Full Business Case (FBC)			
1. General Information			
Directorate	Economy	**Portfolio/Committee**	*Cabinet Member for Transparency, Openness and Equality*
Project Title	Big Data Corridor	**Project Code**	*Capital: CA-02888-03* *Revenue: TA-01867-01*

Project Description

Background Context

The Centre for Economics and Business Research estimates that the big data marketplace could benefit the UK economy by £216 billion and create 58,000 new jobs in the UK before 2017, whilst a recent report from Deloitte estimates that the direct value of public sector information to the UK economy is around £1.8 billion per annum, with wider social and economic benefits bringing this up to around £6.8 billion. This is a domain where industrial interest and need is expanding rapidly: a recent e-Skills report predicted demand for professional expertise will rise by 92% in the next 5 years. The Government have responded by making "Big Data" one of the eight great technologies that support UK science strengths and business capabilities.

Big Data Corridor will stimulate the demand for new or improved services based on the availability of, access to and new insights gained from data. It will create an innovative data marketplace centred on a user led demonstrator in East Birmingham. Small and Medium Enterprises (SMEs) will be supported to use data and technologies to create new services and products. SMEs will be encouraged to address real-life challenges in the East Birmingham Corridor and create products and services that generate wider social, environmental and economic value. The project will help new and established companies innovate and create new jobs.

Big Data Corridor: A New Business Economy

Big Data Corridor (BDC) is a new initiative led by Birmingham City Council in partnership with Aston University, Birmingham City University, EnableID, Innovation Birmingham, Telensa and the West Midlands Combined Authority (Transport for West Midlands). The aim is to support SMEs to understand how to use data, big data and sensor technologies (e.g. lighting, air quality, traffic movement) to develop new products and services. To this effect, BDC will create a software platform for data exchange and processing and put in place sensor networks that SMEs can access. BDC will then offer a mix of workshops, in depth advice and knowledge transfer with its research and technical partners. This will enable SMEs to trial new technologies and develop their data skills without own investment in a secure environment. BDC will reach out to SMEs in the GBSLEP area with a particular focus on the East Birmingham Corridor.

BDC will work with SMEs to understand their needs and interests and design the support offer accordingly. It is expected that the project will attract SMEs in the technology heavy sectors such as Digital & Creative, Low Carbon and Advanced Manufacturing. However, there will also be support for more traditional businesses in other sectors.

BDC will engage up to 150 SMEs to recruit 125 into the programme to receive workshop level support of at least 12 hours per business. As the project progresses, these SMEs will be supported to develop new products or services using the data and technology on offer. It

is expected that at least 32 SMEs will, at the end of the 3-year project, have brought a new product/service to market and will have entered into long term cooperation with a research institution. This support will create local Intellectual Property, jobs and significant business development opportunities through wider exploitation.

As part of the SME engagement, BDC will run real-life challenge events based on citizen and stakeholder (public sector, large businesses) needs. These challenges will focus on the areas of health and well-being, mobility and sustainability. This will ensure that innovation is linked to wider social, environmental and economic benefits and that citizens are engaged in developing new services for their locality.

Potential features of the Data Platform:

- Makes available new data feeds from public sector sources as open data or closed data, ideally data that is automatically published, real-time and is provided with good context and reference data for reuse.
- A framework for the management of personal data regulated under the Digital Catapult's Personal Data and Trust Network. Personal data contributed on an opt-in basis by individuals in the Corridor and held in securely encrypted anonymous personal data stores, this may be linked to the existing Hub of All Things (HAT) from Warwick University.
- Aggregated open data sets – freely available raw data from public sources repackaged into easily adopted market ready data feeds
- Commercial data - from existing sources, with use-case and ease of adoption commentary; from new apps that will be developed by regional SME beneficiaries
- Real-time and closed data - from a network of connections to light, parking and air quality sensors, including expertise on sensor design, manufacture and procurement.
- Develops a framework of agreements, protocols etc. to provide, process and use data from different sources
- Offers capacity to analyse, visualise or otherwise process data

Benefits of the project platform for Birmingham City Council:

In addition to this, the data platform can be utilised as a proof of concept for the City, which could showcase how data can be utilised to deliver outcomes for the City based on specific challenges linked to the Future Council objectives. The platform will be aligned to the ICT & Digital strategy, adopting the principle of '**Simplify, Standardise & Share** and will support development and delivery of the **Digital Facilitation** objectives**.** The Council will be able to trial the data platform and test its proposed **Data Strategy** at the same time without the additional cost of procuring a platform through Service Birmingham. If the project is successful the platform (or some of its functionality) could then be utilised and offered to the West Midlands Combined Authority as a potential tool to work together and collaborate on shared services. This would de-risk the development of a specific data platform as part of the ICT & Digital Strategy.

