One View

London Borough of Barking and Dagenham

London, UK

EY
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Imperial College
London

INSTITUTE OF GLOBAL
HEALTH INNOVATION

Barking &
Dagenham

Summary

In 2019, the London Borough of Barking and Dagenham (LBBD) was the most deprived borough in London. Its determination to improve outcomes for good has led to a significant transformation in the way services are provided, including an increased focus on prevention and on data-driven interventions.

Evidence of this commitment to data innovation is LBBD's collaboration with EY and Xantura to create a master data management, analytics and predictive modeling platform called One View. This tool brings together historically disconnected datasets (child and family, adult, and homelessness services) to provide a single view of any resident or family they serve. It provides case workers with a comprehensive view of their families. It also uses modeling to flag to case workers when a family is at higher risk, which enables them to intervene earlier.

LBBD presents One View as "primarily a data sharing platform, facilitating controlled, auditable sharing between Council services, although the tool does include data sharing capability with partners through the Partner Information Portal. The One View platform creates a 'single-view' of a household and/or individual from disparate data sources to create a holistic composition of the circumstances of the household/individual. It uses advanced analytical modelling to identify those at the highest risk of harm, alongside which specific risk factors are present. It aims to identify such individuals six to nine months before a crisis occurs to enable timely support. Earlier identification enables true early support from service professionals, improving outcomes for the most vulnerable residents in the borough. Tracking outcomes over time can ensure we can assess the effectiveness of certain interventions in different circumstances." (From LBBD One View Data Protection Impact Assessment, 19 August 2020).

The key problem that required a solution

Information on households in the borough was often stored in different case management systems, making it difficult for council staff to have a holistic view of residents beyond their immediate, presenting need.

Aims of the new system

Through One View, LBBD aims to achieve three goals:

‣ Improve resident outcomes and quality of life by providing or connecting residents to the right help and support when they need it. This will improve resident outcomes and quality of life by preventing the escalation of need.

‣ Prevent the escalation of need by enabling better informed and targeted interventions. Having a single view of a household or individual will allow frontline staff to select the most appropriate and effective course of action on a case-by-case basis.

‣ Contribute to demand management for social care and housing services, generating savings. The combined effect of better-targeted interventions and the predictive element of early identification of those at risk should prevent problems from deepening and, ultimately, requiring costly crisis support.

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Innovation description

Context/background

Since 2015, LBBD has been on a transformation journey. The council has built a new kind of organization and a new way of working with residents. One step in this direction was the creation of Community Solutions, a "front door" for people-based services. Staff are focused on identifying the root cause of the problem and aim to resolve it before it escalates. Community Solutions works with partners to tackle challenges such as homelessness, poverty and unemployment, with the goal of helping people to help themselves, ensuring no one is left behind.

Rhodri Rowlands, Head of Programmes for Community Solutions, described the situation the council faced: "We are the most deprived borough in London. People are facing many challenges to their day-to-day lives. That's manifested over time in lots of demand into our system. There was always a view of how we might seek to effectively use data as part of our strategy for demand management and demand prevention. We had already established Community Solutions – with a very clear focus around seeking to resolve the challenges and issues and problems in people's lives much earlier. In doing that, seeking to deflect, reduce and prevent subsequent demand

crisis materializing and creating more demand and cost into the system. To best enable that service model to come to life, we always knew that being evidence-led and data-driven would need to be a core imperative."

In support of this ambition, the council has invested in its data and insight capabilities. This includes the creation of an Insight Hub within the corporate core of the organization. The Insight Hub brings together data scientists, behavioral scientists and service designers to support Community Solutions, social care, other council services and the council's partners to make the best use of data to ensure that people get the right support, at the right time, before issues escalate. In the first year of development, the Insight Hub used mostly descriptive analytics, creating projects such as the social progress index, a local descriptive analytics tool around place-based intervention. In the second year, the team worked more with diagnostic analytics, in line with qualitative insight work, to understand the challenges it was trying to model. It progressed to looking at associations between different socioeconomic issues. The team's vision grew and, by the end of 2018, it started considering the design of an integrated system for all the council's data on service provision, and how that could grow into a predictive or preventative model. It looked for partners to take this idea forward, and found

industry and technology partners in EY and Xantura. Within this commercial partnership, the team co-designed and developed One View, a bespoke data sharing platform that is finely tailored to the needs of LBBD.

