

STATION INNOVATION ZONE COMPETITION

Programme Specification

Abstract - this document outlines the scope of the competition

Competition Overview

This competition (delivered in two phases) is designed to support highly innovative projects which will improve passenger experience when travelling through stations.

In the first phase, we will select up to 10 Innovators and award £2k to conduct a feasibility study which examines the suitability of their technology for rail station application. During phase 1 we will provide support and coaching to enable these Innovators to write a proposal for testing their solution in a live environment. In the second phase, Connected Places Catapult will provide up to £120,000 of funding to support up to 3 Innovators to trial innovative solutions within the station testbed. Funds will be allocated based on the trial proposals requirements.'

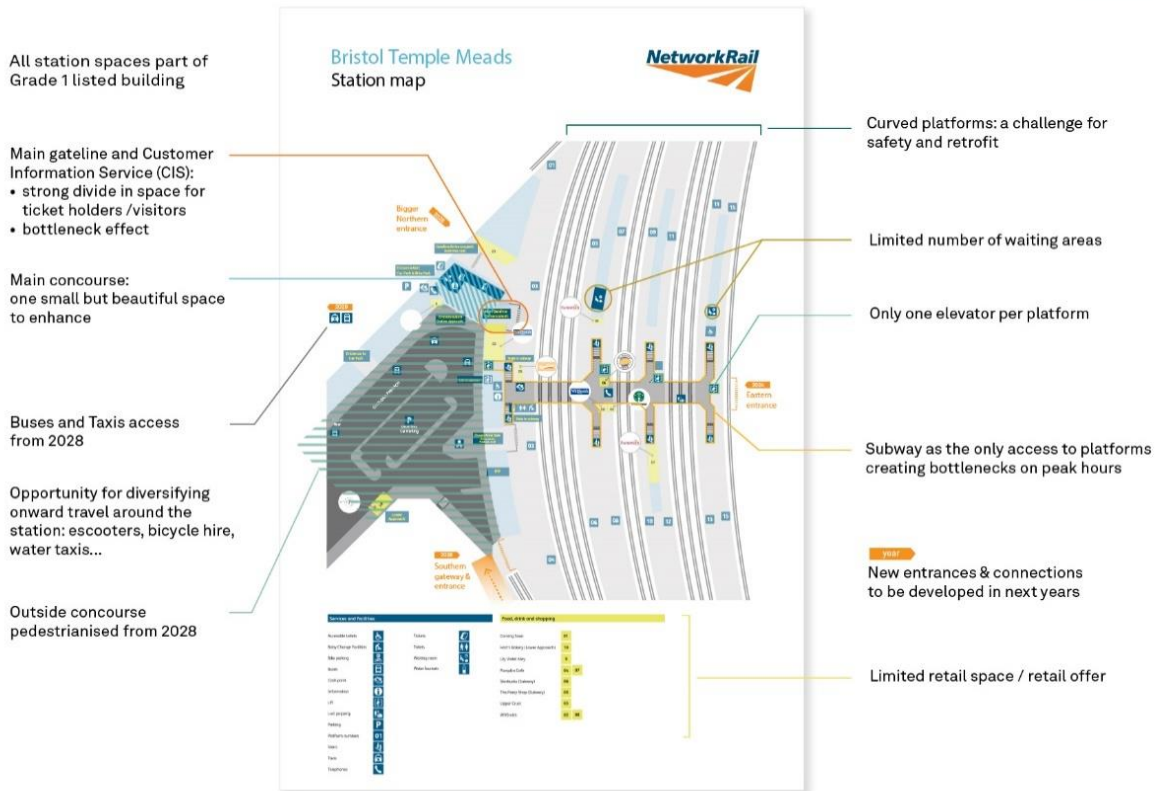
Before completing your application, you must ensure that your technology, product or service aligns to at least one of the challenge areas outlined in this programme specification.

