

DRAFT



Portsmouth

CITY COUNCIL

Economic Development, Culture & Leisure Scrutiny Panel

SMART CITIES:

'MAKING PORTSMOUTH A SMARTER, MORE SUSTAINABLE, CITY'

Date published: August 2017

Under the terms of the council's constitution, reports prepared by a scrutiny panel should be considered formally by the cabinet or the relevant cabinet member within a period of eight weeks, as required by Rule 11(a) of the Policy & Review Procedure Rules.

PREFACE

The Economic Development, Culture & Leisure Scrutiny Panel reviewed Smart Cities and the ways in which Portsmouth can become a smarter city.

The panel heard evidence from council officers and external experts between September 2016 and March 2017. During the process with witnesses it became apparent that Smart Cities are not just about technology but also very much about planning and coordinating between departments to create a joined up sustainable city.

As this is an area that is constantly evolving across the various council portfolios the panel's recommendations reflect the need for regular updates on developments to the Cabinet Members. The panel would also recommend that a visit take place to Bristol which is at the forefront of Smart City innovation to witness how funding has been secured and implemented to make it a smarter, more sustainable city.

On behalf of the panel we would like to thank all those witnesses who participated in this interesting topic and the officers who supported the review and will be taking forward the recommendations.

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Councillor Hannah Hockaday

Chair of EDCL Scrutiny Panel for the 2016-17 municipal year

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Councillor Steve Hastings

Chair of EDCL Scrutiny Panel from May 2017, and Vice Chair in 2016-17

Date of Sign off : 16 August 2017

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1. Purpose, panel membership

- 1.1 The Scrutiny Management Panel asked that the panel consider the use of the digital market to support economic growth in the city. This would include looking at sources of funding and examples of implementation of Smart Cities and Future Cities initiatives by other councils. This also links to sustainable cities and the importance of attracting investment. Consideration was also given to the ease of access of information and skilling people to use technology provided by the council as well as encouraging accessibility of council services through digital applications.
- 1.2 **Membership:** For the 2016/17 municipal year the EDCL Scrutiny Panel comprised of Councillors Hannah Hockaday (Chair), Steve Hastings (Vice-Chair), Matthew Winnington, Lee Hunt, Yahiya Chowdhury and Alicia Denny. The panel met on 7 occasions (see Appendix 1 for details). The 2017/18 panel had a change in membership with Councillor Scot Harris replacing Councillor Hannah Hockaday. Councillor Steve Hastings became the chair.

2. Executive Summary

- 2.1 What is a Smart City?
- *The intelligent and integrated use of technology and information to help cities function more efficiently and create a better quality of life for its citizens*
 - *Smart Cities aim to be centred on the citizen - giving them the opportunity to engage and have more of a say in the services provided to them by the public sector*

Whilst definitions of 'Smart city solutions' relate to the application of digital technologies to address social, environmental and economic goals, for smart cities to reach their full potential, these also need to focus on the citizens living in them, not just on technology.

2.2 Objective 1 - To understand how Portsmouth City Council (PCC) is becoming 'smarter' in providing access to information for residents and visitors

The panel recognised the potential for smart technology to be used in the promotion of tourism, with digital information being provided to visitors as well as residents. The launch of 'My Portsmouth' App was welcomed as a tool to be expanded for more interaction with PCC and the digital infrastructure must be available to support initiatives.

Intelligent transport systems are crucial to economic regeneration aspirations for the city, in maximising efficiency on roads as well as encouraging alternative methods of travel, including public transport, cycling and walking. Developments include the expansion of real-time information boards, smartcard ticketing, digital information/advertising boards (such as at the revamped Hard Interchange which uses Beacon technology). The Traffic Management Centre is being upgraded using a digital platform to allow greater control of traffic lights and more effective real-time traffic management as well as linking to sensors which monitor air quality. There has been a successful bid for £300k Portsmouth Cooperative Intelligent Transport System which will

provide this 'real-time' information on how the road network is performing and there is also investigation of a parking App taking place.

The panel noted that for waste management, a barrier to embracing some of the available smart technology (such as bin tagging and sensors) is that PCC is tied into long term contracts with the service providers.

In the Property & Housing Service a key technological advance is the roll out of solar PV panels on PCC buildings, which could be extended to Gosport and wider, and which will generate income. Digital tablets are used by professionals visiting residents on repairs and maintenance jobs, and this could be further expanded for the booking of appointments.

The public health agenda includes encouraging physical activity and changes in behaviour. Also giving encouragement to do so via sustainable opportunities, not only via suitable Apps (e.g. screening for sugar and salt levels in food) and in educational and recreational fields, but by linking with choices of methods of transport and with the provision of safe cycle and walking routes. The Director of Public Health has a role in commenting on urban development to help protect community use of green space in the city, which should be encouraged through participation in pre-application discussions on major projects.

2.3 Objective 2 - To consider examples from elsewhere of Smart Cities and Future Cities

As part of the examination of smart and sustainable models elsewhere, the panel heard from Professor Lehmann from the University of Portsmouth (UoP), who promoted a partnership approach to maximise smart urban solutions and help shape a sustainable public realm. He explained UoP's campus aspirations for an increased student population (referencing their Estates Masterplan) and encouraged connectivity between the different parts of the city. He also advocated the opening up of public spaces and sustainable transport routes. Examples of flood defences being designed to incorporate public space were given (e.g. Blackpool, Bordeaux and Sydney). In Canterbury the vacant units have been reused (e.g. The Food Shed). In Barcelona traffic had been reduced by 25% in the city centre by introducing a grid system of flow.

UoP are part of the European research project 'Urban Nexus', aiming to produce energy and food within the city and PCC were invited to participate in this partnership with UoP and other European cities.

Written evidence was also received on smart city successes by other local authorities such as 'Travel Ipswich', Suffolk Better Broadband Project, and 'Bristol is Open' which is seen as a trail-blazer partnership project between the local university and council to harness smart phone technology to provide information on energy, air quality and traffic flow.

2.4 Objective 3 - To investigate sources of funding for extending Smarter Cities type initiatives

To help investigate potential sources of funding the panel heard from a local Smart Cities consultant and the panel was also represented at a Smart Cities conference in London to learn from the experience of other local authorities as well as hear from private sector providers of innovative services.

Consideration was also given to the need to develop a PCC Digital Strategy. As previously referred to, as part of this review the opportunity arose to make a preliminary expression of interest in the 'Urban Nexus' bid in partnership with the University of Portsmouth and other European cities.

Councillor Hannah Hockaday and Councillor Winnington attended the Ascent Events Smart Cities conference where examples of projects taken forward included City Verve funding for Manchester Council's 'Smart Area' in the city centre. Nottingham is part of the Smart Cities European Remourban project (district heating and energy co-operative).

Chris Cooper of local Smart Cities consultancy KnowNow Information Ltd explained what was necessary to progress a citizen-centred Smart City - such as frameworks for management and safe storage of data and creating a vision for the city. Glasgow had been successful in becoming a 'City wide demonstrator' (worth £24m in 2012) as part of a competitive process. In Bristol the council had been instrumental in providing cheap and effective internet connectivity, alongside a new Enterprise Zone, illustrating a collaborative approach between central and local government, with local business and university support. European Union sponsorship had also been available for 'Citizen City' projects.

As well as financial there are also environmental benefits evidenced in Smart Grid projects with the sharing of energy in communities. It was estimated that Portsmouth is approximately 5-6 years behind the Smart City front-runners and an invitation to visit Bristol in the following months was therefore welcomed (this may be jointly with Southampton and Winchester).

2.5 Objective 4 - To review accessibility and skilling issues to enable residents, students, visitors and businesses to access and engage with council services and the provision of digital services

A key component to accessing technology in the city is the digital infrastructure and improving WiFi access across the city and this needs to be underpinned by the development of a PCC Digital Strategy. The aim in embracing technological solutions is to improve services and do more for less cost. There would be more capacity with the use of 'cloud' technology, which in turn needs to be secure. This would improve access for residents and visitors and would encourage business to invest in the city, such as in the new developments at Dunsbury Hill and Tipner and Horsea would be 'smart city enabled'.

PCC's Community & Communications department is embracing technological advancements for communicating with customers, such as the 'My Portsmouth' App to report problems like fly-tipping (2000 reports had been made on the App in the first 6 months). The panel was keen to expand on the use of this App such as for reporting on the progress of planning and licensing applications. PCC's 'Channel Shift' programme encouraged the use of digital interfaces through which payments and claims could be made to the council at any time. Residents could also be encouraged to be more engaged through social media channels and the provision of PCC's magazine Flagship in a digital form.

The 9 local libraries across the city provide free access to the internet and a range of digital classes. Staff were aiming to help 'bridge the digital divide' with low literacy levels being a barrier to accessing websites and Apps. There is collaboration with Highbury College in providing training opportunities for adults and computer and coding clubs for children. The libraries also provide the technology for helping with translations where English is not a first language.

