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HOUSING TECHNOLOGY™ 2023 | CONFERENCE AND EXECUTIVE FORUM

HOUSING TECHNOLOGY 2023 IN PICTURES

Getting clever
Business intelligence & analytics

Selection & implementation, pitfalls & bottlenecks, and usage, training and democratisation

Housing management
Data fatigue, digital maturity, homelessness and mould & damp

Finance management
Payments, measuring social value, rent arrears and income maximisation

Customer management
Sentiment analysis, digital-first services, ASB & domestic abuse, artificial intelligence and TSMs

Mobile working
Dynamic scheduling, real-time alerts and back-office integration

Infrastructure
Microsoft stacks, future-proof homes, cyber security and environmental monitoring

General
Collaboration, business intelligence and project methodologies

Editor's Notes | March 2023

Two heads are better than one...

During the Housing Technology 2023 conference at the start of March, three areas stood out as being top of the guests' wish-lists and concerns. The first two were data management and cybersecurity, both of which were widely covered during the wealth of presentations at the conference.

The third area was collaboration. Not in the sense of yet more inter-departmental, Zoom-based meetings, but between housing providers.

We all know that the housing sector has a very different dynamic to other sectors, in no small part because we're not competing with each other. We're all largely doing the same things with the same overall aims.

Now think back to a recent technology or business project – let's say it was integrating your shiny new dynamic scheduling system with your legacy housing management system, and with your slightly-creaky CRM system as well for good measure. It probably took some time to work out how to do it, it almost certainly involved some developmental dead-ends and re-thinks, and it likely took time to iron out the post-live teething problems.

One or more of your peers will have already gone through almost exactly the same exercise and will be only too happy to share their experiences with you; indeed, perhaps you can trade their experience with your own experience of another project that they're about to embark on.

Housing Technology believes that all housing providers could gain so much benefit if they just asked their peers, "What did you do, and how did you do it?"

Over the coming months, we'll be focusing on the sector's 'hive mind' to encourage collaboration; please get in touch at **alastair@housing-technology. com** if you have any views on inter-provider collaboration and knowledge-sharing – we want to hear your views!

Forthcoming events

HOUSING TECHNOLOGY
DATA MATTERS 2023

12 September 2023

THE BRITISH MUSEUM LONDON

See page 80

HOUSING TECHNOLOGY 2024

06-07 March 2024
East Midlands Conference Centre, Nottingham

housing-technology.com

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TECHNOLOGY SHOWCASE   Please see housing-technology.com/showcase for more information

Data fatigue in an IoT world

Jon Cocker, CIO, Platform Housing Group

Housing providers like us are suddenly dealing with a LOT of data. Our recent pilot scheme to use Switchee devices in the hunt for more data on how our customers are using the energy and heat in their homes is a great example; it will see real benefits for our customers but it adds to what is already a very busy data picture.

Data overload

Making sense of all this data presents a huge threat to IoT projects from data overload. Our world is more data-driven than ever but is data literacy prominent in our teams? Is it listed as an essential skill on enough job specifications or is it still siloed in just the IT and data departments of your organisation? How much time is it taking your staff to look at and understand your data when we should be providing actionable insights? It's concerning that too much data and not enough intelligence around it could mean some critical alerts are missed, such as alerts from equipment that monitors falls in supported living.

Plenty of sector-risk profiles have recently highlighted that data integrity is key and we know regulators are even keener on it being a high priority.

All this 'too much too soon' can lead to an organisation struggling to retrofit a data strategy, if one exists, into the new world. By that, I mean not just treating IoT as just another system but adapting to a new way of collecting data and a new mentality. We should approach it as a way of addressing business pain-points, such as damp and mould or assistive technologies for vulnerable customers, where it helps us focus on end-users and their requirements. By understanding their capacity for information analysis and how they interact with data and

> All too often in the sector we see poor control over data, and a lack of awareness around how the information across the business is managed... [There is a] lack of transparency around what, where, why and how data is used, updated and reported as well as who has responsibility for it.
>
> **Mazars 2022**

insights, we can create a people-centric approach that considers all the decision-making automation we can now apply while recognising that there's still going to be a human affected at some point.

Triaging your data

In housing, we're well aware of the risks because we've already seen some governance rating downgrades because of poor data quality. The solution comes from

> The best-performing associations tend to regularly promote awareness on the importance of data ownership and stewardship responsibilities across the organisation... Well-developed data governance frameworks promote regular communication between data owners of key datasets across the organisation, allowing for best practice implemented within respective directorates around ensuring good data integrity to be effectively communicated to other data owners.
>
> **Mazars 2022**

defining clear goals and objectives before collecting data, thereby reducing the chance of collecting irrelevant or unnecessary information. Then prioritise it, because not all data is created equal, so we know what is most critical. Use automation to process and analyse data so you can act on those important insights, and work hard on how you present that data to others so it's in an easy-to-understand format. Use machine learning to identify those patterns that help you make decisions, and train more of your staff to be data-literate and democratise data so it isn't just in the realm of IT.

Knowledge vs. data
We always come back to our customers because we must have the benefits for them in mind. It's not just about compliance or efficiency KPIs, it's also about the decisions we make on the investment of our resources. That's why you need to deliver knowledge rather than data so it can be combined with other information to build a picture.

At Platform Housing, our in-house data quality tool is helping us to produce a score for our board on the data we present to them. Developing something that focuses on the picture we present and what then should be acted on is proving vital to how we make decisions.

Another risk we are all concerned about is security. Almost 20 per cent of organisations have detected an IoT-based cyber-attack in recent years, according to Gartner. This can happen due to poor visibility and understanding of the devices your organisation has. Then, do you know where your data is going to be transferred and stored? Is it in the UK or offshore? You'll need to be aware of liability should your IoT devices let you down or, even worse, a breach, attack or failed data request that brings reputational damage.

Is it right?
There are ethical questions, too. Yes, having a device that monitors heating being turned on or hot water being used would indicate a customer is home and could be contacted for sales purposes, but is it right? Without a good data ethics framework, there's no definition on what data you're going to collect and what you're going to do with it. It's where we can be clear and transparent with customers and a place where we can keep our promises.

It makes us think about privacy issues because more data involves more teams needing access and therefore who should and shouldn't have permissions. Remember, IoT data can form part of any subject access request (SAR) or GDPR enquiry that your organisation receives, so who deals with that?

As we make moves to fight off this potential data fatigue, we need to be wary of duplication. Think holistically across your IoT environment and avoid users needing to be responsible for managing multiple solutions. Define your security and understand how the organisation plans to use IoT so that the risks are identified early on, including the involvement of your security teams from the outset. Think about how your new approach should be embedded in your ethics with transparent codes of conduct.

Automated responsiveness
The results we can achieve from all of this 'thought before data' can be great, such as real-time data triggering a workflow to book an engineer for a boiler problem or a housing officer contacting a resident who it appears hasn't been in touch for a while. Let predictive analytics alert you to a problem before it happens and become proactive in maintaining your stock and preventing downtime.

Let IoT help you collect data on your metrics and identify areas for improvement, and so it grows. Next thing you are integrating IoT with other business systems such as ERP or CRM to get a more complete picture of your operations. Then you can start identifying opportunities for real optimisation and gaining insights that might not be apparent from the data alone.

Before you know it, all that data is not slowing you down, and it's enabling cross-functional collaboration between departments identifying all kinds of new opportunities to offer even better services for those all-important customers.

Jon Cocker is the CIO of Platform Housing Group.

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A smart approach to future-proofing homes

Nick Rutter, Co-Founder & Chief Product Officer, FireAngel

How can quick wins, not quick fixes, support housing providers' long-term digital transformation strategies?

The government has announced plans to pass the Social Housing (Regulation) bill by this summer. The intention of the legislation is to reform the housing sector in order to protect tenants' lives, in part by compelling housing providers to address problems faster.

The Regulator of Social Housing will proactively inspect housing providers and be able to issue emergency repairs and unlimited fines. Other changes include giving tenants greater transparency about their housing provider's performance by introducing a new set of tenant satisfaction measures (TSMs).

The government has also pledged to amend the Social Housing (Regulation) bill to include 'Awaab's law' to provide more protection to residents in homes affected by damp and mould, with strict new time-limits outlined for housing providers to investigate reported problems.

The risk of rushing into quick fixes

However, the new legislation in combination with longer waiting lists and placement times may cause housing providers to embark on projects which lead to quick fixes but could result in only the superficial issues being treated.

For example, when addressing damp and mould, anti-mould wall coatings and regular roof and gutter maintenance only go so far, and cavity- or external-wall insulation can increase problems if installed incorrectly.

The additional pressure, along with poor advice and limited access to specialist knowledge, can place housing providers and residents at risk of mould and damp recurring, resulting in additional time and strain on already-squeezed budgets.

Implementing immediate changes for impact

Instead of 'quick fixes', housing providers should consider what 'quick wins' can be implemented that complement a long-term digital transformation strategy to future-proof properties against continuing legislative and societal changes.

For example, FireAngel's FA3328: 10 Year Sync-It (NFC technology) carbon monoxide alarm records properties' environmental metrics, such as temperature and humidity levels, the two principle indicators for damp and mould.

Using the free FireAngel Installer app, Sync-It (NFC technology) provides quick, quiet and contactless data extraction by holding a mobile phone over a FA3328 device to transfer and securely store logged property temperature and humidity recordings. Data can be viewed within the app, shared via email or downloaded as a PDF report for further action.
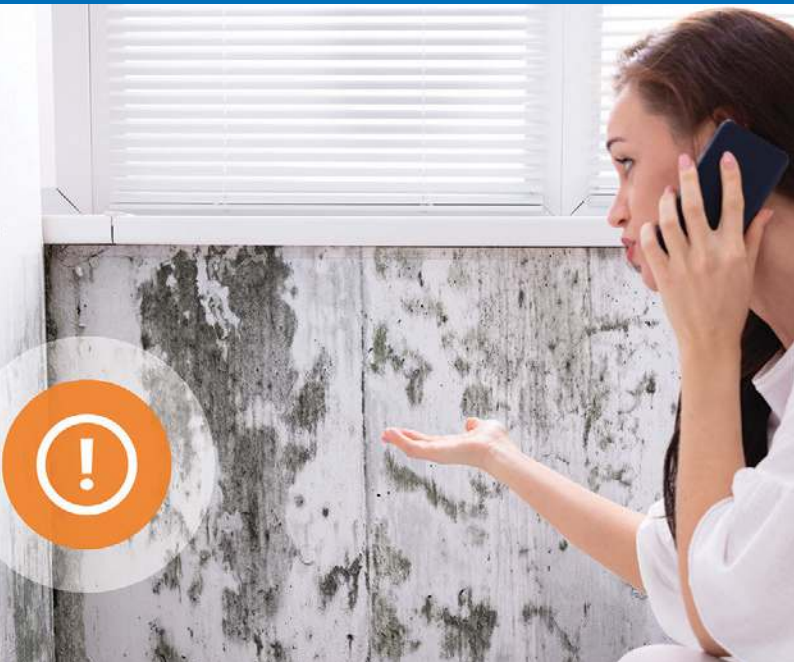
As a standalone device, this carbon monoxide alarm doesn't need any IoT infrastructure but still provides the insights housing teams need in order to focus their resources on properties that need them most, measuring the success of these corrective actions long-term.

A smart approach to holistic resident safety

Alongside these quick wins, the IoT can offer an alternative solution to help housing providers to future-proof properties. Carefully-placed IoT sensors in residents' homes can provide the safe, secure sharing of real-time property insights, allowing a much earlier opportunity to investigate and remedy potential problems.

As the laws on home safety continue to strengthen and the government considers the need for a standalone damp and mould standard for socially-rented homes, data collected from smart sensors may also play a key role in maintaining compliance and identifying future regeneration projects.

When used efficiently, data collected from these sensors allows housing providers to allocate resources more effectively and pinpoint residents who may need further support, providing accurate information about where they might need to adopt different ventilation or heating practices, supporting compliance with the TSMs.

Smart sensors can also provide a clear audit trail, recording accurate and regular environmental readings specific to each property and room. Since the data captured can be analysed remotely, there is less need for intrusive onsite investigations. And after any remedial work has been done, the data can be monitored to ensure the work has had the intended effect.

