research** and **Jigsaw Research**. The questions will take about 5 minutes to cover.

This interview today, and any subsequent interview you take part in, will be conducted in accordance with the Market Research Society Code of Conduct, and the information you provide will be treated in accordance with data protection law. You have the right to withdraw your consent to our processing of the information you provide and to object to our processing of your information.

If you are eligible, you may be invited to attend an online interview which will last approximately 1 hour. Most of the questions will relate to your experience as someone whose business has tendered for rail and/or public road infrastructure projects procured by public authorities, but some may draw on your wider expertise and knowledge.

You will receive a £XX incentive for participating in the interview. This payment will be paid via BACs by Serrula Research if you qualify and attend the interview.

Q1 Are you interested in proceeding further?

Yes, now	1	**CONTINUE TO Q2**
Yes, but not now	2	**AGREE CALL BACK**
No	3	THANK & CLOSE

First, some questions about you and your role and responsibilities within your business…

Q2 Which parts of the process of tendering for rail or public road infrastructure projects are you involved in? MULTIPLE ANSWERS PERMITTED

Decisions on which rail or public road infrastructure contracts to tender for	1	
Decisions on which parts of the contract to tender for, and in which capacity (e.g. as Tier 1, 2 or 3 contractor)	2	
Bid preparation (i.e. writing the proposal), its submission and taking it through the procurement process (e.g. presentations to clients, clarifications, contract negotiations etc.)	3	**MUST SELECT ONE OF THESE**
Bid pricing	4	
Bid resourcing	5	
Making commercial arrangements with partners and/or subcontractors	6	
Other aspects of the bid process (specify)	7	**CHECK WITH JIGSAW IF ONLY SELECTED CODE**
None of the above	8	**THANK & CLOSE**

MAKE SURE EVERYONE SELECTS AT LEAST ONE OF CODES 3,4,5,6

Q3a Please could you tell me what your job title is?

Write in ____

AIM FOR A MIX OF JOB TITLES

Q3b Which of the following best describes your role?

Strategic and commercial leadership, e.g. MD/CEO/ Commercial Director/Construction Director/Pre-construction Director	1	**RECRUIT A MIX**
Procurement and Contracting, e.g. Estimator/ Bid Manager (Director)/Procurement Manager (Director)/Subcontractor/Supply Chain Manager (Director)	2	
Project Delivery, e.g. Project Manager (Director)/ Contracts Manager (Director)	3	
Something else (WRITE IN)	4	**CHECK WITH JIGSAW IF UNSURE ABOUT INVOLVED IN BID PROCESS**

Q4a Is your business involved in …? MULTICODE POSSIBLE

Enhancement, renewals and/or maintenance work for **public road infrastructure** (including plant supply and building materials haulage/supply, labour supply, demolition, site preparation and/or test drilling & boring in connection with public road infrastructure projects)	1	**CONTINUE WITH Q4B**
Enhancement, renewals and/or maintenance work for **rail infrastructure** (including plant supply and building materials haulage/supply, labour supply, demolition, site preparation and/or test drilling & boring in connection with rail infrastructure projects)	2	**CONTINUE WITH Q4B**
Not sure – we do … (write in)	3	**CHECK WITH JIGSAW**
No, neither	4	**THANK & CLOSE**

Q4b Within the civil engineering sector, which of the following sub-sectors do you work in? MULTICODE POSSIBLE

Construction and/or maintenance of roads and motorways		1	**CONTINUE AND KEEP AN EYE TO ENSURE WE GET A MIX**
Construction and/or maintenance of railways		2	
Construction and/or maintenance of bridges and tunnels …		3	

Plant supply and building materials haulage/supply …	… as this relates to road and/or rail projects	4	
Demolition …		5	
Site preparation …		6	
Test drilling and boring …		7	
Other (write in) …		9	

ASK IF Q4a=1 (PUBLIC ROAD)

Q5a Which of the following best describes the balance of publicly and privately procured road infrastructure work your business does? SINGLE CODE

NB: "Publicly procured" infrastructure work is when the end-client for a particular project is a public authority (e.g. local or central government), even if your business has been contracted by another private business within the supply chain to work on the end-client's project.

All publicly procured	1	**SEE SCREENING BELOW**
Majority/most publicly procured, with some private	2	
Roughly half and half	3	
Majority/most privately procured, with some public	4	
All privately procured	5	
Don't know	6	

IF Q5a=1-3 only	**RECRUIT FOR PUBLIC ROAD QUOTA**
IF Q4a=2 only	**RECRUIT FOR RAIL QUOTA**
IF Q5a=1-3 & Q4a=2	**IN MIX FOR BOTH QUOTAS AT THIS POINT**
IF Q5a=4-6 AT Q4a=3-4	**THANK AND CLOSE**

Q5b TABLE FOR ROUTING; MULTIPLE CODES POSSIBLE

IF CODE 1-3 AT Q5a	1	IN MIX FOR PUBLIC ROAD
IF CODE 2 AT Q4a	2	IN MIX FOR RAIL

***Definition of the type of work that falls in scope:**

- **Relevant Activities:** The supply, in the UK, of the following infrastructure by the Civil Engineering sector:
  i. Supply of Roads.
  ii. Supply of Railways.
- **Supply of Roads:** All aspects of the design, planning, construction, enhancement, renewal and maintenance of public highway infrastructure and any other public road infrastructure in the UK. For the avoidance of doubt, this excludes (i) procurement of roads entirely by the private sector and (ii) upstream raw materials that input to the construction of roads. **[NB1]**
- **Supply of Railways:** All aspects of the design, planning, construction, enhancement, renewal and maintenance of infrastructure used for the operation of a railway. **[NB2]**

  For the avoidance of doubt, this excludes:
  iii. tram networks;
  iv. all light rail, including underground rail networks; (Footnote: Including underground rail networks that may run overground in places, such as the TFL Metropolitan line.)
  v. upstream raw materials that input to the construction of railways;
  vi. railway signalling; and
  vii. ancillary elements such as telecommunications.
- **Enhancement:** Construction works that improve public road or railway network capacity, capability or safety (e.g. allowing heavier loads) including, for example, the development of new roads.
- **Renewal:** Construction works or replacement of whole or part of the public road or railway network in order to maintain its required capability (e.g., in relation to road, resurfacing and, in relation to railway, replacing the existing track).
- **Maintenance:** Works that take place to ensure that public roads or railways are safe and serviceable, including the detection and rectification of faults (e.g. potholes). **[NB3]**

[NB1] If we can’t find enough companies that have worked on entirely publicly financed/procured projects, we would consider the inclusion of companies that have worked on <u>majority</u> publicly financed/publicly procured projects.

