8th | CITY UPDATE

February 2023
UPDATE #25

Welcome to the **8th City Update** newsletter #25. This issue covers programme activity during the period from November 2022 to January 2023.

In this issue we highlight the successful launch of the Edinburgh City Operations Centre and hear about the difference that Smart City investment, including ERDF, is making to city infrastructure management.

In further developing smart city, or connected places, initiatives we need to ensure that new infrastructure is robust, secure, and resilient to cyber security challenges. The 8th City programme has established good links with agencies such as the National Cyber Security Centre and DCMS. More recent engagement with the PETRAS National Centre of Excellence for IoT Systems Cybersecurity highlights further opportunities for 8th City programme partners – see article on page 4.

Projects funded via Phase 2 of the 8th City programme are well on the way for completion by the end of June. We look forward to sharing further updates on delivery – including case studies, lessons learned, stakeholder engagement, and achievement of outcomes and benefits.

The multi award-winning Glasgow Smart Canal project, delivered during Phase 1 of the programme, is the featured case study in this newsletter. This and other case studies are now posted on the BABLE smart cities innovation platform, with further case studies to be posted.

Thanks again to all programme partners and stakeholders engaged in delivering 8th City project activity.

Nicola McPhee, Programme Manager

ERDF 2014-20 Operational Programme

Strategic Intervention: Scotland's 8th City - the Smart City

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02 | EDINBURGH UNVEILS SMART CITY OPERATIONS CENTRE

Delivered as part of the 'Scotland's 8th City – the Smart City' ERDF programme, Edinburgh's new city operations centre was unveiled on 1st December last year.

Harnessing the latest technology to keep traffic and people moving, the state-of-the-art facility uses real-time data to monitor congestion and alleviate pinch points for wheeled vehicles and pedestrians across the capital.

It will also serve up insights into how city planners can reduce carbon emissions, as well as how to manage major events more effectively and aid emergency first responders.

The multi-screened room, which gives operators micro-level detail from CCTV cameras arrayed across the city, has been delivered in partnership with IT service and solutions provider North as part of a £2.6m contract, funded by City of Edinburgh Council and the European Regional Development Fund (ERDF) 2014-2020 programme which contributed £712k in grant funding towards the project.

The new operations centre will be staffed and receive real-time data from the CCTV network 24/7. This will integrate other technologies which will help to improve traffic flow, transport infrastructure and city planning – improving the city's collective carbon footprint.

Given the accessibility to real-time data, advanced analytics will help the council and partners respond to emergencies and manage large-scale events such as Edinburgh's Hogmanay and August Festivals.

The data is captured by a new CCTV system rolled out across the city which is significantly expanding security coverage. This has included upgrading the city's digital Video Surveillance System (VSS), enhancing video analytic function and data protection capabilities, and replacing analogue cameras with high-resolution Internet Protocol (IP) devices.

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City of Edinburgh Council Leader Cammy Day said:

> *"This new operations centre has been years in the making and it's fantastic to see it live in action. With cutting-edge low-carbon technology designed to keep the city moving and our communities safe, it drastically steps up our capabilities as a council.*

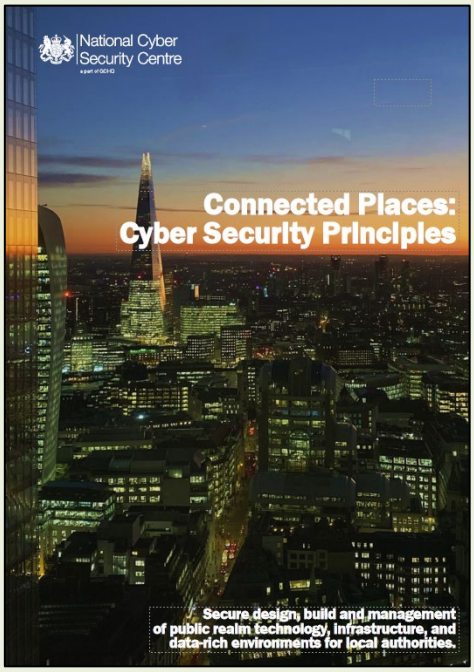
EDINBVRGH
THE CITY OF EDINBURGH COUNCIL

Miranda Matoshi, Council Officer, demonstrates the new operations centre for Council Leader Cammy Day.