Maintaining a long-term vision

The IoT also allows housing providers to deploy a host of sensors in properties to create a holistic network of protection, detection and prevention. This includes smoke and carbon monoxide alarms, water-leak detectors or motion sensors, enabling housing providers to create a technological ecosystem in each property that is scalable and expandable in the future to provide increased safety and reassurance.

FireAngel's Home Environment Gateway delivers a holistic resident safety solution, encompassing fire safety, AI-driven risk stratification and background environmental monitoring with temperature and humidity sensors incorporated. Through additional Zigbee sensors, the solution takes resident safety and wellbeing to previously unachievable levels, enabling housing providers to prioritise condensation, damp and mould interventions and increase fire prevention measures for residents who need it most. The gateway is ceiling mounted and occupies the same footprint of a smoke alarm. It can also be integrated with FireAngel's Grade D1 alarms, so no additional wiring is required.

Collected data is uploaded to the FireAngel cloud platform Connected, where it can be processed to provide insights on the most vulnerable tenants and properties. While Connected offers substantial insight via its dashboard, it also deploys open-source APIs which allow full integration with housing providers' existing housing or asset management system. For more information, please visit **fireangel.co.uk/connected**.

Nick Rutter is the co-founder and chief product officer at FireAngel.

From mould to metrics with RBH & Socitm Advisory

When used well, data provides a single version of the truth regarding an organisation and its customers. Following the death of Awaab Ishak who died in 2020 aged two in a home his parents rented from Rochdale Boroughwide Housing (RBH), questions have been asked about the data housing providers hold on their tenants and whether they are using it effectively.

RBH's director of customers and communities, Nadhia Khan, spoke at the Housing Technology 2023 conference in March alongside Socitm Advisory's client services director, Tim Cowland. They talked about the lessons they've learnt from the incident and the factors surrounding how the dangerous levels of mould in Awaab's home were overlooked, with data management being one of them.

Nadhia Khan, Director of Customers & Communities, Rochdale Boroughwide Housing

What is the background of the case involving the death of Awaab Ishak?

Nadhia Khan: Awaab Ishak, a two-year-old boy who lived in one of our flats in Rochdale died as a result of prolonged exposure to mould in his home. The mould had originally been reported to RBH in 2017. The next time we were aware of the problem was in June 2020 when a legal disrepair claim was submitted on behalf of the family by their solicitors. Whilst an inspection of the home was carried out, the works were not completed because the disrepair process at the time meant that we did not carry out works without the approval of the tenants' solicitors. Information submitted to us by a midwife about the condition of the home was not shared widely on our systems which meant the teams working with the family were not aware of the medical concerns expressed.

The coroner's report stated that there was also a lack of information sharing between other key agencies such as health visitors, midwives, early-help services and the GP.

Everyone at RBH is driven by a desire to provide safe and comfortable homes we are proud of. Yet, mistakes were made. We failed Awaab, his family and the community we serve and we will forever remain sorry to his family.

What were the key lessons RBH learned from this case?

NK: Significant improvements have been made following the death of Awaab. We recognise that as a result of having a number of systems that were used by different teams, we did not have a single view of the customer. We have a CRM system that was not being used consistently across the whole organisation so we have now rolled out mandatory training for all our staff alongside clear procedures regarding when and how information should be recorded. We are also engaging with partners who work in the borough to ensure that relevant information about customers is shared when this is needed.

We are committed to improving the quality of the homes we manage and over the course of the next twelve months we are carrying out a stock-condition survey of all our homes so that we have accurate data about the homes we manage. An important aspect of this work currently is dealing with reports of damp and mould. Every time we now visit a customer, whether to carry out a repair or to discuss tenancy management issues, we are doing visual inspections to check on the condition of the home. This information is inputted into our systems so that we can build up a more accurate picture of the condition of our homes.

We are also seeking to capture more information about customers so that we can provide more responsive services; for example, understanding the profile of the household and whether there are any vulnerabilities we need to be aware of. This information about people and property will help us to better focus our services so that customers receive a much better service from us.

What are RBH's future challenges?

Our challenge is to ensure that our customers receive the very best services and that the homes we provide are of a high quality. We have published a recovery plan that sets out all the work we are doing to make sure we achieve these aims. The plan is focused on improving the quality of our homes and ensuring we listen to and involve our tenants. More information is publicly available from our website (**rbh.org.uk/news/rbh-news/our-recovery-plan**).

Turning to Socitm Advisory's Tim Cowland, what are biggest challenges for housing providers?

Tim Cowland: I talk to many housing providers from all over the UK every day, and the picture is remarkably similar wherever we go.

There are the external pressures that housing providers' boards and executive teams are having to contend with. Cost-of-living concerns for tenants mean they will be having difficulties paying their bills and making difficult choices around their day-to-day living which may affect their standard of living and health. The national economic picture is also affecting housing providers' operating costs, including rises in the cost of materials, contractors and staffing. Difficult decisions are having to be made around how these cost increases can be absorbed while trying to maintain the essential support required by customers who have challenges of their own.

Of course, the wider landscape also includes regulatory changes for English housing providers. This is placing a sharper focus on the way in which providers can respond to more in-depth scrutiny and greater customer engagement. The housing teams we speak to are worried about whether they have the necessary processes and data management principles to do this effectively.

Many of my discussions are also with digital leaders, who have their own challenges in supporting organisations to deal with this national landscape. Staffing has been a big problem, with many organisations struggling to attract and retain staff with good levels of digital skills.

However, the most common topic of conversation is around data management. Management teams convey a message of being 'data rich and insight poor'; they know they have a mass of data swimming around the organisation but can't harness the power of that data effectively. It's still a common picture for a housing provider to have numerous data-sets dispersed across a wide range of systems, with no clear understanding of accuracy, duplication and gaps.

Most management teams want to deal with this and reach a position where they're confident about the data they hold and that it's being used to make informed decisions. They're striving for a model of joined-up, consistent data across their systems.

What's your advice to housing providers currently reviewing their overall data management strategies?

TC: As mentioned earlier, data management is very high on the list of challenges for most housing providers at the moment. First of all, gain a clear understanding of the position you're in and the problem you have right at the beginning. It's very difficult to decide what you need to do if you're unclear about your starting point.

When we complete data maturity assessments with our customers, we build an overall picture of their data environment, including assessing leadership and strategy,

data governance, data skills and data security. This then helps them to understand their focus areas and the actions needed to improve. Many teams we talk to admit to holding 'off line' extracts of data taken from systems in spreadsheets and duplicated data in different applications; this obviously poses a risk in terms of customer service, efficiency and GDPR compliance.

Tim Cowland, Client Services Director, Socitm Advisory

Most teams understand that having a perfect data environment doesn't happen overnight, particularly if you are starting at a very low level of maturity. Building a roadmap or improvement plan helps focus on the priority areas to bring quick wins and address the most pressing risks. This creates a solid foundation for more creative and innovative service design to be done in the future.

One of the most important early actions we recommend is to gain senior leadership commitment to building an effective data model. The days of the IT team being the sole owners of data are now long gone, and it's the responsibility of the entire business to own and maintain good data practices. Cultures need to change in order to realise the importance of data and embed it at the heart of everything we do.

Similarly, data needs to work across the whole organisation. As Nadhia highlighted earlier, datasets used in isolation within pockets of the business leads to siloed decision-making and presents real risks. Housing providers should strive for joined-up data across their services so that the full picture can be considered when making both day-to-day and wider strategic decisions.

Finally, I would suggest getting some help before you start your journey. Specialists in the field of data management, such as Socitm Advisory, can help you on the right path and give you clear direction to help you achieve your goals.

Every decision and every outcome can be linked back to the organisation's mission and values, and performance can be measured accurately. Data acts as a compass to help individuals, teams and leaders know they are heading in the same direction.

Nadhia Khan is the director of customers and communities at Rochdale Boroughwide Housing (RBH). Tim Cowland is the client services director at Socitm Advisory.

Kent Homechoice opts for Huume's housing-needs software

Kent Homechoice has chosen Huume for the next generation of its digital housing-needs management software.
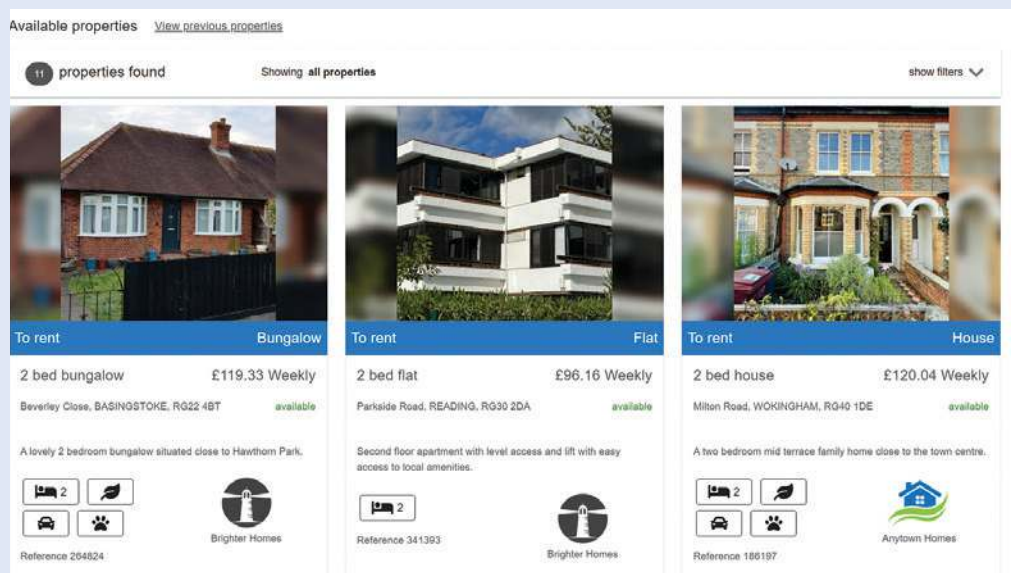
With over 100,000 properties in its combined stock portfolio, Kent Homechoice comprises an alliance of 28 housing associations and 13 local authorities providing social and affordable housing across the county.

Huume's SaaS-based software will be used by Kent Homechoice's alliance members for housing registers, choice-based lettings, social lettings, homelessness, temporary accommodation and referrals.

The new solution will bring all housing, tenant and applicant information together in a customisable platform, giving the members of the alliance the ability to adapt the system themselves.

The project also includes the implementation of Huume's self-service portal for Kent Homechoice's residents.

Kent Homechoice's spokesperson said, "We're delighted to have partnered with Huume to deliver a flexible housing-needs system. Not only does Huume meet legislative requirements, but it also provides us with intuitive pre-assessment and housing application forms, an agile choice-based lettings module, a flexible housing options solution and simple HCLIC reporting. It will also enable us to build cross-module reports and to make referrals to outside agencies."

CCHA & Housing Insight – 700 homes go digital in five months

By **Nigel Lee, Head of ICT & Procurement, Cardiff Community Housing**

When we made our pre-pandemic decision to integrate our housing management system with a cloud-based platform, we opted for PanConnect by Housing Insight. As you would expect, we followed a full procurement process and considered a number of vendors before making a final choice.

We found that Housing Insight's costs were competitive and, from speaking to friends at other housing providers, we knew that its main product was already being used successfully. We were particularly interested in the customer self-service app and portal as well as the staff app, all of which are part of Housing Insight's PanConnect suite of products. In particular, we knew that the self-service app would enable us to fulfil the wish-list put together by our residents' panel; the list included the capability to update details, log repairs, pay rent, view rent statements and balances, and make outstanding rent repayments.

Since our full launch in September 2022, we're pleased to report that 700 of our 3,000 tenants have downloaded the free self-service app. Engagement has been high because we've spent time talking to residents about it and helping them learn how to use it. We also planned ahead to make sure that the product would be as easy as possible for our residents to use.

Six community languages
English isn't the first language of many of our residents so, after consulting our staff, we chose six languages for the self-service app and portal: English, Welsh, Urdu, Arabic, Bengali and Somali.

We used professional translation services to give us confidence that the product would perform well in all those languages, rather than relying on free online translations.

Housing Insight had already created multiple-language functionality within the module, but I think we were the first housing provider to really maximise its potential in this way. Following a soft launch in English and Welsh at first to test the functionality, we rolled out the additional languages in September 2022.