3. Conclusions

- 3.1 Bidding for external funding is critical to deliver Smart City technology, either by PCC or where appropriate via a partnership approach. The development of PCC's Digital Strategy is therefore fundamental to enable Smarter City aspirations to be achieved as well as the improvement of the technological infrastructure (to provide faster Broadband), which is key for attracting businesses to the area.
(see paragraphs 5.1.3, 6.1.17 & 8.1.5 and Sections 6.2, 7.1, 7.2 & 8.2)
- 3.2 The benefit of partnership working is evidenced at other cities (such as Bristol, Milton Keynes) with the involvement of the local university showing advantages of collaboration on a regional level. Here the University of Portsmouth is keen to work in partnership. It is noted that Bristol is estimated to be about 5 years ahead in embracing Smart City Technology.
(see paras 6.1.17, 7.4.9 and Sections 7.2, 7.3 & 7.4)
- 3.3 There are already a large range of traffic management developments with the creation of a digital platform with the upgrading of the Traffic Management Centre system and major investment at the Hard Interchange.
(see Section 5.2, incl. paras 5.2.5, 5.2.12 & 5.2.17)
- 3.4 Public health benefits can be made by encouraging increased physical activity through developing information on PCC's website (and other digital assets and Apps) regarding safe cycle and walking routes. Therefore the Director of Public Health should be involved in pre-application discussions on major developments to help ensure open space provision and sustainable travel methods are promoted.
(see paras 5.2.8, 5.2.11, Sect 5.5 incl. paras 5.5.7, 5.5.9, 5.5.11, 5.5.12 & 6.1.16)
- 3.5 Apps are not replacing professionals (such as surveyors, doctors) but can play a complementary role and there is a need to ensure that new technology is

easy to use and help is offered to those needing it. The panel recognised the potential for Smart City technology to be used for encouraging tourism through the expansion of PCC's website and Apps for visiting Portsmouth. Smart City technology can be further used for contacting housing tenants and for resident engagement.

(See Sections 5.1 incl. 5.1.2, 5.5.5 and Sect 8.3 & 8.4)

- 3.6 For Waste Management Smart City opportunities are more limited in the city due to contract periods but officers should keep abreast of innovation in partnership with contractors Veolia.
(See Section 5.3, incl. para 5.3.4)
- 3.7 PCC's Property & Housing Service already have a major project embracing solar energy technology for PCC properties which has sustainable benefits for the city and can be further expanded.
(Section 5.4, incl. paras 5.4.4 & 5.4.8)
- 3.8 In considering the public realm and sustainability, flood defences offer opportunities for imaginative use of public space and opening of waterfront promenades for connectivity in the city and vacant units can be used for further regeneration opportunities.
(See paras 6.1.3, 6.1.9 & 6.1.14)

4. Recommendations (based upon the above conclusions)

- 4.1 That the Directors regularly report to their Cabinet Member meetings on the progress in embracing Smart City technology and the associated sustainable benefits. This will include:
- the development of PCC's website and Apps (such as for tourism, contacting housing tenants, parking availability, safe cycling and walking routes, public health messages) and further use of social media (for community engagement and information on licensing and planning applications)
 - Use of digital advertising boards (to give sustainable travel method information)
 - the rolling-out of solar PV panels on PCC buildings exploring community energy networks, with possible expansion to Gosport
 - Waste management partnership innovation with the contractors
 - Consideration of future design of flood defences to incorporate public space and encourage walking and cycling
- 4.2 That the appropriate officers keep abreast of funding opportunities, collaborative approaches and developments in other cities and that the Cabinet endorses a trip to visit Bristol (with representatives from neighbouring councils) to witness a city which is approximately 5 years in advance in implementing Smart City initiatives. Also that participation in the Nexus Bid with the University of Portsmouth be further reviewed for progression.
- 4.3 That PCC's Digital Strategy be progressed for accessibility and to enable the necessary infrastructure to be in place for economic growth, for the benefit of residents and visitors.

4.4 That to encourage a more sustainable built environment:

- the Director of Public Health should be involved in the discussion of proportionate level developments for health impact assessments on major projects, to help promote physical activity and to protect open and green space in the city
- when reviewing the Local Plan and the Infrastructure Delivery Plan, regeneration should be encouraged by inviting innovative ideas on house design, the use of open spaces and the use of vacant units, as well as ways of collecting and storing data about how the environment is performing.

5. **Objective 1** - To understand how Portsmouth City Council (PCC) is becoming 'smarter' in providing access to information for residents and visitors

The panel heard from several witnesses from PCC to explain what different departments are already offering as well as what they are seeking to expand on to increase digital services to customers.

- 5.1 **Tourism** - At the outset of the review it was recognised that Smart City initiatives should link to the aspiration of Portsmouth being a weekend destination break city as well as customer expectations on the use of Smart phones and tablets to give information about what was available to visitors, so the facilities need to be available to enable this to happen. There was therefore a need to ensure there is a digital presence of PCC services. The landing pages for the PCC website should have links to relevant information e.g. to the ferries. The key attractions, such as the museums, need to utilise digital technology and link in with the infrastructure funded by PCC which provides good coverage for 4G and connectivity. It was reported that the Gunwharf management team is looking at 'apps' to show offers at the venues. The panel felt there was an opportunity to look at a 'Visit Portsmouth app' to ensure visitors access information. The University of Portsmouth is keen to be involved in this and there is also a need to involve local businesses. (Advances at the new Hard Interchange are expanded on in section 5.2.)

- 5.1.1 **Residents** - The panel heard the importance of free public access to Wifi. It is already in 80 PCC owned properties and there could be an investigation if this needed to be expanded and if so how this would be financed. PCC has pursued 'Channel Shift' to give residents the opportunity for residents to report things to PCC directly.

- 5.1.2 **My Portsmouth App** was launched by PCC on Friday 5 February 2016 to help keep the city clean, safe and tidy. The PCC website advertises that: *"by downloading the free My Portsmouth app, people who live in, work in and visit the city will be able to report issues to us quickly and easily, so we can get them sorted....Through the app, you can report problems including dumped rubbish, broken streetlights, abandoned trollies, graffiti, blocked drains, abandoned cars, and you can take a picture of the problem and show us where to find it on a map. You can also use the app to check when your next recycling collection will be, or to keep up with the latest council news."*

(See further information provided by the Director of Community & Communication at section 8.3 on digital resident engagement.)

- 5.1.3 **Businesses** want better broadband coverage and whilst this is not within PCCs remit, PCC can be involved in helping to facilitate this which also important for inward investment.

The aims of producing a PCC Digital Strategy are covered further in Objective 4 (see section 8.1).

5.2 **Intelligent Transport Systems**

Pam Turton, Assistant Director of Transport, Environment & Business Support and Adil Mohammad, Traffic & Network Manager, PCC, spoke to the panel regarding the importance of transport as an enabler of activity supporting the regeneration of Portsmouth. With limited road space and strong growth agenda, and associated predicted increases in traffic, PCC need to gain the maximum capacity from existing infrastructure, providing improved, reliable journey times for all modes within the city. Intelligent transport systems have a key role to play in maximising capacity as well encouraging the use of public transport and sustainable methods of transport such as cycling and walking.

5.2.1 **Aim:** *To develop and implement cutting edge technology to deliver improved, consistent journey times for all modes, harnessing big data to provide real-time multi modal information enabling informed journeys, and enabling a real time response, with the overall aim of improving the journey experience for all users of the transport network within Portsmouth.*

5.2.2 **Aspirations:**

- *Improved management of the current network*
- *Support for the economic and growth strategies of the city*
- *Improved air quality and environmental objectives*
- *More informed decision making by members of the public through the provision of more information, leading to greater numbers of sustainable journey choices*
- *Improved end-to-end journey experience*
- *Improved uptake of public transport and active travel*
- *Improved management of events within the city, both regular (e.g. football matches) and irregular (e.g. America's Cup World Series)*

5.2.3 The public transport projects being implemented and investigated included:

- Real Time information boards - these were at 90 upgraded bus shelters in the city (delivered in part through LST¹ local sustainable travel funding from the Department of Transport)
- Smartcard Ticketing - these included Solent Go and Portsmouth Park & Ride
- Clear Channel is currently upgrading 40 bus shelters to digital advertising
- Future plans also included expanding payment options to 'Wave & Pay' (contactless payment through credit and debit cards) and retrospective billing
- Audio announcements are now available on buses and at bus shelters

5.2.4 **Park & Ride** - The Park & Ride scheme (run by First Bus with PCC backing) had illustrated changes in patterns of behaviour (the pricing and marketing of Smart Cards there had encouraged take-up). Revenue sharing arrangements with operators remains a key consideration in the development of multi-operator, multi-modal ticketing options.

