Appendix A2

Bristol is Open Business Plan Brief

Executive Summary

This high level business summary plan shows that in 2019 / 2020 Bristol is Open is able to complete the contractual commitments within the immediate cash flow envelope of the 4 ongoing contractual commitments. This plan is focused on the contracted commitments only. Based on these facts the business would require additional funding in 2020/21 of £395,750.

Background

Between 2013 and 2014, Bristol City Council was awarded £5.3m funding to develop a 'research and development test bed' which was a part of the 'Gigabit Bristol Programme 'funded by DCMS / BDUK's Super- Connected Cities programme.

Bristol is Open (BiO) was set up to deliver such a test bed as a joint venture between Bristol City Council and the University of Bristol launched in April 2015, which has resulted in a Smart City Research and Development network platform of multiple communications technologies installed around the city. It can be described as a city-scale research infrastructure for the study of software defined networks, Internet of Things and big data technologies that contribute to smart city solutions.

The BIO infrastructure, which was largely funded through the Super Connected Cities programme, consists of a fibre ring linked to a number of central nodes (located at We The Curious, Watershed, Engine Shed and the University of Bristol) and a wide area wireless mesh network. This infrastructure relies on a network of ducts that Bristol City Council bought from a cable TV company more than a decade ago. Subsequently, the ducts were refurbished and used to network Council buildings and beyond. The duct network was extended to reflect the city's changing business footprint.

The original vision for Bristol is Open was to have fully connected city research and development infrastructure where companies could test applications in a real-world environment – it was unlike anything else that existed in the world at the time.

During its start-up phase, BiO has delivered a number of benefits for Bristol, and for the joint venture owners including:

- Enhancing the city's profile for being a leader in the smart city sector in the UK and internationally, helping Bristol win a number of awards: TM Forum Global Innovator of the Year; World Communication Awards 'Smart City of the Year'; GLOMO for

Smart City, Smart Cities 2019, Replicate Citizen Engagement, Smart Cities UK Highly Commended Leadership and top spot on Huawei's Smart City Index.

- Raised the profile of Bristol in collaborative working, and building a network of interlocking organisations
- As an asset, it helped organisations leverage grant funding e.g. EU Horizon 2020 Replicate and BigClouT projects and positioned the city for future research bids.
- As a joint venture, the company has completed many technical trials and experiments that have helped it gain in depth understanding of technology integrations - for the University of Bristol this has supported their world leading 5G research.

Objectives of this Interim Business Plan

This document is the Bristol Is Open high level business plan, (which is subject to final approval of company ownership) which outlines how we will deliver our contractually committed project pipeline, whilst supporting Bristol City Council and other City Partners to explore options to take the platform forward. These opportunities include further developing its role as a pilot test bed to scale city wide initiatives with an operational and community focus, in line with Bristol's One City Plan.

Smart city research and development is key to the region's economic growth and supports the region to develop fit for purpose communications infrastructure for future needs. Smart City research, development and piloting will assist Bristol businesses to succeed. Enable the development world class skills and employment opportunities. Establish new ways to support Bristol's aspiration to become a fair, healthy and sustainable city where everyone can share in its success.

The University of Bristol, Bristol City Council and Bristol Is Open are committed to continuing to work together where there are areas of mutual research interest to support the vision for Smart cities.

Desired outcomes

To deliver Bristol Is Open's contractual commitments on the 4 ongoing projects utilising the minimum cost to the public purse. We recognise that in delivering the four ongoing projects further funding will be required from Bristol City Council and we will develop a high-level view of the opportunities to take the platform forward in a self-sustaining business model that will address the cities needs in the digital Smart City arena.

Scope and exclusions

The scope of this document is limited to an overview of the four ongoing projects, their delivery commitments, people skills and requirements, budgets per project. Bristol is Open's responsibilities to each project.

This is not a full business plan that covers all possible future business options

Bristol is Open Core objective

Deliver through, the use of best ethical practices, productive innovation, capabilities and services that can drive a socially fair quality of life for all.
Driving cross society collaboration, knowledge, data sharing and analytics management across the digital landscape in order to deliver services to the public authorities, residents, businesses, students & visitors to Bristol and the West of England.