SME support framework

SMEs will receive extensive support to make use of the platform and sensor networks. This includes:

Workshops: Some of the BDC workshops will be aligned with the platform features to help

SMEs realise how datasets, visualisation tools, and private sector infrastructure can be used to develop new products and services. Others will address more traditional support regarding business model development and commercialisation.

Incubator Space and Idea Exchange: BDC will build on the investment in the incubator iCentrum at Birmingham Science Park Aston, using its Serendip 'skunkworks' environment to provide flexible think space and cross-sector innovation for businesses to collaborate, exchange ideas and develop their new products and services.

Support Services: A technical and business support team will provide an immersive environment in the Serendip incubator of iCentrum to engage SMEs, manage their involvement, support rapid prototyping, and provide links to partners. This team will use specialists from the technical partners and Universities and invite experts from the national Catapult Research Centres (e.g. Transport Systems Catapult, Energy Systems Catapult, Digital Catapult) (see https://www.catapult.org.uk/). They will link the developments of the new technology driven apps and services to legal, financial, commercial and business planning support. In this way each participating SME will use the data platform to create new commercially viable products and services and have their innovations embedded in a fully commercial environment.

User led Demonstrators: The aim is to involve East Birmingham residents and public sector organisations through a series of events that address problems pertinent to the area and wider socio-economic challenges. BDC will also work with strategic partners (public sector organisations and large businesses) to identify a number of use cases for the challenges. SMEs will then be invited to these events to gather evidence and develop ideas that address real-life issues and market needs. In addition, BDC will establish actual technology installations in East Birmingham (e.g. smart lighting trials) that SMEs can experiment with. SMEs will be supported to adopt a user-centric iterative design process to get as much market response (i.e. citizens and stakeholders) as possible. This will create the dual benefit of market ready, scalable solutions that could work anywhere and address Birmingham issues for local stakeholders.

To help SMEs visualise possibilities and investigate and apply solutions BDC will have technology demonstrations available at the Serendip space and in real life locations within the Eastern Corridor, explained by the project partners. Using recently developed technologies Aston University and other partners will provide demonstrators such as:

Photonics

- Smart lighting – dual use of lighting for illumination and data communication, visual signage and data connectivity
- Energy efficient hybrid lighting system – combining delivery of natural light with LED, intelligent traffic and weather adaptive street lights
- Optical fibre sensing – distributed sensing system and intelligent monitoring of temperature, air quality in buildings, humidity and others
- Gas sensing for environmental monitoring.

Analytics

- Prototype Visual Analytics Interfaces for personal access and viewing of individual health data and progress against community norms.
- Person adaptive advisory systems using data streams to enhance personal transport, energy use, marketing and other forms of social interactions.

- Management advisory tools for community leaders in predictive management of local infrastructure based on historical data.
- Community digital infographics for publicity, marketing and motivational reasons.
- Data Communication Models
- Understanding of how to use data/infrastructure for App developments

Intelligent Mobility

- Customer Insight Data for identification of challenges
- Mobility Datasets
- Transport structure and technology

The demonstrators will meet the objectives of increasing connectivity and access to data, reducing energy usage and improving quality of life. Overall, BDC will create tangible mechanisms to develop synergies between SMEs, innovation and technology centres and promoting investment in products and services based around technology transfer. In the wider UK economy it furthers the critical area of data science, where a recent e-Skills report predicted demand for professional expertise will rise by 92% in the next five years.

Growth Hub – Business Registration

Birmingham City Council will use the Growth Hub as the registration system for SME's to register their interest in the Big Data Corridor Project. Checks will be made to ensure that only eligible businesses are able to receive business assistance and support based on compliance with State Aid general block exemption regulation (GBER).

Data captured from Growth Hub and Partners who deliver specific modules will be captured and signed off by each business to ensure compliance with ERDF funding rules.

Data captured on each of the business will be stored securely to ensure compliance with ERDF funding rules.

Quantitative and Qualitative Objectives

The BDC project will be evaluated both quantitatively and qualitatively to ensure that it has met the outcomes that are required as part of the project by an independent organisation that will be procured through FinditinBirmingham. A report will be produced as part of this evaluation.

