

Welcome to the 8th City Update - a quarterly newsletter about project activity across the 'Scotland's 8th City - the Smart City' ERDF programme.

The programme's aim is to expand Smart City capabilities and deliver city priorities through improved community engagement, integration of service delivery and innovation. Collaboration is key to the programme, with all seven cities working to develop projects which are open, scalable, replicable, and interoperable.

The cities are also committed to knowledge exchange, sharing of experiences and learning, mutual support, and sharing of assets. This includes production of case studies, lessons learned logs, and project closure reports - as well as contributions to this newsletter.

Thanks to city representatives and project leads for contributions to this issue; thanks also to the Communications and Marketing Team at GCC Neighbourhoods and Sustainability for support with the layout and design of this issue.

The next 8th City Update (#14) will be out in January 2020. We want your feedback and contributions, ideas, and suggestions. Please send info to stephen.birrell@glasgow.gov.uk. Deadline for content - 6th December 2019.

Nicola McPhee Programme Manager,
8th City PMO



The 'Scotland's 8th City – the Smart City' ERDF Strategic Intervention is an ambitious programme of collaborative innovation across Scotland's cities of Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth, and Stirling. By working together, the seven cities have bought into a vision to make cities more attractive, liveable and resilient through data and digital technology.

The 8th City programme is being progressed via European Regional Development Fund (ERDF) grant of £24M, enhanced by Scottish cities match funding (including Scottish Cities Alliance 'Cities Investment Fund') of £34.1M to create a £58.1M programme of Smart City projects across all cities.



The 8th City programme currently comprises 45 projects across Scotland's seven cities. Of these, 26 are Phase 1 projects – running until December 2020 – and 15 are projects being delivered in Phase 2 (which was approved by the Managing Authority in July 2018 and is scheduled to run until September 2022). Ten of the 8th City Phase 1 projects are now complete and 16 are ongoing - with ten of these scheduled to complete by the end of this year. A number of Phase 2 projects have already commenced – although five are subject to Managing Authority approval. Project activity is grouped across a number of Smart City Operations, themed around areas such as Data, Smart Services (e.g. Energy, Mobility, Public Safety, and Waste), and Smart Infrastructure - including Intelligent Street Lighting (ISL), Water Management, and Internet of Things (IoT) initiatives.

For further information about these projects (including contact details for project leads) please contact the 8th City PMO at 8th_city_pmo@glasgow.gov.uk.

An overview and current status report follows for each Operation:

The Data 'Cluster' includes projects being delivered on a collaborative basis by six of Scotland's seven cities, with Edinburgh participating as an 'Observer City'.

The Operation is being progressed via four work packages:

WP1. Data Standards;

WP2. Data Publishing Platforms;

WP3. Data Analytics; and

WP4. Community Capacity Building.

The overall Operation is coordinated by the Data Cluster Steering Group which meets regularly to review progress, plan further activity, and share information and resources across the cities.

Since the start of 2019 this work has been supported by the Data Cluster Project Manager, Doug Young. Activity and progress during recent months includes:

- Ongoing engagement across a number of Scottish Government directorates in support of this work, including engagement with the Data Standards Scotland Network which is looking to carry out work on standardising how information is catalogued on Local Authority websites throughout Scotland. The Data Cluster has also recently contributed to a Data Standards Working Group, facilitated by the Open and Agile Smart Cities (OASC) network and the Future Cities Catapult.
- All of Scotland's cities now have open data platforms in place, with ERDF support for the Aberdeen, Dundee, Inverness, Perth, and Stirling platforms. Cities are now working on further updates to the data platforms, as well as promoting access and use; currently there are 456 datasets available across the different platforms.
- Engagement with the Digital Office and the Open Data Initiative (ODI) regarding the delivery of event(s) in Scotland, early 2020, to support better use of data.
- As part of Glasgow's data analytics work for Work Package 3, a toolkit has been developed, providing a step-by-step guide on how to use a design led approach for problem solving. The toolkit also provides examples of the data analytics projects delivered by the Glasgow team. The toolbox is available at www.designfordata.org.