Acting on feedback
We didn't want to do too much, too quickly because our priority was to make sure that our residents felt comfortable using the app. However, even within five months, we've already made improvements. We've amended our mini-statements, on request, so that residents can now see a breakdown of what's coming in and going out of their accounts. We've also changed some of our terminology to make it clear and unified across all platforms.

We're always looking for feedback as long as it's achievable, and I keep reminding people that this is just the first phase of the launch. We'll gradually add more functionality, although we already have forms within the app to help our residents give feedback, request repairs and report anti-social behaviour. There's a payment portal to streamline rents, so that residents can do everything in one place without having to log into another app.

Equipping staff members
We launched an off-the-shelf version of Housing insight's PanConnect staff app at the same time as the customer self-service app and portal. However, we deliberately made the staff app a lower priority in order to focus on helping residents to engage with their technology.

We now plan to develop the staff app, working with our teams to find out what they would find most useful. We're embedding some standardised forms, for example, which should streamline data collection.

We previously saw significant duplication of work because our HMS wasn't linked to the cloud; staff would take notes

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during a visit before returning to the office to type out and upload their notes to the system. Now our teams can use the app when they are out and about and they can search for the information they need in the app itself.

Efficiency savings

We've already enjoyed one quick win – using the staff app to send text messages between staff and residents has halved what we were previously paying for this service.

In addition, the filters embedded in the app help with efficiency savings when it comes to missed appointments. If a resident isn't at home when a neighbourhood manager arrives, then rather than having to return to the office, a staff member can use the filters to identify other home visits that could usefully be carried out instead, such as visiting a tenant who is in arrears.

A measured approach

It's still early in our collaboration, but we've found the Housing Insight team to be both responsive and reactive. We intend to move forward with one thing at a time, picking and choosing whatever we feel will make the most difference to our tenants and staff.

Nigel Lee is the head of ICT and procurement at Cardiff Community Housing.

Single Homeless Project first to go live with ActiveH Web

Single Homeless Project, a London-wide charity, has become the first organisation to implement ActiveH Web, the web version of the ActiveH housing management software from MIS-AMS.

Gil Komur, assistant director of IT and projects, Single Homeless Project, said, "We've been a MIS-AMS customer since 2021. When we decided to explore ActiveH Web, our main goal was to easily manage rent statements, rent accounts and repairs across different sites, and ActiveH Web has enabled that to happen. Furthermore, from the day we decided to implement ActiveH Web, it took only two months to actually go live.

"The demos from MIS-AMS were useful because they let us see how ActiveH Web would help us across different parts of our operations. The implementation itself was smooth – we didn't have many customised processes on the desktop which prevented difficulties and meant that there was a smooth transfer.

"The training and support we received was straightforward. We were nervous about the project at first, but the support we received from MIS-AMS and Incline-IT reduced any worries.
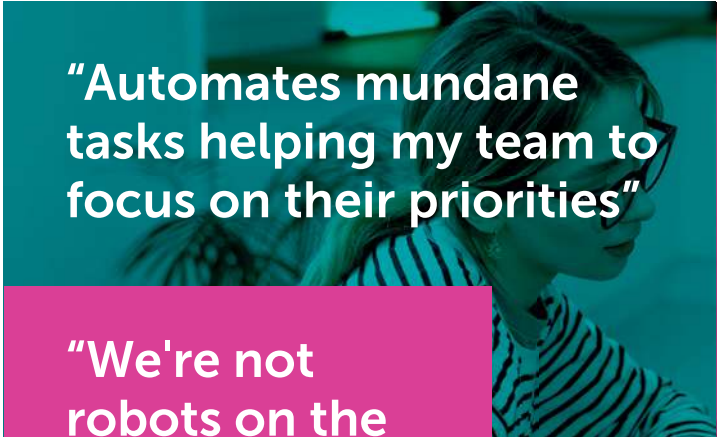
Gil Komur, Assistant Director of IT & Projects, Single Homeless Project

"ActiveH Web is very easy and flexible to use. It is very similar to the desktop version so a desktop process can be transferred to the web. We actually went live with ActiveH Web in parallel with the desktop software, so even if things hadn't gone to plan, we would still have had access to the desktop version.
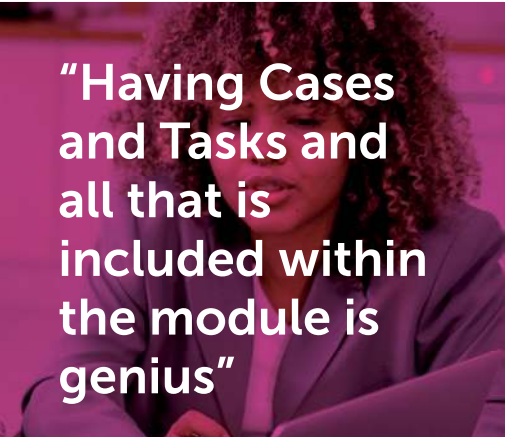
"This has been a great decision because a lot of our infrastructure is cloud-based, we were in a good place for hybrid working and ActiveH Web has improved our ability to work from anywhere. We would definitely recommend MIS-AMS to other housing providers."

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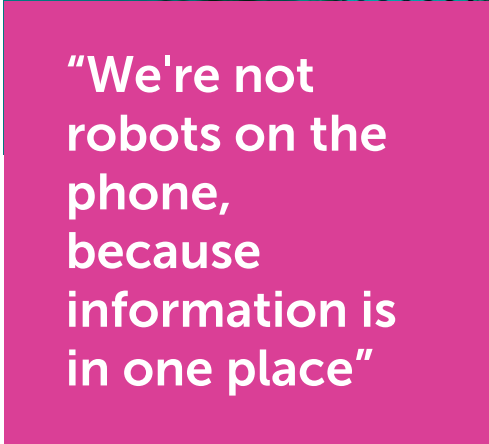
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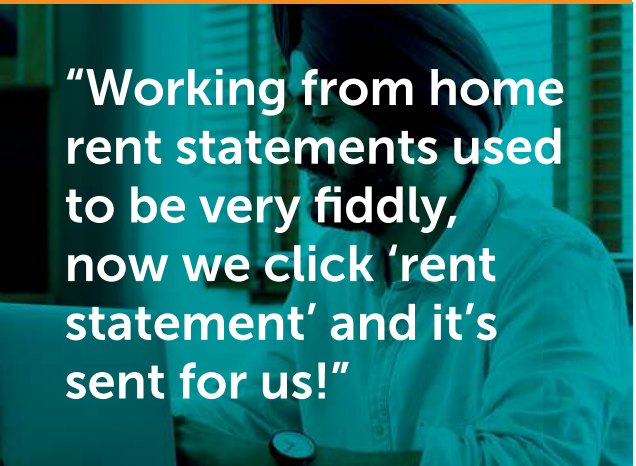
"We're not robots on the phone, because information is in one place"

"Flexible to mould around business processes rather than dictate them"

"Excellent and powerful reporting tools help me analyse data and makes my decisions easy"

"Working from home rent statements used to be very fiddly, now we click 'rent statement' and it's sent for us!"

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Common problems with data migration

Understanding legacy data – the 'size of the beast'

Ben Charlton, Head of Migration, IntoZetta

Like many industries with roots in the public sector, who have historical data going back to the previous century, housing providers often find themselves struggling to maintain consistency across the range of data required for their day-to-day operations.

In some instances, housing management systems have grown organically over time and will be surrounded by ancillary systems, off-system databases and spreadsheets, meaning that operational processes have invariably become intertwined, causing complexity across many operational areas.

Data discovery
This presents a significant challenge, thankfully with a clear solution – data discovery. Data discovery has become a core part of any organisational transformation initiative, with the goal of structuring and implementing a single source of truth for all entities, with clearly-defined processes and models, structured to make the inherent complexities of the industry as simple as possible. Detailed data discovery should also uncover the location of documents, such as PDFs and Word files, that will be required to support business processes in the new world, an area that is often overlooked.

Data quality is also core to this process. The implementation of ongoing cleansing procedures and robust data-quality rules throughout the lifecycle of the 'as is' and 'to be' solutions has become crucial, in order to both measure the data shortfall and maintain the progress made throughout the process, holding those with the responsibility for data quality to account.

Data-quality issues introduced into the new solution as part of a migration often become more problematic to cleanse and continue to cause issues years after the migration has been finished, with the processes that introduced those errors lost to the previous system.

A robust data-quality process and strategy is critical to the success of the migration and, ultimately, to the transformation initiative as a whole.

Under the bonnet of the legacy landscape
Disparate legacy estates, often including the aforementioned off-system and 'grey IT' data sources, living side-by-side with housing management, customer relationship management (CRM) and asset management solutions, are likely to need to be supported by a complex web of automated and manual interfaces. Data is often maintained in multiple locations, frequently leading to cross-database integrity issues and duplication of data. Even within the same system and database table, there is often no clear answer to where the master source of a record lies. In certain cases, the master data source for an entity will differ attribute by attribute.

Such challenges lead to considerations for rationalisation and merging activities, commonly referred to as 'golden record' creation, whereby rules will be established to build an entity record from different locations based on a set of clearly-defined criteria and rules.

The complexity of such activities should not be underestimated. For complex data areas such as components, it's not uncommon to need to start the golden record creation activities up to a year before the planned go-live date to ensure that the dataset to be migrated is accurate.

Tooling & migration architecture

It's critical that robust technical infrastructure is established to support the migration process through the extract, transform and load (ETL) process, as well as the surrounding data quality and technical reconciliation activities.

Extraction routines will need to be implemented with careful consideration to BAU system processes and batches, and also to ensure that the security of data is maintained throughout the migration journey.

A robust migration environment will also ensure that accurate data quality reporting can be maintained even in the midst of a data-load cycle, which will require a static, point-in-time source dataset and code base.

It's advisable to procure specialist data migration software, which should offer the ability to formally document and manage the data-mapping rules and logic, define data-quality rules and report on their output, and also support automated data profiling.

Migration preparation

As well as understanding the scope of the data migration in terms of source systems and data entities, the volume of data to be migrated also needs to be understood and defined in detail.

It is rarely advisable to migrate all records from source to the new target system(s). As the volume of data increases, so do the cleansing efforts and reconciliation activities, as well as the time required to process new records into the target environment in each load cycle (not to mention the impact on the new target system's performance, invariably affecting the user and customer experience after the go-live).

Careful consideration should be given to data retention rules and policies, as well as regulatory reporting requirements. Future-state enterprise reporting capabilities will play a key role in determining the approach for the historical data that should not be migrated, and the obfuscation of personally identifiable information (PII) and sensitive personally identifiable information (SPII) to allow data science teams to perform trend analysis should also be considered.

In general, migrating the bare minimum of data required to support the operational business processes is a sensible approach.

Prior to each data-load cycle, there will be a key dependency on the preparation of not only the master data and transactional data entities, but also the reference data and configuration values that will be used by the new target system. The time and effort required to define these is often overlooked, and the mapping and development of master data and transactional entities is reliant on their delivery in plenty of time for the first load cycle.

For the new-age of highly-configurable software, it's not uncommon for the number of target reference data and configuration entities to number into the hundreds, the definition for each requiring a rigorous approach to ensure that the target ways of working can be achieved. This requires input and ownership from the subject-matter experts (SMEs) with in-depth knowledge of their respective business areas, as well as support from the solution experts to advise on functional usage and impacts.

Conclusion

Unfortunately, due to the above complexities, migrations can often be as harmful as they are helpful. Few would dispute the requirement for the implementation of more modern and flexible systems within the housing sector, the requirements for which often arising from constraints within legacy systems that have required them to be altered over time to suit the changing industry. While good solutions in the short-term, these alterations often add complexity and convolution to operational processes and system maintenance activities, as well as leading to data duplication.

The implementation of new systems to help rationalise the legacy system landscape offers a way to remove these complications, but only if this ultimately allows the business to cease operations within the previous system completely. Sadly, this isn't always the case and the organisation can find multiple systems working in parallel for a period of time.

Instead of the new 'single source of truth' solution they set out to attain, housing providers often then find themselves living with a more complicated, transitory architecture, further fragmenting their operational processes and introducing technical debt for tactical integrations.

By establishing a clear strategy and adopting tried-and-tested methodologies, technical facilitators and expert consultants, the risk of a failed migration can be eliminated. The decision, however, is up to you.