[NB2] This would include stations, IF the work has an impact on the capacity of the railway network (e.g. remodelling to increase the number/length of platforms would be an enhancement; adding a new station; maintaining a platform) but not for changes that do not affect the capacity on the railway itself (e.g. adding a carpark; refurbishing a waiting room).

[NB3] At a contract level ONLY (e.g. 3-year framework contract to provide all maintenance activities for a local authority) rather than individual projects through the framework).

ASK IF Q5b=2 (RAIL)

Q6 Thinking about the rail infrastructure work your business has worked on since 2019, have you worked on…? ROTATE 1-2

		Yes	No
HS2	1		
Underground railways	2		
Any other rail infrastructure projects *(i.e. rail infrastructure projects other than HS2 or underground railways)*	3		**CONTINUE IF Q5b=1 (IN MIX FOR PUBLIC ROAD), OTHERWISE THANK & CLOSE**

IF Q6.3=NO > ONLY PROCEED IF STILL IN MIX FOR ROAD

IF Q6.3=YES, AND Q6.1 OR 2=YES > MAKE NOTE TO ADD EXPLAINER LATER THAT WHEN DISCUSSING RAIL FOCUS IS NON-HS2/NON-UNDERGROUND (I.E. EXPLAIN AFTER ESTABLISHED IF RECRUITED AS PUBLIC ROAD OR RAIL RESPONDENT)

Q7a My next question is about supply chain "Tiers" in large civil engineering infrastructure projects. Is "Tiers" a term you're familiar with?

1	Yes	BRIEFLY SUMMARISE AND GO TO Q7b
2	No	GO TO EXPLANATION BELOW, THEN Q7b
3	Don't know	GO TO EXPLANATION BELOW, THEN Q7b

SHOW/SAY: When a large infrastructure project is being worked on, the supply chain businesses working on the project are typically divided into tiers – 1,2,3 etc – to denote their position in the subcontracting chain. Tier 1 firms are the main (or general) contractors who manage the project overall and typically hire other firms to deliver parts of it. They have the direct contractual relationship with the end-client (i.e. the ultimate buyer/procurer of the project).

This research is focused on firms who typically work in either Tier 2 or Tier 3 roles (or both) on these large infrastructure projects.

TIER 2 businesses work as sub-contractors to Tier 1s to deliver a particular part of a larger project using their specialised expertise. Their contractual relationship is with the Tier 1 business.

TIER 3 businesses usually work as sub-contractors to Tier 2s to perform specific tasks in one specialised field, sometimes on a labour-only basis.

The Tiers may extend further than three in a multi-tiered supply chain, where a Tier 4 sub-contractor is a supplier of goods and services to a Tier 3 business and so on.

ADDITIONAL NOTES FOR RECRUITER (DO NOT READ OUT)

TIER 2 businesses tend to be **small, medium, and large enterprises** with a regional or national presence and a turnover of up to £500m that focus on a specific construction sector or specialise in a particular aspect of a larger project (e.g. electrical maintenance work), usually* operating as a sub-contractor to the main contractor. (*Larger firms in this category may sometimes take the T1 role on a given project.) **TIER 3** businesses tend to be **micro, small, and medium enterprises** with a local or regional presence that work exclusively in one specialist field (e.g. demolition debris removal). They may be contracted by a T1 or T2 firm, and they may provide labour only.

ASK IF Q5b=1 (STILL IN THE MIX FOR PUBLIC ROAD)

Q7b(i) When your business undertakes public road infrastructure projects, in which Tier do you TYPICALLY operate?

Tier 1	1	**CLOSE FOR ROAD**
Tier 2	2	**CHECK QUOTAS**
Tier 3	3	**CHECK QUOTAS**
Tier 4 or lower	4	**CLOSE FOR ROAD**
Don’t know	5	**CLOSE FOR ROAD**

Q7c(i) Can you please tell me the year in which you were awarded your most recent public road infrastructure project (as Tier 2 or Tier 3)? An approximate year is fine if you can’t remember precisely.

2025	1	**CONTINUE**
2024	2	**CONTINUE**
2023	3	**CONTINUE**
2022	4	**CONTINUE**
2021	5	**CONTINUE**
2020	6	**CONTINUE**

2019	7	**CONTINUE**
2018	8	**CLOSE FOR ROAD**
2017 or before	9	**CLOSE FOR ROAD**
Don't know	10	**CLOSE FOR ROAD**

Q7c(ii) Can you tell me roughly how long, altogether, your business has been delivering public road infrastructure projects?

Up to 5 years	1	**AIM FOR A MIX**
6-10 years	2	
11-20 years	3	
More than 20 years	4	
Don't know	5	**ASK TO PROVIDE ESTIMATE AND CHECK WITH JIGSAW IF UNSURE**

ASK IF Q7b(i)=2 (TIER 2 IN PUBLIC ROAD)

Q7d(i) When your business undertakes public road infrastructure projects, does your business ever operate as a Tier 1 or Tier 3? MULTIPLE CODES POSSIBLE

Yes, T1	1	**RECORD TO UNDERSTAND RANGE OF CONTRACT TYPES AND IN CASE THERE IS A SHORTAGE OF TIERS IN THE PUBLIC ROAD QUOTAS**
Yes, T3	2	
No, neither T1 nor T3	3	
Don't know	4	

ASK IF Q7b(i).=3 (TIER 3 IN PUBLIC ROAD)

Q7e(i) When your business undertakes public road infrastructure projects, does your business ever operate as a Tier 1 or Tier 2? MULTIPLE CODES POSSIBLE

Yes, T1	1	**RECORD TO UNDERSTAND RANGE OF CONTRACT TYPES AND IN CASE THERE IS A SHORTAGE OF TIERS IN THE PUBLIC ROAD QUOTAS**
Yes, T2	2	
No, neither T1 nor T2	3	
Don't know	4	

Q7f(i) CODING TABLE/DO NOT READ – STILL IN THE MIX FOR PUBLIC ROAD?