> *"We've completely overhauled the technology we use within the control centre and across the city – replacing outdated analogue cameras with intelligent internet-enabled devices. This means we can analyse events and traffic in real time. Particularly as our city grows, our investment will support the safety of the public and wider community, deterring and preventing anti-social behaviour and crime.*
>
> *"Edinburgh is fast becoming an example of a truly smart city and its thanks to trailblazing projects like this. We're also rolling out waste and housing sensors, innovative digital learning opportunities in schools, while exploring an urban traffic management control system which is a tool for monitoring traffic flow. The whole operation is much more sustainable and data driven which, crucially, is going to lead to more efficient Council services for the people of Edinburgh."*

In addition to this new City Operations Centre and enhanced city operations capability via CCTV and video analytics, the City of Edinburgh Council is delivering other 8th City projects on Driving Operational Efficiency and Intelligent Infrastructure. These projects will be featured in a future issue of the **8th City Update**.

8th City programme engagement with the National Cyber Security Centre (NCSC) and DCMS led to inputs to Scottish cities, in May 2022, on the NCSC Connected Places: Cyber Security Principles publication and good practice guide.



Since then, further links have been made with key agencies delivering information, policy guidance, and support in relation to IoT, cyber security, and connected places. Late last year, the 8th City PMO began discussions around programme engagement with the PETRAS National Centre of Excellence for IoT Systems Cybersecurity.

PETRAS Research Fellow, Joe Bourne, outlines below some of the areas of activity undertaken by PETRAS and highlights the potential for 8th City programme partners and stakeholders to engage.

> The PETRAS National Centre of Excellence exists to ensure that technological advances in the Internet of Things (IoT) are developed and applied in consumer and business contexts, safely and securely. We do this by considering social and technical issues relating to the cybersecurity of IoT devices, systems and networks. We are a consortium of 23 research institutions and the world's largest socio-technical research centre focused on the future implementation of the IoT.
>
> We continue to expand our work in the connected places and smart cities landscape: gathering examples of best practice; informing local and national policy; and disseminating our cutting edge research to ensure cities are resilient, secure and trustworthy. Specific activities and outputs which may be of interest to the Scottish Cities Alliance include:
>
> - Workshop – In mid-March, in association with SOCITM and LGA, PETRAS will host a workshop with top academic experts from UK universities to identify commonalities in challenges faced by local authorities in the field of cybersecurity and the need to achieve Net Zero and the opportunities that association with research experts can bring, defining a future research agenda suited to needs on the ground.
>
> - Our project 'Participatory Policies for IoT (at the Edge) Ethics' (P-PITEE) has created a tool to help organisations think through how to use IoT sensors in public spaces. By using this toolkit you can discover what information is available about the deployment, have the answers handy in one place, discover areas where you might not know the answers right now, and consider where you might need to seek additional information. The toolkit is available in a range of formats to suit your needs. The toolkit can be downloaded here: https://www.lancaster.ac.uk/trustlens/

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- At The Edge Podcast – Our last podcast series had two episodes focussed on smart cities and net zero: 'Carbon footprints on smart pavements' explores the sustainable, and unsustainable, behaviours smart cities encourage and the way connected places affect the everyday experiences of those who work and live in them; 'From concrete jungles to sensing saviour' is a more academic exploration of cities as 'machines for living' through the lenses of technical innovations, IoT privacy and cybernetics. Keep an eye out for our next series dedicated to the theme of connected places this Spring.

- Industry Briefing – members of the Scottish Cities Alliance may find our industry briefings a useful introduction to our research relevant to connected places, in particular those on 'ambient environments', 'critical infrastructure', and 'transport and mobility'.

- Taking IoT For A Walk – Train the trainer workshops which allow local authorities to consult colleagues across the organisation and with local residents about their perceptions, understanding, anticipation and trust of IoT in public spaces. Based on the impactful research on participatory IoT deployment policy design, these walking workshops are now rolling out across the UK and we are keen to deliver it in Scotland in late 2023 or 2024. To express an interest in Taking IoT for a walk please contact PETRAS Research Fellow Joe Bourne

DCMS Survey Reveals Large Demand for Connected Places Technologies

The Department for Digital, Culture, Media and Sport has published the results of a survey into the status of the UK's connected places (or 'smart cities') which reveals a large demand for connected places technologies. However, barriers include funding, capacity and skills concerns.

18 of Scotland's 32 local authorities responded to the survey.