Being aware of these common problems in advance will really help the data migration delivery be a success. Unfortunately, with migration there are no short-cuts; they just lead to greater risk, unexpected delays and higher costs.

Ben Charlton is head of migration at IntoZetta, and Daniel Thompson is a senior data consultant at IntoZetta.

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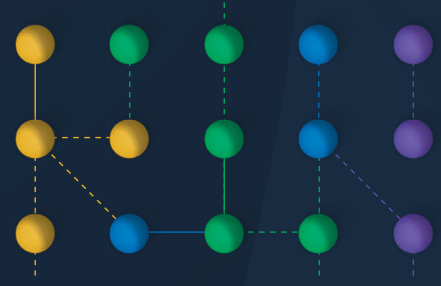
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When digital maturity met legacy stock

Has housing's digital maturity compounded issues with damp & mould?

Rob Quayle, Interim CEO, Housemark

The housing sector has a track record of responding to change; from the rent cuts during the Cameron/Osborne austerity era to the more recent pandemic, housing providers have demonstrated they can pivot. While that agility is an asset and undoubtably delivers short-term gains, bubbling under the surface are more systemic challenges.

This is illustrated by the sentiment shift that happened during the pandemic. When neighbourhood teams and repairs operatives were grounded, housing providers channelled their resources to really get underneath residents' needs, preferences and vulnerabilities. This spike in resident communications enhanced the quality of customer data and resulted in a deeper understanding of residents' needs. In turn, this strengthened the relationship between residents and their housing providers and led to a mid-pandemic (but not sustained, sadly) improvement in customer sentiment.

A perfect storm

What's happened since then? The answer is far from straight forward – after all, housing providers already had a full agenda, with pandemic recovery, repair backlogs, significant regulatory and policy changes, and competing demands for asset investment to improve quality, remediate building safety problems and tackle decarbonisation. All of that was before the economic crisis brought cost of living challenges, labour and supply chain inflation and scarcity, leading to the reality of constrained financial capacity and resilience in the face of increased operating costs.

In such a difficult operating environment, the digital and data immaturity of the housing sector has started to bite. It's worth reflecting on two high-profile examples. In the 2018, the Hackitt report called for a 'golden thread of building information'. The report stated, "In other sectors we take it as read that if there is a fault or a problem, every single element of what has gone into that product can be traced and identified – from cars to food. Why isn't that the case for the homes that we live in? Why is it that the 'design' of a building often bears only a passing similarity to what is actually built, and what is built doesn't get recorded? How can those who become the managers responsible for managing facilities do that if they don't know what they are working with?"

Then in November 2022, the Regulator for Social Housing (RSH) wrote to housing providers asking for information and evidence regarding the identification and management of damp and mould. In February 2023, RSH published its initial findings on damp and mould in English social housing. While most housing providers were reported to understand the extent of damp and mould in their homes and were taking action to tackle it, it was noted that approaches could be strengthened.

There was also an observation that some poorer responses relied heavily on reactive approaches rather than pro-actively looking for evidence of damp and mould and that weaker data and evidence about the condition of homes was apparent. Having a robust understanding of baseline stock condition, being proactive about detection, having strong processes for the early identification of damp and mould and responding quickly to problems were all described as vital to tackling this material issue across social housing.

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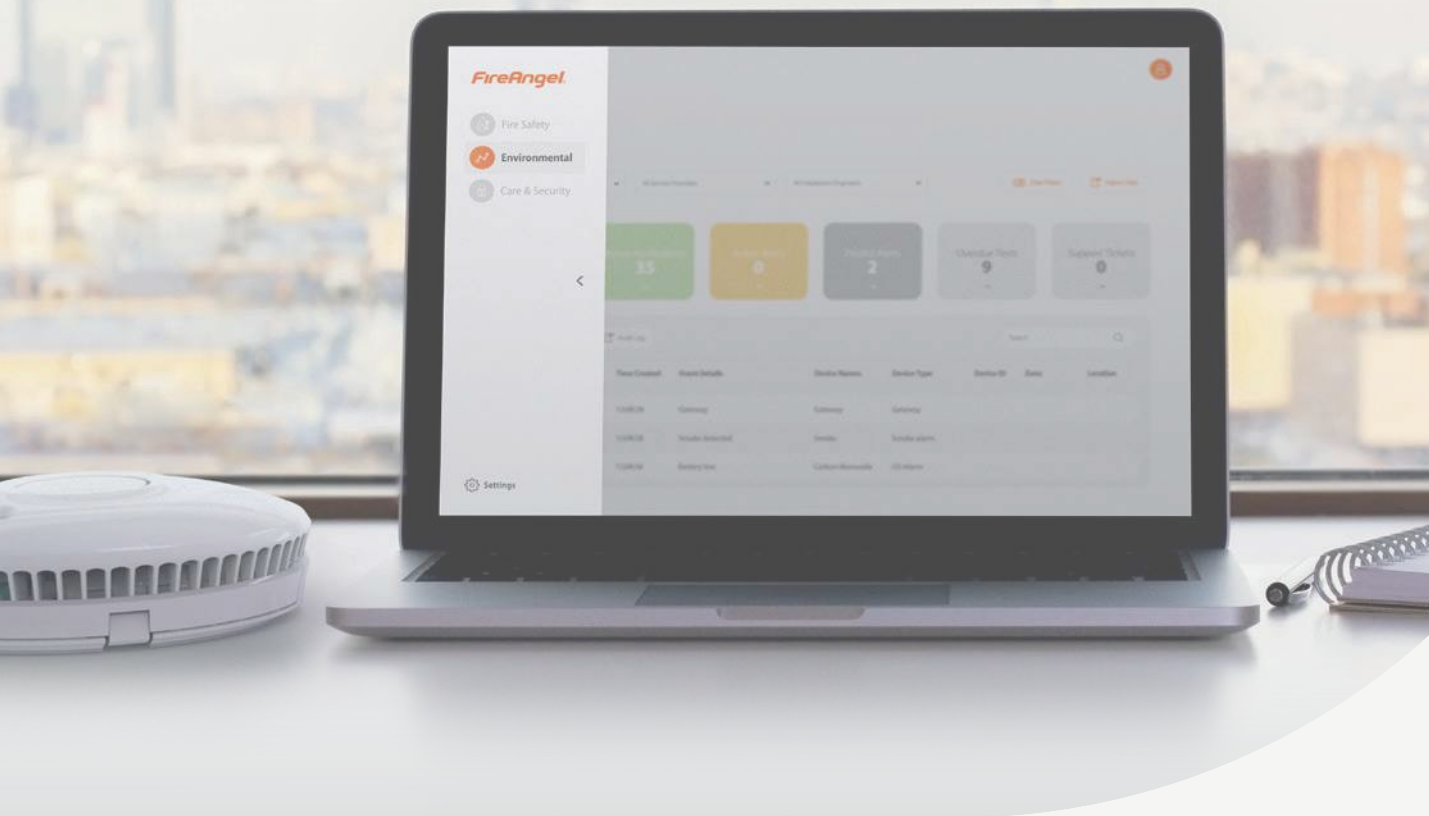
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In a sector with a density of legacy stock, gaps in embedded data-driven processes and a digital maturity that is only starting to scratch the surface, how can housing providers get to grips with the challenges they are facing? Pivoting and taking action is an expensive route to solving systemic problems; it's only with robust data, intuitive early warning, predictive technologies and efficient, simple processes that leaders can begin to tackle the root causes of challenges such as damp and mould and take action quickly and cost effectively.

Avoid 'cookie cutter' solutions

As someone who has spent their career in fast-paced, B2C sectors, I've learnt that technology can be a game changer but only when it is developed and deployed to meet the needs of customers and designed to support the challenges that are being faced. There are too many 'cookie cutter' solutions that are pitched retrospectively and, in my experience, often fall short of their initial promises.

In the housing sector, when thinking about the challenges of damp and mould, the combination of good quality baseline data, early identification and robust processes that pro-actively drive action is the only game in town. I've spent the past year understanding challenges and I'm currently working with a pilot group of housing providers on a solution that provides all of this at their fingertips.

Top 5 priorities for tackling damp and mould

- Understand your baseline – stock condition data needs to be current and understood;
- Use building and personal data to drive prioritisation and identify potential future problems;
- Invest in early-detection technology to address damp and mould before significant impact;
- Connect your technology to embedded processes for managing buildings and estates;
- Analyse trends, create visibility of issues and ensure your management and boards take action promptly, holding internal organisations and contractors to account.

When we step back and think about the complexity housing providers are facing, any of us involved in developing products and technology to help our customers must focus on the stakes. We need to get this right, and our solutions must solve the problems in sustainable, embedded ways.

Rob Quayle is the interim CEO of Housemark.

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Social value through payments

Stephen Ferry, Managing Director, Pay360

With many tenants experiencing financial strain, it's important that housing providers ensure that the payment provider they use can provide adequate support to the tenant communities they serve.

This depends on thinking more deeply about the role of a payment provider. It's not just how you take payments, it's also how your customers most often interact with you. Payment providers are obviously a vital component in the payment journey, for settling bills and making debt collection plans, but they should also add social value by supporting and giving confidence to your customers.

Using data to alleviate pressure

With the right payment provider and payment solutions, housing providers can gain data insights to protect tenants and optimise the customer experience using innovative technologies such as Open Banking.

Open Banking enables banks and authorised service providers to securely access users' financial data, and has important applications beyond just taking and receiving payments. It enables visibility of data in real-time, with access to the most accurate data being critical to making well-informed decisions about lending and repayment. As well as this, and perhaps more importantly in terms of generating social value, this takes the pressure off tenants when it comes to potentially difficult conversations.

Private-sector customers can shop around and choose the providers that suit their preferences and needs but social tenants operate in a smaller environment. On top of this, tenants may be affected by the digital divide or find it difficult to understand and discuss their finances. When housing providers' advisors can view up-to-date financial data, this can take the pressure off tenants to identify and

prepare the information needed in advance and removes the possibility of human error associated with this. Instead, advisors can use data not only to inform decisions, but also to put tenants at ease and foster supportive discussions.

Managing debt

Digital technologies such as Open Banking can also be used to gauge affordability. During a time when it's easier than ever to slip into unmanageable debt as the cost-of-living crisis takes hold, housing providers have some responsibility to look out for their tenants. This means ensuring they do all they can to prioritise debt avoidance rather than simply helping to manage increasing debt.

The visibility that Open Banking provides is instrumental in this, but there are more tools that housing organisations can use to ensure that they make the best decisions for their tenants.

For example, identification and verification checks can be done as part of the payment provider's technical capabilities to heighten security for customers. Biometric solutions can be used to protect against identity fraud, while compliance solutions can ensure that Know Your Customer (KYC) regulations are met and customers don't get swept up in loans they can't afford to repay.

As well as this, housing providers should ensure that they use the data at their fingertips in intelligent ways to make tenants' lives easier. Data should be used as the basis for

formulating a personalised plan for managing payments, either by ensuring the timing and amount is feasible for tenants to avoid debt or by devising the best way to split debt repayments into manageable amounts.

Building trust

It's vital that housing providers remember that they are serving a vulnerable demographic. This means it is particularly important to build a relationship based on trust and support, in which tenants feel supported, empowered and informed.

Offering tenants flexibility is a key aspect of demonstrating to them that their needs are the housing provider's priority. For example, this can be done by implementing payment technology into the housing ecosystem to enable tenants to choose whether they pay in person, by direct debit, via newer options such as Apple Pay or Google Pay, or through Open Banking.

The cost-of-living crisis has highlighted the importance of building customers' trust. As fraud rises, customers are also growing increasingly concerned about keeping safe. According to recent research from UK Finance, 60

per cent of people worry about becoming a victim of fraud. Some users will feel safer using digital wallet or Open Banking payments because these are connected to the biometric security features, whereas others will feel safer taking the traditional route of in-person payments; recognising this variation and the role of individual choice is absolutely crucial.

With the right payment provider, housing organisations can improve their ability to protect tenants and optimise the customer experience. By working in the customers' best interests, payment providers and housing organisations can offer digital technologies that will not only increase efficiency and accuracy, but will make a genuine difference to the lives of their customers.

Stephen Ferry is the managing director of Pay360.

Oxford City Council's arrears down by £170k with Mobysoft

Oxford City Council's arrears have fallen by £170,000 during the past year after its implementation of RentSense and advice from Mobysoft's income maximisation consultancy.