Yes	1	IF Q7b(i)=2,3 AND Q7c(i)=1-7
No	2	IF Q7b(i)=NOT 2,3 OR Q7c(i)=NOT 1-7

ASK IF Q5b=2 AND Q6 3=YES (STILL IN THE MIX FOR RAIL)

Q7b(ii) When your business undertakes rail infrastructure projects, in which Tier do you TYPICALLY operate?

Tier 1	1	**CLOSE FOR RAIL**
Tier 2	2	**CHECK QUOTAS**
Tier 3	3	**CHECK QUOTAS**
Tier 4 or lower	4	**CLOSE FOR RAIL**
Don’t know	5	**CLOSE FOR RAIL**

Q7c(iii) Can you please tell me the year in which you were awarded your most recent rail infrastructure project (as Tier 2 or Tier 3)? An approximate year is fine if you can’t remember precisely. PLEASE EXCLUDE ANY HS2 RAIL INFRASTRUCTURE AND UNDERGROUND RAILWAY INFRASTRUCTURE PROJECTS.

2025	1	**CONTINUE**
2024	2	**CONTINUE**
2023	3	**CONTINUE**
2022	4	**CONTINUE**
2021	5	**CONTINUE**
2020	6	**CONTINUE**
2019	7	**CONTINUE**
2018	8	**CLOSE FOR RAIL**
2017 or before	9	**CLOSE FOR RAIL**
Don’t know	10	**CLOSE FOR RAIL**

Q7c(iv) Can you tell me roughly how long, altogether, your business has been delivering rail infrastructure projects?

Up to 5 years	1	**AIM FOR A MIX**
6-10 years	2	
11-20 years	3	
More than 20 years	4	

Don't know	5	**ASK TO PROVIDE ESTIMATE AND CHECK WITH JIGSAW IF UNSURE**

ASK IF Q7b(ii)=2 (TIER 2 IN RAIL)

Q7d(ii) When your business undertakes rail infrastructure projects, does your business ever operate as a Tier 1 or Tier 3? MULTIPLE CODES POSSIBLE

Yes, T1	1	**RECORD TO UNDERSTAND RANGE OF CONTRACT TYPES AND IN CASE THERE IS A SHORTAGE OF TIERS IN THE RAIL QUOTAS**
Yes, T3	2	
No, neither T1 nor T3	3	
Don't know	4	

ASK IF Q7b(ii)=3 (TIER 3 IN RAIL)

Q7e(ii) When your business undertakes rail infrastructure projects, does your business ever operate as a Tier 1 or Tier 2? MULTIPLE CODES POSSIBLE

Yes, T1	1	**RECORD TO UNDERSTAND RANGE OF CONTRACT TYPES AND IN CASE THERE IS A SHORTAGE OF TIERS IN THE RAIL QUOTAS**
Yes, T2	2	
No, neither T1 nor T2	3	
Don't know	4	

Q7f(ii) CODING TABLE/DO NOT READ – STILL IN THE MIX FOR RAIL?

Yes	1	IF Q7b(ii)=2,3 AND Q7c(iii)=1-7
No	2	IF Q7b(ii)=NOT 2,3 OR Q7c(iii)=NOT 1-7

ASK IF STILL IN MIX FOR BOTH PUBLIC ROAD AND RAIL

(IF Q7f(i)=1 AND Q7f(ii)=1 AND Q6.3=YES

Q8 Which type of work makes up the larger share in your business?

Public road infrastructure work procured by public authorities	1	**RECRUIT FOR PUBLIC ROAD QUOTA**
Rail infrastructure work procured by public authorities	2	**RECRUIT FOR RAIL QUOTA**
Both equally	3	**RECRUIT ON LEAST FILLED BASIS**

AT THIS POINT RESPONDENTS ARE EITHER PUBLIC ROAD OR RAIL (AS PER QUOTA) – IF STILL IN MIX FOR BOTH (I.E. Q8=3) CHECK QUOTAS AT END OF SCREENER AND RECRUIT ON LEAST FILLED BASIS AND CODE INTO Q9 ACCORDINGLY

Q9 FINAL PUBLIC ROAD VS RAIL TABLE

Public road	1	**IF Q7f(i)=1 OR Q8=1 OR (Q8=3 AND PUBLIC ROAD QUOTA LAGGING)**
Rail	2	**IF Q7f(ii)=1 OR Q8=2 OR (Q8=3 AND RAIL QUOTA LAGGING)**

Location questions

Q10. Where in the UK is your business headquartered?

England	1	**CHECK NATION QUOTAS**
Scotland	2	
Wales	3	
Northern Ireland	4	
Not based in the UK (specify)	5	

Q11a Thinking about the [INSERT Q9] infrastructure work you do, in which regions of the country do you work? MULTIPLE ANSWERS PERMITTED

England – North (i.e. NE, NW, Y&H)	1	**CONTINUE**
England – Midlands and SW (i.e. EM, WM, SW)	2	
England – East and South East (i.e. E, SE, Greater London)	3	
Scotland	4	
Wales	5	
Northern Ireland	6	
None of the above	7	**THANK & CLOSE**

ASK Q11b IF MULTIPLE CODES AT Q11a

IF Q11a=SINGLE CODE, AUTO CODE Q11b AND SKIP

Q11b. And of these, which region is the one in which you work the most on [INSERT Q9] infrastructure work?