4 | SMART SERVICES – ENERGY:

This Operation initially included projects in Aberdeen and Stirling, although the Aberdeen project is under review and may be withdrawn from the programme.

The Stirling Smart Energy project was completed recently. This project has developed a smart energy communication system within 30 Stirling Council buildings to monitor energy consumption – with the potential to generate significant benefits to the Council in terms of reduced energy consumption and costs. A Case Study was produced in 2018 for sharing with 8th City partners and stakeholders and a Project Closure Report is currently being produced.

SMART SERVICES – MOBILITY:

This Operation creates an integrated and replicable framework of solutions to open up data and deliver innovative services to make shared mobility cost effective and convenient. By providing a sustainable alternative to private transport, it aims to encourage a modal shift to low carbon travel, reducing carbon emissions and making the cities more sustainable. Dundee, Inverness, and Stirling are delivering projects for this Operation.

Dundee: ERDF is supporting a number of ShareMORE (Shared Mobility and Resource Efficiency) projects being delivered via the Dundee MILL (Mobility Innovation Living Lab). ShareMORE projects include a focus on:

- Advanced mobility services for the public;
- Advanced fleet services;
- Advanced parking services;
- Smart Mobility Platform; and
- Public eBike hire scheme (this project is not funded via ERDF).

The MILL approach involves:

- Co-Creating (Developing user-led solutions that meet real needs and support positive behavioural changes);
- Testing (Providing access to infrastructure, data and end-users to

- pilot new products and services); and
- Scaling (Support in accessing funding and finding routes to market nationally and globally).

See <https://themill.scot/> for more information

Inverness is working on a scalable and flexible wireless mesh infrastructure to form the backbone for future digital city services - and, in particular, for Intelligent Transport Systems (ITS). Improvements are also being made to software and infrastructure to enable communication of live information across different transport modes. Work will continue until December 2020 across the different elements of the Inverness Smart Mobility initiative.

Stirling: This project sought to improve and expand Stirling Council's current transport monitoring network. This resulted in procuring a journey-time monitoring system and expanding cyclist monitoring with the addition of pedestrian counters. The project was completed at the end of 2018 and, to support the sharing of learning, has delivered a case study and a Project Closure Report.

Dundee, Edinburgh, Glasgow, Inverness, Perth, and Stirling are delivering projects for this Operation, which supports collaboration to improve and enhance delivery of waste management services. Project activity in recent months has included:

Dundee – Smart Street Scene has deployed a mix of smart technology and data sharing processes through sensors in bins, solar powered compactor bins, and operator handsets. The project approach was outlined in an 8th City case study, available for wider sharing. This project is now complete and a Project Closure Report is being produced.

Edinburgh Smart Waste seeks to expand litter bin sensor deployment following on from an initial small-scale trial. The project is scheduled to continue until June 2020.

Glasgow delivered a one-year demonstrator project involving smart bin technology via roll-out of new litter bins and sensors in pilot areas across the city. This project is now complete and a Project Closure Report is being produced.

Inverness Smart Waste project utilises route optimisation software to enable The Highland Council to progress an intelligent, data-driven approach to waste collection. Work is ongoing to procure route optimisation software and associated ICT equipment. This project is scheduled to continue until December 2020.

Perth has deployed smart technology in the waste management process to enhance the collection of waste and recycling through improved monitoring and sharing of data and information. The project also enables the integration of FlyMapper phone application with Perth & Kinross Council's Total Mobile solution to record fly-tipping incidents and contribute to a national database. This project is now complete and a Project Closure Report is being produced.

Stirling has implemented 30 smart litter bins around the city centre. With installation complete and data being monitored, this project has ended and a Project Closure Report has been produced.



