

Results of competition: SBRI - Future Cities solutions

Total available funding for this competition was £1.5m from the Technology Strategy Board.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Aimes Grid Services Community Interest Company (lead)	DIEP - Data Integration and Exchange Platform	£99,785	£99,785
Project description (provided by applicants)			
<p>The Data Integration and Exchange Platform (DIEP) project addresses Challenge 2 of the Future Cities solutions competition. The project is a feasibility study to examine the potential for creating a city management platform capable of ingesting a wide range of disparate local authority data and to provide new and innovative ways in which to visualise and analyse the data. The project is a collaboration between AIMES Grid Services Ltd, an award winning cloud infrastructure provider based in Liverpool and experienced in creating large-scale publically funded demonstrator facilities and the IT Innovation Centre, a world class applied research centre part of the University of Southampton and experienced in deploying a wide range of advanced information technologies in industry and commerce.</p> <p>AIMES has created a government accredited G-Cloud facility at its cloud computing campus at Liverpool Innovation Park specifically to promote the development of innovative platforms for securely and scaleably ingesting data and for deploying applications which lead to sustainable services. IT Innovations have undertaken a substantial number of UK and EU funded projects which have led to the development of new software platforms including the DESURBS – Designing Safer Urban Spaces – platform which assists urban stakeholders, including planners, engineers and architects, manage urban data.</p> <p>The DIEP project will combine the AIMES infrastructure with the IT Innovation Centre's software platform to create a new service for local authorities. The first phase of the project will create a proof-of-concept prototype to illustrate the feasibility of ingesting a range of disparate city datasets and providing new services to visualise the data using mapping technologies and to analyse the data to create new insights. The DIEP platform will use open APIs to import the data and create a marketplace which will allow the UK Open Data community to innovate new apps</p>			

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and services for local authorities. The second phase of the DIEP project will establish a large-scale Future Cities management platform using the Open Source technologies and secure, resilient and scalable G-Cloud infrastructure evaluated during the feasibility study.

The DIEP platform will provide new ways of visualising City data using a range of innovative mapping tools including a "slippy map" architecture and will evaluate a number of analytics services including comparative dashboards and statistical modelling. The DIEP project will enable local authorities to gain new insights from their data assets and to improve City decision and policy making.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Asset Mapping Limited (lead)	Asset Mapping	£95,700	£95,700
Project description (provided by applicants)			
<p>Asset Mapping has been developed to optimise the import and sharing of asset information from various software platforms such as CAD, Project Management Systems, Scheduling and Asset Management Systems. Some of these systems are already capable of synchronising with a live database, or, if required, a plug-in will be developed to allow the sharing of information.</p> <p>We are able to present this integrated information in a more user friendly platform using a Google Maps environment. This Asset information is editable using administration and end-user interfaces. By developing a change control system, this will allow the stakeholder to be made aware of actions or alerts required to install and operate assets.</p> <p>Our key deliverables are to integrate with all commonly used software systems allowing Asset Mapping to be used as the interface to a single source of trusted information for all stages of an asset's lifecycle.</p> <p>The possible savings gained from online collaboration have been outlined by many studies, including Stanford University; which state savings of between 35% and 65% of a workforce's time is saved by removing the verifying and validating information before it is trusted. **</p> <p>Work breakdown structure:</p> <p>We will investigate the most commonly used software platforms in the life cycle of the systems used to operate and monitor cities and individual buildings. Working with expert advisors to define the enterprise platforms and live monitoring systems required for Asset Mapping to develop interoperability for a city-wide platform.</p>			

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We will employ a team of known PHP programmers, database designers and integration engineers to develop the above interoperability, testing as we go.

We will be working using a LAMP setup; Linux, Apache, MySQL and PHP as this is the current foundation of the Asset Mapping platform.

Our development will incorporate Semantic relations of information produced by each stage of a building's life cycle and its individual assets.

Our development will take into consideration the requirement for the automatic notification, alert management, with change control for the health and location of individual assets.

We will also research the development of context awareness of devices including user profiles and the on-board sensors. This will allow for a flexible dynamic interface and incorporate security profiles based on GEO fencing. We will also be able to route the user to the location of each asset should site attendance be required for perhaps installation or maintenance.