Katie Ball, income manager, Oxford City Council, said, "RentSense now provides an accurate caseload for our income team, and the consultancy from Mobysoft's housing-income expert really got our officers involved and enthused."

Mobysoft's income maximisation director, Nick Beasley, worked with the council's income team, advising on best practice for effective and supportive income collection.

Ball said, "Our arrears are usually static or rise each year before Christmas, but this year [2022] when we really focused on using RentSense, we've managed to cut our arrears by £171,000, despite the cost-of-living crisis, and the number of tenants in arrears has fallen as well."

Dundee City Council cuts arrears by £230k
Dundee City Council used Mobysoft's RentSense software and its income maximisation consultancy to reduce its arrears by £230,000 between September and December 2022.

Karen Donachie, corporate debt manager, Dundee City Council, said, "Our income team has shown great resolve and determination. Despite the roll-out of universal credit to 4,600 tenants, cost-of-living increases, post-pandemic working, the ongoing implementation of our new housing management system and an overall lack of resources, our arrears have actually decreased.

"Our income team really embraced this project, including their involvement in Mobysoft's income maximisation consultancy. We set clear objectives for the project, around workload completions and arrears reductions. The improvements are very visible; in January 2023, our arrears are around £200,000 lower than at the same time last year."

Milton Keynes Council's arrears fall by £400k
Milton Keynes Council has used the same Mobysoft software and consultancy package to cut its arrears by over £400,000 as well as substantially reduce the number of households in arrears.

Leona Evans, housing income manager, Milton Keynes Council, said, "Since April 2022, we've 355 fewer households in arrears and we've reduced our high-level arrears [cases above £2,000] by 100 cases through support rather than enforcement.

"Our arrears are now £415,000 lower over the past year, at £2.8m (a reduction of 13 per cent), and we've been able to release planned bad debt provisions because our arrears are ahead of where we thought they would be."

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Your Housing's 30% boost with FLS

Your Housing Group has improved the efficiency of its field operations with the Visitour scheduling software from FLS – Fast Lean Smart, achieving a 30 per cent increase in productivity for its operatives.

Following a strategic review of its operational efficiencies towards achieving value for money and customer satisfaction targets, YHG embarked on an IT investment and digital transformation programme.

YHG uses Microsoft Dynamics 365 and selected FLS Visitour as a robust dynamic scheduling and mobile solution that could also integrate with its MRI AccuServ repairs management system.

The first priority was to deliver the FLS solution for Fix360, YHG's 200-strong repairs team followed by its voids team and then other business functions such as surveyors and housing officers, in total around 300 workers.

Darren Halliwell, CIO, Your Housing Group, said, "At the heart of our requirements were dynamic scheduling and accurate routing, and we considered proposals from many vendors, including Microsoft's own RSO solution and those well-known in the housing sector.

"What stood out for us was how FLS covered our functional requirements; cost-led, traffic-based and in-day responses in real-time, combined with the functional depth to meet every scenario. FLS brought experience from the housing sector and beyond, plus it came with Microsoft's stamp of approval for added confidence.

"The joint YHG and FLS team adapted well to the new circumstances [remote workshops during the pandemic] and they didn't hinder the timescales or quality of design. FLS provided digital accelerators and integration guidance, which led us to go-live on time and within budget. We've been very impressed by the adaptability of the product and FLS's consultants."

Darren Halliwell, CIO, Your Housing Group

Fix360 has over 3,000 repair categories, and once a customer's need is qualified by the call centre or via its 24/7 self-service portal (Your Home Hub), Visitour provides the optimal appointment choices according to the operatives' availability, with the customer receiving confirmation text messages as reminders. This uses real-time optimisation, not just finding 'white space' to fill in the diary, with the added accuracy of actual time-of-day traffic speeds for every journey. Each appointment is therefore cost-effective and punctual, using operatives with the right skills enabling the best possibility of first-time fixes.

Adrian Mostyn, Head of Repairs & Maintenance, Your Housing Group

The FLS solution also included FLS Mobile, tailored to fit YHG's needs. When completing repairs, there were previously many pages of forms to be completed. In partnership with FLS, a repairs app was designed in collaboration with YHG's operatives, with the forms modified and reduced, helping them to deliver a more efficient service and faster completion of jobs, including the capture of SOR and materials. If a follow-up appointment is needed, it can be booked there and then on the operatives' mobile app, using the same efficient algorithm employed by the call centre.

Adrian Mostyn, head of repairs and maintenance, Your Housing Group, said, "Our new way of working has been transformational for my team; we're completing around 30 per cent more jobs per operative on a like-for-like basis which is tremendous."

During the pandemic, the FLS solution enabled YHG to assign scheme-approved operatives who had the necessary skills for scheme-specific repairs and maintenance. Post-pandemic, new pressures emerged to include the rising costs and shortage of materials, fuel prices, wage pressures, hiring and operative retention, sustainability and reduced carbon emissions.

With the success of FLS Visitour for YHG, the next area of focus was the voids team. The inspector first visits the property and captures the work and sequence of trades needed in the FLS Mobile app. This is fed back to Microsoft Dynamics, which 'owns' the overall process, and FLS Visitour automatically schedules the work in the most efficient way.

Conan McKinley, director of asset management, Your Housing Group, said, "Our investment in FLS has given us a tool that we can rely on across the business, rather than just repairs and maintenance, which is its USP. FLS is more adaptable than the alternatives and is revolutionising our internal scheduling."

YHG highlighted the benefits it has gained from FLS:

- 30 per cent increase in completed jobs by operatives through efficiency and a commensurate saving in fuel and emissions.
- Greater visibility of jobs and a reduced risk of backlogs.
- Automated messaging of arrival-time reminders to customers, reducing the risk of 'no access' appointments.
- Self-service appointment booking has been enabled; a repair can now be reported 24/7 in just a few seconds, fitting around residents' lifestyles and working days.

Halliwell said, "With FLS, we brought experience from outside the sector and applied it to social housing. It felt like a game-changer and achieved outstanding results.

"Until our implementation of FLS, our scheduling didn't have that extra edge. Because FLS isn't sector-specific, it had no real barriers so its product could address each scenario we came across. It also has a technology stack that made it easy to integrate seamlessly with our existing technology."

Welcoming AI into our homes

Alex Oldman, Client Relationship Manager for Housing, Civica

Civica's Alex Oldman explores how the internet of things is already making a big difference in social housing, but there's still some way to go.

Artificial intelligence (AI) is proven to deliver real benefits and protect residents from harm using pattern cognition and augmented reality. While the UK government announces plans to introduce 'Awaab's law' into the forthcoming Regulation of Social Housing bill, technology already exists to protect vulnerable households from hazards such as damp and mould. But why hasn't this technology been widely deployed?

There are examples of early adopters. Flagship Housing is two years into its programme to deploy 20,000 Switchee devices to homes across the east of England by 2030. These devices monitor home environments, harvesting data and looking for patterns. The software then adjusts the heating system, saving the household money and protecting the building and residents against risk of damp and mould. Pre-emptive boiler-breakdown alerting also improves Flagship's repairs service and customer satisfaction. AI learning can be used to determine the deployment priorities based on occupant need, built form and other human-determined factors.

Kingdom Housing has implemented visual AI in the form of augmented reality (AR) which overlays digital information onto the real world. The organisation deployed an AR solution during the pandemic to provide remote guidance for responsive repairs. The solution allows repair operatives to provide a hands-on overlay within an app to show how to resolve a problem.

Visual AI gives software the skill to scan, identify and classify objects from video or still-image sources. This allows solutions that can recognise and understand an image they are being presented with. For example, using visual AI to inspect photos provided by residents for evidence of damp can provide protection or drone surveys can identify problems with roofing that might

be invisible to the naked eye, plus a drone can survey hundreds of houses per day from the air, saving time and efficiencies.

Meanwhile, text-based AI enriches customers' digital experiences by allowing searches based on semantic analysis and natural language processing (NLP) to improve interaction with searches and chatbots.

Functional AI can detect a problem by comparing an actual working pattern with a standard one. A good example of this is plant-room monitoring, where the acoustic signature is first learned and then anomalies are found by algorithms to find faults in, say, bearings. Preventative maintenance can then be scheduled to prevent downtime from unplanned breakdowns.

It is important that organisations must be very clear on their policies before deploying any type of AI. As the writer Terry Pratchett once said, "Real stupidity beats artificial intelligence every time."

Huge data capture and data processing activities must be balanced with data privacy. For example, automated decision-making must be aware of any hidden or unwitting bias that might not consider race, age or gender. But with all these considerations taken into account, it's clear that change is coming, and we need to be ready for it.

Alex Oldman is a client relationship manager for housing at Civica.

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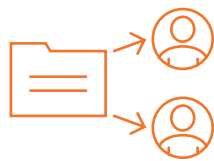
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Sentiment analysis & TSMs

Caroline Thomas, Senior CX Service Designer, FourNet

Sentiment analysis, also known as opinion mining, has a history dating back to the 1960s when psychologist Stuart Oskamp made the first attempt to classify text based on sentiment using a simple counting method.

In the 1980s and 1990s, sentiment analysis gained popularity in market research, then in the early 2000s, machine-learning algorithms were introduced, allowing for more accurate analysis of large datasets. With the emergence of social media in the mid-2000s, sentiment analysis became an important tool for monitoring and understanding public opinion on platforms such as Twitter and Facebook.

In recent years, sentiment analysis has become more widely-used across a variety of sectors, including finance, healthcare and politics. Advances in natural language processing (NLP) and machine learning have led to more accurate sentiment analysis and the ability to analyse more complex types of text, such as social media posts and product reviews. Today, sentiment analysis is a rapidly-growing field and continues to be an important tool for understanding and analysing public opinion.

Uncovering satisfaction

With the tenant satisfaction measures (TSMs) coming into effect in April 2023, understanding the sentiment of tenants will be more important than ever. While the survey questions themselves have fixed responses, the verbatim comments could be a valuable source of additional data for housing providers on the reasons behind their feedback, enabling data-led strategies on what improvements and changes need to be made.

Advantages

- **Scalability –** Sentiment analysis can be applied to large volumes of text data, making it useful for processing not only verbatim feedback but also social media feeds and other forms of user-generated content at scale.
- **Speed and efficiency –** Sentiment analysis algorithms can quickly and accurately classify the sentiment of a large volume of text, saving time and effort compared with manual analysis.
- **Insights –** Sentiment analysis can provide valuable insights into customers' opinions, helping housing providers make data-driven decisions.

Disadvantages

- **Accuracy –** Sentiment analysis algorithms are not always accurate and may misclassify sentiment, especially in cases of sarcasm or irony.
- **Contextual limitations –** Sentiment analysis algorithms often struggle to account for the nuances of language and sector-specific context, leading to errors in classification.
- **Bias –** Sentiment analysis algorithms may be biased towards certain sentiments or groups of people, depending on the training data used.
- **Lack of granularity –** Sentiment analysis can only provide a high-level analysis of sentiment and may not capture the nuances of sentiment within a piece of text.

Emotion vs. sentiment

Sentiment and emotion are related concepts but they are not the same thing. Understanding both emotions and sentiments in natural language processing (NLP) is important because they provide different and complementary information.

Sentiment refers to the polarity of a text, whether it is positive, negative or neutral. Sentiment analysis is useful for quickly gaining a general understanding of the attitude expressed in a piece of text.

Emotion, on the other hand, refers to the feelings or states of mind evoked by a text, such as anger, joy, fear or sadness. Emotion analysis is more nuanced than sentiment analysis because it attempts to capture the complex and multi-dimensional nature of human emotions.

Understanding emotions in addition to the sentiment can provide deeper understandings and insights into the impact an experience had or is having on a customer.

The future of sentiment analysis in housing

- **Multi-lingual sentiment analysis –** With such a growing, diverse cultural composition across UK housing providers, multi-lingual sentiment analysis has become more important. Advanced machine-learning models that can accurately analyse sentiment in multiple languages will be in high demand.
- **Real-time sentiment analysis –** The ability to analyse sentiment in real-time, integrated with chatbots, voice assistants and recommendation engines, providing support to both agents and customers.

- **Emotion detection –** Sentiment analysis has moved beyond simply identifying positive or negative sentiment to detecting emotions such as anger, joy or sadness. This will enable businesses to provide more personalised customer experiences and make more informed business decisions.