6 | SMART COMMUNITIES – MOBILE WORKING:

Mobile Working projects aim to maximise the efficiency of staff working in the field by:

- Making better use of technology to create a flexible workforce;
- Providing the information they need direct to them in the field; and
- Providing real time information back to the back office system.

Glasgow and **Perth** are working on projects for this Operation. The Glasgow Mobile Working project has delivered eight Apps to support Environmental and/or Social Care services (including: Core Bulk Uplift; Streetscene Observations; Data Collector Apps; Devices for Smart Bins; Transport and Support Services; and Homecare Overtime) - with a further seven Apps in development. Project outcomes to date include:

- Improved service delivery: reduced staff travel time; higher productivity – with more capacity to stay working out in the field; increased employee and customer satisfaction; and reduction in customer complaints.
- Improved response times: 90% of Bulk Uplift requests completed within 10 days rather than 28 days; also, the number of requests outstanding has been reduced by 90% - resulting in a 60% reduction in complaints.
- Release capacity and resource management: The transport application has released capacity by 20%, providing opportunities to reallocate resources.

- Reduced administration: Reduction in the need to produce and process printed material has led to reduced administrative costs, reduced carbon emission, and reduced carbon footprint.
- Data accessibility: Data captured via the Apps provides service visibility for review, management information, and identification of further service improvements.
- Lone worker safety: Improved communications and the ability to identify staff locations (and issue alerts when planned communication is not received) has made 2,700 home carers safer.

Both Glasgow and Perth have shared information on their approaches to mobile working, including hosting show and tell events for wider stakeholders. Glasgow has also produced a Business Engagement Toolkit providing a detailed overview of project processes and development.





Intelligent Street lighting (ISL) combines LED lamps with a Central Management System, supported by wireless communication networks. Public street lighting can adapt to movement by pedestrians, cyclists and cars - dimming when no activity is detected, and brightening when movement is detected. Use of LED lighting and Central Management System (CMS) further enhances low carbon and energy efficiency aspects of ISL - with energy savings in the region of 70% anticipated.

This Operation has delivered ISL projects in **Aberdeen, Glasgow, and Perth** -with Aberdeen also delivering the Digital Data Deployment (DDD) smart infrastructure project using sensors on strategic transport routes.

These projects are either complete or very near completion; Glasgow has secured ERDF funding for further expansion of its ISL network as part of Phase 2 of the 8th City programme.





This project is being delivered by **Glasgow** and has two components.

The development of smart systems to manage in real time the surface level of the Glasgow branch of the Forth & Clyde Canal including responding to weather conditions, in particular storm forecasts.

The deployment of cameras and sensors to provide early warning of blockages during storms to enable responses to mitigate the impact of flooding.

Now dubbed ‘Europe’s first smart canal’ the project has featured in a number of publications, with reference made to an estimated 110 hectares of previously unusable land now made available for development as a result of the Smart Canal creating a fully functioning drainage system which is able to dynamically respond to an ever-changing climate.

Scottish Canals state that this allows the equivalent of 22 Olympic swimming pools (55,000m³) worth of additional water storage capacity - created at a substantially lower cost than traditional methods of onsite drainage.

The Centre of Expertise for Waters also states that the Smart Canal will provide a variety of regenerative benefits to North Glasgow, from economic growth to environmental improvement. Work on the Smart Canal project is now scheduled to take place for the rest of 2019.



Glasgow is the lead partner for Work Package 3 (Data Analytics), part of the 'Data Cluster' of Scottish cities delivering data-led projects within the ERDF 8th City Smart City Programme.

The Data Analytics project has developed a range of skills, methods, processes and tools to support data analytics and how it is used to help to address specific challenges within cities. Analytics approaches generate new insight through data, which in turn helps to improve the efficiency and effectiveness of service delivery and delivering better outcomes.