***Source: Barron, Alex and Fischer, Martin. Potential Benefits of Internet-Based Project Control Systems – A Study On Change Order Processing. CIFE Technical Report #126. Stanford University.*

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Cambridge Environmental Research Consultants Ltd (lead)	Feasibility of enhanced open city data management platform with crowd sourcing	£81,530	£81,530
Project description (provided by applicants)			
<p>Cambridge Environmental Research Consultants (CERC) and Algebra propose the creation of an innovative open city data platform with crowd sourcing as their response to the Future City solutions SBRI competition Challenge 2 'Data'.</p> <p>It is an opportune time for the development of such a system. Historically cities have owned rich datasets; however the data have been 'hidden' in isolated silos so the value of the data has been unavailable to the public and often also to the city authorities. Increasingly cities are opening their data and empowering businesses and the public to create additional value from these assets. However, it is only very recently that cities are becoming 'super-connected' with fast broadband, dense Wi-Fi and smart phone networks allowing the data platforms to realise their full potential and allowing fast input of new data by the public. Combining city data with crowd-sourced data shares the burden of data curation with the public, increases feedback and communication between city authorities and the citizen, and provides new channels for authorities, elected representatives and the public to communicate on the key issues confronting modern cities.</p> <p>The proposed system will use innovative interactive map presentations and combine public data with crowd-sourced data, integrating data across various themes including health, energy, environment and transport. Open APIs will be the basis for a thriving ecosystem of third-party apps and services based on phones, websites, smart devices, and social media, leveraging direct access to data through the APIs. Phase 1 will examine the feasibility and practicalities of such a system. Phase 2 will develop the enhanced platform, install a prototype for a test-bed city, and create pilot apps and services that will demonstrate the possibilities of the platform and foster the app ecosystem, in particular showing innovative data presentation through maps. These pilot solutions will be shaped with the partner city, analysing decisions to be made by the partner city that can be supported with innovative data use as well as different user needs (managers, assessors, citizens, app developers). The pilot solutions will build on existing tools created by the applicant organisations, such as the London airTEXT health and air</p>			

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quality forecasts (developed by CERC) and Q-Cumber, an innovative combination of crowd-sourcing, social networking and environmental tools, combining data from heterogeneous sources into a user-friendly query framework (developed by Algebra).

The project partners CERC and Algebra are SMEs with wide experience of working with cities to maximize their data in the themes of environment, health, industry and energy, and are very well-placed to work with city authorities in this project. Q-Cumber has been adopted for crowd-sourcing by several cities in Italy and is rapidly expanding. CERC has excellent contacts with the 'test-bed' cities for the data challenge, in particular Cambridge and London.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CISCO Systems Limited (lead)	Smart City Field Area Network (FAN)	£100,000	£100,000
Project description (provided by applicants)			
<p>The project will develop a Field Area Network (FAN) reference architecture for city management that supports and connects disparate data sets and data sources. FAN aims to use non proprietary, generic and open application program interfaces (API), to add a truly local dimension to the popular ideas of Cloud and Big Data. The radical change in FAN is that compute, storage and network intelligence will be devolved to street level. The compute capacity will be swappable to enable different services in different districts according to local priorities and policies. This challenges the dominance of Big City Management one size fits all, top down command and control systems. Currently, most city architectures collect a wealth of data sets and expect dashboards, city observatories and Big Data clouds to provide order and desired outcomes and behavioural change. However, not all data is of equal value. Removing data from its temporal and geographic context erodes value. Big Data or City Management solutions risk not delivering desired outcomes and could raise citizen security and privacy concerns. FAN aims to show that routine city service functions can be actioned instantaneously in local context and build an extended trust model. The project aims to create a reference architecture that has unique characteristics. These characteristics make it more extensible, resilient, robust and trustworthy than traditional city operating systems promoted. The FAN reference architecture is organized into five main layers 1 Sensors and networked devices to capture data, 2 The network enabling data collection and routing to distributed points, 3 Distributed data processing including local computing, storage and analytics, 4 Security and Privacy, and 5 Local applications and services.</p> <p>The FAN project will develop a coherent reference architecture and then a deployable plan for smart city infrastructure based around the principles of local action. It will ensure cross functionalities allow a numbers of city services to optimise and share cost. FAN architecture will allow both targeted operational services and wider public access services. There are 2 main phases.</p>			

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Phase 1. Feasibility Study scenario development, reference architecture, partner mapping and demo location.