¹ Local Sustainable Travel Fund

- 5.2.5 **The Hard Interchange** - the new building was integrating 'smart' technology with the provision of Real Time Information travel screens, touch screens (which would include tourist information), Free Wi-fi and Beacon Technology². The new totem way-finders with digital touch-screen displays would have space for advertising too (which would help generate income). There would be the opportunity for the new maps to include information from various departments.
- 5.2.6 **Routes 4 All** - work was taking place on an application to help individuals with particular mobility requirements, to determine the most accessible route. The App uses the Smartphone's internal sensors to record the user's journey, and how accessible the routes that they have used are. For example the internal tilt sensors show how bumpy a pavement is or how steep a dropped kerb is for a wheelchair user. The GPS data will also show desire lines for routes and crossing points.
- 5.2.7 **Cycling** - Department for Transport funding is being used to develop 'quiet ways' in the city to encourage cyclists to use 20mph routes (as 80% of cycling casualties occurred on the 30mph network). An ambition is to have an 'app' for cycling route planning. Funding for low level traffic light signals for cyclists was also being sought to allow a 2 second head start on motor traffic; a funding bid had been submitted for Portsmouth to be an early adopter of this technology. It was confirmed that all impacts would be modelled and considered prior to implementation to maximise safety.
- 5.2.8 **Active travel** is being encouraged with consideration being given to co-ordinating different schemes through the strategy development for the Active Travel Strategy and Local Transport Plan work currently underway. These strategies would reflect and build on the aspirations around creating a walking friendly city and the Cycle Forum's City to Share strategy.
- 5.2.9 **X-Cam** - video technology is used to monitor the build-up of queues and to enable changing the phasing of traffic signals to give public transport priority.
- 5.2.10 **Traffic Signal Optimisation Programme** - £1m funding is available for delivery of this to give greater control of junction capacity. There has been installation of 'MOVA'³ at independent junctions - 11 of these were due to be upgraded in the city.
- 5.2.11 **Walking Improvements** - These included:
- the upgrading of pedestrian facilities and integrate phasing at junctions
 - upgrading of wayfinding totems (which show distances and times for walking between sites) to become digital touch screens
 - Zebrite beacons - which are brighter and more visible than traditional Belisha beacons to help slow traffic at pedestrian crossings

² This technology alerts mobile Apps to your location

³ Microprocessor Optimised Vehicle Actuation

5.2.12 **Traffic Management Centre Upgrade**

Portsmouth City Council (PCC) is investing approximately £0.25m in upgrading the Traffic Management Centre (TMC) to 'Stratos' a cloud based system enabling PCC to link up with more traffic lights within the city to the Traffic Management Centre and to provide remote access to the management systems. The upgrade to the TMC is the most effective solution currently available and provides secure, scalable and real-time traffic management for implementation in Spring 2017.

5.2.13 **Journey Time Monitoring**

There are 5 detector units for real-time journey monitoring, which make use of data from residents' smart devices. The data allows Traffic Engineers to monitor historical and current journey times, likewise journey times during major events, major road works etc.

5.2.14 **Parking** The Transport department is keen to develop and deliver technological solutions to parking issues, providing parking space information to monitor how full car parks are and a PCC 'where to park app' is being investigated, and 'wave & pay' is being implemented at PCC car parks starting with Isambard Brunel multi-storey. Due to concern regarding the risk of using apps on handheld devices (including sat-navs in cars), hand-free alternatives were being investigated.

5.2.15 **Sustainable vehicles** - 10% of PCC's vehicle fleet now have 'Lightfoot' technology which gives audio reminders of how to drive economically, which will reduce fuel bills and emissions.

5.2.16 **Transport Planning Communication with the public** - this is via several social media channels (including Twitter and Facebook) to give messages on traffic problems and route planning around major events. It is also planned to develop a PCC website which would have a centralised travel information section.

5.2.17 **Traffic Network-** Adil Mohammad, Traffic & Network Manager, expanded on the traffic network issues, with the build-up of traffic and disruption on the network being monitored and reacted to. A **Digital Platform** is being created with the upgrades to the Traffic Management Centre system, signalling upgrades and other 'smart' technology being integrated into this. This includes Internet of Things technology - with roadside sensors (detecting traffic flow and air quality/pollution levels, Big Data (bringing together data that can be used in developing 'apps'), Situational Awareness (harnesses information via smartphones) - which can all provide information to help drivers make informed travel choices. The collection of data also enables more accurate modelling for transport planning and in predicting the levels of demand for public transport.

5.2.18 The Transport, Environment & Business Support Department had bid for:

- Developing dynamic route guidance systems, Smart Mobility Model and Predictive Modelling Capability, and Co-operative ITS systems
- C-ITS (worth £300k) and for Low Level Cycle Signals (also £300k)

5.2.19 **Outcomes of bids** An update report was given on the transport bids:

- a) Portsmouth CITS (Co-operative Intelligent Transport Systems)
Platform: Portsmouth City Council had been successful in receiving a grant of £300,000 from the Department for Transport's new innovation programme - 'Cooperative-Intelligent Transport Systems (C-ITS) and Smart Infrastructure'. This award will fund the 'Portsmouth C-ITS Platform' a test-bed project to build a sensor network within the city to receive information and provide travel and traffic related datasets.

5.2.20 The innovative project will involve establishing an on-street, test environment within Portsmouth to prove the viability of the available communication technology in a real life setting that will not only provide the Council with additional 'real time' information on how the road network is performing, but also give support to road users to enhance their journey experience and improve road safety. This is a successful step for the local authority in order to further develop their capabilities to enhance their day to day management of the road network within the city.

5.2.21 The funding will help towards achieving the city council's vision of developing and implementing cutting edge technology that improves road safety, delivers more consistent journey times for forms of transport and by harnessing 'big data' provide real time information for people to make informed travel choices

5.2.22 b) The Low-level early start traffic signals for cyclists in Portsmouth: PCC was not successful in this bid.

5.3 **Waste Management**

5.3.1 Colette Hill, Assistant Director of Housing & Property with responsibility for PCC's waste services, explained the use of technology for this statutory service for local authorities and how the compiled information may be of interest to citizens regarding how much is collected and what happens to their waste. The weight of recorded waste is recorded as required by government and this information is available on the Environment Agency's website but not published on PCC's website. The cost of waste is £6m p.a. as per PCC's waste contract as part of a Hampshire wide partnership 'Project Integra' via Veolia as well as use of the Energy Recovery Facility (ERF) and Mixed Recyclables Facility (MRF) in Portsmouth and therefore links with sustainability were important. Currently Portsmouth (unlike some other local authorities) has unrestricted waste collection so it is difficult to control how much is spent on it.

5.3.2 Whilst Portsmouth currently ranks low on the UK recycling rates⁴ the rates for contamination of recycling is very low so that less goes from this to landfill.

⁴ Ranked 338 of 345 local authorities - reported at January 2017 EDCL panel meeting

5.3.3 **Smart technology** available for use in the waste industry includes:

- Public smart bins
- RFID tagging/fill sensors (using radio frequency to detect if bins are full)
- GPS
- Route optimisation
- Call Management
- PDAs (personal digital assistant/handheld devices)

There is less use of on-board weighing and tagged bins.

5.3.4 A barrier to embracing some of this technology by PCC waste management was that the contracts had been entered into on a long term basis (e.g. for Biffa a ten year contract until 2021). The recycling contract included 5 types of recyclables (so that plastic tubs and trays were not recyclable here). However changes were being considered such as the possibility of kerbside glass collection. RFID bin tagging is not in use here but its use being monitored elsewhere, and a trial by neighbouring Havant BC had shown that its use had broken even rather than made savings. PCC does use GPS on the collection vehicles which can track rounds and this helps with route optimisation. Whilst the PDAs data was not reliable regarding logging information from the vans it could be better used to flag up where contamination reoccurred (currently 'red hangers' were put on these bins). Tagged bins were not in use in Portsmouth. Technology was more widely used by other authorities where there was a 'pay as you throw' system which was not implemented here.

5.3.5 Resident access to systems such as booking for bulky collections and being given information on their nearest recycling facilities was being considered by their 'Channel shift' project. Recycling boxes were also available as an alternative to bins and could be ordered on-line.

5.3.6 A trial project on the Highbury Estate (implemented in September 2016) to try to improve recycling rates and decrease waste production rates, had shown that changes in behaviour could be encouraged as the tonnage rates had significantly decreased since the wheelie bin experiment had been implemented. This included contamination rates decreasing too.

5.3.7 Veolia were inviting participation in an Innovation Day and information from this on technological advances would be shared with members when available.

5.4 **Property and Housing Services Repairs**

5.4.1 Meredydd Hughes, Assistant Director of Property & Housing Services, explained the use of technology for the Housing Department, its residents and other PCC assets. With regard to resident interaction this could be used to empower them in the booking of appointments of work in their property, to know targets for completion of repairs and to provide information on energy consumption. The condition of PCC properties will have an impact on health and wellbeing of residents and building users.

5.4.2 PCC manage and maintain over 15,000 assets and the presentation gave a breakdown of activities on the properties including repairs (over 50k day to day repairs carried out each year), electrical installations, gas safety inspections (13.5k), smoke detection installation and monitoring of void properties.

5.4.3 Linking in with the sustainability aims, the energy consumption and production figures across the PCC property portfolio were reported as:

- Electrical consumption 36m KWhrs - £4.6m
- Gas consumption 35m HWhrs - £1.1m
- Solar PV production in 2016 = 2.5m KWhrs⁵ which equated £442k as combined income and cost avoidance to PCC

5.4.4 The solar PV panels have been placed in civic buildings such as the Civic Offices and the Somerstown Hub and the use will be extended which will generate further income.

5.4.5 The current use of **smart technology** in the delivery of the repairs service included:

- A detailed Property & Housing Asset (PHA) database on which repairs can be logged
- ½ hour meters for energy consumption for monitoring of use
- SIM cards on the PV Solar panels - this provides information such as how these are operating and when they need cleaning
- Heat meters in sheltered accommodation - these show trends of usage
- Mobile Tablets - for use by gas engineers on their inspections and for remote ordering of parts
- PDAs - used for Legionella records
- Integrated Reception Systems (IRS) helps connectivity for Freeview TV, connection to Sky+, SkyQ and DAB radio and this cuts down on the use of multiple satellite dishes

5.4.6 The PHS department's detailed database contained histories of repairs to properties and where work was required and better information was available on the payment and validation of bills which were more accurate now. The systems gave better visibility of energy use which was useful information for schools too on when power was being consumed. The BMS system also allowed for remote monitoring, and the intelligent systems meant that the longevity of equipment was being extended by the varying the use of equipment such as the main heating fans at the Civic Offices and boiler systems at schools to share the load. The mobile tablets and PDAs mean that photographs/certificates can be taken on site and scanned for inspections.