Caroline Thomas is a senior CX service designer at FourNet.

Four ways BI can improve tenant services

Trevor Hampton, Director of Housing Solutions, NEC Software Solutions

The housing sector is on the cusp of something big. For years, housing providers have been collecting data. Data on the structure of properties, the nature and frequency of repairs and data on rental payments, and although this data has been very useful, until now it has done little more than tell a housing provider what is happening on a day-to-day basis.

While this allows housing providers to react to complaints and deal efficiently with problems as they arise and review processes, it hasn't enabled them to get ahead of the curve and predict what might happen tomorrow or next year.

But this is set to change. The latest developments mean data can be cross-referenced and analysed to spot trends and patterns to improve service to tenants and predict issues before they arise.

The potential is momentous, enabling housing providers to make earlier interventions which have the power to transform the social value they deliver. Here's how housing providers can ensure they make the best use of these tools.

1. Overload on information

There is no such thing as too much information when it comes to business intelligence. The more quality information you have, the better you can predict what could happen in the future, allowing you to create strategies to address any potential issues.

What if you could predict that in four weeks' time a tenant risks falling into arrears for a period of several months? Armed with that information, you could arrange an intervention to avoid court action, eviction and potential homelessness.

Business intelligence tools can predict with over 85 per cent accuracy a person's likelihood of paying rent on time by bringing together data about historic payment patterns, demographics and where people live. You can then use those insights to provide targeted support such as putting a payment plan in place for those people identified as most at risk to get them back on track.

In the same way that data can be used to improve income management by predicting those more at risk of debt, it can now be harnessed to help housing providers discover and understand the root causes of damp and mould. This will enable them to adopt a more strategic response to this priority issue.

Combining tenant and property data into one platform will help housing providers to rank households more at risk of damp and mould. For example, is it the asset that is structurally failing or is the property over-occupied and not being ventilated sufficiently.

This 360-degree view will give both tenants and housing providers the insight and understanding they both need to tackle the issue together so pre-emptive action can be taken. One housing provider we work with was able to analyse their entire stock and predict properties with damp and mould at an accuracy of 75 per cent. Not quite at the click of a button, but almost.

2. Use tenant visits to expand your knowledge base

Most organisations will have other opportunities to expand their available data sets. I estimate that most housing

for a certain type of property. This information builds on the knowledge you already have about a property to see if these levels are appropriate or if they could signify damp and a potential mould risk.

Analytics can even take into account certain variations in the seasons or if humidity increases at mealtimes so that those peaks can be discounted. Reports are then produced on the system alerting which homes need urgent reviewing for damp concerns.

The current thinking is that one in five houses will have a damp and mould problem. When you consider some housing providers have over 50,000 units of stock, that's a lot of properties to know what to maintain and when. The data from IoT sensors could make that a far easier process.

4. See data collection as an ongoing process

Data left in a system can become redundant very quickly. Given the nature of social housing, key factors can change very fast, such as whether a leaking roof has been fixed or if the tenancy has changed from a single person to a young family. Maintaining your dataset is fundamental to solving the current crisis regarding housing standards.

Ultimately, keeping on top of your data so that business intelligence and analytics are performing to the highest level will improve the services you can provide to your tenants.

And although it may seem a large task to gather all this data, work is underway to retrofit properties using the net-zero grant. This provides an opportunity to improve data sets by considering whether to fit an IoT sensor at the same time or to conduct an 'eyes on' survey to detect any other issues.

Providers can also buy in data from other sources such as utility companies. Energy consumption data when overlaid with internal data can make for a richer dataset and reveal a pattern of over- or underconsumption, signalling a potential cladding or boiler issue. Providers can then head off a problem before it develops. This will help build tenants' trust and relationships will be further strengthened if they can see the value of working with their housing provider to help improve their homes. Gathering quality data and using business intelligence will only improve this further.

Trevor Hampton is the director of housing solutions at NEC Software Solutions.

NEC

providers visit 90 per cent of their stock each year for one reason or another – for a gas safety certificate, maybe a repair or a tenancy visit.

If you have every person that enters one of your properties do an 'eyes on' survey, you could rapidly improve the information you have available on the repair state of each home or identify the potentially more vulnerable tenants who might need more support later. A quick checklist to run through each time to answer questions such as, "Is there damp and mould in the property, and if so, how far has it spread and does the elderly tenant live alone?" can rapidly expand housing providers' knowledge to improve their support to tenants and manage their housing stock more efficiently.

And because business intelligence tools can now analyse unstructured data in notepads and reports, the system can be pre-programmed to detect key words such as 'annoyed', 'fed-up' or 'health condition' that a housing officer has entered. This can generate a report alerting which properties may need to be more urgently investigated.

3. Make use of IoT

We are moving from a world which relies on word of mouth or documents to gather data to obtaining that information direct. The ability to access real-time data from inside your properties such as temperature, humidity and carbon monoxide levels has been made possible with IoT sensors. These small pieces of hardware fitted inside homes to detect changes in the environment provide a gold mine of information.

Algorithms can be finely tuned to interpret the data correctly such as what is an acceptable level of humidity

Overcoming digital self-service mistakes

Stephen Hall, Director, Active Housing by Hallnet

As a supplier of digital self-service solutions, Active Housing has partnered with housing providers of all sizes across the UK. Post-pandemic, we've seen a flurry of housing providers embark on a range of self-service projects, such as customer portals, tenancy applications and repairs reporting.

However, amid these exciting projects, we see the same mistakes hindering the success of projects and burning through tight budgets.

We were excited to present a session on the 'Top five digital self-service mistakes' at the Housing Technology 2023 conference, giving real-life examples from our experience, showing how these mistakes can be prevented and overcome. Here are a few things we covered in our talk…

Procurement

We started with the procurement process; in our experience, we've found that not all housing providers procuring a solution will share details of their project budget with their potential suppliers, resulting in suppliers bidding with the cheapest but not necessarily the best, most cost-effective solution, which can be matched to budgets.

Most procurement projects list all of the requirements for now and the future to keep a lid on costs, but this results in projects being inflexible, with no contingency budget for variations based on customer and sector demands. The flip-side of this is broad requirements in tenders, with tenant applications, for example, carrying the same score-weighting as minor functionalities, such as supporting hyperlinks.

We recommend cross-department working from day one of the project, alongside current back-office capabilities.

Delivering and dropping

Once live, there can be a lack of project resourcing, with little or no marketing or outreach plan to customers and minimal resourcing for ongoing enhancements and optimisations.

We see self-service projects treated as legacy, like back-office software implementations; instead, consider a minimum viable product (MVP) approach, with continual improvements to deliver more long-term system sustainability, with features added in response to residents' feedback.

Portals as a tick-box exercise

Self-service portals were the 'hot ticket' a few years ago but they now seem to be going back to a tick-box exercise, with some housing providers using portals from their incumbent back-office system providers. If self-service isn't the supplier's specialist area, their solutions can have minimal functionality, with a limited development roadmap, inflexible integration, poor accessibility and additional costs for bespoke changes.

Furthermore, the biggest risk if you want to replace an incumbent supplier's back-office system is using a portal tied to a single supplier because you might have to replace the whole portal all over again.

Integration

Self-service tools should be integrated into back-office systems so that transactions are seamless, with service levels via the portal the same as via the telephone otherwise customers will continue to phone your contact centre.

Many housing providers have developed their own self-service solution in-house; this can result in high costs, longer delivery timescales, less functionality, challenges when mergers occur or if staff leave the organisation.

The Active Housing team is committed to enhancing the self-service user journey for residents, including repairs and integrated payments, with the priority of making it easy and intuitive over being perfect for the back office.

Not focusing on 'big ticket' items

Our seminar last year focused on 'big ticket' self-service items; these continue to be a common mistake. The mentality of the sector is to deliver a feature and then move on, rather than improving and refining the most frequently used and requested services, because customers' requirements change and technology improves.

To put that in context, there are still very few housing providers who can honestly say that they have fully-integrated payments and self-appointing repairs reporting, which are the two most commonly requested services by customers.

Stephen Hall is a director of Active Housing by Hallnet.

MRI Software launches Safer Communities

MRI Software has launched MRI Safer Communities, a cloud-based case management solution to report, manage and monitor cases of anti-social behaviour and domestic abuse in social housing.

Safer Communities provides an efficient way for housing providers' ASB- and DA-focused teams to record incidents, as well as actions and interventions taken to support victims and deal with perpetrators.

Mobile-enabled and browser-neutral, Safer Communities supports self-service to help housing providers and local authorities make their services available anytime, while enabling residents to report incidents, provide evidence and track the progress of cases themselves. Safer Communities covers complaints handling, investigations, enforcements, prosecutions and reporting.

Deborah Matthews, vice-president of product management, MRI Software, said, "Enabling residents and housing officers to report and monitor ASB and DA cases at any time, and from anywhere, is hugely beneficial for everyone.

"Safer Communities makes the whole case management process much more straightforward and transparent at a time when many housing providers have found themselves dealing with a sharp increase in reports of ASB and DA incidents. This, combined with the introduction of the Domestic Abuse Act 2021 (DAA) and increased regulatory scrutiny, has made it harder for housing providers to respond to and manage ASB and DA incidents."

The ASB part of Safer Communities allows housing officers to manage complaints, requests for service, investigations, enforcements, prosecutions and reporting, while the DA part provides the tools they need to manage everything from crisis calls and hotline services, to intake and assessments, safety planning, MARAC (multi-agency risk assessment conference) meetings, accommodation placements and follow-up support.

Safer Communities includes:

• A dashboard for housing officers with real-time status updates, alerts and actions;
• A self-service customer portal;
• 'What3Words' integration;
• Editable email and letter templates;
• An audio transcription tool;
• A comprehensive suite of management reports;
• Built-in workflow automation for reduced administration;
• Customisable around local requirements, such as risk assessments, action plans, ASB/DA pathways and court packs.

Dr Kelly Henderson, managing director and founder, Addressing Domestic Abuse, said, "One of the features I particularly like is the transcription tool. Having tools like this while on the move is really important for effective case management."

Digital-first, self-service and 360° views

Judith Comber, Account Executive,
Salesforce for Housing

The challenges housing providers are dealing with today provide a real impetus for becoming more technology-driven. The Regulator of Social Housing (RSH) is bringing in more active consumer regulation next April (with quality of housing a key focus), yet a report from the regulator last autumn highlighted a number of risks for housing providers' compliance. These ranged from access to labour and skills to the ability to deliver services and rising costs and inflation. In addition, the cost-of-living is a major challenge for residents, with two-thirds worried about meeting their living expenses.

The days of paper & problems

Back in 2002 when I began my journey in this sector as a customer service agent with a small local housing provider, we dealt with repair calls, conducted face-to-face tenant interviews and took rent payments in cash. Our office was located in the heart of the housing estate we served and we took it in turns to run over to 'The Yard' where our internal contractors lived, with paper invoices and queries from residents.

Mergers brought change, expansion and a multitude of new systems. These included an Access database for rents, a scheduling system for repairs where we still had to telephone to book an appointment and a CRM system that was essentially a Word document to log customer interactions. This siloed way of working often led to dissatisfied customers and agents frustrated by their inability to help.

Fast forward 10 years and we're still hearing the same stories. Manual processes, different teams using disconnected systems, data duplication, paper-based forms and an over-reliance on phone calls and emails are all familiar contributors to poor experiences for staff and residents alike.

Meeting expectations through technology

We all receive (or at least expect to receive) a high-quality, attentive and personalised customer experience when we buy goods or services online. This is no different for social housing residents who expect modern, tailored and easy-to-use communications with their housing provider. Such expectations include prompt service and resolution of issues, knowledge of past interactions and the ability to communicate through whichever channel suits them, and preferably when it suits them too. As residents, they also want efficient and transparent housing services so they can be confident their properties and tenancies are safe.

Achieving this resident-centric approach relies on having technologies in place that put every person front and centre of everything a social housing organisation does.

And it's not just good for residents, but modern cloud technology is of enormous benefit to all stakeholders

including staff members, partners and suppliers. With the right technology, organisations are taking control of their data, defining and understanding the metrics and insights they want to measure, and delivering greater process efficiencies.

Housing providers such as Riverside and Broadacres are among those making digital changes to enable them to deliver more effective outcomes for customers and staff.