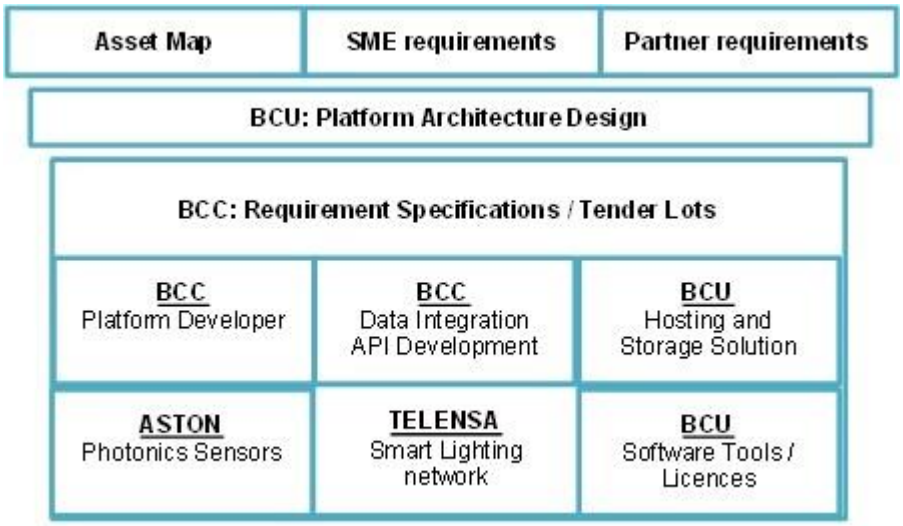
Outputs required as part of the bid:-

- **C1: Enterprises receiving support: 125 -** Sector specific technical advice and support will be provided on average to c. 40 businesses a year, a total of 125 businesses.
- **C5: Number of new enterprises supported: 18 -** Of the 125 businesses supported, it is estimated that up to approx. 15% of them will be new enterprises
- **C8: Employment increase in supported enterprises: 56 -** it is estimated that each business supported through the sector specific technical support will create on average 0.45 FTE post, a total of 56 jobs. This will be a mixture of jobs created within new spin out companies and from existing business growth.
- **C26: Enterprises cooperating with research institutions: 32 -** Of the 125 businesses supported, it is estimated that around 25% will be engaged in cooperation activities with research institutions such as – Aston University or Warwick University
- **C28: Enterprises supported to introduce new to the market products: 32**
- Of the 125 businesses supported, it is estimated that around 25% will be supported to introduce new to the market products through working with research institutions
- **C29: Number of enterprises supported to introduce new to the firm products: 32 -** Of the 125 businesses supported, it is estimated that around 25% will be supported to introduce new to the market products through working with research institutions

How the project will deliver and what it needs to procure:

The project will procure a number of contracts and equipment items as part of the project and these will be procured following BCC and ERDF Procurement Guidelines depending on the procurement value. Note that all costs are estimates at this stage and suppliers will be chosen following competitive tendering.

BCC will work with BCU to review existing assets, create the platform architecture and develop the procurement specifications. In addition other project partners will supply SME requirements during the first 1-6 month of the project. The procurement of capital items is expected to be complete by end of year one.



Capital costs:

- Data integration and Application Programme Interface development £80k
- Data platform development: £100K
- Data cleansing and processing: £60k
- Sensors and photonics equipment: £50k
- Smart lighting applications and sensors: £25k
- Server or cloud based hosting solution for content: £50k

Total CapitalExpenditure	£365k

Revenue costs:

- Project evaluation: £9.5k
- Marketing: £15.5k
- Venue bookings and catering: £7.5k
- Software licences and consumables: £19.6k

Total Revenue Expenditure:	£52.1k
Total Maximum Procured Project Expenditure:	**£417.1k**

Links to Corporate and Service Outcomes

Which Corporate and Service outcomes does the project address:
The BDC project will directly address the following corporate and service outcomes:-

Business Plan 2016+

- A strong Economy: An enterprising, innovative green city delivering sustainable growth, meeting the needs of the population and strengthening Birmingham's global standing.