Phase 2 FAN Build and Demonstrate. This covers the build of the main FAN system and integration with legacy city systems and build of the FAN city services. This will then be demonstrated in an end-to-end system with operations and public applications. Example services include intelligent parking, physical security, active travel, traffic flow, smart lighting, waste management, and air and noise monitoring.

The project challenges conventional thinking on Big Data and City Management developing a variant reference architecture that can cope with legacy technologies, topologies and logical networks. The approach has potential for wider deployment in other UK cities and globally.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Energy Saving Trust Enterprises Limited (lead)	CEDS - City Energy Demand Simulation	£98,146	£98,146
Project description (provided by applicants)			
<p>Our proposal addresses Challenge 1. CEDS - The City Energy Demand Simulation - provides cities and local authorities with the means to visualise future energy demand (including gas and electricity) for any geographic area ranging from a street, to a district, to the city itself, including both residential and industrial/commercial energy demand.</p> <p>CEDS allows planners and decision makers to easily visualise the impacts of alternative demand and supply side energy investment strategies on overall energy costs, emissions, and fuel poverty levels. This will be important for cities and planners because the innovative features of CEDS will enable planners to understand the impacts of new energy technology deployments on the energy demand of buildings.</p> <ul style="list-style-type: none"> - CEDS can demonstrate the relative economic and environmental attractiveness of local energy supply schemes such as district heating combined with power versus importing electricity from the grid; - CEDS can illuminate the impacts of technology deployment by social geography within the city boundaries <p>Therefore, CEDS will allow cities and local authorities to clearly identify how to deploy limited capital budgets to greatest effect when developing low carbon, cost effective local energy infrastructure. By modelling future demand, supply and cost scenarios, cities will be able to prioritise the development of local energy assets, such as district heating networks, energy from waste, retrofit and new build locations. CEDS will enable cities to understand how they can deliver on their priorities for ensuring there are cost effective locations for business and industry, with a secure supply, whilst also helping tackle fuel poverty and reducing carbon emissions and energy costs.</p> <p>CEDS has been made possible by building on the innovative work done by the Energy Saving Trust, supported by the UCL Energy Institute, for</p>			

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National Grid and Western Power Distribution (WPD). These projects were focused on the future shape and scale of demand at national and electricity sub-station (typically a few hundred homes) level respectively. In both projects the work centred on premise modelling combining EST's information on the fabric of buildings, demographics of occupants with EST datasets on the performance of alternative technologies in buildings, as well as UCL's expertise in industrial/commercial energy demand.

CEDS is truly ground-breaking in that it enables holistic design of the future energy architecture of a city taking into account the economic, environmental and social outcomes of alternative options. CEDS will be a truly sustainable decision making tool.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Ethos VO Limited (lead)	Collaborative parking solution project	£96,229	£96,229
Project description (provided by applicants)			
<p>Ethos is applying for the on-demand mobility solution challenge; focusing on parking which is a major issue for many cities. This challenge has several dimensions, including:</p> <p>Economic - 51% of motorists are turning their backs on city centres because of the difficulties posed by parking (Source: Swiftcover and BIS Understanding High Street Performance Report)</p> <p>Environmental - up to 15% of vehicle emissions come from motorists trying to park their vehicle (Source: Technology Strategy Board); if this was halved, UK CO2 emissions would reduce by 38M tons annually (Source: Ofgem)</p> <p>Wellbeing - 2.5 million disabled blue badge drivers and the growing numbers of electric vehicle owners are finding that city parking services do not meet their needs (Source: Parkmobility.com and myrenaultzoe.com)</p> <p>Furthermore, cities are facing reputational damage; 3.4 million parking charge notices are issued annually for extended stays in designated spaces (Source: Swiftcover), whilst generating £565M of parking charge surpluses (Source: RAC). This has led to adverse publicity and is undermining public trust.</p> <p>The current responses are inadequate. Much parking is being outsourced, replicating broken models. New technology is being deployed but is fragmented and proprietary, often with incomplete data that is locked in individual systems or in static forms. The situation is unsustainable, no one wins. The Ethos solution provides a collaborative parking platform based on a common core dataset. Using an open source architecture, it will give free access to high quality real-time information on parking availability and pricing for use by both citizens and business. Additionally,</p>			

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the intent is to encourage an ecosystem of innovative third-party applications, using the platform to provide services that aid motorists in their journey.