Using a CRM to manage residents' entire journeys, from online portal enquiries and transactions to quantifiable results and outcomes, Broadacres has implemented a digital-first experience for residents, streamlining service delivery and resulting in a 55 per cent increase in efficiency. Meanwhile, Riverside's implementation of a customer portal and its use of bots have helped it achieve a 50 per cent reduction in call-handling times and improve first-time resolutions as well as customer self-sufficiency. It has seen more than 17,000 residents sign up to the portal, which provides real-time status updates on repairs and web-chat options.

Graham Weaver, Riverside's head of digital products, said, "By empowering our customers through self-service, we can increase the quality and efficiency of our services. A digital approach enables us to capture richer insights into the needs of our customers and the maintenance of our properties."

Putting residents first
Having a 360-degree view of residents means all housing staff are empowered with a single source of information that is accurate and current. Residents can be confident that their issues are not only being recorded but will also be resolved in a satisfactory manner, with the ability to have their voice heard when needed. Surveys, satisfaction measures and transparent reporting are all key indicators that ensure residents feel safe, secure and happy in their homes.

Technology also puts more control into residents' hands. Customer portals help to increase satisfaction by allowing them to self-serve in key areas, such as logging and scheduling repairs, checking rent statements, making payments and receiving real-time status updates on repairs. The provision of multiple communication channels such as web chat and WhatsApp enables them to get in touch and ask questions when it suits them. And when they do need help from the customer-service team, the CRM's 'single view' approach means the agent has immediate access to all the information needed for a speedy, efficient resolution.

With greater protection for tenants' rights and their rising expectations of a good customer experience, the onus is on housing providers to remain compliant and to deliver, and this is impossible without the right tools.

Some housing providers, such as Riverside and Broadacres are already ahead of the game in adopting the technologies needed to transform their approach. As the benefits for housing providers and their residents become better known, I look forward to seeing others follow their lead.

Judith Comber is an account executive at Salesforce for Housing.

Simplifying customer communications

Stewart Mackay, Senior Business Development Manager, CM.com

Automation can provide the solution for housing providers wanting to take customer service to the next level.

With so many channels available for consumers to speak to brands, the world of customer communications is becoming more complex. We know that WhatsApp and Facebook Messenger are the two most popular messaging channels in the UK, used by 80 per cent and 72 per cent of the population respectively, but it's not enough to be active across just two channels. Consumers will change their communication preferences by device, by the time of day or based on who they're communicating with.

With brands active across a plethora of channels, the challenges of providing best-in-class customer service are, sadly, sometimes beyond the skills of mere humans. Creating an ever-growing team of customer service agents might seem like a solution, but a sprawling, shift-based network of agents will give you more headaches in the long term.

The problem is that consumers expect the same level of customer service from every business they interact with. It doesn't matter if it's Amazon or their housing provider. They want their problems resolved quickly and effectively, ideally with just one interaction.

Justin Crittall, head of innovation at Vivid Housing, said, "Our customers don't compare us to other housing providers because they don't get services from them. However, they will compare us to every other provider they use, so the bar is already very high."

Creating a network of contact options that gives your customers just that – options – is the key to delivering superb customer experience.

Managing multiple channels

Logging in and out of multiple messaging dashboards just to check who's messaged you and where sounds like the stuff of customer-service nightmares. Thankfully, you don't need a string of passwords to manage multiple messaging platforms. With an omni-channel dashboard, you have a single login and access to every channel you manage, along with customised views showing how a conversation with a single customer has moved between channels.

Using a customer data platform (CDP), you can store every data point you hold for a particular customer, giving your agents vital information at their fingertips. That means you can follow all the interactions a customer has had with your organisation and they don't need to repeat themselves, a particular bugbear of most customers.

Instant answers

Consumers' expectations of lightning-quick response times provide even bigger challenges for housing providers. Deflecting those calls via other routes is crucial to managing demand, and 'live chat' options can help your team manage many more interactions than would be possible using linear, one-to-one channels such as voice. Encouraging your customers to explore other options, and making it easy for them to do so with a variety of entry points on your online platforms, can encourage them to self-serve or at the least use less labour-intensive options than calling your customer-service team.

It's good to talk

70 per cent of consumers prefer to use the phone for support, but just because they're calling doesn't mean we can't still automate a percentage of those calls. Voicebots can triage customer contacts and route only the most important queries to your team. That means they can deliver basic advice in a friendly, voice-led format for those customers who still want to hear someone at the end of the line. Ultimately, the result is the same; prompt customer service and efficient escalation for those who need it.

Out-of-hours customer care

Work/life balance is as essential for your team as it is for your customers. The fact remains that many will contact you outside office hours to report problems and automation can offer an effective 24/7 customer-service

solution. For example, an external knowledgebase chatbot allows customers to self-serve out of hours with a vast database of FAQs.

Automation > headcount

Where necessary, the system can escalate queries to an on-call team member if required so you can maintain the personal touch for more complex queries but needn't overload your skeletal out-of-hours staff. Equally, urgent enquiries can be flagged for attention as soon as your human team gets back to their desks, helping them to prioritise tasks more effectively.

With the ultimate goal being to get your customer to a satisfactory solution as quickly and in as frictionless a way as possible, automation delivers a wide range of contact options designed to deliver improved customer experience and reduce stress and pressure on your human customer-service agents.

Any business looking to scale its customer experience should consider technology solutions before even considering additional headcount.

Stewart Mackay is the senior business development manager at CM.com.

Platform Housing's IoT deployment with Switchee

Platform Housing is installing Switchee devices in its residents' homes. The housing provider wants to use Switchee's IoT-based smart thermostats to provide real-time data and analytics about the performance of its housing stock.

The use of Switchee data and its use in the housing provider's core business applications (via API) will help to inform decisions and resource deployment around maintenance and raise alerts for problems such as damp and mould. The data will also identify where residents may need support.

The project forms part of Platform Housing's programme to achieve a minimum EPC-C rating in targeted properties by 2028. The installations are being carried out through Switchee's trusted installer network.

The Switchee devices will be installed across different types of properties, including supported accommodation, properties at risk of condensation, damp and mould and into properties as part of the Social Housing Decarbonisation Fund. All of the Switchee devices will be fitted by the end of March 2023.

Jonathan Cocker, chief information officer, Platform Housing, said, "We're delighted to be working with Switchee to improve the way we help customers in their homes. These devices are just one of the ways we're investing in technology to achieve energy efficiency in all that we do and benefit the wider UK housing sector."

Tom Robins, CEO, Switchee, said, "Using technology like Switchee is game-changing for housing providers. By enabling them to understand what's actually going on in their properties, they can change their operational footing from reactive to proactive. They can see where their biggest problems are and can deploy resources more efficiently and with lower operating costs."

Spotting the signals of an impending cyber-breach

Jonathan Lee, Director of Public Sector Relations, Sophos

It's hard to know what's more challenging for housing providers these days – coping with the increase in the scale and complexity of cyber threats or managing the security tools to contain them and the noise they create.

From talking to Sophos's numerous housing clients, it's clear that their IT environments are as complex and dispersed as many other sectors. Users are now anywhere and everywhere. Physical assets such as endpoints, servers, wireless access points, switches and remote devices all need protection. Furthermore, many housing providers have resources in the public cloud as well as SaaS business applications such as Office 365.

Cyber telemetry

You've probably invested in multiple security tools to defend your environment, including endpoint and workload protection, firewalls, email security, cloud security, network detection and response and identity solutions. These products, as well as blocking already-known threats, also provide valuable signals – telemetry – to help detect, investigate and respond to today's advanced human-led attacks.

What can analysts use this telemetry for? Endpoint alerts can highlight suspicious activity and malware. Firewall

data can be used to look for intrusion attempts, and network telemetry can spot rogue users and unprotected devices. Cloud alerts can flag up unauthorised network access and efforts to steal confidential data, and email alerts can pinpoint initial entry points into the network. Finally, identity data-logs can reveal malicious network entry attempts and adversaries aiming to escalate privileges.

Each of these telemetry signals is useful on its own, but if you combine them, you can accelerate your detection and response.

Lack of security standards

Why hasn't anyone been able to do this at scale so far? That's because, although combining all this telemetry makes perfect sense, doing so is extremely difficult in practice. This is partly because there's a complete lack of standardisation across the security sector concerning the format of the raw telemetry data. Security vendors use different alert reporting formats and severity levels for the same threats (you'll be aware of this challenge if you're currently using a SIEM tool). The inability to correlate this data effectively means housing providers' IT teams often can't identify issues quickly. What's more, they are overwhelmed by alerts and unable to determine which ones belong together and where to prioritise.

If you've read my previous articles in Housing Technology, you'll know that a growing number of housing providers are turning to our managed detection and response (MDR) service to support their IT teams and increase their cyber-security protection. Our MDR service provides the expertise of a remote group of cyber-security specialists
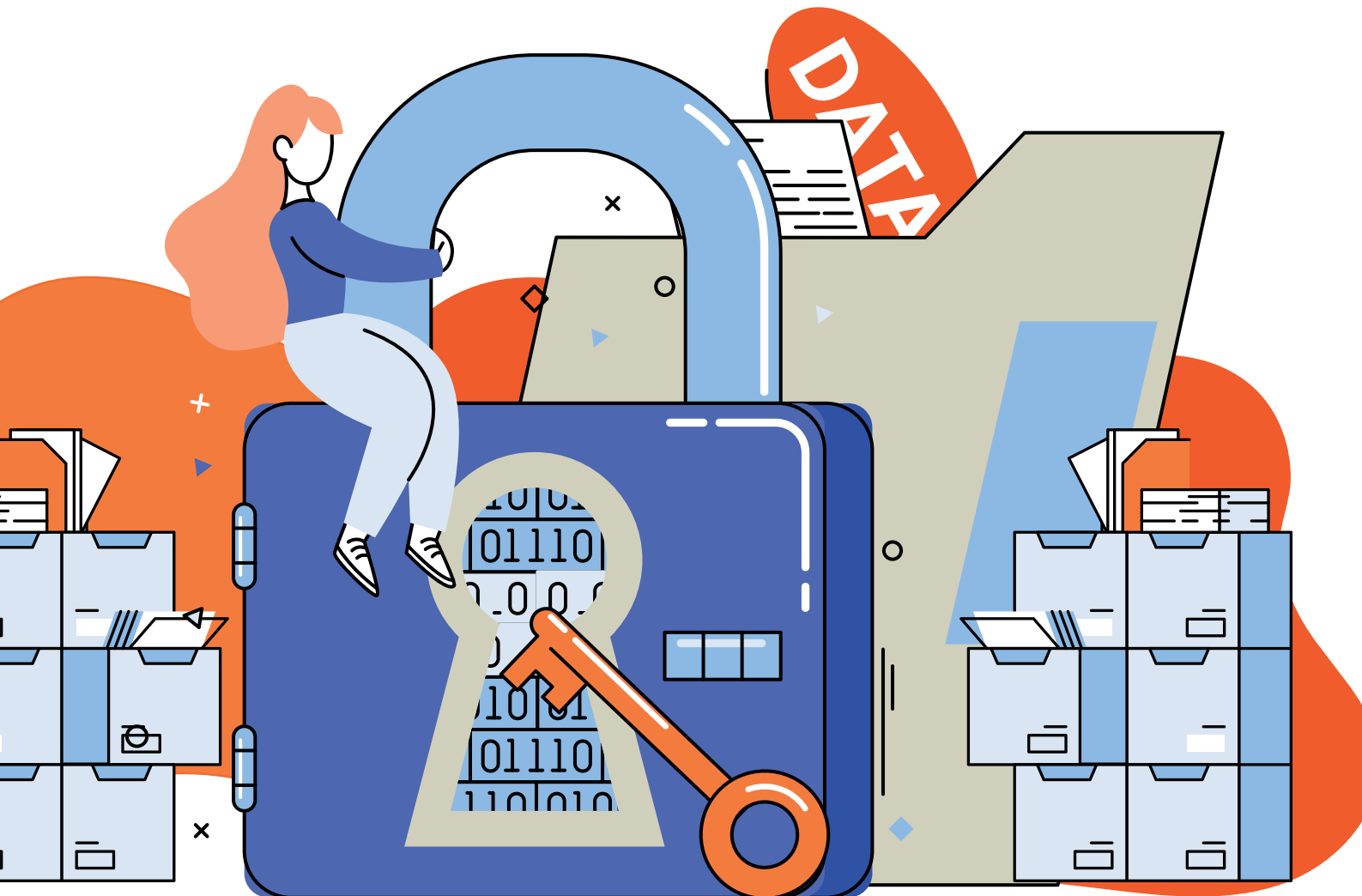
to help you search for, analyse, monitor and neutralise threats that technology alone can't prevent. Instead of reacting to a breach, these teams are proactive in detecting malicious behaviour that could remain undetected and cause a disruptive, costly and reputation-damaging cyber-attack.