Testbed Location

After a thorough selection process, Connected Places Catapult selected Bristol Temple Meads as the location for the Station Innovation Zone testbed. The old station building (and the Engine Shed and Passenger Shed) are grade 1 listed buildings built by Brunel. As the map of the station shows the gate lines and entrances to the station are narrow. Movement to the platforms is via a subway below the platforms. There are small waiting rooms or a café on each platform, but there is limited space to congregate before crossing the gate lines.

Station Innovation Zone competition

Considerations for Bristol Temple Meads testbed



The station sits at the center of regeneration plans for Bristol Temple Quarter¹. Network Rail is working with its partners West of England Combined Authority, Bristol City Council and Homes England. The aspiration is to release land for 10,000 homes and 22,000 jobs with investment in the station as a catalyst for the plans for the area. There will be extensive development of the station as part of the regeneration programme.

Vision: Station of the Future

The vision below for the future station was created through engagement with a variety of stakeholders across the rail ecosystem. We gathered their reactions to a set of narratives about the role of a rail station in different plausible futures. This was validated again with stakeholders across two workshops. The resultant vision statement is:

The station of the future will be a proud, efficient gateway to the place it serves. The station of the future reflects local identity and is open and inclusive to all. It convenes people, businesses, and culture without compromising on purpose: effective transit through its spaces. Our vision is to design a safe, sociable, seamless and sustainable station that innovates continuously, enables sustainable growth and prosperity.

Eligibility

The Station Innovation Zone competition is open to all businesses (including micro, small and medium-sized enterprises), in addition to universities and research and technology organisations. Connected Places Catapult welcomes bids from consortium of partners that can see a role for their technologies, tools, and approaches in delivering benefits in this

¹ <https://www.bristoltemplequarter.com/>

space. (Please note that within a consortium, you will need to identify a lead applicant, who will be the funding recipient.)

To apply to the Station Innovation Zone competition, your organisation must have a registered office in the UK. The Station Innovation Zone competition is intended to support projects that are at or above TRL 4 on the Technology Readiness Level (TRL) scale. The aim of the funding is to enable innovators to progress towards TRL 7.

Challenge Areas

The objective of this competition is to support innovation within Bristol Temple Meads in developing towards the best possible passenger experience. We invite applications for a range of innovations: Your innovation can be a product, service, or a system. We welcome proposals ranging for a piece of high-tech, to concepts of how systems may 'act' differently, presenting alternatives to the status quo of how stations operate.

Connected Places Catapult identified four fundamental pillars to an effective and enjoyable station of the future. In year one of this programme, we address three of these: Seamlessness, Safety and Social aspects of the station (integrating Sustainability aspects as key across all other challenges).

Your proposal to address any of the challenges should consider:

Inclusivity - Considering many different users of the station and their needs thinking about people's age, gender, disabilities, journey purpose, time of the journey, familiarity with the station and rail travel.

Sustainability - Addressing broader societal sustainability challenges and contributing towards net zero objectives.

Impact - The wider impacts (intended or unintended) that your solution may have on station operations (and staff), passengers and station users, local community, and businesses, at scale and in time.

Operational Station - You must be able to implement your solution within an operational station.

Safety - Safety is vital to the rail industry. Consider how your solution may have an impact on safety in the station.

For this competition, we are looking for innovative solutions to address challenges in these three thematic areas:

- Safe Station
- Social Station
- Seamless Station

1. Safe Station

Q: How might we enhance safety at the station through improved station operations?

Safety and security at stations is a common priority. Whilst improved significantly over the last 20 years, our research indicated that improving access to relevant information would enable improved safety. Simultaneously, emerging technologies and a phenomenal increase in available data allow us to rethink 'how things are done' with respect to safety. Especially as station maintenance is in constant tension with an operating station, technological developments may be of great value.

With this challenge, we want the operational staff to get access to consistent, timely, simple, clear, up-to-date and inclusive information in order to reduce anxiety amongst passengers as well as trips and falls by improving information provision.