	- Thriving local communities: Every citizen living within a strong and cohesive community which values and supports each of its members, and is empowered to influence the services and decisions affecting their neighbourhood. Everyone feels they belong and shares the benefits of living here. **ICT&D Strategy 2016-2021** - **Digital City** — BDC will create the right environment for the region that promotes and encourages a wider adoption and application of smart and disruptive technologies and data to address our city and region wide challenges. - **Digital Economy** - BDC will also want to make sure that our businesses have access to a ready supply of digital skills and talent critical to supporting their future demand and growth. - **Digital Collaboration** - BDC will adopt open standards and practices that will facilitate data and information sharing across partners and support and advocate system wide integration and interoperability to facilitate secure and safe networks for data exchange, in line with developing our Internet of Things capabilities and network dependencies **Eastern Corridor Smart City Demonstrator Framework** - Trialling and embedding smart city approaches to re-organise and re-invent city services to improve local opportunities including mobility, sustainability and wellbeing **Future Council Design Principles:** - Make transparency on openness our default position - Work with partners to take a whole system approach with citizens and neighbourhoods at the heart of our decision making - Target our resources on key priorities and outcomes, using evidence to inform our decision making - Promote the independence of service users and also enable them to step up and be part of designing solutions - Using our strategic assets to leverage economic growth and investment across the city - Operate as an agile organisation through our commissioning and delivery models BDC has been designed following the Future Council design principles and its delivery will provide the opportunity for other council services to benefit from new data streams, applications and insight.
Project Definition Document Approved by	Cabinet **Date of Approval** 22nd March 2016
Benefits Quantification- Impact on Outcomes	**Measure** / **Impact** *List at least one measure associated with each of the outcomes above* / *What the estimated impact of the project will be on the measure identified* A strong economy - Up to 125 SMEs supported - Up to 32 new products/services developed - Up to 56 full time jobs created / - Upskilling SME's will enable creation of jobs and economic growth for the city through innovative products; more local staff employed - Data sets will provide SME's with the evidence to support development of new products and services to meet City Challenges Thriving local communities - No of citizens engaged in challenge events - Solutions developed that address local issues - / - Engagement of citizens into challenge led activity will improve citizens knowledge and sense of community

	ICT&D Strategy - City Data Platform successfully used - No of SMEs supported - City Data Platform is using open standards	- Data platform, sensor networks and innovation framework for SMEs will encourage adoption of smart technologies - Training packages will develop digital and business skills - The platform will prototype an open standards development and promote data sharing
	Eastern Corridor - Smart City Demonstrator Framework - No of new products/services developed - No of citizens engaged in project	- Opportunities created through data and challenges locally for SMEs and new businesses - Co-creation of new products and services with citizens acting as test beds
Project Deliverables	Big Data Corridor will provide:- • a city data platform that will enable SMEs to access both open and closed data sets. • direct access for SMEs to specific training courses to in relation to the use of data and innovation support. • specific challenges to SMEs that they can then try to address using technology to create new products and services for the benefit of the City. • a test lab within the Eastern Corridor Area to test out new products and services by co-creating with citizens. • increased employment of those companies being supported. • a final report stating the results of the project including impact assessment.	
Scope	Big Data Corridor is limited to the East Birmingham demonstrator area The project will be managed by a Programme Manager and a Project Manager in Digital Birmingham with one finance support officer. The Council will act as the Accountable Body for the receipt of grant funding to deliver the project. Birmingham City Council will sign the formal grant agreement (GA) with the European Commission. Outline of work needed to deliver the project: The project will recruit 150 SME's located within the GBSLEP area to take part in a business assist and business support programme. We expect that there will be a certain amount of dropout as SMEs find that the BDC programme is not suitable for them after initial engagement. Over recruitment will guarantee that the actual output of 125 business assists will be achieved. No business is excluded as long as they meet the criteria for funding based on the ERDF rules and procedures. In order to ensure that different types of businesses from across a range of BME are included and aware of the programme separate marketing will be undertaken to ensure that specific communications in relation to the opportunities are targeted e.g. Institute of Asian Business, Women in Business, etc.	
Scope exclusions	Only those that meet criteria for funding will be allowed onto the programme.	
Dependencies on other projects or activities	Before the project can start, a grant agreement has to be signed between BCC and DCLG and a consortium agreement has to be negotiated between BCC and each consortium partner. Approval of the ICT & Digital strategy and its respective capital expenditure programme. This was signed off by Cabinet 18/10/2016.	
Achievability	The biggest risk is the loss of staff through any further budget cuts or service re-designs that may include Digital Birmingham. However this can be mitigated by one of the consortium partners taking over the project management. The existing DB team members have the required skills, expertise and experience. Where certain expertise is lacking e.g. delivery of the data technical platform a member of staff will either be recruited or the work will be contracted. *Evidence of delivering similar projects* **Data Factory** – delivery of an open data platform to share Birmingham City Council Open Data. **Open Data Standards Report** to Government.	