Conducted over the summer, the survey details how organisations such as local authorities are using connected places technologies and how they plan to do so in the future. It also explores the drivers behind the deployment of connected places technologies, how they are governed, and trends in approaches to cyber security.


Surveying UK Connected Places
DCMS

Department for Digital, Culture, Media & Sport

Surveying UK Connected Places

Final report
September 2022

The report is at https://www.gov.uk/government/publications/uk-connected-places-survey

Scottish cities have been engaged in collaborative work with Scottish Innovation Centres via a Slack channel facilitated by the Scottish Cities Alliance (SCA) and the Built Environment – Smarter Buildings (BE-ST) Innovation Centre.

The channel has proved to be a useful engagement and information sharing resource, with almost sixty members now active on the platform.

Looking back at activity over the past few months, Kirsty Duncan, Impact Manager (Digital) at BE-ST, highlights the following:

> *"Lots of challenges were identified and explored. Moving forward we want to choose specific areas of focus which we can set achievable targets around.*
>
> *The aim is for cities and Innovation Centres to work better together to create a shared ecosystem enabling city challenges and opportunities) to be addressed and sustained via Innovation Centre involvement and expertise. This partnership working will enhance the capabilities of cities to respond to economic, environmental, and social challenges.*

Kirsty also notes that

> *"It has been great having the opportunity to collaborate with the Scottish Cities Alliance, Scottish cities, and Scottish Innovation Centres. It's clear there is a lot of impactful work happening and it has been helpful to map this out and see areas of cross over and explore opportunities. We have a slack channel where useful information and opportunities are shared, and we continue to ask people to use it regularly.*
>
> *"In 2023 we are looking to have a more targeted approach and will kick start this with a workshop planned for March. We will aim to choose 3-4 challenges to manage for the year and work collectively to overcome them. We encourage further collaboration and welcome all to share opportunities and look forward to continuing to work together."*

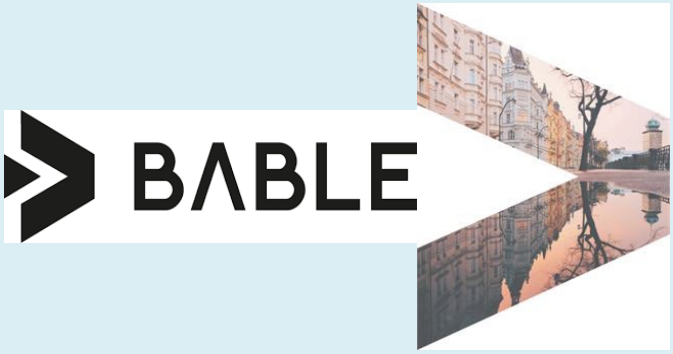
To find out more about this partnership work, access to the Slack channel, and plans for the March event to bring together city representatives and Innovation Centres partners please contact Kirsty at kduncan@be-st.build.

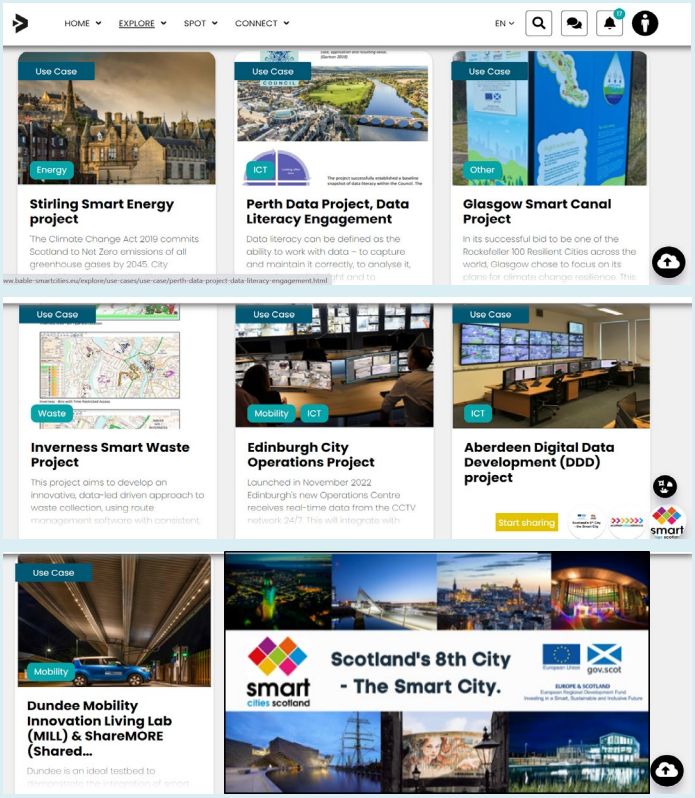
07 | 8TH CITY PROGRAMME – SHARING THE LEARNING

As part of the 8th City programme partners are committed to the sharing of assets, information, and learning to enable other cities and local authorities to utilise knowledge arising from ERDF-funded project development and delivery. Much of this sharing activity is supported via the production of case studies and project blogs – many available on the Scottish Cities Alliance website.