England – North (i.e. NE, NW, Y&H)	1	**RECRUIT A MIX**
England – Midlands and SW (i.e. EM, WM, SW)	2	
England – East and South East (i.e. E, SE, Greater London)	3	
Scotland	4	
Wales	5	
Northern Ireland	6	
Work is focused in more than one region/ country within the UK (Write in)	7	

Q11c. CODING TABLE; DO NOT READ

Q10=1 AND Q11a=ONLY 1-3	English business working in England only	1
Q10=1 AND Q11a=(1-3) AND (4-6)	English business working across UK nations	2
Q10=2 AND Q11a=ONLY 4 Q10=3 AND Q11a=ONLY 5 Q10=4 AND Q11a=ONLY 6	W/S/NI business working in home nation only	3
Q10=2 AND Q11a=4 AND ANY OF 1-3 OR 5-6 Q10=3 AND Q11a=5 AND ANY OF 1-3 OR 4,6 Q10=4 AND Q11a=6 AND ANY OF 1-3 OR 4-5	W/S/NI business working across UK nations	4

KEEP RECORD OF DISTRIBUTION AND ENSURE SOME RESPONDENTS ARE CODE 2 AND/OR CODE 4 (i.e. they are not only working on projects in just one nation)

MULTINATIONALS MUST HAVE UK HEADQUARTERS TO QUALIFY

PLEASE CHECK WITH JIGSAW IF BASED IN ROI (as per Q10=5) AND CONDUCTS WORK IN NORTHERN IRELAND (as per Q11c=4)

CHECK QUOTAS AT END OF SCREENER

Finally, just a couple more questions about your organisation…

Q12 How many employees work for this organisation?

1 (sole trader)	1	**CLOSE**
2-4 (Micro)	2	**CHECK QUOTAS**
5-49 (Small)	3	
50-249 (Medium)	4	
250+ (Large)	5	

CHECK QUOTAS AT END OF SCREENER

Q13 How long has this business been trading?

Up to 3 years	1	**AIM FOR A MIX OF BUSINESS AGE**
4-5 years	2	
6-10 years	3	
11-20 years	4	
21-30 years	5	
More than 30 years	6	

QUOTA TABLE

Category	Sub-segment	Tier 2	Tier 3	Total
Total		**25-30**	**30-35**	**60**
Nation (as per HQ at Q10)	England Wales Scotland Northern Ireland	14-18 3-4 3-4 1-2	20-24 4-5 4-5 3-4	Max. 47 Min. 5 Min. 5 Min. 3
English region (as per main location of work at Q11b)	North Mids/SW East/SE/London			11-16 11-16 11-16
Company size	Micro/Small Medium Large	1-3 16-20 8-15	8-10 21-30 1-3	9-13 37-50 9-18
Project experience	Rail Road (Some with both)	10-15 10-15	15-20 15-20	30 30

IF THE RESPONDENT QUALIFIES, EXPLAIN THE REQUIREMENTS FOR PARTICIPATING:

S1 We would like to interview you online via Zoom. The interview will last up to an hour. You will receive an incentive of £XX as a thank you for your participation. Are you willing to take part?

Yes	1	**CONTINUE**
No	2	THANK & CLOSE

CONSENT: Thank you for agreeing to take part in our market research interview. In order to help protect your privacy, I will read out some terms and conditions that we will ask you to agree to and sign when you attend the interview.

S2 This study is being undertaken on behalf of the CMA for market research purposes only by Jigsaw Research who adhere to the Market Research Society Code of Conduct. The information obtained about you during this project will be used solely for the purposes of this research.

As part of this research, Jigsaw would like to make a digital recording of our interview with you for analysis purposes. Jigsaw Research will not disclose audio files/transcripts/interview notes gathered as part of a research exercise to the CMA. We will securely delete the recording, and any transcript of the recording, from our systems on full conclusion of the CMA's Civil Engineering Market Study, which may include a Judicial Review process.

The responses you give during the interview will be reported to the CMA in aggregate with responses from other research participants. Only anonymised quotes will be used in our presentation and report to the CMA.

The recording of the interview may also be processed (transcribed) by Jigsaw Research using Whycatcher AI or CoLoop AI. If so, please note that the recording and transcript:

- Will not be available to other Jigsaw customers or any other AI model providers
- Will not be used to improve or train any large language models, products or services
- Will remain within the UK and EEA and will be deleted from Whycatcher AI or CoLoop AI on full conclusion of the CMA's Civil Engineering Market Study.

Are you happy to proceed on this basis?

Yes	1	**CONTINUE**
No	2	THANK & CLOSE

S3 As part of our research process, and only with your express consent on the day, a member of the CMA team may wish to observe our interview with you, but we would take efforts to protect your confidentiality in this instance.

Are you happy to proceed on this basis?

Yes	1	**CONTINUE**
No	2	**CONTINUE**

DO NOT EXCLUDE IF UNWILLING TO BE OBSERVED – RECRUIT IF ELIGIBLE AND FLAG AS NO OBSERVATION OF INTERVIEW.

S4 Personal data is data that allows a living individual to be identified, either directly or indirectly. Please note that by agreeing to participate in an interview, you consent to Serrula Research Ltd and Jigsaw Research Ltd using and storing (processing) the personal data we have collected from you during your recruitment to the research and any further personal data you share with us during your interview. Serrula Research Ltd and Jigsaw Research Ltd will use and store (process) your personal data for the purposes of this research project only.

Please note that you are also consenting to the CMA processing aggregated data from which you and your company cannot be individually identified, in the form of our report for the CMA on the findings from the research.

While the CMA's Civil Engineering Market Study is ongoing, Serrula, Jigsaw and the CMA will process your personal information securely at all times. None of Serrula, Jigsaw and the CMA will share your personal information with any third party, except in the very unlikely event that we are required to do so by law. We will securely delete all your personal information from our systems on full conclusion of the CMA's Civil Engineering Market Study.