- It has been highlighted that, whilst interpersonal relationships between station operators are good, communication channels may not be optimal. Station staff use customer-apps to get information. Whilst information should be clear and simple, getting information about the wider context may be of benefit to station operations: For example, sharing why trains are delayed, where possible in advance, allows station staff to prepare alternative modes of transport for passengers. There is an opportunity to provide station operators with better back-end information and communication channels

- Station maintenance impacts station operations in a great number of ways. With emerging technologies revolutionising service provision, there is great opportunity to explore how such technologies can take physical station maintenance to the next era.
- Potential benefits of improved information and communication: As the services provided improve, travel anxiety amongst passenger may reduce by up-to-date and inclusive information, and trips and falls may lessen when information is provided in a timely and accessible manner – with passengers taking less risk to rush for trains.

Examples of areas for innovation could include but are not limited to:

- Train-to-platform communications: Inform the station staff of platform changes in the event of disruption in a timely manner
- Station management system and seamless process for station operators and infrastructure owners
- Platform and station accessibility and safety: Improve the accessibility and safety of the place and the platform <> train movement, and reduce accidents such as trips and falls in and around the station.
- Building and maintenance management: Enable smarter maintenance management in ways considerate of the station in operation.

“It’s about making station users feel comfortable and confident. And to be able to do that, the information you give them needs to be reliable and safe. They’ve got to have confidence in that information.”

2. Social Station

Q: How might the station be a great place to spend time for passengers and local communities, whilst functioning as a transport hub?

Stations may be perceived as closed environments, as train tickets are needed to access facilities beyond the gate line areas. For stations to become an inclusive and accessible social space, we need to explore how we might establish a space that welcomes people before and after they use the train and simultaneously welcomes the local community and businesses.

For this challenge, we are looking at innovative solutions that are transforming the station into a social and multifunctional space, for both local dwellers and rail passengers. Train stations have the potential to be the beating heart of the community around them. Innovations must adapt to the unique issues presented by station buildings and layouts while respecting and highlighting local heritage. The station can integrate travel, leisure, commercial and private use.

- Respecting and highlighting local heritage, innovations need to consider issues of station building layouts and operations. This potentially requires a rethinking of the strategic role of station gate lines to open the station up for (local) culture and entrepreneurs. Furthermore, social innovations at the station may need to align with wider redevelopment strategies of the area
- Due to high fees and extensive contract lengths, local businesses and initiatives may see little opportunity to place themselves at stations. There is an opportunity to explore new approaches to offerings at the station that are flexible, affordable, and as such welcoming to (local) culture and entrepreneurs.
- If the station is to become a cultural beacon for the neighbouring community, it should be a cultural hub reflecting its territory. From balancing between retail offerings to passengers from different backgrounds to new technological infrastructures to enable busking, this area is ripe for innovation.

Examples of areas for innovation could include but are not limited to:

- Activities for all types of visitors inside and outside of the station: The station becomes a destination

and more inclusive place to dwell, and it truly integrates in its local community.

- Activities for passengers travelling and waiting: Making use of the various spaces and assets of a train station to provide a wide offer for passengers to better use their time in the station while considering the diversity of passenger's needs.
- Space and timetable management: Facilitating the management of multiple stakeholders and activities within and around the station.
- Offer display and communication: highlighting to passengers and visitors what they can do and find in the station in a simple, seamless and bespoke manner.

“There should be a good level of integration between the local town, village, city, and the station. One way in which that happens is by having a good set of either community facilities or retail or commercial. You know, it might be, it might be an office, it might be a room that the community use. It might be an art gallery. It was a whole load of things that happened. And I think that innovation again could be applied, it could be a way of really integrating the community with the station.”

3. Seamless Station

Q: How might we improve the provision of customer information, by tailoring it to passengers' needs and adapting it at times of disruption?