Innovation components/approach

One View analyzes historical and current data related to adult services, children services and homelessness. This includes data from revenues, benefits and schools. The model uses data held by the council to feed One View's predictive modeling system; the data is controlled by the council's data owners and updated monthly. Data quality reports from the local authority can identify incorrect data, and the model will not use or surface any information that is not up to date. It will rebase its calculations on any new correct data given to it.

As shown in the LBBD One View DPIA (19 August 2020), Xantura developed two pieces of software to support robust information governance and security of the data: the Information Governance Bridge (IG Bridge) and the Fusion Data Exchange (FDE):

‣ IG Bridge is installed on local council servers and facilitates automatic encryption and pseudonymization of data before transfer to the Xantura data center. The software creates an "Outgoing" folder within the LBBD IT infrastructure to send data extracts. On 2 March 2020, access to this folder was restricted to three LBBD Insight Hub team members.

‣ The FDE enables LBBD to create and manage end users, allocate roles and data sharing permissions, create and map data extract definitions, manage data extract transmission, and identify and resolve data quality issues prior to transmission. It will also provide a dashboard suite which, in the first instance, will display the data extract pipeline status and report upon data quality-related issues that can be used by council staff to manage and identify areas where data quality ought to be improved. This will be absorbed as part of wider data stewardship. The FDE also provides bias monitoring reports to ensure that any cohorts identified within the data models are reflective of the general caseload. The LBBD Insight Hub team has access to the FDE and its reports for monitoring purposes.

These two pieces of software support One View's ongoing data quality improvement through three pillars:

‣ Corporate data stewardship (those with access to FDE)

‣ Service level data owners (those regularly producing the extracts for IG Bridge)

‣ Service level data champions (front-end users who know the system, and can advise on fields and conduct testing)

Target population

One View's users are LBBD frontline staff and management. The aim of One View is to allow for better provision of services to the families in LBBD.

Key stakeholders

A broad range of groups has been involved in the design and development of One View. Key stakeholders include the following:

‣ LBBD Council leadership

‣ Community Solutions, specifically directors, service managers and frontline staff from:

  ‣ Adult health and social care services

  ‣ Children, young people and families

  ‣ Housing and homeless prevention services

‣ Corporate Insight Hub

‣ Data protection officers

‣ Information governance managers

‣ IT team

‣ EY and Xantura as the third-party providers of the technology platform

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Evidence of impact

One View has allowed LBBD to quickly respond to the needs of its citizens during the pandemic. Pye Nyunt, Head of Insight and Innovation, described his experience: "We were able to accurately predict 93.6% of the individuals that would be on the shielding list. So that's over 8,000 people before the official shielding list actually was sent to us from the Government. If you think about that in terms of time, when you are a large complex organization attempting to look after very vulnerable people in society who require medicine prescriptions and food parcels, that is a massive operation to orchestrate in a short time period. Imagine trying to do that without actually having timely data from the Government. Because we were able to use One View to get there faster, our deployment of those interventions was much quicker than I'd say anyone, certainly across London." On the ground, Jill Gallagher, Service Manager, describes how this helped residents in a timely practical way: "We've managed to get food and help to people quickly, some of whom were not known to social services. We didn't know about anything to do with their circumstances before. And I don't know what would have happened if we hadn't called them, because a fair few people were in a very critical situation. So that has been a positive."

Rhodri Rowlands has suggested that there will be a positive and significant return on investment. For example, the use of data and insight through One View has helped to reduce temporary accommodation usage, leading to significant savings. In his view, there is potential for further "significant savings/income generation opportunities through the use of the data."

93.6%

of the individuals that would be on the shielding list were identified ahead of government lists during the pandemic

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Key challenges

LBBD has faced a number of challenges along the way. Those interviewed for this case study said that that the most acute challenges they have faced, and continue to face, are funding, change management, technical staff's understanding of social services, proportional use of data, data cleansing and linkage, and real-time data access.