5.4.7 Future Developments -

- Residents would be empowered to take responsibility for their properties such as booking repairs directly and be able to track progress and arrange appointments for regular inspections (currently approximately 90% of dealings with customers were via the phone or face to face)

⁵ This is enough electricity to light and power a 3 bed house for 714 years

- Heat meters to communal heating systems would mean monitoring of usage so 'pay as you use' for fairer bills
- A roll out of more solar PV installations and exploration of a solar co-operative
- Use of LiFi (light fidelity) and trialling of LED lighting
- Empowerment of schools with more access to registers and tracking of repairs and records such as for asbestos and testing including Legionella.
- Work was taking place with Social Care on the alarm systems in supported living accommodation

5.4.8 **Solar panels** - these are not moveable ones but the Portsmouth locations meant that there is good solar coverage to help maximise energy. A capital bid was due to be made to extend the project into Gosport which would give joint benefit and generate further income for PCC. This may then expand to other neighbouring authorities and local schools, including academies. The next development would be the battery storage of the solar panels and how to share the power generated in the communities. A constraint currently was the SSE grid capacity for Portsmouth which needs to be improved. An arms-length company has been set up to offer energy advice to external bodies such as the hospital, on a commercial basis.

5.4.9 There are links with the University of Portsmouth to take forward innovation, such as via work placements, apprentices and employment of graduate architects; there are also good links with the university's departments of Architecture and Building and Surveying.

5.4.10 **Risks and opportunities:** Whilst the use of technology brought benefits, it should be implemented where it was appropriate and in conjunction with skilled professionals, such as the PCC surveyors. Further consideration could be given to the different means of communication by residents so that smart phones and tablets and mobiles could be used for requesting repairs - such as expanding the My Portsmouth App.

5.5 **Public Health**

5.5.1 Dr Horsley, Joint Director of Public Health (DPH) for both Portsmouth and Southampton City Councils, made a presentation entitled 'Smarter Cities and Improving Health - Is there an App for that?'. The World Health Organisation defines health as:

"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"

5.5.2 Healthcare services are approximately 25% of the contributors to improving health - gains in life expectancy include nutrition, sanitation and other lifestyle factors (smoking, drinking, food and exercise) as well as the physical environment (including air quality, housing and green space provision). In Portsmouth physical inactivity is second to smoking in causing early deaths.

5.5.3 The aim of Public Health is to make people change their lifestyles; just giving education alone will not lead to major changes in behaviour and there is the need to look at the scale of the problems. 63% of adults in Portsmouth are

classified as obese or overweight. There is the need to look at the **physical environment** and the choices made (car/cycling/walking). Dr Horsley's aim was to focus on how these environments can be changed, not just educational messages.

- 5.5.4 Dr Horsley asked what was meant by 'smarter cities' with the use of technology to improve outcomes (rather than outputs which can be quantitative such as number of hips replaced) where individuals can measure the improvements e.g. living longer, or not experiencing pain. There should be lasting and sustainable improvements from the use of technology - he gave the example of the initial spike in physical activity caused by 'Pokemon Go' but this had reverted to previous levels by week 6.
- 5.5.5 **Apps** - The Director of Public Health was often approached regarding the use of new Apps - but he needed to be convinced of their benefits as these can be expensive to develop and update and the novelty can wear off fast (as seen with step-counters which may encourage more physical activity but there is not fast weight loss seen where users 'reward' themselves). Some route/map applications had merit in giving useful information, such as showing cycling and walking options, which could help 'nudge' people into making the more healthy choices.
- 5.5.6 Whilst some Apps were very useful (such as scanning items for sugar and salt content) these did not necessarily address health inequalities or reach those most in need of the information. There could be benefits in using Apps as teaching resources for children to promote healthy lifestyles in an interactive way but educational apps were not necessarily attractive to teenagers.
- 5.5.7 Areas in which technology can help include:
- Monitoring sugar levels for diabetics
 - Fall alerts in homes of older persons
 - GPS tags to alert families of dementia sufferers
 - Giving cues and reminders for taking medication or attending medical appointments
- 5.5.8 Another possible area of use is in communication with health professionals, although this will not necessarily be as effective as a face to face consultation and can lead to more social isolation (which in turn can heighten anxieties and mental health costs).
- 5.5.9 Two priority areas to make a difference in Portsmouth were to reduce smoking levels and encouraging a shift in the use of public transport. In exploring how physical activity and active travel could be encouraged Dr Horsley stressed the importance of the infrastructure:
- Provision of bike lanes and walking routes; walking routes (which can be backways) need to be well signed either physically or via Apps showing how long it takes to get to destinations
 - Safety via smart lighting and increased footfall (which in turn can lead to reduced crime levels⁶) - Lighting was important to encourage use of

⁶ Reference was made to the pedestrianisation of streets in central Bogota, Colombia

- walking routes, and the switch to LED lighting is important as this has a carbon footprint, and motion sensors also save energy
- Internet search engines can offer prompts on how long different modes of travel will take
- Barriers need to be reduced - for more direct routes, providing affordable alternatives and incentives (such as Park & Ride where bike use could be encouraged too), use of electric bikes to help with hills (although Portsea Island itself is flat)

5.5.10 Dr Horsley gave examples of good practice and ideas that could be implemented from elsewhere, which included:

- The use of more efficient bike lights
- The ability to think about the design of cities such as looking at intersections to prioritise walking
- In Nigeria there had been re-mapping of bus routes with GPS tagging on the routes people most used to get to work to ensure the bus routes followed the flows and to encourage use

5.5.11 **Physical realm** - with the physical restrictions of Portsmouth there was even more need to look at the importance of **green space** and to ensure it is accessible and well used, with use of lighting and provision of WCs. Cemeteries could be considered as space for public benefit, for sympathetic uses such as garden schemes, beehives etc.

5.5.12 **Planning and Health** - The panel wished to see greater involvement of the Director of Public Health in **consultation on planning developments**: Dr Horsley felt this would be useful but this would need to be proportionate regarding major development. He reported that at Bristol Council there is a rule on when health impact assessments are undertaken on developments, and at Wakefield there is a requirement to look at the impact of a proposal when it relates to loss of green space in deprived areas, and they have a checklist of things to be considered by the developer. He was keen to try to protect the city's green spaces via pre-application discussions so that Public Health make helpful suggestions which are conducive to the local population's health, which in turn would mean that developers were more likely to get planning permission. There is the need to embed public health early in the planning process, especially for the larger developments.

5.5.13 **Risks** with technology include:

- Where devices only work for a short time or there is a need to reinvest
- Devices that may increase social isolation or reduce physical activity
- Advances that may cause other problems e.g. driverless cars
- The dangers of using mobiles and smart devices whilst walking; it was hoped that technology would be adapted to integrate alerts.

6. **Objective 2 - To consider examples from elsewhere of Smart Cities and Future Cities**

6.0 In considering the development of Smart City initiatives elsewhere, themes of **Public Realm** and **Sustainability** were further explored. The National Planning Policy Framework reflects sustainability, so that the public realm and design of the built space also encouraged all forms of public transport and alternative methods of travel.

6.1 **University of Portsmouth**

6.1.0 Professor Steffen Lehmann, Professor of Sustainable Architecture at the University of Portsmouth and Director, Cluster for Sustainable Cities gave a presentation to the panel and members of the public entitled '**Regenerated Cities are Sustainable Cities**'.

6.1.1 Professor Lehmann addressed the panel on the challenges in the city and gave ideas for urban solutions and strategies for the way forward. One of the main problems in Portsmouth was the level of traffic and the need for clear information and provision of safe routes for cyclists. He also observed that the waterfront had huge potential for improvement and upgrading of public spaces both big and small; the waterfront was also relevant to students as the University of Portsmouth (UoP)'s campus idea was expanding. With regard to housing and land use, he suggested that it is smarter to build upwards with three to four storeys infill expansion and densification and in selected areas in the city centre up to ten storeys around public transport nodes. His presentation then went on to look at urban systems, water, energy, transport and waste management interaction of networks. The UoP is involved in an application for the 'Urban Nexus' project that uses ICT technology to interconnect urban systems to provide efficiencies and an assessment tool for cities to guide decision making on future urban development.

6.1.2 **Partnership working**

The potential of working jointly with Southampton meant that collaboratively the cities became the urban size of the fifth largest city in the UK. He also reported that the University of Portsmouth was now 25 years old and ranked in the top 2% in world rankings according to the recent THE⁷ rankings of young universities. The economic benefit to the local community was £300m per annum (recent report by Deloitte) that the University contributes to the city of Portsmouth, i.e. students brought to the city. The student numbers were projected to increase from 24,000 to 29,000 by 2020. UoP is also the owner of 35 buildings in the city centre. It was therefore important for the City Council and University to be involved in discussions to share strategies especially with the expanding University Quarter that needed an urban heart.