From 2016 to 2019, the Glasgow Data Analytics project delivered 4 new Innovative Services and released almost 30 new open data sets for innovation. This innovation included the delivery of a 'data matching' project that increased the incomes of thousands of residents and a 'data visualisation' project that opened up better access to and understanding of a wide range of Council data.

The project has focused on developing and applying both a 'design led' approach to problem solving Council and city challenges, alongside the better use of data and the introduction of data science techniques. The project has also focused on making data more discoverable and useable both internally to the organisation and externally as open data.

A further focus has been to use innovative tools, techniques and technologies to engage, involve and empower stakeholders and citizens in the use and creation of city data.

Since the inception of the project, the team have developed in detail its design led approach to problem solving through data, and the team has also introduced a 'Design with Data' brand.

A toolkit has been developed, available at www.designfordata.org, which provides a detailed step by step guide around how to use a design led approach for problem solving. The toolkit also provides examples of the data analytics projects delivered by the Glasgow team.

The Glasgow Data Analytics project has been extended for a further 3 years to 2022 and will further develop the application of data analytics capabilities at a City scale with a focus on collaboration and partnership working.

It will provide opportunities to test more advanced analytical capabilities, including predictive modelling; and harness the potential of data by opening up access to a wider range of data sources, including 'open source' held by city partners and academic institutions to deliver scalable solutions and build capacity City wide.

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Glasgow: a city powered by data





Earlier this year the 8th City PMO was contacted by the Smart-Space Interreg North West Europe project which is investigating the set-up of pilot sites for a smart lighting system, including use cases and requirements.

The Smart-Space project aims to facilitate the uptake of smart lighting in small/ mid-size municipalities to enhance energy efficiency and reduce CO2 emission. Smart-Space is supported via the TU/e Intelligent Lighting Institute (ILI) of the Eindhoven University of Technology and involves the cities of Oostend (Belgium), Middelburg (Netherlands) and Tipperary (Eire).

Smart Space project leads offered to introduce a Scottish city as a 'Follower City' to the project – with the benefit of free access to the Smart Space Knowledge centre, where expertise and good practice is available in an online collaborative platform (powered by LUCI Association), as well as facilitated workshops.

Inverness was able to accept the Smart Space offer and in recent months officers have participated in 'deep dive' workshops, discussion, and other information sharing. This has supported the further development of the Inverness 'Smart Infrastructure' project which is being delivered as part of Phase 2 of the 8th City programme.

Brian Robertson, Smart Cities Co-ordinator - The Highland Council, was positive about this engagement: "The workshop was great as it really helped our team solidify many of the ideas they had for the project - the act of physically mapping out where potential use cases were most relevant throughout the city was beneficial in helping to provide a structure to the project, and was something the lighting team found quite useful. We all look forward to contributing to the project further."

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The CENSIS website (www.censis.org.uk) states that Internet of Things (IoT) technologies are a game-changer, allowing companies to create new products and services or implement cost and time-saving efficiencies using data and insights gathered in real-time. Environmental, health and social care IoT applications will also have positive impacts on society.

The availability and low price of sensors, coupled with major leaps in data storage and computing capabilities, means that the time is right for businesses to embrace the major improvements, new opportunities and cost savings that IoT offers.

CENSIS has produced a guide to firstly explain what IoT is, then help you navigate the implementation of IoT in your business or organisation.

Read or download your copy of 'Getting started with IoT: exploring IoT for business growth'



Getting started with IoT

Exploring IoT (Internet of Things) for business growth



censis.org.uk

Other IoT related news includes:

- The launch in early 2019 of IoT Scotland – a private-public sector partnership which has committed to building the UK's 'most advanced' IoT infrastructure in Scotland's cities. The £6m network, based on 500 LoRa (long range) wireless gateways situated throughout Scotland, is part funded by Scottish Government, with further support from Scottish Enterprise, Highland and Islands Enterprise (HIE), and Boston Networks. The recently-announced Glasgow roll out will provide the city with over 99% coverage via 22 gateways, which are being installed – making it the most LoRa covered city in the UK.
- In July 2019 new supplier framework was launched by the Scottish Government's procurement and commercial directorate. The new Dynamic Purchasing System (DPS) is intended to build a network of suppliers for Internet of Things (IoT) products and services, linked to a growing demand among public sector bodies. The DPS joins three other tech-focused supplier frameworks within Scottish Government.