This collaborative approach will deliver benefits for all stakeholders:

Drivers - value added services that could include among others, discount incentives for parking, notification of car parks with space or to pre-booked individual spaces

Cities - an accurate measure of parking demand; helping to achieve optimisation of the parking asset and for parking to become a precision policy tool to help encourage flexible working behaviours

Government - a business and governance model for self-financing open data publication

Retailers/Employers - business intelligence for retailers to monitor sales against visitors or office car park sharing

Entrepreneurs - use of integrated data to develop new smart initiatives such as web or mobile applications

We will set up a Community Interest Company (CIC), a company designed specifically for those wishing to operate for the benefit of the community, which will own the Collaborative Parking platform. The CIC will be funded from the optimisation of the participating cities' parking assets. It is anticipated that key stakeholders will own a share in the CIC and excess profits generated from operating the platform will be reinvested for the benefit of the cities' residents.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
iGeolise Limited (lead)	Travel Time; helping people to search, navigate and enjoy Smart Cities	£85,250	£85,250
Project description (provided by applicants)			
<p>We are applying for challenge 3 - 'developing a scalable on-demand mobility solution to help employees or visitors reach businesses within a city'.</p> <p>Our project uses travel time to enable employees and visitors to find businesses; so travel time rather than distance. City businesses include, for example, shops, restaurants, offices, garages, gyms and cinemas - these are all locations that residents and visitors will travel to, and when travelling, time is more important than distance. The only way to filter location-specific content currently is distance - the 'within X miles' search box used by most websites - but distance simply isn't very helpful. A location 5 miles away might take 10 minutes if on a fast connection, but 2 hours if it's not; it might take 1 hour on a weekday morning but 5 minutes on a Sunday morning. Travel Time typically doubles the number of relevant results compared to distance, but its usefulness extends far beyond searching for those places we want to visit; it can also (for example)</p> <ul style="list-style-type: none"> a) compare all different transport modes for the journey (so contrasting cars to public transport); b) provide optimum routing - both direct to the destination, but also routing via other specific points if required. c) define catchment areas for councils when considering business planning applications; d) help businesses to plan office relocations by analysing the impact on their staff's commuting time; 			

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e) simplify and optimise car-pooling and car sharing schemes;

f) improve mail order delivery services, and the increasingly popular 'click collect' schemes run by many retailers.

Our project is to enable cities (the residents, employees, visitors, and the city administrators) to plan their travel by time rather than distance, and this will save time, congestion, cost and CO2 emissions.

What makes this project possible is that iGeolise have already built the Travel Time Platform which makes location-specific content searchable by travel time. The platform is unique, is patent pending in the UK and USA, and has been built to scale (currently live across the UK, USA, and Thailand; it goes live on two of the UK's largest websites in Q4 2013). This project will enable us to add three new features to the Platform which will deliver great value to a 'smart city'. 1) calculate CO2 emissions for a journey; 2) calculate the cost of a journey; and 3) update and refresh results based on real-time information (i.e. X bus route is closed, don't show results that rely on using that bus route).

The Travel Time Platform is accessed via an API - which means that developers can include Travel Time into existing applications / websites / mobile applications as well as into new ones, which greatly reduces the time to market.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Imtech Traffoc & Infra UK Limited (lead)	ImCity Park Green	£98,297	£98,297
Project description (provided by applicants)			
<p>This proposal will unlock the already existing real time travel information in cities and make it available to travellers, business users and small freight delivery operators in a form that is specific to their needs. This solution will provide employees and visitors with a scalable on-demand mobility solution to reach businesses within a city; enabling or increasing the efficient mobility of people and goods. It will provide real time information on destination car parking availability, linked to a prediction of future occupancy based on historical data, as well as providing information on alternative travel modes and commercial pick-up/delivery options. CO2 emissions will be reduced by providing greater reliability of direct travel to choice parking, with alerts to forewarn users of dynamic changes on the network and provide alternative options.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Integrated Environmental Solutions Limited; Integrated Environmental Solutions Limited (lead)	MIRIAM: City Information Model and neighbourhood manager for the Real-time Identification and Analysis of power and heat usage at the Macro-scale	£99,025	£99,025
Project description (provided by applicants)			
<p>MIRIAM is an interoperable Neighbourhood Manager and City Information Model which gathers both Real-Time Information (RTI) and Building Specific Information in a city to analyse and understand both power and heat data at macro-scale. Real data from the buildings in the city are gathered from multiple available sources such as smart meters, Automated Meter Readings (AMR), Building Management System (BMS) and climate data from weather stations to mention a few. Building specific data is gathered from building owners/ occupiers in the city, including utility bill information and information such as building type, floor area, occupancy and use and information with respect to the buildings services and equipment.</p> <p>All data is collected via a user friendly web portal, whether it is RTI to be updated at regular time intervals or manual data that is entered once. Where possible, real data is used to show real measured energy use in the city and, where real data is not available, simulated data is generated via the building specific information. All data is stored via an interoperable City Information Model (CIM) server, which supports multiple file formats so that all available data from a city is included. The filtered data is viewed via an online portal as 3D model geometry, 2D interactive maps or raw data. This is used to understand energy usage and flows in the city and the amount and type of data available will determine if one or all views can be utilised. As more information from the city is uploaded by the city inhabitants, the accuracy of the simulated data improves and eventually through available RTI, simulated building data is replaced by real building data to have a real-time accurate picture of how the city is ever changing and evolving to its users' needs and behaviour.</p> <p>The data from the CIM server is also exported to a Neighbourhood Manager (NM), which characterises the city in terms of power and heat. The NM uses a powerful simulation engine to predict savings and Return on Investment as a result of a variety of retrofit measures suitable to</p>			