6.1.3 **Urban Regeneration**

Professor Lehmann gave examples from other cities showing strategies of their "rebirth" in Bristol and Manchester. Internationally, Seville had created public meeting places on the site of a former car park, and in New York the High-line provides a new linear park which had resulted the property values doubling in these areas. At Detroit, a shrinking city that struggled with empty

⁷ Times Higher Education (THE) world university rankings

properties and people leaving, there were now community garden schemes in place to improve the neighbourhood. His view was that Portsmouth had disconnect between its parts of the city, which has led to a fragmented city; and that there was a threat of the sea-level rise that the council needed to future proof in preparation with the opportunity to create better public spaces and landscaping along the waterfront. The opening up of public spaces and the waterfront promenades gives connectivity within the city which should be reflected within the cycling and transportation plans, to encourage cycling and walking and thereby a more active and mobile local population.

6.1.4 UoP University Quarter

A "**smart campus**" should not just be about IT and sensors but about creating a better public space network, citizen-centric improvements and decision making based on evidence and big data. The UoP's University Quarter Plan aimed for an open campus at ground floor, with visibility of activities, where research and teaching could be viewed happening by passers-by.

- 6.1.5 How could the city become more attractive for more of the staff at the university to wish to live in Portsmouth? Better models of infill housing and more housing choices should be encouraged (with innovations such as gardens on rooftops) as consumers need to have a better choice, so there is the need for a more experimental approach without inflating prices. Some areas like Southsea were expensive and were lacking affordable real estate. Modular prefabrication of houses is a research area to provide houses with more floors built off-site possibly bringing down the land costs per unit, as well as the innovative use of new construction methods and materials such as engineered timber.
- 6.1.6 The Estates Group at the University is planning to invite participation in an international design competition for a key building on the corner of Victoria Park (a flagship building for the Business School on the former site of Victoria Baths) to promote innovation and good design. The forthcoming Estates Masterplan will set out the University's vision for developments over the coming 20-25 years and will see significant investment in new buildings, the upgrading of existing buildings and investment in **new public space** between buildings for informal social interaction.
- 6.1.7 An idea being put forward by the university was the future pedestrianisation of Hampshire Terrace to create a new mixed-use high-quality public space. The panel was concerned that there could knock on traffic effects by closing roads for pedestrianisation. There should be carefully considered action plans for prime locations such as Hampshire Terrace or Clarence Pier to see what the public gain could be.
- 6.1.8 The Assistant Director of Culture & City Development reported that there was the opportunity for housing designs to be considered at a more strategic level through the reviewing of the Local Plan and the Transport Plan. This would encourage investment in the public realm and people's ideas are invited in this process.

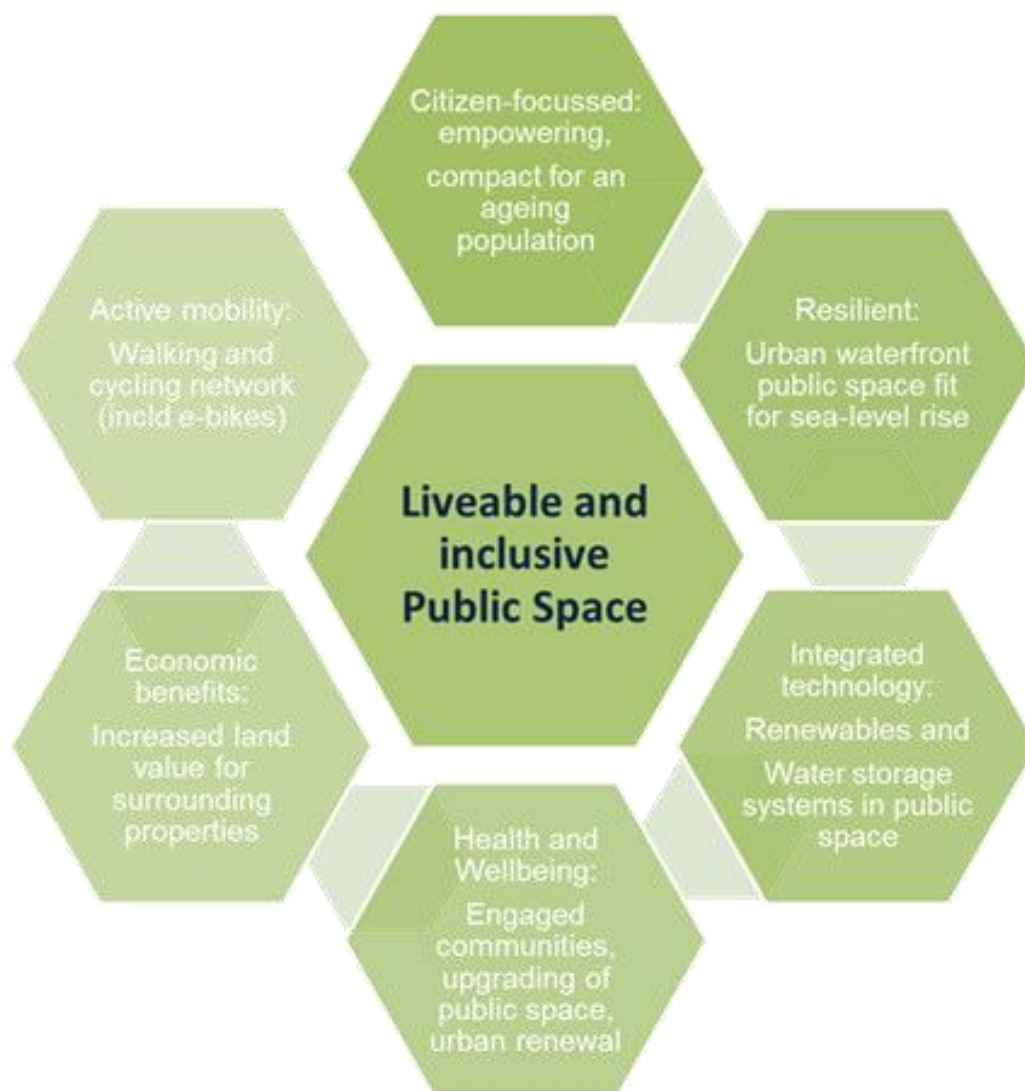
6.1.9 **Sea Defences and the Waterfront**

In exploring the idea of the sea defences being 'future proofed', Professor Lehmann advocated the need for good designs of public space, as seen at new waterfronts in Bordeaux, Sydney and Lower Manhattan, which incorporated landscaping elements. He also reported that the Blackpool seafront had taken an innovative approach regarding the design of sea defences.

6.1.10 PCC's Assistant Director of Culture & City Development clarified that Portsmouth's sea defences were at a conceptual design, with focus on securing funding from the Environment Agency. Professor Lehmann felt it was key to ensure that Portsmouth has a world class standard waterfront incorporating good landscaping, promenades and public space elements of very high standard.

6.1.11 **Green Urban Space**

Prof Lehmann was keen to encourage easy access to more green space and community gardens. Tree planting along streets also enhances good landscape, water management and cooling, and he pointed to opportunities elsewhere of harvesting and storing rainwater.



6.1.12 **Sustainable City Planning and Public Open Space**

Prof Lehmann explained the urban resilience principles for a compact regenerated city and felt it was wasteful that many cars are travelling into the city each day carrying one person each, blocking public space, and there should be encouragement of buses and bikes to free up the space as well as the use of electric cars and e-bikes. He showed images of bikes accommodated on the light railway at Stuttgart, and as streets formed a high percentage of public space some cities encouraged the underground parking of cars in designs.

6.1.13 **Solar energy** is also important for sustainable architecture. Embracing the idea of generating energy within the city. Using solar power on houses to generate more energy than they consume would feed back into the grid, which could be seen with Energy-Surplus Houses in Freiburg, Germany.

6.1.14 **Sustainability** also meant use of vacant units with the example shown of Canterbury using an old train shed as a food market and restaurants (The Food Shed) serving locally sourced organic food.

6.1.15 **Traffic planning** - an example was given of the success in Barcelona in reducing traffic in the centre of the city by 25% by introducing a new grid system of flow⁹. In Singapore they had managed to increase green space whilst increasing urban density at the same time.

6.1.16 **Health** - there are links between health, liveability and urban living. Studies in Japan¹⁰ had shown obesity can be reduced through better public space and encouragement of cycling and walking and this would also attract more people to work and live in the city. There is also evidence that quality outdoor environments affect activity attitudes and behaviour¹¹.

6.1.17 **'Urban Nexus' Research Project**

Prof Lehmann promoted the European research project that the University wished to take forward with a partnership approach; the 'food, water, energy Nexus' is an application for funding for which Portsmouth City Council was invited to take part along with other cities (in the Netherlands and Poland) to develop an "urban living lab". The aim was to produce energy and food within the city. (Further information is given on the submission at section 7.2)

⁹ Super Blocks, see:

http://www.bbc.co.uk/news/video_and_audio/features/magazine-38895435/38895435 <http://www.bbc.co.uk/news/video_and_audio/features/magazine-38895435/38895435

¹⁰ Takano T, Nakamura K, Watanabe M. Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces. *Journal of Epidemiology and Community Health*. 2002;56(12):913-8.

¹¹ Public Health England & UCL Institute of Health Equity - Health Equity Review 8 September 2014 "Local action on health inequalities: Improving access to green spaces"

6.1.18 Celia Clark from the Portsmouth Society suggested that locations such as Wymering Manor might be suitable as a trial area for the use of local food waste in gardens for the production of energy.