8th City project case studies have also been featured in the following publications and initiatives:

- DataFest 2020
- Institute of Civil Engineers (Scotland) annual report 2020
- Council of Europe Congress of Local and Regional Authorities
- SOCITM website
- Local Government Information Unit
- 2014-2020 ESIF Programmes in Scotland - annual reports.





Case studies and project documentation - such as project closure reports, lessons learned logs, and stakeholder engagement plans - are also shared amongst project partners via the 8th City network forum on the Knowledge Hub platform (restricted to programme partners only).

The 8th City programme is now actively engaged with the BABLE smart cities innovation platform; this is free-to-join and use and hosts a wide variety of smart city case studies submitted by cities across Europe.

The 8th City programme is featured, under the project heading of 'Scotland's 8th City – the Smart City ERDF Programme' Smart Cities Scotland. Eight case studies are now live – one for each city engaged with the 8th City programme plus an over-arching case study looking at programme development, collaboration, and governance. Further case studies will be added ongoing. For more information about the BABLE case studies please contact stephen.birrell@glasgow.gov.uk.

08 | 8TH CITY CASE STUDY: GLASGOW SMART CANAL (BABLE PLATFORM INFO)

The Glasgow Smart Canal was part of the initial group of 8th City programme case studies hosted on the BABLE Smart Cities Innovation Platform and is summarised below:

Name: Glasgow Smart Canal

Scale of Project: City Level / **Implementation Year:** 2021

End Users: The Metropolitan Glasgow Strategic Drainage Partnership (MGSDP)

Service providers: Glasgow City Council / Scottish Canals / Scottish Water

What challenge(s) does the Use Case address?

In its successful bid to be one of the Rockefeller 100 Resilient Cities across the world, Glasgow chose to focus on its plans for climate change resilience. This especially relates to increased rainfall and flooding, which are predicted local outcomes of global warming for the city-region.

Historically, a significant area of North Glasgow has been at risk of surface water flooding, limiting development potential across the area and creating substantial amounts of vacant and derelict land. With local sewer systems at capacity, no natural watercourse in the area and climate change likely to increase the frequency and intensity of adverse weather events, a different approach to removing excess surface water was required.

How did you Solve the challenge?

After a decade of planning, the solution has been the Glasgow 'Smart Canal' Scheme, relying on sensors and predictive weather technology to dynamically manage water levels along the Forth & Clyde Canal allowing it to become a drainage route for excess surface water during high rainfall. With early warning of wet weather, the water level in the canal can be lowered by up to 100 mm, isolating the North Glasgow section and moving excess water into the River Kelvin.

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How were citizens involved in development?

This project was delivered as part of the 'Scotland's 8th City - the Smart City' ERDF programme. All cities involved are committed to 'community and citizen stakeholder engagement' as an additional programme output - with engagement required pre-, during, and post-project delivery.

For this project, the following stakeholder engagement was noted:

Pre (Design): MGSDP Partners (Scottish Canals, Scottish Water, SEPA), Glasgow City Council, Local community via the Woodside, Firhill & Hamiltonhill Development Framework 'What Floats Your Boat' design charrette.

During (Implementation): Media event to mark formal signing of Drainage Partnership Agreement; Planner magazine article; Idox online article; Hydro Nation Annual Report; Institution of Civil Engineers case study; UK and Scottish Government City Deal delegation site visit on 18/09/19; Croatian Smart Cities delegation site visit 25/09/19; and Eurosite site visit co-ordinated by Scottish National Heritage on 02/10/19 including Dutch delegation.

Post (Completion): The Smart Canal project is a winner of the following industry awards:

* 'Initiative of the Year' plus 'Industry Transformation and Innovation Champions' - British Construction Industry Awards;

* 'Greatest Contribution to Scotland' - Scottish Civil Engineering Awards - organised jointly by CECA Scotland and ICE Scotland;

* 'Best Innovation/Demand Management Initiative' - APSE Public Service Excellence Awards;

* 'Sustainable Drainage & Flood Management Initiative of the Year' - Water Industry Awards.