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different end users. Four identified end users have been identified for the initial development of the MIRIAM product offering and customised displays to suit these users' needs will be developed. These are: 1) the Individual Building Owner, 2) the Public Community, 3) the Business Community and 4) the Technology/Service Provider. The Individual Building Owner will use MIRIAM to identify potential simple and deep retrofit measures for their building; the Public Community will identify district schemes that benefit a defined area; the Business Community will identify opportunities for a portfolio of buildings; and the Technology/Service providers will use MIRIAM to identify areas for target marketing. As the tool is developed, additional end users will be targeted and customised displays developed to suit their needs.

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Mastodon C Limited (lead)	Stentor: giving city data a voice	£98,509	£98,509
Project description (provided by applicants)			
<p>Stentor, in Greek mythology, was a herald who was famous for his powerful voice. Project Stentor helps data to speak: it is an open-source, comparative city dashboard that synthesizes, analyzes and maps complex datasets so city leaders and decision-makers can better understand the dynamics of the places they manage. This project will enable city leaders and officials to make joined up decisions to improve quality of life and create stronger, more resilient cities.</p> <p>This proposal is for Challenge 2: An open-source platform to connect disparate datasets.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
More Associates Limited (lead)	Metricity	£91,396.50	£91,396.50
Project description (provided by applicants)			
<p>Metricity will deliver an evidence-based collaboration platform for cities that will use data to enable cities to easily understand how they use energy, reduce their costs and better direct energy efficiency interventions and policies.</p> <p>This energy challenge (Challenge area 1) project is a collaboration between More Associates (leading the project, who created and operate the CarbonCulture sustainability engagement platform), UCL Centre for Energy Epidemiology, Bartlett School of Graduate Studies and EDF Energy.</p> <p>The technical platform – built on top of the existing CarbonCulture platform – will enable the simple yet secure exchange of data (at varying scales, intervals and granularity) between cities, their suppliers and their citizens to enable urban-scale energy saving and create new value for UK business. By providing a core set of data and services, it will reduce the cost of energy saving actions and of measurement and evaluation of these actions, while catalysing new enterprises to develop, implement and accelerate the uptake of such actions for cities.</p> <p>In this feasibility stage this project will deliver a handful of representative modular research tools to be applied in cities. These tools will be developments of leading-edge research tools developed at the Bartlett School of Graduate Studies and the UCL Centre for Energy Epidemiology. The demonstration will enable our two pilot cities to evaluate future energy demand scenarios, and the platform interfaces will allow stakeholders to see city-wide demand on a zonal and individual building basis (initially from a small but representative sample of individual residential and commercial buildings).</p> <p>When the outcomes are fully developed, Metricity will offer cities a way to reduce the costs across a large number of contracts. For research</p>			

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institutions and energy saving businesses, it will offer a way to avoid the burden of low-value, repetitive work like data cleaning and system integration, enabling collaborations between suppliers, reducing transaction costs and allowing each of them to focus on their key value proposition.

Metricity has been conceived to remove a number of barriers that currently impede market interventions and research activity around energy saving in cities. These barriers impair collaboration and information sharing, and produce an unnecessary duplication of costs between market actors and sectors.