6.2 Written evidence

This was also gathered to show how **other cities** are taking forward the Smarter Cities agenda, which included summaries on the following council projects:

6.2.1 Southampton City Council's Smart Cities Card

Southampton CC's website explains:

"The SmartCities card is a multifunctional card that allows you to access a number of different services in Southampton. It can be your bus pass, a library card, a leisure card or as a card to pay the toll on the Itchen Bridge.

Anyone can apply for a Smartcities card, although to apply for the Get Active subscription or the Concessionary Bus Pass, you will need to be a resident of Southampton City Council."

6.2.2 Belfast & IBM Smarter Cities Challenge - 2013¹²

The Smarter Cities Challenge was set up as a philanthropic initiative by IBM to offer their expertise to address major challenges facing cities around the world. IBM teams work with local leaders to deliver recommendations on how to make cities smarter and more effective.

Belfast participated in such a challenge in September 2013. A team of six IBM experts travelled to the city to consider more effective approaches to tackling the persistent issues of deprivation and health inequalities.

They carried out extensive interviews with councillors, community organisations, academics, community leaders and services providers – particularly those who try to tackle deprivation and health inequalities in parts of west and east Belfast.

The team's final recommendations sought to address the fundamental issue of how Belfast's organisations can work together in 'smarter' ways to tackle persistent, complex social problems.

6.2.3 Ipswich BC - 2012

In July 2012 Ipswich was one of 30 successful UK cities to secure a relatively small amount of Technology Strategy Board (TSB) funding to run a Future Cities feasibility study. The following information is taken from a report to Ipswich Borough Council which set out the findings of that study¹³.

¹² Belfast City Council website information

<http://www.belfastcity.gov.uk/community/IBM-smarter-cities-challenge.aspx>

¹³ Report to Ipswich Borough Council by Chris Tuppen of Smart Anglia and visiting professor of smart technologies at the University Campus Suffolk

Those cities that won through the first round of the competition were also able to submit a bid for a £24m TSB grant to run a full future cities demonstrator project.

6.2.4 The £22m '**Travel Ipswich**' transport is an integrated scheme designed to deliver a step change in travel behaviour. It addresses smart traffic management, real time passenger information and e-ticketing. It directly links into the existing £1m Walk Ipswich and Fresh Ways to Work projects. Spare capacity on a fibre ring being installed as part of the Travel Ipswich project will be utilised as part of the WiFi roll out.

6.2.5 **Suffolk County Council's** Better Broadband Project Board oversaw a £23m public sector investment in superfast broadband over the three years (from 2012). This included around 8% of Ipswich premises not already covered by BT and Virgin Media roll out plans. As part of the broadband plans a smart technology demonstrator was to be opened to the public.

The central booking system on the council's sports centres was also updated in 2013, as one of the first full system integration opportunities.

One of the aims of Smart Ipswich was **accessibility** to all, with special attention placed on those who may find new technology daunting, such as the elderly, and consideration given to culture, language, abilities, skills and interests.

Their vision was, that by 2020, Ipswich will have proven itself as the UK's first 'smart, small city'.

6.2.6 **Bristol is Open**

Bristol Is Open¹⁴ is a joint venture between the University of Bristol and Bristol City Council. It is funded by the local, national and European governments, with academic research funding, and by the private sector. It is delivering research and development initiatives that contribute to the development of a smart city and the 'Internet of Things'.

Small sensors, including the smart phones and GPS devices of willing participants, will supply the three new fast networks in the centre of Bristol, with information about many aspects of city life, including energy, air quality and traffic flows. A city operating system will dynamically host this machine-to-machine communication, allowing the development of a wide range of applications.

6.2.7 **Reading** council uses a parking App which helps to identify disabled parking bay availability.

Further information on innovations elsewhere are covered within Objective 3 looking at funding with examples sourced at the conference, in section 7.3.

¹⁴ The website is www.bristolisopen.com

7. **Objective 3 - To investigate sources of funding for extending Smarter Cities type initiatives**

As part of the examination of potential funding streams, the panel heard from a local Smart Cities consultant and it was also represented at a Smart Cities conference in London to meet with other local authority representatives as well as private sector providers. (Some of the funding information is also covered within Objective 2 reporting on initiatives taken by other Local Authorities.)

7.1 **Funding Opportunities** - the panel were keen to know what was available and being applied for. Nick May, PCC's Head of Information Solutions, reported that **Manchester** Council is at the forefront of maximising grant opportunities by giving resources to the bid process (which was labour intensive). As part of the development of the Digital Strategy he would be looking further at where the potential funding was for projects to benefit Portsmouth as currently there was no specific funding for the Digital Strategy. He was therefore working closely with the PCC directorates who will be submitting bids as a part of their Directorate Business plans.

7.2 **The Urban Nexus Bid with the University of Portsmouth**
In considering Professor Lehmann's presentation (see also section 6.1.17) the panel supported, in principle, a joint way of taking forward innovation, but members acknowledged that it was not the role of the Panel to consider and decide whether Portsmouth City Council should be one of the partners to the expression of interest which needed to be submitted to the EU on 15 March 2017. Professor Lehmann and Claire Upton-Brown as Assistant Director of Culture & City Development would be liaising and raising this further with the appropriate members and a preliminary expression of interest was subsequently submitted.

7.3 **Smart Cities conference**

As part of the review Councillors Hannah Hockaday and Matthew Winnington both attended part of the 2 day conference by Ascent Events in London on 1st /2nd February, along with PCC officers. Their feedback on areas innovation from around the country included:

- **City Verve** - funding had been secured for **Manchester** Council for a 'Smart Area' of the city at Oxford Road (their bid was worth £10m¹⁵) Innovation Bids were also being invited on a partnership basis with universities and businesses to make cities safer, an example was the development of an App to report potholes which showed in real-time the reporting and updating of progress with photographs of repairs
- **Sheffield** used a system called 'Changify' for urban innovation.

¹⁵ <https://www.gov.uk/government/news/manchester-wins-10m-prize-to-become-world-leader-in-smart-city-technology>

- **Milton Keynes** was also advanced in the design management of the city and efficient use of energy and providing education on how to be more efficient
- **Future building designs** - inverting the client/customer role to start with seeing what the customer will want
- In **Nottingham** there are district heating and energy co-operatives sharing energy as part of the Smart Cities European Remourban project¹⁶
- Use of **surplus assets** - '**Warp It**' - recycling of furniture for businesses - this may already be used in Portsmouth's Queen Alexandra Hospital, and in Glasgow this had been used to save money and was free to access for charities.
- **Digital Town** examples included **Greenwich** where visitors don't sign into their council website but can use 1 App for their visit. **Bournemouth** was also cited as being accessible for planning for the whole day visitor experience (with a dedicated 'Visit Bournemouth' website¹⁷)
- **Joyride** is an App developed to show routes where people are avoiding, including safe routes for cyclists
- High tech **benches** can generate energy and be used as social hubs (instead of telephone boxes) and local authorities could attract sponsorship for selling branding on these
- **Cleverciti Systems** (from Germany) highlighted their parking management schemes to record space availability (and this information would also be sent to the Transport, Environment and Community Safety (TECS) Scrutiny Panel for their current review of parking), which was now in practice in **Westminster**
- **Bristol** council representatives had also made an offer for PCC members to visit there - they were seen to be 5 years ahead in Smarter City technology
- A further issue identified was use and ownership of personal data e.g. on bus use

7.4 **Chris Cooper, co-founder of KnowNow Information Ltd**

- 7.4.1 Chris Cooper had given a similar presentation to the Ascent Events Smart Cities Conference on 1-2 February 2017 in London (also attended by some of the panel members) and was aware of advances in Smart City innovation