You have the right to access and rectify any data held on you by Serrula Research or Jigsaw Research and to withdraw consent at any time or to object/restrict any processing of your data. You can find out more about these companies and their privacy policies by using the following links:

https://www.jigsaw-research.co.uk/privacy-policy/

https://www.serrula-research.com/privacy-policy

If you have any questions about how your personal information will be used, you can contact Jigsaw Research Ltd on 020 7291 0810 or by emailing data.security@jigsaw-research.co.uk.

If you have any concerns about Jigsaw's information rights practices, you can report it to the Information Commissioner's Office (ICO) via their website by calling 0303 123 1113.

The CMA's Personal information charter explains how the CMA treats your personal information.

Are you happy to proceed on this basis?

Yes	1	**CONTINUE**
No	2	THANK & CLOSE

S5 If we needed to contact you within 6 months of your interview for any follow-up questions relating to this research specifically, is this OK?

Yes	1
No	2

Respondent details

Name	
Address	
Phone	
Email	
Date of depth attending	

Reconfirm Day/Date/Time of the depth with respondent

Interviewer details

Name	

Interviewer declaration

I declare that this interview has been conducted strictly in accordance with your specifications within the MRS Code of Conduct and with a person totally unknown to me.

Signed **(INTERVIEWER)**: ____________________________ Date _________________

4.2. Discussion guide

Background to the research for Moderators

The project aims to gather qualitative evidence on the views of businesses that operate in the civil engineering market, specifically firms that operate in Tier 2 and Tier 3 of the supply chain on projects procured by public authorities. The findings of the research will inform the CMA's market study into the design, planning and delivery of railway and public road infrastructure by the civil engineering sector in the UK. This will help the CMA to assess whether the supply of those services may have effects adverse to the interests of consumers, and what actions may be needed.

Objectives

Through the market study, the CMA will assess the extent to which the process of competition drives good outcomes in the civil engineering sector and supports productivity, innovation, and growth. Our evidence-gathering for the case is focused on three key questions:

- How can public authority procurers access and assess the right information to make well-reasoned decisions when procuring roads and railways, and how can they effectively work with the market to deliver best value projects?
- Do any procurement, planning, or other regulatory processes create significant barriers which limit companies' ability and incentive to enter, expand, invest, and innovate in this market?
- What market structures and features will best allow the civil engineering market to deliver road and railway infrastructure that supports UK productivity and growth?

Moderator discussion guide

Introduction (5 minutes)

- Thank respondent for participation in the research, which is being conducted on behalf of the CMA and re-iterate value of their experiences and perspective to this market study.
- Provide background and set the context for the rest of the discussion. **[PLEASE KEEP THIS AS HIGH LEVEL AS POSSIBLE TO AVOID POTENTIAL FRAMING/CONDITIONING]**
- Confirm position on anonymity and recording/transcription of interviewing – the information you share with us won't be attributed to you or your firm in our report to the CMA.
- For pilot interviewing: confirm position on consent for observation by CMA staff.
- State that the interview will last around an hour.
- Explain: we are research experts rather than civil engineering experts so please explain terminology where possible.

Explain: You may be aware that in June, the CMA launched a market study into the design, planning and delivery of railway and public road infrastructure by the civil engineering sector in the UK. This interview will help to form part of the CMA's understanding of how well the rail and public road infrastructure market works, and whether there are particular changes that would improve the functioning of the market.

Note: The CMA is interested in the rail infrastructure market outside of/excluding HS2, Crossrail and underground railways.

- Firstly, I'd like to understand a little about your company and your role. Tell me about your company. Can you briefly introduce and describe your business?
  - E.g. employee headcount, how long it's been trading and revenue for the last financial year [NOTE THAT FOR THIS AND SUBSEQUENT SIMILAR QUESTIONS EXACT ANSWERS ARE NOT REQUIRED]
  - Does this company work on rail or public road infrastructure projects, or both?
  - (CHECK AGAINST SCREENER INFO AND PROBE IF ANSWER DIFFERS FROM PRE-ALLOCATION TO RAIL OR PUBLIC ROAD – IF THE COMPANY WORKS ON BOTH RAIL AND PUBLIC ROAD, FOCUS QUESTIONS ON WHAT THEY DO MOST OF AND ANY DIFFERENCES WHEN THEY WORK IN THE OTHER SECTOR)
  - What proportion of your total revenue does the rail/public road infrastructure work account for?
    - What is the rest of this company's revenue made up of?
  - In which nations of the UK do you typically carry out rail or public road infrastructure work?
  - Does the company do any private sector rail or road infrastructure projects? IF YES – how much of your revenue does that account for?
- What is your role within the company? How long have you worked here?
- How does your role fit into the company's overall structure?
- What role do you typically play in relation to rail or public road infrastructure projects?
  - PROBE: During the tender process/Once the contract has been awarded/Scanning the market for new tenders?

Wider infrastructure market context (10 mins)

Questions that go a little deeper into the type of contracts the company works on as well as the role the company typically plays in those contracts and the company's specialisms in this market.

- How would you describe this company's area of expertise or specialist offering within the rail/public road infrastructure market?
  - What do you think you're really known for among public authorities or by other businesses? Why do you say that?
- When you hear the terms "Tier 1; Tier 2; Tier 3 etc… in relation to infrastructure projects, what is your understanding of what these terms mean?

  IF UNSURE, REITERATE DESCRIPTIONS FROM RESEARCH SCREENER:
  - **TIER 1** firms are the main (or general) contractors who manage the project overall and hire other firms to deliver parts of it. They have the direct contractual relationship with the end-client (i.e. the ultimate buyer/procurer of the project).
  - **TIER 2** businesses work as sub-contractors to Tier 1s to deliver a particular part of a larger project using their specialised expertise. Their contractual relationship is with the Tier 1 business.
  - **TIER 3** businesses usually work as sub-contractors to Tier 2s to perform specific tasks in one specialised field, sometimes on a labour-only basis.