Principles for community empowerment



Audit Scotland, working with a Community Empowerment Advisory Group (CEAG), has just produced a 'Principles for Community Empowerment' report. The CEAG was set up under the direction of the Strategic Scrutiny Group (SSG), which brings together Scotland's main public-sector scrutiny bodies.

The report may be of interest to 8th City partners given the programme's ongoing commitment to community and stakeholder engagement across all projects and at all stages of the project delivery cycle. Although not community engagement per se, greater community empowerment should mean that cities are able to meet the needs of the people who live in them, making them more sustainable - a core element of the Smart City ethos.

The report notes that the World Health Organisation describes community empowerment as: 'the process of enabling communities to increase control over their lives'. Similarly, the Scottish Government defines community empowerment as: 'a

process where people work together to make change happen in their communities by having more power and influence over what matters to them'.

The report offers:

- an overview of what we mean by community empowerment;
- summarises the benefits for communities and public bodies of doing community empowerment well and some of the risks associated with it;
- outlines principles to promote a shared understanding across scrutiny bodies and to help public bodies make the most of the opportunities; and
- highlights some good practice examples of what is already happening across Scotland.

Report available at:

www.audit-scotland.gov.uk/uploads/docs/report/2019/briefing_190725_community_empowerment.pdf

The European Commission has recently launched the Digital Social Innovation (DSI) ideas bank.

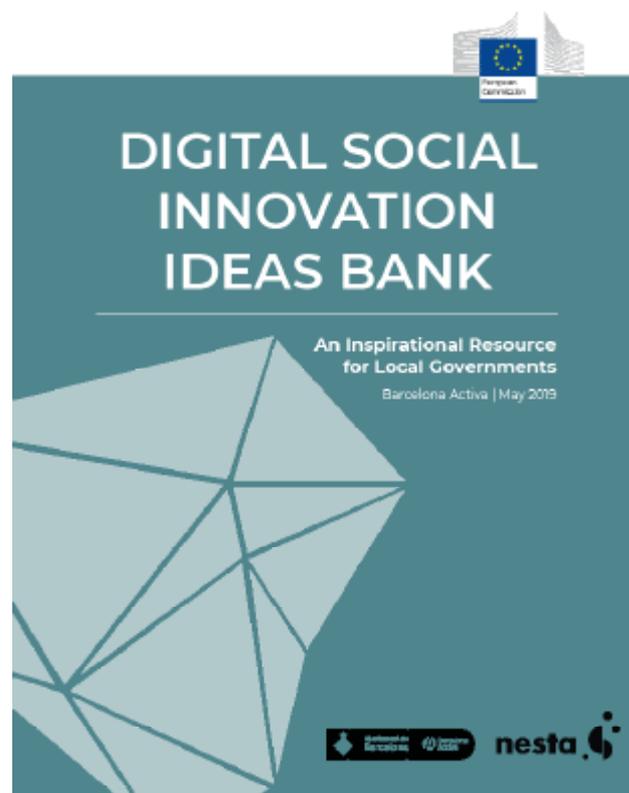
Described as ‘An Inspirational Resource for Local Governments’ this presents international examples of digital social innovation under the following themes:

- Cross-sector collaboration - including networking and city alliances;
- Skills - open data courses for citizens, government innovation labs (e.g. CivTech Scotland), incubators for digital social projects, digital education;
- Infrastructure - community-led open digital networks, local open data portals, city office of data analytics, open source software for city council digital services, mechanisms for ethical open data ecosystems;
- Diversity and inclusion - including online citizen participation platforms, participatory ecosystem-mapping, collaborative policymaking;
- Civil society – including government transparency and accountability, and online platforms for Freedom of Information; and
- Funding – including grants and social impact investment public procurement.