	Digital Skills Summit and Digital Academy – Training Programme for SME's to improve Digital Capabilities ERDF funded (2014/15) in conjunction with Government Superfast Broadband Programme with SME's **Share-PSI 2.0** (ICT-PSP 2013-2016) – Contributor to a European network for the exchange of experience and ideas around implementing open data policies in the public sector. **Universal Credit** – Digital logbook (2012 – 2015) DWP funded pilot that provided a personalised Digital Log Book - an online portal to 9000 social housing tenants to help them manage every aspect of their tenancies and benefits online as well as access to budgeting tools, financial advice and employment opportunities. **Opticities - Enhancing Smart Mobility** (2013 – 2016) EU funded project (FP7) that is developing and testing interoperable intelligent transport systems (ITS) solutions in six different cities in order to provide citizens with the best possible journey conditions and to optimize urban logistics operations. The Birmingham element of the project involves the development of an adaptive traffic management system that allows Urban Traffic Control centres to view a predicted scenario of traffic levels up to 60 minutes into the future, based upon analysis of data from traffic signals and traffic management systems. **MyNeighbourhood** (2013-2016) EU funded project (ICT-PSP) - Birmingham is a testbed for the project which aims to combine new digital technologies and techniques, such as social gaming principles (gamification), with the Living Lab methodology, to help strengthen existing ties and resolve community issues in the very real, day-to-day world of the urban neighbourhoods.		
Project Manager	Heike Schuster-James 0121 675 8887 heike.schuster-james@birmingham.gov.uk		
Budget Holder	Raj Mack 0121 464 5792 Raj.s.mack@birmingham.gov.uk		
Sponsor	Andy Fullard, Assistant Director – Enterprise Architect		
Project Accountant	Rob Pace 0121 303 3817 Rob.pace@birmingham.gov.uk		
Project Board Members	BCC with one representative from each partner – to be decided if grant agreement successful and will form part of the consortium agreement		
Head of City Finance (HoCF)	Simon Ansell	**Date of HoCF Approval:**	*27/10/2016*

2. Budget Summary (Detailed workings should also be supplied)

Big Data Corridor	Voyager Code	2016/17 £	2017/18 £	2018/19 £	2019/20 £	Totals £
REVENUE						
BCC Expenditure						
Salaries	TA-01867-01	66,422	132,846	132,844	66,422	398,534
Overheads (15%)		9,964	19,926	19,926	9,962	59,778
Marketing & Evaluation		5,000	6,500	2,500	11,000	25,000
Partner Expenditure *		248,228	561,574	565,071	230,198	1,605,072
Total Revenue Expenditure		**329,614**	**720,846**	**720,341**	**317,582**	**2,088,283**
City Council Match-funding		40,693	79,636	77,635	43,692	241,656
Partner Revenue Expenditure		124,114	280,787	282,536	115,099	802,536
ERDF Grant Funding		164,807	360,423	360,170	158,791	1,044,191
Revenue Totals		**329,614**	**720,846**	**720,341**	**317,582**	**2,088,383**

CAPITAL						
BCC Expenditure: Data platform and data processing	CA-02888-03	30,000	120,000	115,000	25,000	290,000
Partner Capital Expenditure *		75,000	-	-	-	75,000
Total Capital Expenditure		**105,000**	**120,000**	**115,000**	**25,000**	**365,000**
City Council Match-funding		15,000	60,000	57,500	12,500	145,000
Partner Capital Match-funding		37,500	-	-	-	37,500
ERDF Grant Funding		52,500	60,000	57,500	12,500	182,500
Totals		**105,000**	**120,000**	**115,000**	**25,000**	**365,000**

Total Project Value		**434,614**	**840,846**	**835,341**	**342,582**	**2,453,383**

* The Partner match set out in this table is part of the ERDF approval, but it is not BCC resource or expenditure.

Planned Start date for delivery of the project	*22/11/2016 (Subject to grant agreement sign off by DCLG*	**Planned Date of Technical completion**	*30/10/2019 subject to planned start date (36 Months)*

3. Checklist of Documents Supporting the FBC		
Item	**Mandatory attachment**	**Number attached**
Financial Case and Plan		
• Detailed workings in support of the above Budget Summary (as necessary)	Mandatory	Available
• Statement of required resource (people, equipment, accommodation) – append a spreadsheet or other document	Mandatory	Available
• Whole Lifecycle Costing analysis (as necessary)	Mandatory	n.a.
• Milestone Dates/ Project Critical Path (set up in Voyager or attached in a spreadsheet)	Mandatory	Part of Full Application
• Partnership Funding Proposal		n.a.
• Specific Funding (Grant) outline		Available
• Technical Feasibility Assessments		n.a.
• Grant/Partnership Agreement		Pending
• Non-Financial Benefits		specified in report
Project Development products		
• Populated Issues and Risks register	Mandatory	Annex 1
• Stakeholder Analysis	Mandatory	Annex 2