* 'Sustainability and Climate Change' category at the E&T Innovation Awards 2021.

The project was also runner-up at the Institute of Water (Scotland) Innovation and Digital Leaders 100 Awards.

The Smart Canal was showcased at a COP26 event titled "Re-imagining 18th century infrastructure to address flood risk, stimulate investment & tackle health inequalities" on 10/11/21 at Scotland's Climate Ambition Zone.

Smart Canal presentations to the APSE Scotland Parks, Grounds & Streets advisory group meeting on 25/11/21 and Road Expo 2021 on 02/12/21.

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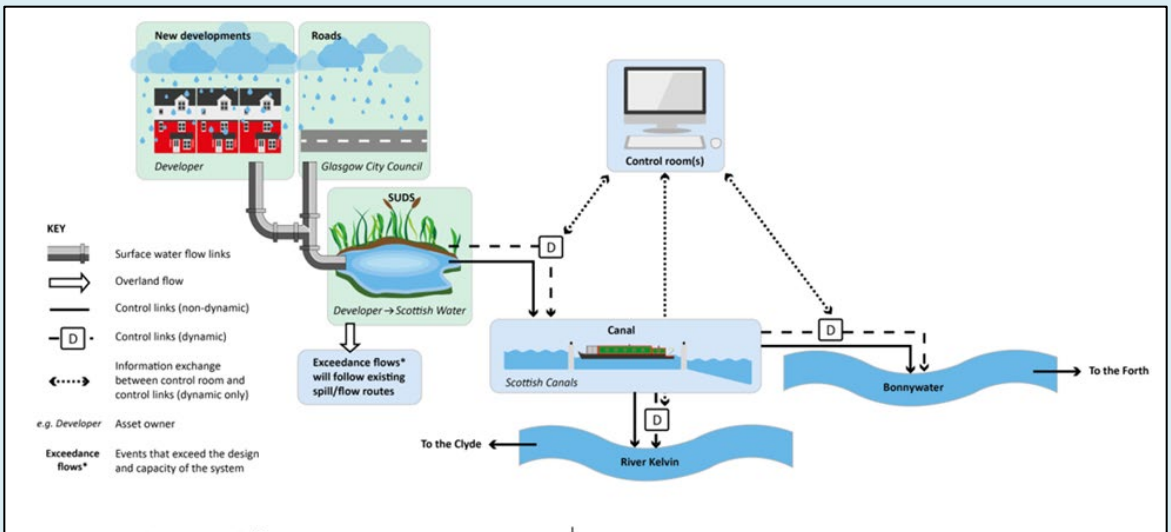
What was included in this investment?

The 'Smart Canal' term covers predictive analytics, sensors, control weirs (n.5), monitoring systems (n.18), and Control Hub housing the live hydraulic model and SCADA interface. This in turn feeds an extensive array of civil and structural engineering elements delivered to manage water levels along this stretch of the canal.



Smart Canal Control / Operation System Diagram

Supporting Factors:

Glasgow's involvement in the 8th City / Smart City ERDF programme enabled access to an information and support network of seven cities (Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth, and Stirling). This included support for project initiation, delivery, monitoring, and reporting – with guidance and template documents made available via the 8th City Programme Assurance Framework. Similarly, the project benefitted from being part of The Metropolitan Glasgow Strategic Drainage Partnership.

Lessons learned and Advice to other cities for replication:

In a smart infrastructure project such as this there were undoubtedly many lessons learned in relation to planning, developing, and delivering resources and activity to ensure successful completion. However, three key areas are worth highlighting:

Perseverance: A positive lesson learnt was perseverance in sticking with your vision to bring the project to fruition even when the pre-construction phase got bogged down in negotiations around the sharing of risks and costs. If delivering a similar project, an 'internal' and parallel programme should be developed that provides a longer window to agree the allocation of risks and costs between partners as the effort and time required to enable organisations with differing statutory obligations to work collaboratively was underestimated. This 'internal' programme would still allow the formal project programme to identify challenging milestone dates by which partner agreements were expected to be reached as often a deadline helps to focus minds and get decisions made.