For this challenge, we are looking for innovation that could enable station users to navigate the Bristol Temple Meads station easily and safely. Station operations may be 'ticking over' when all business is as usual, allowing wayfinding to remain as is. Nonetheless, often, operating a station is done during planned and unplanned disruption. Furthermore, where commuters may want to get in and out of station as quickly as possible, families with luggage may prefer a step-free exit even though this may take a little longer.

- Commuters may have a good understanding of the layout of their station, when to arrive and the details of their onward journey. In contrast, more irregular travellers can easily be confused by the different layouts and information across the many train stations in the UK. Offering clear, concise, and inclusive information in both digital and analogue formats is key to unlocking an efficient station.
- Communication needs to be clear, concise, and accessible to and inclusive of all. Providing information through the spoken and written word may not suffice, and there is a need to explore multi-format communication.
- Differing crowd levels throughout the day will impact the seamlessness of the station. Customer information that considers secondary factors such as crowd levels, the weather and technical issues at the station may provide alternative travel plans for station users, increasing their seamless journey through the station.
- Ad hoc, improvised way to communicate customer information is often added during disruption to the existing fixed wayfinding. This may confuse station users about where to go and which information to trust. The more signs, the less people read – often leading to confusion caused by the 'visual noise'. This is a particular barrier to making the station inclusive to groups that experience challenges to accessibility through limited sight, hearing, mobility or suffering impairments such as dementia.
- Another area of improvement is wayfinding. Needing to be responsive to people's needs, it goes beyond finding the platform and the exit: Providing station users with information on where to go

when needing to wait for a delayed train, enabling them to spend their time worthwhile, as well as informing station users on onward journeys and surrounding locale will improve station users' seamless experiences.

Examples of areas for innovation could include but are not limited to:

- Inclusive and/or bespoke communication and wayfinding: Providing legible information at the right time in the right manner to all passengers.
- Interchange and multimodal journeys communication and wayfinding: Empowering passengers to navigate easily in and around the station when using multiple modes of transports.
- Temporary and context specific wayfinding: Enabling the station to always remain a legible and functional space to navigate even in times of disruption.
- Bottleneck and crowd management: Nudging visitors attendance, behaviours and passengers flows to reduce bottlenecks and crowds.

“I think all railway stations could be improved in terms of seamless wayfinding. Make it more inclusive, include more pictures, make it as easy as possible.”

Testbed offer

A testbed is an approach that removes barriers to testing by giving innovators access to user groups and real-world contexts so they can develop, test, and showcase new or existing products and services without the usual risks.

The Connected Places Catapult has secured a partnership with Bristol Temple Meads station to host this testbed and accelerate trials and innovation in the next five years.

In partnership with the station landlord and operators, Network Rail and Connected Places Catapult will support SMEs to design, deploy, monitor and evaluate their trial in the station context.

Together we will support SMEs to access the following:

- **Cohort of testers:** Offering SMEs the opportunity to trial their solutions with relevant stakeholders such as passengers, local dwellers, retailers, station staff, operators, and other transports or local stakeholders.
- **Spaces and infrastructure:** Offering SMEs the opportunity to deploy solutions within and outside the station while ensuring that the trial do not interfere with the station operations and the safety station's users.
- **Technical expertise:** Linking SMEs with the right experts and expertise within Network Rail and Bristol Temple Meads station's teams, Bristol ecosystem or Connected Places Catapult to shape and evaluate their trial proposals.

Supporting activities and materials will be offered to SMEs throughout their journey in the programme, their trial and in line with their specific needs. This could include for instance but is not limited to:

- **Testbed support:** Dedicated experiment design training, and trial preparation, deployment, and evaluation support.
- **Rail specific masterclasses:** To discover and understand the industry, its processes and stakeholders in more depth.
- **Data governance:** Responsible data management and data ethics training and support.
- **Co-design and engagement with end-users:** Training around best practises and methodologies to collaborate effectively with end-users and gather insightful feedback in real-world situations.
- **Monitoring and evaluation:** Support for evaluating the results and impacts of the trial of the solution in Bristol Temple Meads station and in relation with the selected challenge.