‣ **Funding:** Pye Nyunt describes the challenge of long-term funding for One View: "We funded it through transformation activity. The next challenge is funding it as a part of business as usual. We had a pot of money for two years that we could fund the whole implementation on, but then once that's over, it has to be funded through a different channel."

‣ **Change management:** Charlesworth Benedict, Service Manager, describes the issues around managing change in LBBD: "Asking people to move away from what they used to do into now working with data and trusting data more is a challenge. When people are used to a particular thing, it's very difficult for you to ask them to work in a different way."

‣ **Technical staff's understanding of social services:** Pye Nyunt describes this challenge and how they overcame it: "One challenge has been for non-frontline professional, like me and my team, to get to grips with the terminology that exists within particularly social care and housing services to understand pathways. I'm not a policy expert in those fields, but there are colleagues who are. We must understand that when we're building tools for those colleagues to use, we shouldn't do that in isolation of their input. We could end up using different terminology. For instance, the terminology of "live" vs "active" cases. At an early glace, I thought those terms were interchangeable, but they are actually different and the data needs to be treated differently in the tool."

‣ **Proportional use of data:** LBBD has ensured that One View is compliant with the European Union's General Data Protection Regulation (GDPR), but it faces the challenge of having to continually determine whether certain data should be collected, what the actual need is and how to ensure it is used adequately. Rhodri Rowlands describes this challenge: "The ethical elements and the proportionate use of people's highly sensitive data is a risk, has been a risk, is still a risk, will continue to be a risk. Which is why we've always been very careful to embed very stringent, practical rules about access, and to define access levels according to roles and responsibilities in a way that enables access to sufficient information to help frontline professionals with their decision-making, while not giving them access to information that they shouldn't have. I think there's a balance there that we need to continue to strike, and it's really important that that's recognized as a risk and an issue at the outset and is fundamental to the design and delivery of such a project."

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> Asking people to move away from what they used to do into now working with data and trusting data is more of a challenge.

Charlesworth Benedict
Service Manager

▸ **Data cleansing and linkage:** data was pulled from multiple sources, and it was not always inputted in a standard or predictable format. Pye Nyunt describes this challenge: "Data quality was a challenge. My team obviously does that intermediary step of taking the data out of source systems and cleaning it before it goes into One View. There's lots of data cleansing they had to do. The good thing with data cleansing is, although it's painful to begin with, once you've done it, you've built a script that can make sure that it keeps it consistent."

Katy Brown, Programmes and Strategy Officer, goes on to explain how the challenge of poor-quality data affects the quality of the output, and user trust downstream: "I think the challenge is that data matching across multiple systems can lead to inaccuracies of the data, which I think can erode user trust in the data. We have seen that it has been hard to trust the data matching sometimes, either because the data can't be matched because of uncertainties, or has been matched and it's maybe not presented the most accurate picture." This challenge is being addressed by continuous improvements to the system and user education, as described in the Enablers section under "Staff support" section

▸ **Real-time data access:** the idea of One View is to present unified information to frontline staff to aid their decision-making with regard to vulnerable residents of LBBD. The system therefore is occasionally hampered by its current inability to process data in real time. Katy Brown explains: "I think the passage of time has been quite a challenge. The thing about data, and when we present it, is the data that we extract isn't live and automated. And we extract the data at different rates, from weekly to monthly. So basically, as soon as it's extracted and it's presented to the service, it's a little bit out of date. This can become especially problematic for the things that have changed quite quickly. People's debt profile, for example, can change very quickly. This has sometimes led to difficulties in portraying an accurate picture and portraying the end user to some of our frontline staff; how you could interpret what's put in front of them, like what the data does and what it doesn't say." LBBD have taken steps to improve this by increasing the frequency of data extracts based on user feedback, as described overleaf.

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Key enablers

LBBD has specific steps to ensure its success in effectively using One View to improve service provision for its citizens. Key enablers of success include raising awareness of the value of analytics with funders, having a clear vision, management support and leadership, starting small, understanding the service user's needs, building trust with the public, supporting staff, providing a clear feedback mechanism and having robust information governance in place.