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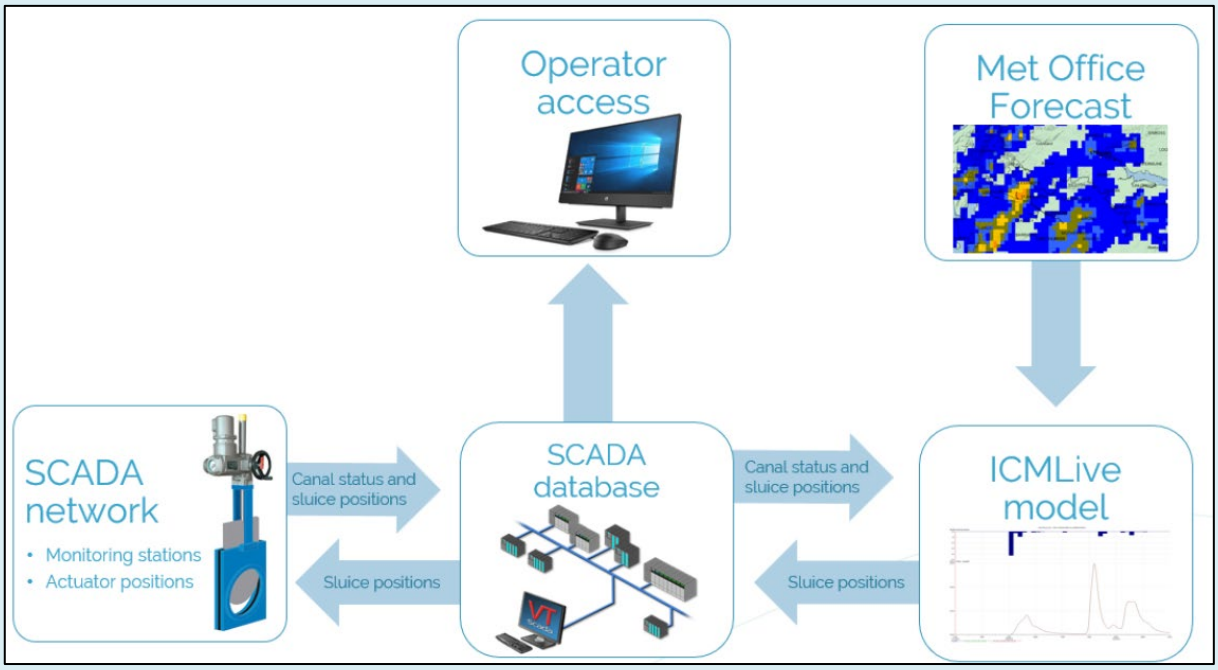
Partner Relationships: The established partner relationships that we in place at the start of the project through the Metropolitan Glasgow Strategic Drainage Partnership (MGSDP) provided the platform for the successful negotiation of the 60-year Drainage Partnership Agreement between Scottish Canals, Scottish Water and Glasgow City Council. Wider support and encouragement for the vision and project was also received from other MGSDP members including Scottish Government and SEPA. The lesson that can be drawn from the partner relationships that benefited and enabled the Smart Canal is the value that can be derived from the balance of investing time in strategic relationships where there is no short-term benefit and transactional relationships where you are seeking an immediate outcome.

Transition between Service Providers: During the implementation phase of the project, Glasgow City Council transitioned from working with one ICT partner (a joint venture between the Council and an external IT services provider) to a different provider (a private sector contractor). In the scale and complexity of the contract negotiations to provide an IT platform for the whole of the Glasgow City Council (GCC) family, the Smart Canal project wasn't identified as a specific live project needing support post transition with the result that the project inception phases had to be repeated with the new IT provider. The lesson learnt was the importance of having in place robust paperwork to support the navigation of internal systems. This outcome would be supported by having a user-friendly system that enabled the project team to allocate sufficient time to complete the paperwork. A similar lesson was learnt from the challenges presented by the transfer and integration of an ALEO (supporting one project component) into the new GCC Neighbourhoods, Regeneration and Sustainability Services.