The DSI ideas bank also includes descriptions of policies, programmes or actions that could be implemented to support DSI in any given city and provides case studies for each policy idea.

The DSI ideas bank report was written by Nesta and Barcelona Activa and is available at:

<https://digitalsocial.eu/images/upload/86-DSI-Ideas-Bank.pdf>



Digital Catapult and Connected Places Catapult recently published a 'Recommendations Report' around Electric Vehicles. This looks at vehicles, the charging and road infrastructure, and (of interest to 8th City programme partners), the data. This includes noting the gaps in the data available and the need for standard APIs.

Report available at https://s3-eu-west-1.amazonaws.com/media.cp.catapult/wp-content/uploads/2019/07/17145222/00897_Electric-Vehicles-Report_V4_reduced.pdf

MEETING CITY CHALLENGES PROGRAMME

The logo for the Meeting City Challenges programme. It features a green banner with the text 'Smart Cities UK' in small white letters at the top left, and 'MEETING CITY CHALLENGES' in large, bold, white capital letters below it. To the right of the banner is a stylized pink silhouette of a person walking a dog.

The Meeting City Challenges programme intends to unlock regional-wide barriers to economic & social growth within the UK via the role of innovation. With roadshows taking place in 2019 & 2020 these events will bring together Cities & Town leaders to discuss their social and economic challenges.

Each Roadshow will provide CPD accredited learning via a workshop environment in which leads can share best-practice, solutions, guidance and support to overcome some of the common challenges facing local authorities. Through a collaborative approach, the programme will benchmark regional impact to date allowing us to illustrate what a nationwide approach to smart cities can look like.

The one day Roadshows will provide a range of benefits including:

- Identifying suitable pathways to meet your city challenges.
- Unlocking procurement to enable progress on driving innovation where available and useful via Crown Commercial Services.
- Sharing best practices and learning what worked and what didn't between cities & towns regionally to drive collaboration and share resources.
- The role technologies can play within a pathway.
- How you can engage with citizens effectively.
- The Scotland Roadshow takes place on November 21st in Perth.

Registration and further details at:
www.smartcityuk.com/roadshow-meeting-city-challenge

With support via the 8th City ERDF programme, The Highland Council are in the process of installing real-time, IoT-based water quality monitoring solution. The solution is a vast improvement on previous methods, and provides a much more granular data output, with alarms and notifications when certain thresholds are exceeded.

The solution is the first of its kind, and as such has received significant attention from a number of public bodies, educational institutions and professional bodies – all who have a view of adopting the solution for their own requirements, given the proven carbon and financial savings generated from the solution, as well as the opportunity to generate significant amounts of useful, reusable data.

Further updates will be provided as the project is delivered as part of a portfolio of Smart Infrastructure / IoT projects in Inverness / The Highland Council.

GLASGOW CITY COUNCIL APPOINTS ITS FIRST CITY URBANIST

This new role will see Professor Brian Evans - a professor in Urbanism and Landscape at The Glasgow School of Art's Mackintosh School of Architecture, and one of the UK's leading urbanists - work with councillors, officers, the design community, and city partners and stakeholders to enhance Glasgow's approach to place-making and connectivity.

Professor Evans will work with politicians and senior officers to develop and embed an approach to 'place quality' in all of the plans and strategies that are implemented by Glasgow City Council -

including housing, business, environment, transport and place connectivity.

The City Urbanist will galvanise resources that already exist and connect activity across the council family and the design community, in all functions that affect 'liveability' in Glasgow, to provide an overarching narrative and get the best out of the key place-making policy in the City Development Plan.