▸ **Raising awareness of the value of analytics with funders:** Gill Wilson, Service Manager, described how funding is always an issue in local government. In her view, it is important to demonstrate the value of analytics approaches to the Government so it continues to fund them: "The Government is trying to shrink budgets all the time. They really need to understand the importance of this type of work. It will be beneficial for government because it will also help people pay government debts, not be so reliant on benefits and things like that. That will be the challenge, and that's partly why I'm getting involved with government office, because I think if we can get that message across, that this is not just beneficial to the local authority and raising income for the council. This is about raising income for the Government as well, and government needs to invest – that's the bottom line.

It needs to invest in local authorities, but it needs to invest in this particular area as well, because this is going to be cost-effective for the Government as well as it is for us."

▸ **Vision:** Rhodri Rowlands describes the vision of the council and the importance of a shared ambition: "I would say it's important to have a bold ambition and vision linked to a strong statement that summarizes the need and the case for change. I think that you need to create a sense of urgency and ambition to do something different, and I think that helps to anchor that ambition within an organization."

▸ **Management support and leadership:** "My director particularly, he's so keen on making sure that we are driven by data and on studying data behind the stories that we are telling. From the top, really, everybody's into it," said Gill Wilson. Katy Brown echoes the importance of top-level support to ensure that there is a shared vision across the organization: "People understand the vision. Our staff and our chief executive are always talking about prevention, helping people earlier, using data to help target our resources and reducing demand. This is embedded in the culture of our organization and is the kind of setup that helps us do this."

▸ **Starting small:** strategically, LBBD has found that it is important to have a clear road map for data and analytics projects. Rhodri Rowlands recommends that organizations "seek to start small and be able to do something and demonstrate the value of that. Use that as a mechanism to bring others on the journey to demonstrate that there is value in using data differently; that you can point to some tangible benefits. Also to use that as a means of challenging more negative views. I think that's incredibly important." This was echoed by Pye Nyunt: "In the first two years of the Insight Hub, we needed to learn lots of different things. We couldn't have just gone, 'let's start One View.' The organization just wasn't there culturally and technologically." After two years, having demonstrated the value of early data-driven solutions internally and externally, LBBD was ready to partner with an external organization that could enable its vision of a large-scale platform to support 400+ staff.

▸ **Understanding the service user's needs:** for LBBD, designing around frontline staff's needs has been key, but it has also been important to ensure that the technical team understands the needs of the residents they ultimately serve. Pye Nyunt explains: "ultimately you've got to bring a human lived experience into every model.

It needs to be human centred and not tech centred. Talk to the data subjects first before you do any form of advanced analytics. What makes me sad is the number of people in the analytics industry who are building data models about socio-economic challenges, and they've never met a homeless person for example. They've never sat down for an hour and talked to someone who has gone through the homelessness journey. That's why we were so keen to do so before we went anywhere near One View. We invested at least two years of effort getting to know the people that have experienced those statutory services, i.e. the people that we would later be servicing through One View."

‣ **Trust-building with the public:** "The word 'algorithm' has a bad taste right now, and we have to acknowledge that," said Pye Nyunt. LBBD's approach to managing public concern around the use of predictive analytics has been not to fight the narrative, but to increase transparency and raise awareness about what One View does and does not do. Their communication strategy emphasizes that One View does not make decisions about people's lives – it presents aggregated information to a professional who can interrogate the data to make more informed decisions. LBBD has also a Data Ethics & Transparency Charter that provides clarity around the issues that tend to cause most anxiety to the public: "Our Data Ethics & Transparency Charter is about being very clear about how we don't misuse residents' data nor sell it to anyone. There's no algorithmic decision-making about people's lives. Just being really clear, open and honest of what we're doing.

We already share some methodological statements on our website for some of our work," said Pye Nyunt.

‣ **Staff support:** providing frontline practitioners with support has been key to staff buy-in and effective use of One View. Katy Brown explained how the project team ran sessions for staff to set out the context and purpose of 'why we were doing this' and how it linked to the broader vision of the organization. In describing how they used One View, this also covered the ethics and information governance questions related to data access: a common question everyone asked us is - are we allowed to access this information? We also worked with One View (data) champions – frontline staff who provide support to their teams on making the best us of insight in their work and provide a point of contact through we could pick up and seek to resolve any questions or queries.