¹⁶ <http://www.nottinghamcity.gov.uk/community/remourban/>

¹⁷ Visit Bournemouth website accessed: <http://www.visitbournemouth.com/>

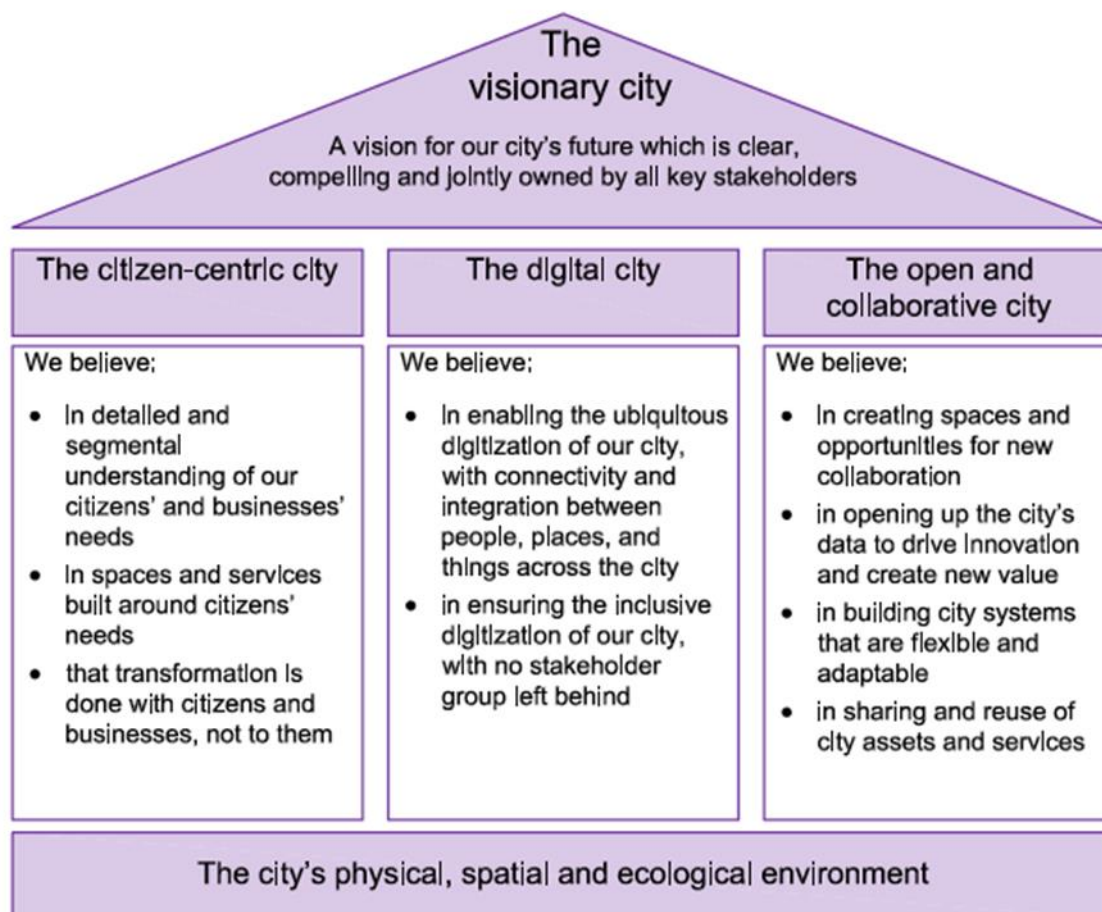
nationally and internationally. His local consultancy business KnowNow Information Ltd specialises in Smart City innovation and management of data. The core principle of the presentation was the importance of involving the citizens.

- 7.4.2 Chris Cooper had been involved in the formation of the standard **PAS 181** - Smart City Interoperability Framework for the delivery of a Smart City. Their research with local stakeholders had shown that there was expectation of a Smart City was for economic growth with people expressing their desire to see something happen in the Northern Quarter and for the Seafront to be made more attractive.¹⁸ The presentation set out KnowNow's view of the pillars of a Smart City (see diagram below, graphic by KnowNow Info Ltd)

We believe that a smart city is:

- a) visionary;
- b) citizen-centric;
- c) digital;
- d) open and collaborative.

As we work towards becoming a smart city, we will use the following principles to guide our work:



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¹⁸ YouTube clip accessed via <https://www.bsigroup.com/en-GB/smart-cities/Smart-Cities-Standards-and-Publication/PAS-181-smart-cities-framework/>

¹⁹ Graphic provided by KnowNow Information Ltd

- 7.4.3 Chris Cooper stressed the need for a **vision** for Portsmouth, to reflect what the citizens want in collaboration with government funding, and he stressed that technology was only a part of this (approximately 25%). The reason Portsmouth was not already a Smart City is the dependence upon government awarded funding - **Glasgow** won an award in 2012 for £24m to be a 'city wide demonstrator' - and the procurement process was competitive.
- 7.4.4 In **Bristol** the opportunity had been taken by Bristol Council to step in when the fibre contractor had folded, and now they could offer cheap and effective connectivity alongside a new Enterprise Zone and some new innovation organisations hosted in the "Engine Shed". Out of this experience 'Bristol is Open' emerged, which shows the success of a collaborative approach of local government, local business and their universities.
- 7.4.5 **Regulation** is needed for Smart Cities to ensure the protection of personal data storage. The responsible use of data is dealt with under the General Data Protection Regulation (**GDPR**) and data not needed should not be stored. KnowNow have a new personal data consent management tool "Consentua" that can meet the regulation requirement for the sharing of personal information.
- 7.4.6 Chris Cooper outlined the 'Citizen First' approach and he is part of the Citizen City EU sponsored project. Not all the benefits of Smart Cities are financial; environmental, sustainable economics and improved life outcomes for citizens are just as important. **Connectivity** underpins being 'smart'. He was therefore liaising with Nick May in PCC Information Services regarding accessibility throughout the city to WiFi, and would be interested in making contact with PCC's Housing and Property officers regarding the next wave of energy storage.
- 7.4.7 **Smart Grid** principles include the sharing of energy in communities, and promoting sustainable energy sources. This would include demand/load balancing and storage of surplus energy for future use or for sale, to the financial benefit of a community. The model for this could be the creation of a community energy partnership. The community could be shareholders in such a model and there was already kit for this in Germany and China, who were ahead of the UK in its development. There is also an example of a Smart Grid project to tackle economic deprivation in the Isle of Wight. Chris Cooper stressed the need for security measures to ensure the separation of data. He felt that Portsmouth had a great opportunity to roll out solar pv panels on more buildings and engage residents in this process. The issue of investing in the most suitable sensors and batteries was also raised for the most long-lasting environmental benefits. The key question is what do you do with this sensor information?
- 7.4.8 The EDCL Scrutiny Panel could help take this forward for PCC by encouraging:
- a) a vision for Portsmouth
 - b) agreeing a set of principles

c) determining the outcomes

7.4.9 To take this further Chris Cooper offered to help facilitate a trip to visit Bristol to see a Smart City in operation. This could be in collaboration with Southampton and Winchester councils.

7.4.10 The following points were raised on the status of Smart Cities preparations:

- The UK are behind SE Asia in Smart City technology but the UK is innovative and more conscious of sustainability issues
- Some of the best Smart City solutions were seen in Western Europe (Spain, Netherlands), Israel, Eastern and Central Europe
- Advances in the UK included front-runners Bristol and London, the second tranche included Manchester, Milton Keynes, Glasgow and Peterborough, and councils now taking great strides were currently Leeds, Nottingham, Southend and Exeter.
- Chris Cooper estimated that Portsmouth and Southampton were 6 years behind the front-runners, but Portsmouth has advantages in being a city hosting innovative companies, a vibrant university and exciting tourist attractions.

8. **Objective 4 - To review accessibility and skilling issues to enable residents, students, visitors and businesses to access and engage with council services and the provision of digital services**

8.1 **Accessibility - Digital Strategy**

This is a central government initiative to help generate better outcomes and operational efficiencies. Locally the emphasis will be on providing infrastructure which will attract new businesses in to the area and help the economic growth across the city.

- 8.1.1 Nick May as PCC's Head of Information Solutions was liaising with Directors across the council regarding their departments' use of technology (such as health care, waste management) to improve the quality of life for Portsmouth residents. The aim is to use innovative technology to improve services, to do more for less cost to the council. Information sharing was also being expanded, as seen in the closer relationship between social care and health and this could help tackle bed-blocking with the fast exchange of information (with the necessary security measures).
- 8.1.2 PCC will also be able to have a more mobile workforce through the use of portable devices, with many staff not being '9 to 5' office based. Use of 'cloud' technology was key to this, and a cloud strategy would need to be developed to ensure that information is secure. This would form part of the IT Strategy.
- 8.1.3 PCC partnership working also meant exploring the sharing of IT infrastructure with Solent NHS and the CCG for the health partnerships - currently some of these staff were sharing office space in the Civic Offices but each organisation had its own WiFi.
- 8.1.4 The Next Steps - these included:
- Improving 4G and WiFi access across the city (5G is approximately a year to 18 months' away)
 - Ducting Concessions - some local authorities are already putting their own ducting in roads when they are dug up, which gives the LA ownership and the ability to commission services
 - Investment in 'Eudroam' system is needed to ensure connection for students in the city.
- 8.1.5 The Combined Authority model for regional funding could bring opportunities for funding for infrastructure as well as City Deal. Nick May reported that at the Dunsbury Hill Farm site the high-speed Broadband had been important for attracting businesses.

8.2 **Infrastructure**

- 8.2.1 Nick May reported that Virgin Media would look at commercial opportunities and it was noted that the biggest cost was digging up roads. New companies were coming in looking at other solutions with fibres in the ground for easier provision and also microwave connection between buildings. Claire Upton-Brown reported that the government is taking forward legislation for internet provision in new developments. The panel members felt that such provision was important for the economic development of the city. The Tipner & Horsea development would be 'Smart City Enabled' (this could also include sensors

monitoring pollution levels on site).

8.3 **Public Interaction - Digital customer services**

- 8.3.1 Louise Wilders, PCC Director of Community & Communication, gave a presentation on the customer and communications developments which linked to the Digital Strategy in seeking better outcomes and securing efficiencies. This was through better connectivity and access to public information from PCC and also to promote better quality of life.



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- 8.3.2 The effect of increased interaction with technology is to free capacity, as seen at the City Helpdesk whose staff could then help with more complex cases. The **'My Portsmouth' App** can be used to report problems (such as fly-tipping) which can be dealt with in a speedier manner. The My Portsmouth App had recorded 2000 reports in the first 6 months of its launch. PCC's 'Channel Shift' project had been to encourage use of technology by residents who are comfortable using digital interfaces, and a move towards a more "24/7" culture so that payments could be made to the council at any time (with the provision of automated cash machines) and claims (such as for benefits) can be made on-line at any time, with the use of 'intelligent forms' (which have built-in prompts).