This is an exciting and valuable opportunity to demonstrate the feasibility of a system that could address some critical market failures and substantially accelerate energy saving innovation across multiple cities in the UK and around the world.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Nquiringminds Limited (lead)	Open City Data Platform (OCDP)	£99,772	£99,772
Project description (provided by applicants)			
<p>The Open City Data Platform is a fully autonomous, self sustaining open source project built upon robust pre-existing open source assets, legal frameworks and open source processes. The OCDP is a collaborative venture created for the direct benefit of cities themselves. As a non-profit venture, cities and local authorities will be the principle stakeholders controlling the organisation. The platform provides a single administration interface to allow multiple city/local authority employees to do the following:</p> <ul style="list-style-type: none"> - to publish static data over interoperable, easy-to-use JavaScript and HTTP APIs - to publish dynamic data, whether being issued by database or live IOT devices, over the same developer friendly APIs - to created, catalogue, and manage the lifecycle of these APIs from a simple-to-use administration interface - to managed the security settings of users, third-party applications and the APIs and services themselves - to expose this data not only to developers, but to end users through a simple visualisation dashboard and GUI-enabled data processing interface <p>This vision is realised through the following technical components:</p> <ul style="list-style-type: none"> - API portal for dynamic and static data: the principle interface for developers to discover and access APIs - Data and Service Access Toolkit (DSAT) and open source framework for creating, and sharing standalone adaptors to help authorities 			

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quickly integrate in new data sources, databases and devices on to the system and API enable

- Open City Data Management Platform: the core administration interface to allow authorities to manage users, permissions, APIs, visualisation, and also contains a third party application registry

- a Data Visualisation Toolkit: which provides open source visual drag and drop interfaces for not only creating sophisticated informative dashboards which consume APIs, but can also be used by non-technical users to define new data processing chains (essentially new applications and data mash-ups)

In addition the project is scoped to deliver simple demonstrator applications which will show how these components can be combined for different verticals: traffic, energy and environment. Also scoped for delivery are essential exploitation activities to assure that the Open Source City Framework is sustainable and addressing genuine city needs through consultation. Such an ambitious project is possible by basing it on existing Open Source Assets from the webinos project, which has received a 15 million euro investment. NquiringMinds leading the project is eminently qualified to deliver this project and importantly has a business model already totally compatible with and dependent on open source principles

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Oxford Brookes Enterprises Limited (lead)	COBWEB (COmmon Building energy platform on the WEB)	£100,000	£100,000
Project description (provided by applicants)			
The Cobweb project tackles challenge 1 of the competition which is about developing a data platform for (real time) power and heat usage with sufficient granularity to identify community trends and individual usage patterns in both domestic and commercial buildings.			

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Ricardo AEA Limited (lead)	Real time Energy Heat and Power platform (REHP)	£100,000	£100,000
Project description (provided by applicants)			
<p>The Ricardo-AEA real time energy heat and power platform will provide communities and authorities with the tool necessary to make informed decisions on energy and cost saving investments. By bringing together the community, including residents, associations, community groups, developers, utilities, landlords, commercial and industrial businesses, and the city and local authorities, the Ricardo-AEA platform will be at the forefront of local heat and power use issues. It will provide independent evidence for an informed dialogue on energy and cost saving opportunities.</p> <p>Based upon Ricardo-AEA's existing and proven technology, the new REHP platform will incentivise data sharing, target efficiency measures, and prioritise implementation of infrastructure and cost saving investments. Additionally, based on our extensive experience with air quality, transport and CHP data, our system will enable integration with other data sources in order to allow comprehensive assessment of opportunities. We will investigate the feasibility of integrating the energy platform to existing data sets, and our knowledge in air quality and transport will identify other trends and patterns at a local level that could result in additional benefits to local communities, authorities and key stakeholders. Our feasibility study, working in partnership with the identified city authority, will:</p> <ul style="list-style-type: none"> • Prove the ability of the Ricardo-AEA platform to incorporate real time heat and power use data • Confirm the feasibility of integrating existing data sets (e.g. Air Quality, Transport, CHP) • Establish the mechanisms for all stakeholder inputs and involvement 			

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- Identify energy use models that the platform is able to use to fill gaps in data
- Visualise the system outputs
- Prove the methodology for effective engagement with communities and stakeholders.