> " Our Data Ethics & Transparency Charter is about being very clear about how we don't misuse residents' data nor sell it to anyone. There's no algorithmic decision-making about people's lives. Just being really clear, open and honest of what we're doing. We already share some methodological statements on our website for some of our work.

Pye Nyunt
Head of Insight and Innovation

Gaining staff support is also key to ensuring the tool's continued improvement. Addressing the challenge of data linkage specifically, Katy Brown said: "We are doing more to communicate to users why, in some instances, they might not be able to view a record or why it is matched incorrectly (i.e., conflicting information in different case management systems), which is not the fault of One View directly. At a high level, this is to try and lift staff understanding of the process and to maintain trust/understanding in the system."

▸ **Clear feedback mechanism:** it is important to the project team that improvements to One View are driven by frontline staff feedback. Jill Gallagher described how this works in practice: "Frontline staff give us some great narratives around what's going on for them and how the needs have changed forthe people they're serving. We are able to take that information and then adapt One View to meet that need." This may involve going back to the individual services to address data quality issues: "We have in some areas gone back to services to address some data quality issues and improve things from the point of data entry," said Rhodri Rowlands. This was echoed by Katy Brown: "If staff find information in a case summary they know to be wrong, then we are doing a big push for staff to report it, so we can look at it in the background and amend."

For example, staff feedback has led to increased frequency of data collection. As described in the Key challenges section, data is extracted at different frequencies and can be out of date. Debt information used to be extracted monthly, but LBBD have increased the frequency of these extracts to weekly based on staff feedback. "We are speaking to staff to identify the priority datasets and do what we can to increase their frequency and mitigate the impact of 'time' on the data presented," said Katy Brown.

▸ Information governance (IG): for the service delivery team, it's been very reassuring to know that there is robust IG. Gill Wilson describes her confidence in the tool's IG compliance: "One View has got a very, very good structure to it that embeds the Data Protection Act, the EU's General Data Protection Regulation, so that you know whenever you go in, you only get access to what is at your level. The formal process around the data protection, but also the formal process around the governance structure with the board and everything, it all feeds into the management board. It's very good. It's very strong."
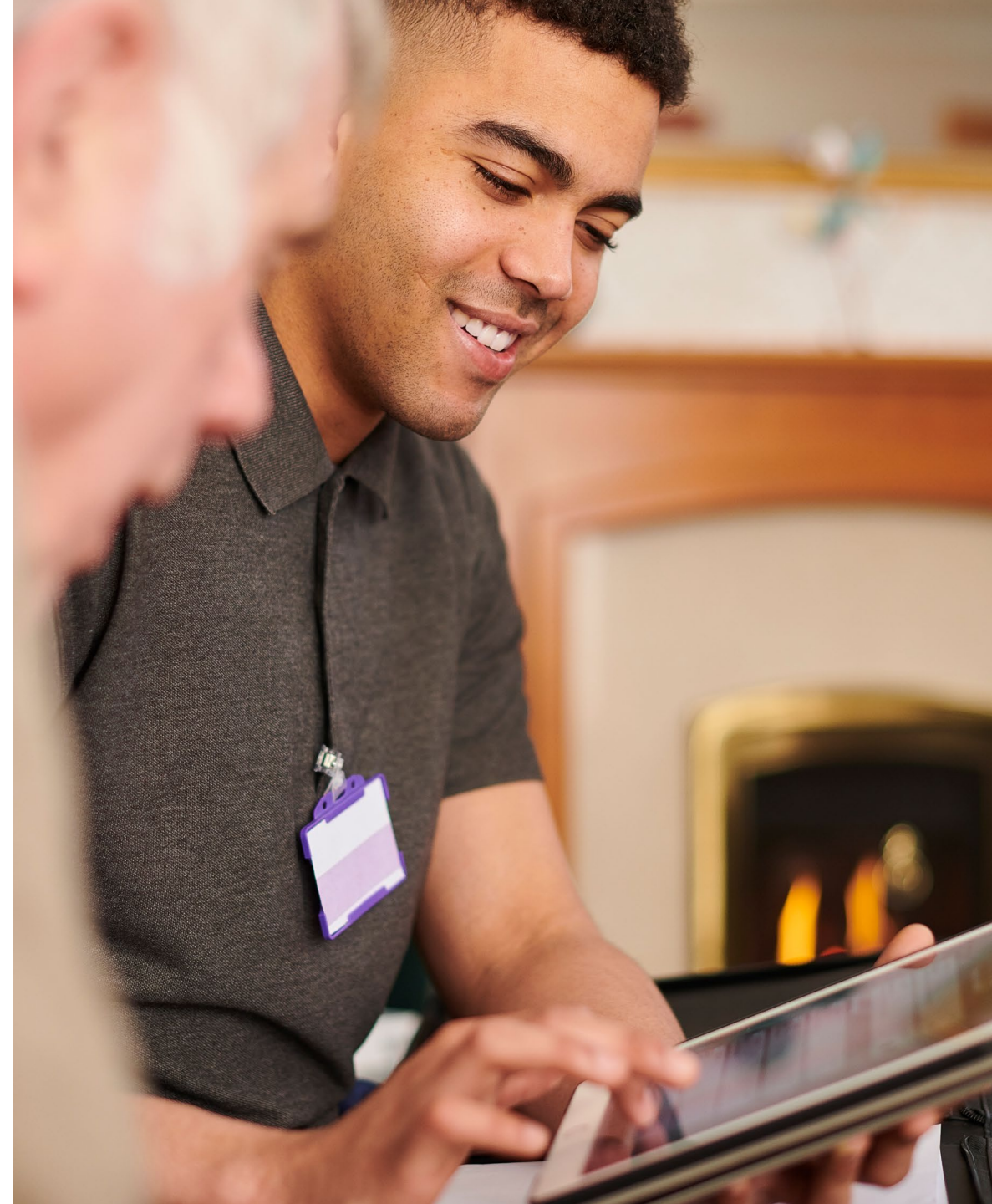
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Future plans