By taking a *"Understand the Problem that Needs Solving"* approach we will design solutions that utilise digital connectivity.
Behaviours:
- In depth understanding the problem that needs solving
- Being Citizen focused in all we do with digital technology at the heart of solutions
- Understanding the human behaviour and propensity to adopt new solutions, especially technology based solutions.
- Study and resolve the Ethics, Data Privacy and Protections that impact the solutions
- Creating a Learning, Education Upskilling environment
- Drive opportunities to create jobs
- Develop practical solutions that work for the regional on the Bristol is Open *"test to pilot"* platform
- Create collaboration opportunities
- Be thought leaders and influencers that encourage investment in the region
- Develop the business case that would drive scale and saving for all parties involved

5G Tourism Public Safety

Project Objectives

To develop a solution that would address harbourside safety through the use of 5G level communications links.
We have successfully enabled a trial of mixed technology using infrared and High Definition CCTV and software.

Desired outcomes

This has shown that we could inform the decision processes that would enable a safer harbourside and reduce the loss of life.
The application is showing more uses and possibilities, with some interest from the other areas in Bristol as a possible element of a project to reduce suicides. Ex Rail and trackside safety, or around business units for perimeter safety.
A joint application for funding to extend the trial until July has been submitted via WECA. this will enable the crowd element of the solution to be tested.

Replicate

The city of Bristol provides, via Bristol is Open, a smart city infrastructure, which is a ring of optical fibres connecting multiple locations together. In these locations there is 'server infrastructure', network switching and controllers, distributed computing and data storage. The data reaches our network from the cloud via VPNs connecting to our main firewall at the University of Bristol. The FIWARE instance is located on virtual machines within the network nodes.

Project Objectives

REPLICATE Aims to carry out 2 years of energy monitoring, profile and interventions in order to inform the EU Commissioner's smart cities strategy as to if Smart Cities can be used in the future to implement policy decisions on green transport and energy usage, through a series of technical "interventions" in lifestyles of its citizens.

The main objective of REPLICATE project is the development and validation in three lighthouse cities (**San Sebastián** - Spain, **Florence** – Italy and **Bristol** – UK) of a comprehensive and sustainable City Business Model to enhance the transition process to a Smart City in the areas of energy efficiency, sustainable mobility and ICT/Infrastructure. This will accelerate the deployment of innovative technologies, organisational and economic solutions to significantly increase resource and energy efficiency improve the sustainability of urban transport and drastically reduce greenhouse gas emissions in urban areas.

Desired outcomes

For Bristol; The REPLICATE aims and objective trace directly back to Bristol's aspiration to

be a Carbon Neutral city by 2030.

The aims of REPLICATE are to utilise Smart City IOT sensors to gather energy usage data, collate and disseminate data and make this available to energy distribution planners to enable them to understand the energy usage across cities. It also allows citizen/residents to understand their personal impact on energy demand and manage their usage to reduce peak-time consumption by changing their own personal established behaviours and to take responsibility for changing behaviours to use energy off-peak, in a more responsible way, to ultimate reduce their own carbon footprints. The project also addresses electric vehicle (EV) availability tracking the usage of electric cars, bikes and bus journeys around the city.

BigClouT

Big ClouT is a collaborative Big Data project being shared between the EU and Japan. Four cities are taking part Bristol, Grenoble, Fujisawa and Tsukuba. In the UK Bristol is Open is partnered with the University of Lancaster and others in delivering identified components

Project Objectives

The project is designing and building an integrated data collection and dissemination system based on Comprehensive Knowledge Archive Network (CKAN) open source data platform architecture and utilising tools such as D-Node Red, Knowage and a Recommendation Service being made in Greece by ICCS.

Bristol Demonstrator

Bristol will demonstrate both of the use-case trials in the Brussels review meeting:

- Smart Mobility and Smart Home/Energy use cases.

The Smart Mobility trial will present air quality data (both long-term historic records and near- real-time monitoring) that will be collected from the Bristol Open Data platform; latest measured levels from Bristol St Paul's air quality monitoring station data provided by the Environment Agency and data from the air quality IoT device provisioned by Bristol is Open.