- 8.3.3 Statistics include:

- 77% of direct debits were now set up by customers online
- It was predicted that the savings by such changes would amount to £1.7m by 2018/19

Next Steps - these included:

- 8.3.4 **Local democracy** - developing the use of the 'Mod Gov' system to trial the associated App with councillors and to extend the information being accessible to the public. This would also mean less paperwork for councillors.
- 8.3.5 **Communications & income** - looking at the provision of a digital Flagship - to be more information to the public and to look at targeting the interests of customers - such as the use of 'Beacon Technology' with interaction from

²⁰ Graphic created by PCC's Graphic Design Unit, Community & Communication

smart devices to the digital hoardings used for adverts which would know the location of customers. It was reported that Edinburgh had 11 digital advertising boards within a heritage site.

- 8.3.6 **Community involvement** - there is a need to look at engaging with small communities, which could be through social media channels. The presentation by Louise Wilders included an advert on 'Next Door' which had been successful in America and there could be a role for councillors to play in this. Facebook was already being used to publicise consultation processes and peaks were seen in the receipt of responses following posts on it.
- 8.3.7 **Councillor Lee Mason, Cabinet Member for Resources**, spoke to the panel about the inclusive nature of the smart forms which were designed so they could be completed by all customers. The cash-machine in the Civic Offices' foyer would be accessible from the outside. He was also aware of the financial benefit in embracing technology and quoted an example of a social services client in Kent who had been given a tablet device to do on-line shopping rather than using a carer to do this for him.
- 8.3.8 The EDCL panel members were keen for **planning and licensing applications** to be publicised using smart technology to keep local communities updated. The functionality was there and this may need to be better explained to the public and widely advertised and its expansion would be considered. There was the need to be careful in the use of the My Portsmouth App to ensure that unsolicited information was not sent to people who had not signed up to, so opt in/out options should be available for advertising by PCC.

8.4 **Local Learning Offers in the Libraries**

- 8.4.1 Lindy Elliott, PCC's Library and Archive Services Manager, provided information on the range of digital classes available at the libraries across the city, which included 'bridging the digital divide', which she further expanded on at the meeting. There is free access to the internet at the libraries (via a library card) for up to 4 hours a day. There was increased usage for those wishing to use printers (often for printing out on-line tickets) and an increase had been seen in those who do not have access to digital technology.
- 8.4.2 National statistics from 2014 (source Office of National Statistics, footnote 21) had ranked Portsmouth 2nd highest for those without digital access and digital knowledge = 24.8% of adults.
- 8.4.3 Library staff had seen that low literacy levels could be a barrier in accessing websites and Apps., which could include some young people who were usually more comfortable with using technology.

²¹ Table 5B on page 27 of the Internet Access Quarterly Update as published by the Office for National Statistics in May 2014 accessed via:

<http://www.ons.gov.uk/ons/rel/rdit2/internet-access-quarterly-update/q1-2014/stb-ia-q1-2014.html>

8.4.4 The report to the Cabinet Member for Culture, Leisure & Sport of 7 October 2016 set out the wide range of learning opportunities through the libraries, and the work taking place in partnership with Highbury College in providing a regular programme of activities which aim to bridge the digital divide by promoting and supporting the use of ICT. The report set out the following progress:

- 173 people had taken up volunteer-led ICT training in 2015/16
- By the end of March 2016, 147 adults with disabilities were introduced to some basic ICT modules provided on the 'Learn My Way' online platform, including 'Staying healthy with NHS Choices' and 'GP Services online'
- There is ongoing work with vision impaired residents and funding is sought for the use of accessible technology
- Children aged 9-11 years also attend free computer Code Clubs at Southsea Library
- Support is also given at the libraries to job seekers including help with writing CVs and application forms

8.4.5 The library staff members are trained to 'Make every contact count' and were able to sign-post people to the relevant groups and associations to receive further support.

8.4.6 Extra information on the role and provision of the Portsmouth libraries included:

- Technologies were also used to help in translation where English is not a first language
- The issues of social isolation is also combatted through the group work at the libraries although some users will access services online or through audio books
- There is connectivity between the 9 libraries (these all have full connectivity), mobile library and the University of Portsmouth and other technical libraries in the city - whilst there are regular meetings to share information and some joint training, the services do not duplicate each other (such as the provision of academic texts at the UoP which are expensive materials and there is more specialist text now available on-line) but complement each other
- There is a national network of libraries and Portsmouth is one of 30 members of the Living Knowledge Network, to share information and tools on exhibitions and skill sharing workshops

9. Equalities Impact Assessment

- 9.1 A preliminary Equality Impact Assessment (EIA) is not required as no new services are being recommended at this time and there will be no negative impact on the protected characteristic groups. The EDCL Scrutiny Panel is making recommendations for Cabinet consideration. Objective 4 looked at accessibility implications.

10. Legal Comments

There are no significant legal implications arising out of the recommendations of this report.

11. Finance Comments

The financial implications arising from the recommendations of his report are included within paragraph 12.

12. BUDGET AND POLICY IMPLICATIONS OF THE RECOMMENDATIONS

The following table highlights the budget and policy implications being presented by the panel's recommendations.

Recommendations	Action by	Policy Framework	Resource implications
<p>1. That the Directors regularly report to their Cabinet Member meetings on the progress in embracing Smart City technology and the associated sustainable benefits. This will include:</p> <ul style="list-style-type: none"> the development of PCC's website and Apps (such as for tourism, contacting housing tenants, parking availability, safe cycling and walking routes, public health messages) and further use of social media (for community engagement and information on licensing and planning applications) Use of digital advertising boards (to give sustainable travel method information) the rolling-out of solar PV panels on PCC buildings exploring community energy networks, with possible expansion to Gosport Waste management partnership innovation with the contractors Consideration of future design of flood defences to incorporate public space and encourage walking and cycling 	<p><u>All</u> Directors incl:</p> <p>Customer & Community</p> <p>Customer & Community Property & Housing " "</p> <p>Transport, Environment & Business Devt</p>	<p>Within Budget & Policy Framework (BPF)</p>	<p>Mechanism of reporting back has no budgetary implication (other than officer time) but any reports outlining future proposals would contain cost implications</p>

Membership and Meetings of the EDCL Panel 2016-17 - Smarter Cities Review

At the start of 2016/17 municipal year the Economic Development, Culture & Leisure Scrutiny Panel (EDCL) membership was set as:

Councillors Hannah Hockaday (Chair), Steve Hastings (Vice-Chair), Matthew Winnington, Yahiya Chowdhury, Lee Hunt and Alicia Denny.

For the 2017/18 municipal year the EDCL panel's composition became:

Councillors Steve Hastings (Chair), Scott Harris (Vice-Chair), Yahiya Chowdhury, Alicia Denny, Lee Hunt and Matthew Winnington.

The panel met formally on 7 occasions between 13 September 2016 - 27 March 2017 to receive evidence.

DATE	WITNESSES	DOCUMENTS RECEIVED
13 September 2016	Claire Upton-Brown, City Development Manager gave an overview Nick May, Head of Information Solutions spoke regarding PCC's plans for a Digital Strategy	Draft Scoping Document
20 October 2016	Pam Turton, Assistant Director of Transport, Environment & Business Support and Adil Mohammad, Traffic & Network Manager gave a presentation on Intelligent Transport Systems	Background notes on Smart Cities definitions and information on other local authorities
17 November 2016	Louise Wilders, Director of Community & Communication Councillor Lee Mason, Cabinet Member for Resources Nick May, Head of Information Solutions updated on Digital Strategy	Powerpoint presentations
9 January 2017	Meredydd Hughes, Assistant Director of Housing & Property Colette Hill, Assistant Director of Housing & Property (Environment)	Powerpoint presentations

DATE	WITNESSES	DOCUMENTS RECEIVED
26 January 2017	Professor Steffen Lehmann, University of Portsmouth (Sustainable Architecture)	Powerpoint presentation (subject to copyright)
20 February 2017	Dr Horsley Director of Public Health Lindy Elliott, Library & Archive Services Manager	Powerpoint presentation Report to Cabinet Member for Culture, Leisure & Sport 'Library learning offers' dated 7 October 2016 And list of Library Services digital courses
27 March 2017	Chris Cooper, KnowNow, Smart Cities consultants	Presentation Written evidence - update from Adil Mohammad on Transport bids

4G	Name of the fourth generation of mobile networks, to provide faster broadband internet access; 5G is now anticipated
Apps	'Applications' for use on smart and mobile phones, tablets etc.
Beacon Technology	For Apps interacting with personal mobile devices and detecting customers' locations
Big Data	The large volume (or complexity) of data generated by digital processes, that can be analysed for business trends
Connectivity	In this review this is used in both a technical sense meaning the ability to connect systems or application programs and also in a geographical sense regarding connecting different parts of the city
DPH	Director of Public Health at Portsmouth City Council
EDCL	The Economic Development, Culture & Leisure Scrutiny Panel, undertaking this review
EU	European Union
GPS	Global Positioning System - using satellite tracking
IT/ICT	Information Technology/Information and Communication Technology
I o T	The Internet of Things is a network of internet-connected objects able to collect and exchange data using embedded sensors
LA	Local Authority
LED	'Light Emitting Diode' - lighting which is energy efficient
PCC	Portsmouth City Council
PDA	Personal Digital Assistant - handheld devices (PCs)
Solar PV	Solar photovoltaic (PV) panels are placed on buildings which convert sunlight directly into electricity
U o P	University of Portsmouth