Improving the accuracy of the data, adding new data sources and becoming more data-led as an organization are among LBBD's plans for the future of One View. "My vision of course is that we will come to the point that whatever information we are getting is live. That would be important to enable greater trust. And I hope at some point – this might be wishful thinking – that we would have access to health data for those also in our care. That will be very useful if we can bring that into One View," said Pye Nyunt.

There are also plans to integrate the system with benefits system data in the future. Gill Wilson expressed her enthusiasm for this: "I think going forward with the next phase, there's so many possibilities. We've dipped our toe in the water and done some targeted work previously, particularly around benefits. Targeting certain groups. Just with the little bit that we've done, we've had a lot of success. I look forward to that coming on board, because I know that that's going to open a lot of opportunities for us to really maximize the service for residents, but also maximize income for the council."

For Rhodri Rowlands, it's about services becoming more data-driven, from service delivery to planning and commissioning: "My vision would be that in all our frontline services, we use data and insight to help us better support people to tackle the issues that matter most to them. Its about giving staff access to the tools and insight that is helpful to them in assisting people with the right support, at the time they need it. One View supports us to better understand future demand and what we might do about that. I think data and insight should be at the heart of how we commission as well, so by that we've got to understand what interventions make the biggest difference for particular groups of residents and therefore draw on that data to, for example, commission more of what works and do less of what doesn't. I think it is incredibly important, given the resource challenges that we all have."

> "My vision would be that in all our frontline services, we use data and insight to help us better support people to tackle the issues that matter most to them. Its about giving staff access to the tools and insight that is helpful to them in assisting people with the right support, at the time they need it.

Rhodri Rowlands
Head of Programmes for Community Solutions

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▸ Rhodri Rowlands, Head of Programmes for Community Solutions, interviewed on 5 November 2020

▸ Katy Brown, Programmes and Strategy Officer, interviewed on 22 October 2020

▸ Pye Nyunt, Head of Insight and Innovation, interviewed on 30 October 2020

▸ Gill Wilson, Service Manager, interviewed on 22 October 2020

▸ Charlesworth Benedict, Service Manager, interviewed on 23 October 2020

▸ Jill Gallagher, Service Manager, interviewed on 30 October 2020