By working in partnership with the local and city authorities, and with all stakeholders, the Ricardo-AEA platform will help authorities to achieve, and to exceed, their energy efficiency obligations, as well as identify other trends and benefits from integration of energy and other non-energy data sets.

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Sustainable Environment Ltd (lead)	Small Vehicle Transport System (SVTS)	£100,000	£100,000
Project description (provided by applicants)			
<p>There is a need for a form of local public transport that is able to serve daily travel on those journeys, in suburbs and towns, for which we tend to mostly use our cars, and which can operate on a commercially sustainable basis without public sector subsidy. Sustainable Environment's 'Small Vehicle Transport System' (SVTS) is a radical re-imagination of the sector: with its 'systems-based' approach, it is increasingly being seen by key national players as having the scope to transform the way we each travel, and so unlock multiple policy benefits.</p> <p>SVTS operates wholly in response to demand at minimal notice, with neither routes nor timetables, for a cost similar to bus fares, and using high quality 8 passenger seat vehicles with professional drivers. It is specifically designed to be attractive to car users for the routine, functional, local journeys we each make, offering a car-like experience with equivalent flexibility, control and reliability of travel, at compatible levels of door-to-door travel time, marginal cost and comfort. By managing and tracking each personal journey, and separating this management from the operation of transport services, it enables the public sector to adopt efficient outcome-based 'payments-by-results' procurement whilst the private sector can commission journeys for their staff or customers.</p> <p>SVTS's innovation extends from ICT technology and system architecture to the associated business model. With a framework in line with Government strategy and EU competition requirements, it is designed to attract both existing industry 'players' and entrepreneurial start-ups. Launching in Milton Keynes (to be operated by our sister 'delivery' company, Simply Connect Ltd), SVTS is adopted policy at Milton Keynes Council, with strong interest from other forward-thinking local authorities. We have key industry players as development partners. It forms the 'transport on-demand' element of the Lutz programme being promoted by DfT and the Automotive Council.</p> <p>Independently verified modelling indicates that, operating in Milton Keynes with a fleet of about 400 vehicles, SVTS will capture 15% of the total</p>			

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motorised local transport market, with a 10+% modal shift from the private car, and a projected turnover of c£80M p.a. With potential to operate in c70% of the UK, SVTS is a highly and rapidly scalable transport-on-demand system, suitable for use by all residents, employees and visitors. The range of benefits extends from secure yet flexible job creation (c500 FTE in Milton Keynes); c7% traffic reduction with 5-20% carbon reduction across all local transport and commensurate reduction in need for expanded highway infrastructure; ensuring access at any time to all businesses, irrespective of parking limitations or the need for staff or customers to have a car.

Results of competition: SBRI - Future Cities solutions

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
TravelAI Limited (lead)	Citizens At The City's Heart (C.A.T.C.H.) On-demand mobility solution	£98,000	£98,000
Project description (provided by applicants)			
<p>TravelAI together with partners ELGIN, ITOWorld, and Placr will bring together industry leading TRL9 technologies to deliver a citizen- and business-centred journey planner and transport-usage data service that uniquely crowd sources multi-modal user data.</p> <p>CATCH puts the citizen at the heart of a data-led transport revolution, where changes in service provision can be tracked and optimised, and citizen movements help inform journey modelling and uniquely create the live data points. Furthermore it establishes a foundation on which to test and build new services and business models. CATCH benefits local economies, the environment, citizens, quality of life, and, in time, the cost of travel through improvements in capacity utilisation.</p> <p>CATCH provides a multi-modal door-to-door journey planner to help citizens make the most effective use of their cities' interconnected transport system. The journey planner will have particular features to aid the planning of journeys to and from business premises, such as the inclusion of a business directory and business-contributed information pertinent to travel to and from their premises. The usefulness of the journey planner will also provide the incentive for citizens to download the app and participate in the initiative by consenting to automatically submit their own data.</p> <p>This user data comprises their history of journey planner searches, their automatically generated transport usage logs and any manual contributions, such as locations of potholes, notifications of late-running services or sentiment on the quality of a particular transport service. The data will be automatically analysed to enhance it with meta data such as the categorisation of purpose (e.g. commute or shopping trip). The combined data of all participating citizens will provide local government, transport planners and operators with a rich dataset to better</p>			

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understand the interdependency of various modes of transport and inform more effective transport services.

It will also allow companies to understand travel to and from their premises so that they may be able to develop flexible working practices that take into consideration the needs of the business with the travel needs of employees and visitors.