Smart Canal system architecture

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Impact:

The Institution of Civil Engineers (ICE) State of the Nation Report 2020 notes that the Glasgow 'Smart Canal' Scheme creates 55,000 cubic metres of extra capacity that can absorb the anticipated rainfall and surface water runoff – the equivalent of 22 Olympic swimming pools. The alternative, traditionally engineered, solution would have been to create a 2km tunnel connecting the area's drains with the River Clyde and would cost around £45 million

Instead, the preferred approach has involved a £17 million investment in the Smart Canal Scheme delivered through a 60-year partnership between Glasgow City Council, Scottish Canals and Scottish Water. Officially named the North Glasgow Integrated Water Management System (NGIWS), it is a sustainable solution that has received capital funds from Glasgow City Region City Deal, the Green Infrastructure Fund and Scotland's 8th City – the Smart City (both ERDF sources).

Crucially, it has begun to unlock 110 hectares of previously unusable land across North Glasgow for development and regeneration: around 3,000 new energy efficient homes, a school and other developments are being built in communities close to canal – include many neighbourhoods within the Scottish Index of Multiple Deprivation (SIMD) 10% most deprived datazones.

It is also boosting biodiversity at sites along its length, improving green connections to surrounding areas and opening up green and blue spaces for recreation. Importantly, it is creating a new, pedestrian-friendly community and, with the inclusion of active travel routes, it will improve the area's connectivity to the nearby city centre.

The Scheme has attracted interest from other local authorities and international visitors who are rethinking how they can use their reservoirs and canal networks.
The assets will be retained and operated for a minimum 60-year period as set out in the Drainage Partnership Agreement between Scottish Canals, Scottish Water and Glasgow City Council (Neighbourhoods, Regeneration and Sustainability).

Next Steps:

Opportunities to utilise the capability and capacity of the control hub for other applications within Glasgow are being explored including controlling Smart Grey Water systems installed at new developments.

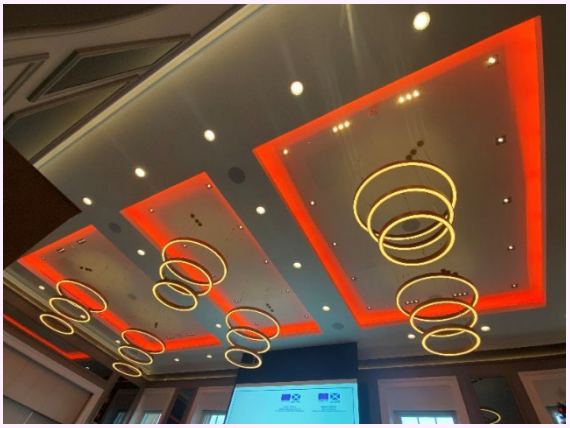
13 | MANAGING AUTHORITY LEAD PARTNER EVENT, AUTUMN 2022

On Wednesday 30 November, around 70 stakeholders of the 2014-20 European Social Fund (ESF) and European Regional Development Fund (ERDF) programmes attended the 2022 Autumn Lead Partner Event at the Clayton Hotel in Glasgow.

Head of Managing Authority (MA) Hilary Pearce opened the event by welcoming everyone to the first in-person stakeholder event since the COVID-19 pandemic. The agenda featured a mixture of presentations from the MA, the Audit Authority and stakeholders, including:

- a report on the achievements of the ESF-supported Apprenticeships programme
- a technical presentation on recent updates and tips related to EUMIS
- an update on upcoming outputs and results guidance
- an explainer on internal changes made by MA to make claims process more efficient
- a report on the ERDF-supported 'Smart Canal' project in north Glasgow by 'Scotland's 8th City – the Smart City' programme
- a presentation and discussion about the 2014-20 programmes' closure process
- a guest presentation from the Tannahill Centre on their achievements

If you would like a copy of the slides, please email: europeanstructuralfunds@gov.scot.
The MA would like to thank everyone for attending the Autumn Lead Partner Event, especially those who delivered guest presentations.



PREPARING FOR PROGRAMME CLOSURE: BEST PRACTICE GUIDE AND KEY DEADLINES

On 22 November, the MA published 'preparing for closure – best practice guide and key deadlines'. Key deadline dates are noted below:

Final claim submission (2nd deadline):	30/04/2023.
Final change requests: for changes excluding outputs and results:	31/05/2023.
Penultimate claims:	30/06/2023.
Final claim submission (3rd deadline):	31/07/2023.
Final physical end date:	30/09/2023
Final financial end date:	31/12/2023.
Final claim submission (4th and final deadline):	31/01/2024.
Final article 125(5)(b) OTS (Stage 2) visits:	31/05/2024.
Final article 127:	31/10/2024.
Final reporting on EUMIS:	31/03/2024.
Final payments:	20/06/2024.