The Tiers may extend further than three in a multi-tiered supply chain, where a Tier 4 sub-contractor is a supplier of goods and services to a Tier 3 business and so on. Firms can also operate at multiple tiers of different supply chains.

- When working on rail/public road infrastructure contracts, does your company tend to work in a Tier 1/2/3 or another Tier role? (CHECK RESPONSE AGAINST TIER PRE-ALLOCATION INFO – IF RESPONSE DIFFERS FROM EXPECTATION, PROBE AROUND THIS)
- Across all your rail/public road infrastructure work, what is the approximate balance between working in a Tier 2 or a Tier 3 role (IF SOMETIMES WORK IN ANOTHER TIER – ASK TO INCLUDE IN RESPONSE)
  - What determines the different Tier roles your company might play across different contracts?
  - In what Tier role does your company prefer to operate? Why do you say that?
  - IF THE COMPANY WORKS IN BOTH TIER 2 AND 3, FOCUS QUESTIONS ON WHAT THEY DO MOST OF AND ANY DIFFERENCES WHEN THEY WORK IN THE OTHER TIER
- What types of contract do you typically compete for? PROBE: Design and build/ Build only/Other types? Why?

- And what types of project do you typically compete for? PROBE: Enhancement/Renewal/Maintenance/Other types?
- Which public authorities have you worked for in the past 3-5 years? (IF LOTS, ASK FOR A FLAVOUR). NB. Remind if necessary: not HS2/Crossrail/underground

INTERVIEWER NOTE: PUBLIC AUTHORITY COULD BE A LOCAL AUTHORITY, BUT COULD ALSO BE NETWORK RAIL, NATIONAL HIGHWAYS, TRANSPORT SCOTLAND, WELSH GOVERNMENT, NORTHERN IRELAND GOVERNMENT etc.)

- Do you have any experience of contracting directly with any public authorities? Which ones?
- Which Tier 1/main contractors have you contracted with in the last 3-5 years? (IF LOTS, ASK FOR A FLAVOUR) NB. Remind if necessary: not HS2/Crossrail/underground
- IF APPLICABLE: Which Tier 2 contractors have you contracted with in the last 3-5 years? (IF LOTS, ASK FOR A FLAVOUR) NB. Remind if necessary: not HS2/Crossrail/underground
- Do you have any long-term contracts, agreements or arrangements with other firms? If so, please give details.

Nature and functioning of the market (5 mins)

To understand participant's views on the structure of the civil engineering market for rail and public road projects, including what works well and what could be improved. Also, an eye on future trends in the market.

- Thinking of the rail/public road infrastructure market that this company operates in, what would you say are the main changes the market has seen over the last five or so years?
  - PROBE IF NOT MENTIONED: Number of firms/Type of firms/Type of projects/Nature of contracts
- In your view, what has been the cause of these changes? What has been the impact on your business?
- What are your views on the current state of the civil engineering market for rail/public road infrastructure projects in the UK? Why do you say that?
  - PROBE IF NOT MENTIONED: Number of firms in the market/Type of firms in the market/How subcontracting/tiering works
  - What works well in the market?
  - What works less well?
- What has your firm done, if anything, in response to some of these issues you raise?

- Looking ahead, what do you see as the future trends in this market? Why do you say that?
- What implications could these trends have for your company? Why do you say that?
  - What new opportunities do you see coming up in rail/public road infrastructure projects in the near future?
  - What is your company doing to maximise its chances of winning those contracts?
  - What steps if any, is your company taking/likely to take in response to these upcoming trends?
- Can you think of any interesting examples of firms entering/expanding/collaborating/merging/changing business model in response to market trends? Please elaborate on these examples.

Barriers to entry, expansion and innovation (10 mins)

To understand the barriers Tier 2 and Tier 3 firms face trying to innovate and grow. To understand if there are any barriers when competing for contracts/subcontracts and whether this varies by project type.

- When you are competing for [public authority client] contracts with other firms for rail/public road infrastructure projects, are there any challenges or constraints in the market that make it more difficult for you to compete?
- Do any of the following procurement and contracting practices in the rail/public road infrastructure market affect your ability to compete for contracts?
  - Frameworks (including joining costs PROBE e.g. cost of developing proposals to get onto the framework, any fees such as management levy on each contract won etc.)
  - Contract durations and extensions, standardised vs non-standardised contracts, contract variations
  - Burdensome bidding requirements/costs
  - Bundling of design and construction
  - Early contractor engagement
  - Design quality, design variations
  - Who in the market, if anyone, is more prone to these practices in your experience?
    - PROBE: Public authorities? Local authorities? Tier 1 firms? Tier 2 firms? Others?
    - Why them more than others do you think?

- Are there any conditions not already mentioned that make it difficult for new firms to enter the rail/public road infrastructure market, or for established firms to expand/grow? Please provide examples.
  - How do these relate to your company specifically?
- To what extent do any of the constraints/practices/conditions mentioned above differ by the type of contract you're competing for (for example, enhancements, renewal or maintenance)? Please expand.
  - PROBE IF RESPONDENT ABLE TO COMMENT: Do these affect rail or public road contracts more? Please provide examples.
- And to what extent are there differences depending on whether you're competing for a sub-contract in Tier 2 or Tier 3 role? Please explain the differences.
- Thinking of the all the issues you've just described, what impact do they have on your company's ability to grow?
- What about your company's ability to innovate? Are these factors, or any different factors, affecting your ability to innovate?
- Or its ability to deliver projects at lower costs, or in a more timely way?
- What would help to address the issues you have just described and make it easier for you to compete?
  - PROBE: Which issues would you like to see tackled first? Why these?
  - If steps were taken to tackle these issues, what impact would that have on your company's ability to innovate and grow the business?

Experience of subcontracting and the bidding process (15 mins)

To understand the participant's experience of the subcontracting process, including how they engage with firms in the tier above or below and the incentives behind bidding for opportunities.