This multi-sourced data, including:

- Particulate Matter PM2.5/PM10
- Nitrogen Oxides NO_x
- Ozone O_3
- Carbon Dioxide CO_2 etc.

will be aggregated and input to the BigClouT data warehouse using the BigClouT application programming tool, based on Node-RED.

The data will be used for route-finding based on real time air conditions as a pollution-

aware smart mobility solution. A data visualisation dashboard for air pollution level will be shown in a public zone.

Smart Home/Energy use cases will present live energy consumption data from smart goods (e.g., Samsung smart washing machines) in residents' houses (the number of houses is dependent on actual deployment progress).

The energy consumption data from smart homes will interact with the Energy Demand Management System for optimal/reduced energy usage for daily living. The data will also be streamed into the BigClouT data warehouse via Node-RED.

Bristol is Open Responsibilities April 2019 to July 2019

Bristol is Open will work in collaboration with the University of Lancaster on providing the IoT sensor array to ingest data, data warehouse and data backhaul architecture to support the trial period of the project which runs from January 2019 to July 2019. The project formally closes at the end of July 2019. Bristol is Open work works in collaboration with the other EU partner in Grenoble, ICCS in Greece and the Japanese cities of Fujisawa and Tsukuba.

OPCR Network Extension

To expand the Bristol is Open, Open Programmable City infrastructure to link conurbation ties in south Bristol with a combination of hard infrastructure, effective collaboration and mutually positive outcomes.
The existing Open Programmable City network has created a unique platform that will allow real-world verification of advanced software and hardware.

Desired outcomes

The OPCR programme objectives, when fully realised is to create the following impacts for both Bristol, associated communities, businesses and institutions:

- Connect areas to the South of Bristol that are not benefiting for market supplied high bandwidth connectivity, to enable a level playing field by creating a facility to develop skills and education development.
- Increase the capability and impact of Bristol's Living Lab at Knowle West Media Centre, leading to the development of the most appropriate technology solutions addressing real community issues.
- Support health and social care change research to provide better care and services through the use of digital connectivity
- enable the creation of jobs directly attributable to the roll out and operations of the network
- Attract companies to accelerate development of applications and products where access

to the BiO network will reduce the time to market.
- Attract companies that will benefit from hyper fast (1Gbps +) connection to other network attached resources, such as Cloud based data and application hosting
- Develop an R&D network to explore the potential of ultrafast broadband in a collaborative, creative digital environment
- Increase the attractiveness of the connected Enterprise Zone in Bristol and surrounding Enterprise Areas

The financial success will be measured via the number of jobs, number of startups, company growth, inward investment and increased GVA over the next 2 years as the project is developed and over the subsequent 5 to 10 years as the grant investment is realised.

Staff

Investing in our people remains a priority, delivering training and support to attract, motivate and retain the talent we have recruited. We will find creative ways to upskill the existing team to ensure we cover the Technical, Project, Risk, Compliance, Legal, Quality, Asset, Operational, Procurement, Financial, Marketing and Sales, Customer Service Management.

Overheads

The company has undergone an extensive financial review. The results have been cost reductions and leaning to enable the company is maximise all assets.

Budget

Current Bristol is Open live Projects.

Probability	Status	Opportunity	Key Person	Sales Stage	Overall Contract Value	Total Estim. Claimable Value
		Opportunity Pipeline by Probability				
100%		Closed: 4			£288,067	£247,192
100%	Green	Replicate	Rob Gladwin	Live EU Project		£42,602
100%	Green	BigClouT	Rob Gladwin	Live EU Project	£108,695	£25,218
100%	Green	OPCR Network Extension	Rob Gladwin	Procurement Process	£179,372	£179,372
100%	Green	5G Tourism Safety Case	Jim	Concluding Project	£336,036	£238,179

Financial Forecast

Our forecast reflects the cost of the resources we need to deliver our 4 contracted projects in line with the Bristol is Open vision and objectives across 2019/20 and 2020/21

The key elements of our budget are:
- The cost of our core operating activities the largest element of which is our people
- The total amount we attract from UK Government and European funding
- The time delay between completing EUH2020 Project and the payment received
- Our current business models mean we are treated as a Corporate so we have to match fund all Government funding bids.
- The charge to utilise the Bristol is Open platform.

ENDS