- When acting as a subcontractor, what is your role in the design and delivery of projects?
  - How does this differ from the role of the Tier 1? And other subcontractors?
- How do you tend to be selected as a subcontractor on a contract?
  - What proportion of the subcontracts you enter into involve a formal procurement/competitive tender process to win the contract?
  - What influences any differences in the way you are selected? For example, does the way you are selected differ depending on the Tier 1 or Tier 2 firm involved and your existing relationship with them; on the requirements of the public/local authority; or something else.
  - Have you entered into framework agreements, memorandums of understanding, collaborative partnership agreements?

  - PROBE IF RELEVANT: To what extent does this differ by rail and public road?
- What are the main factors that you weigh up as a company when deciding whether to pursue subcontracts?
  - PROBE FOR THE FOLLOWING:
    - Price/Value of the subcontract
    - Project scale/risk/complexity
    - Geographical location
    - Quality/SLAs
    - Delivery timescales
    - Reputation of the contracting authority/Tier 1/Tier 2 firm
    - Any others?
- What is your view on the competitive conditions faced by your company in the rail/public road markets?
  - To what extent are you able to set your prices/margins? Do you sometimes need to "underprice" your work to win contracts?
  - Do you believe all contracts are equally competitive/open to all? Why do you say this?
  - How (if at all) do these things differ depending on whether you're in a Tier 2 or Tier 3 role (i.e. whether you're subcontracting to a Tier 1 or Tier 2 firm)?
  - Does the public authority/client have any influence of these subcontracting arrangements?
- Please explain the typical basis on which you price work when you pursue subcontracts? What factors do you consider?
  - Do you think prices are set at a realistic level? To what extent is this driven by the budget constraints of the end client?
  - What pricing model is typically used in your subcontracts? INTERVIEWER NOTE: Typical pricing models might include:
    - Fixed price/Lump sum: contracts where services are provided to the client for a fixed price agreed in advance, for a specific scope of work.
    - Target cost: contracts where the client and contractor agree an estimate or target level of costs in advance and any underspends or overspends are then shared between the client and contractor in pre-agreed proportions.
    - Cost reimbursable/Cost plus: contracts where contractors are paid for the actual costs incurred during a project, plus an additional pre-agreed fee which may be a percentage on top of costs or a fixed amount.

    - Time and materials: contracts to be paid based on the time spent working on a project (based on agreed rates), plus potential other fees such the cost of materials used or pre-agreed additional fees.
    - Volume-based pricing: contracts where the fees charged by contractors for works is based on the units delivered.

IF FIXED PRICE MENTIONED:

- Which cost risks do you typically bear in a fixed price contract, which you wouldn't bear in a contract that wasn't fixed price?
  - PROBE FOR THE FOLLOWING:
    - Commodity/Materials price risks
    - Ground risks
    - Contamination risks

IF ANY OF THE COST PLUS MODELS MENTIONED:

- Please explain how you calculate your cost plus pricing response? How well does this approach (cost plus pricing) work for your projects and business?
- How much influence do you typically have over the pricing model chosen?

Subcontracting with Tier 1 or 2 firms – AMEND WORDING AS APPROPRIATE DEPENDING ON WHETHER RESPONDENT SPEAKING ON BEHALF OF A TIER 2 OR TIER 3 FIRM

- Please describe exactly how you tend to engage with a Tier 1/Tier 2 firm as part of a rail/public road infrastructure project.
  - At what stage in the life of the project would you typically engage? Do different approaches tend to result in better or worse outcomes for the project?
  - How (if at all) does this vary between enhancement, renewal and maintenance projects?
- How do you usually get paid for the rail/public road work that you do?
  - PROBE: Use of retention and bonding; Promptness/certainty of payment; Invoicing schedules; SLAs/Penalty clauses; Anything else?
  - What impact does this have on your business?
- Are you typically subcontracting with Tier 1/Tier 2 firms you've worked with in the past? Why is that?
- To what extent do you think those firms tend to work with the same Tier 2/Tier 3 companies for rail/public road projects? What makes you say that?
  - PROBE: Are formal retention programmes in place between contractors and subcontractors? How do these work?
  - How do these impact your business, if at all?

- How effective do you find the Tier 1/Tier 2 firms you subcontract with at managing your input into the project to support delivery on time and within budget?
  - What are the factors (positive/negative) that affect this? What does good look like?
  - Are there common issues that result in cost/delay? What are the main causes and how do you think they could be avoided?
- What, if any, contract mechanisms are in place which incentivise you as a subcontractor to deliver a project on time, within budget and/or more efficiently?
  - What are your views on these mechanisms? Are there examples where you would not tender for a contract because of these mechanisms? Why is that?
- Are there any recurring issues/disputes have you had with public authorities or Tier 1/Tier 2 companies in your engagement with them during the process?
  - Why? What was the impact or outcome?
- And may I ask what happens on the occasions when you bid for work unsuccessfully – do you receive any feedback on why your bid wasn’t selected/how you could improve your bids in future?
  - IF YES: Who provides this feedback? How useful do you find it? How (if at all) could it be improved/more useful?
  - IF NO: Would you find it useful to receive this type of feedback? What feedback, in particular, would it be most helpful to receive?

Views on public authorities’ procurement and contracting decision-making (13 mins)

- To what extent do public authorities undertake early market engagement prior to procurement to make you aware of their upcoming needs/requirements and to share relevant information?
  - PROBE: Do these involve market briefings, questionnaires and other market engagement activities? Are Tier 1 firms involved in this engagement?
  - How would you describe your typical interactions with public authorities at this stage of the process? Are they effective? Are they timely?
  - Do public authorities take onboard your feedback? Why/why not?
  - To what extent is this interaction with public authorities useful? Why/why not?
- Does early market engagement with public authorities vary by different types of contract?
  - Between rail and public road? Between enhancements and renewals/maintenance? And project scale/complexity? Across different types of public authority? Across the different nations of UK? How? Which of these variations work well/less well, in your experience?

- Prior to construction, do you interact with public authorities as part of early supply chain involvement to input into the design, costing, risk management and structuring of a project or programme?
  - Do you have sufficient opportunity to discuss issues and develop potential solutions? If not, why?
  - Are these interactions effective? And timely?
  - Are Tier 1 firms involved in this engagement, for example, do they facilitate it?
- What is your experience (if any) of civil engineering consultants being used to scope and design projects?
  - How do you feel about the quality of project design?
  - How would you describe your typical interactions with consultants?
  - How do you feel about the use of consultants?
  - What impact or influence do consultants have on projects?
  - Are you able to influence the decisions made by the consultants?
- Do you think public authorities are able to set appropriate cost estimates/budgets for projects and programmes?
  - If not, why do you say this? What is the impact of this?
  - Are you able to provide feedback to influence these cost estimates?
- Do you think public authorities place too much, or too little, weight on price or any other criteria when evaluating tenders?
  - If so, why do you say this? What is the impact of this?
  - Have you any reason to think that public authorities prefer contracting with large firms over smaller firms for rail/public road infrastructure projects?
  - PROBE IF NOT MENTIONED: to what extent is there too much emphasis on being able to demonstrate prior experience in delivering similar work?
- Do you think public authorities effectively manage contracts to ensure projects deliver on time and to budget?
  - If not, why do you say this? What is the impact of this?
  - Are you able to provide raise issues and put forward solutions to the end client during the project to reduce costs and limit risks?
- IF CONSTRUCTION PLAYBOOK (CLIENT GUIDE IN SCOTLAND) NOT MENTIONED THEN PROMPT: If I mention the Construction Playbook/Client Guide, is that something you've heard of before today?
  - If yes with prompting OR if mentioned spontaneously: How familiar are you with the Construction Playbook/Client Guide?
  - If some familiarity: What are your views on/experiences of the Construction Playbook/Client Guide in relation to rail/public road procurement?

  - How effectively is the Construction Playbook/Client Guide implemented by public authorities? How (if at all) could it be implemented more effectively?
  - How widely or consistently is the Construction Playbook/Client Guide implemented by public authorities? Should it be implemented more widely, or not? Why?
  - INTERVIEWER NOTES: in England, use of the Construction Playbook is mandated ("The Construction Playbook applies to all public works projects and programmes. It is mandated for central government departments and ALBs (Arm's Length Bodies) on a 'comply or explain' basis")
  - Link to Construction Playbook here: https://www.gov.uk/government/publications/the-construction-playbook
  - Link to Client Guide here: Client guide to construction projects – gov.scot

- IF NEC NOT MENTIONED THEN PROMPT: If I mention the New Engineering Contract (the NEC), is that something you've heard of before today?
  - If yes with prompting OR if mentioned spontaneously: Thinking about contracts where you're in a Tier 2/Tier 3 role, what proportion (roughly) are let using the NEC? And of the Main options (A-F), is there an option (or a couple of options) that usually applies to the contracts let to you, or does it vary from project to project? Why do you think that is?
  - Are there any NEC Main options that you don't or rarely contract against? Why is that? PROMPT IF NEEDED: Any you (and/or clients) avoid contracting against or won't contract against? Why is that?
  - What are your views on/experiences of the NEC in relation to rail/public road procurement?
  - IF Z CLAUSES ARE MENTIONED SPONTANEOUSLY: When Z clauses are added, do you know who's adding them? PROMPT IF NEEDED: Are they being added by the end-client (i.e. the ultimate buyer/procurer of the project) or by the Tier 1/Tier 2 firm you're sub-contracting with (or both)? What's your view on/experience of these clauses?
  - INTERVIEWER NOTES: First published in 1993 by the Institution of Civil Engineers (ICE), the New Engineering Contract (NEC) is a suite of standard contracts designed to manage any civil engineering project from start to finish, with the aim of preventing costly disputes. The Engineering and Construction Contract comprises multiple parts, but those of particular relevance to this research are:
  - Nine Core clauses
  - Six Main options for procuring work (these act to vary the degree of risk assumed by the parties to the contract depending on which option is selected):
    - NEC4 Option A: priced contract with activity schedule

    - NEC4 Option B: priced contract with bill of quantities
    - NEC4 Option C: target contract with activity schedule
    - NEC4 Option D: target contract with bill of quantities
    - NEC4 Option E: cost reimbursable contract
    - NEC4 Option F: management contract
  - Three Dispute Resolution options (W1/W2/W3)
  - Secondary options X1-X22
  - Three additional UK-specific Secondary options (Y(UK)1/Y(UK)2/Y(UK)3
  - Z clauses: additional, bespoke conditions of contract, over and above those already included in the core clauses, main options, dispute resolution options, and secondary option clauses.
    - Link information on Z clauses: https://www.neccontract.com/news/nec4-option-z-for-additional-contract-conditions-clarity-or-curse
- IF PROJECT 13 NOT MENTIONED THEN PROMPT: If I mention Project 13, is that something you've heard of before today?
  - If yes with prompting OR if mentioned spontaneously: How familiar would you say you are with the ideas/thinking behind the enterprise model for infrastructure delivery that Project 13 advocates?
  - If some familiarity: What do you consider the advantages and disadvantages of the model to be?
    - In your experience, to what extent (if at all) is the model being adopted? Are there any barriers to its wider adoption?
    - Is it a model you support or not? Why do you say that?
    - INTERVIEWER NOTE: Link to Project 13 here: https://www.project13.info/
- What, if any, other changes could be made to improve the way public authorities make decisions when procuring and managing contracts?

Wrap up (2 mins)

- Do you have any other views on procurement, bidding and working on rail/public road infrastructure projects and how this market works for your company, and other businesses like yours? Please expand?
- Are there any lessons from other sectors (e.g. private sector) civil engineering projects that your company works on which you feel these rail/public road infrastructure projects could learn from?
  - What are the key lessons that could improve the rail/public road procurement process?

- Reflecting on our discussion today, what specific changes do you think would help overcome any issues in the market we have discussed? These could encompass changes to procurement processes, overcoming barriers to competition, or anything else you think would help the market function better.

Thank you and close