Security event flows

One key element of the service is MDR's 'security event flow'. We collect all the telemetry from vendors' tools, put it into our data lake so we can work with it and then put it through what we call our 'detection pipeline'. With the clean, correlated and clustered outcome, we create a case that the experts in our MDR operations team can investigate. This process makes what for others is a difficult task seem easy. Taking all those alerts and converting them into usable, prioritised insights enables us to secure our customers' environments.

We typically process over 31 billion events daily, resulting in over 358 million detections. On the day our team pulled the data for this article, the MDR security event flow created 367 cases, of which 47 were escalated, and one active threat was detected and neutralised.

Faster responses

As these numbers demonstrate, trying to do this without event flow would be overwhelming for almost any housing provider. This solution is one of the reasons we can achieve an average MDR threat response time of 38 minutes, including detection, investigation and remediation. That's around 10 times faster than even the quickest internal SOC team.

Cyber-security challenges will only become more complex, so adopting smarter ways of working are vital for keeping your organisation secure. That's one of the reasons why more than 15,000 customers, including many housing providers, trust Sophos for managed detection and response.

Jonathan Lee is the director of public sector relations at Sophos.

SOPHOS

Data-led security at Notting Hill Genesis

Gavin Inns, IT Security Manager, Notting Hill Genesis

In today's hyper-connected world, with multi-faceted cloud services operating in a private, public or hybrid ecosystem, network appliances such as firewalls, routers, switches and other similar devices have become an essential part of our IT environment. They help us stay connected, protected and efficient but at the same time, they generate an enormous amount of data that can be overwhelming to manage and analyse.

As organisations become ever-more reliant on technology to conduct business operations and store valuable data, ensuring the security of their information assets has become a significant challenge.

Housing-specific cyber-attacks
We've seen a massive increase in sophisticated cyber-attacks across the housing sector, and the likelihood of an advanced and persistent Russian-led (and other nation states) attack is a real concern; for the first time, housing providers are being actively targeted.

It's therefore vital to understand the threat landscape and the security posture of your most critical assets and, most importantly, their 'breach value'. However, the challenge is deciding which data is important and which isn't, and then how this triaging can be used to identify threats, understand their impacts, and prioritise your security remediation activities.

Governance arrangements
To protect these assets, it's important to have effective governance arrangements in place that help you to understand their security value and cost, allocate budgets for security measures and prioritise your remediation activities. However, these governance arrangements aren't without their challenges because there is often a lack of understanding around what makes an effective governance model, the board doesn't always understand their responsibilities, cyber-security risk isn't always on the board agenda and governance frameworks aren't necessarily wholly-aligned to cyber risk and the corporate objectives.

This article explores the magnitude of data generated and the challenges in managing and analysing that to gain insights into the security posture of a network. We will also look at possible solutions and strategies that have helped Notting Hill Genesis effectively leverage this data to improve our own security posture and mitigate cyber threats.

We collected large amounts of data from security systems, network appliances, security assessments and large datasets (both structured and unstructured formats). Making sense of this was extremely difficult, which meant we couldn't make informed decisions about our security posture and how to secure our most critical data.

Security value and cost
One of our first challenges was to understand the security value and cost of our information assets. This required a comprehensive understanding of the assets' role in our organisation, the potential impact of a breach or loss, and the cost of implementing effective security measures. Without this understanding, we found it very difficult to make informed decisions about how to allocate resources for protecting our information assets.

Like many organisations, budget considerations and limited resources were another challenge. We therefore made a deliberate decision to move away from agnostic security solutions that were expensive, resource-intensive to manage and provided little value in terms of security telemetry and tangible detect-and-response capabilities. With Microsoft investing billions of dollars in security and

leading many of Gartner's 'Magic Quadrants', it seemed sensible to invest in leading technology solutions that would provide the best and most appropriate security value for the business, with a single 'pane of glass' for our security telemetry.

Using this approach brought about significant security benefits:

1. We consolidated and centralised our security management. This enables our security teams to manage and monitor security policies, configurations and incidents from a central location. It led to more efficient and effective security operations by reducing complexity and improving visibility into our security events across the organisation.
2. We configured our security platforms to work seamlessly with other Microsoft tools and technologies, including Windows, Office 365, Azure and others. This integration helped us to create a more holistic security environment, where our security teams can use high-quality information and data from multiple sources to detect, prevent and respond to security incidents.
3. By consolidating security intelligence, we can generate more accurate and reliable security metrics and analytics. This approach helps us to measure and track the effectiveness of our security controls and identify areas for improvement. It was also pivotal in the creation of our unified security dashboard, providing a single view of our security posture.
4. Our centralised approach offers advanced threat-protection capabilities, including machine learning, behavioural analytics and threat intelligence. These technologies help us to identify and respond to complex and advanced threats in real time, reducing the risk of data breaches and other security incidents.

Creating comprehensible data

One of our biggest challenges wasn't collecting intelligent data but turning it into a security metric that stakeholders, senior leadership teams and our audit and risk committee understood. After all, how do you begin to understand or articulate what your security posture looks like?

Reporting security metrics to the board can be a challenge. The board is typically responsible for overseeing the organisation's overall strategy (including risk management) and requires clear and concise information about the organisation's security posture. However, reporting security metrics can be complex and requires a deep understanding of the technical details of security measures as well as an ability to communicate this information effectively.

Defence in-depth security

Having sophisticated Microsoft security technology that continually scans for vulnerabilities and gaps in security

enables us to understand which security data is most valuable and relevant, which we can then analyse to produce risk scores across our 'defence in-depth security', aligned with the most prominent attack vectors. This then equates to recommendations on how to improve our security; we apply a risk-based approach, aligned to our risk appetite, to identify priorities based on our other defence in-depth measures.

We've created several Microsoft PowerBI dashboards to slice up the data to make it intelligent. Essentially, we use intelligent data to drive our security decisions on a continual basis.

The dashboards include all of the key security metrics that comprise our security layers which depict, at a governance level, our security defence in-depth. Our targets are calculated by knowing tangible and achievable security remediation actions, based on our risk appetite and where we can confidently balance security risk and reward without affecting critical business operations.

These metrics are measured at an executive level and the data that underpins these metrics drives cost and resource to get the scores at the agreed target level.

Understanding our security posture

Never before have we been able to understand, at this level, what our security posture looks like. By collecting and collating data from security platforms in Azure, for example, and presenting the data in this way, you can see how we're driving security excellence through everything we do.

But more importantly, we continually scrutinise our security to drive excellence. We found one way to do this is by benchmarking our security against other organisations. We do this against the other G15 housing providers and we also do this against FTSE-250 companies that share the same sector as us. But excellence for us means leading in other sectors too.

Overall, effective governance arrangements for protecting information assets require careful planning, resource allocation and clear communication. By addressing these challenges head-on, organisations can better protect their valuable information assets and maintain the trust of their customers and stakeholders.

Gavin Inns is the IT security manager at Notting Hill Genesis.

Smartline – Cornwall's digital test-bed

Prof. Emma Bland, European Centre for Environment & Human Health, University of Exeter & Mark England, Head of Innovation, Maintenance & Group Procurement, Coastline Housing

For six years, the Smartline project has been researching how digital technology can help people live healthier, happier lives. Sensors in 300 social housing properties in Cornwall have been monitoring environmental conditions inside homes, while surveys and questionnaires with customers have been building a richer picture of their lives.
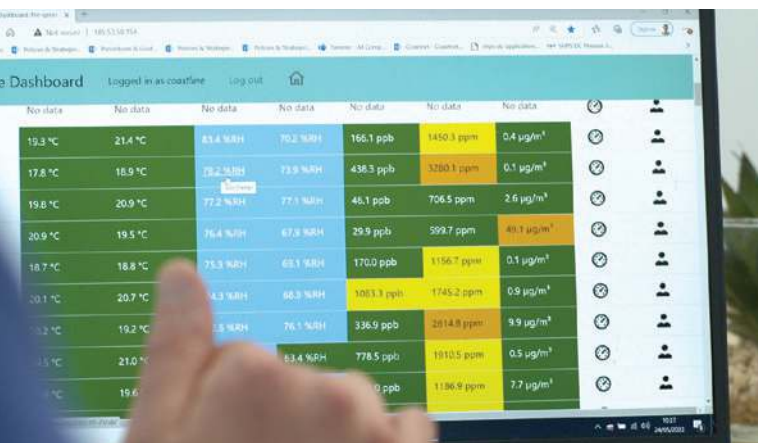
The project is funded by the European Regional Development Fund, and researchers are using the data to explore how indoor environments affect residents' health and wellbeing, and the potential of this technology for housing and health providers. In this exclusive interview for Housing Technology, Professor Emma Bland from the University of Exeter and Mark England from Coastline Housing reflect on the Smartline project.

How did Smartline come about?
Mark England: We wanted to look at how we could use technology to establish what was going on inside homes and how well those homes are performing. Cornwall has a very mild and damp climate, and like many landlords we have a mixture of new and older housing stock, so we knew that some of our properties had humidity problems and we all know that excess humidity can affect health and wellbeing. We started talking to the University of Exeter about our ideas and that gradually evolved into the Smartline project.

Emma Bland: As a university, our aim was to look at the role of everyday technologies in understanding home environments. We were hoping to inform service provision, particularly for people on lower incomes or living with chronic health conditions.

Were customers worried about being monitored like this?
ME: One of the biggest risks was that customers wouldn't want us to put the technology in their homes. We had discussions with our customers about whether indoor environmental monitoring was 'Big Brother' or something that could help and improve health and wellbeing, and people were positive about it. It's all been voluntary, and customers have seemed to welcome getting involved in a project that could improve housing.

What have you learned from being involved in the project?
ME: The game-changer for us was once we developed a proper dashboard. To be able to see in an instant which properties are performing best and those where there might be a problem, and then be able to call those customers and have a chat with them or visit them has been really helpful.

Some customers didn't realise how humid their homes were, some didn't realise they were over-heating their homes which is costing them more money, and some were under-heating which may have been causing them other health issues. And in asset management terms, if we can keep a healthy environment in a home, that helps to reduce our repairs and maintenance costs.

The dashboards are particularly useful when something changes. For example, if we can see in a particular property that the heating is now off when it's been used

consistently for many years, we know that something has changed in that household so then it's a quick call or a visit to find out what's going on and provide support if needed.

EB: Something that's come through very clearly is the importance of person-to-person engagement. It's important to understand that the technology primarily allows you to target services more effectively, not remove the need for face-to-face interactions to assess where help and support are really needed.

Technology isn't the whole answer

EB: One of the things that has arisen from the Smartline project is the wider social context and the challenges people face, particularly when they're on low incomes, older or more isolated. For example, it can be easy to assume there's a simple explanation for why people aren't using technology and therefore an easy solution, but it's more complicated than that. Technology has a real role to play but we need to be careful not to add to the challenges and inequalities people already face, and use technology intelligently to inform and support services, and not use it to replace person-to-person engagement.

What message do you have for other housing providers?

ME: I see this technology becoming part of 'business as usual' in the very near future. The opportunity is there, the technology is coming down in terms of cost and there is a demonstrable return on investment. The technology allows you to pick your priority homes very quickly and start predicting where something is going wrong, such as when the temperatures aren't quite where they should be and how that could be the first indication of a problem.

The more you look after your housing asset and the customers in them, the better landlord you can be. Your assets should last longer and the health and wellbeing of your customers should be better.

EB: It's about understanding the breadth and scope of the potential, so when you're thinking about the costs of installing a sensor network in your homes, understand that it almost certainly has added values across a variety of unexpected areas.

One of the interesting things that's emerged is that by having this data, Coastline Housing has been able to intervene earlier, which means their staff are dealing with people who have a problem rather than a crisis, and that in turn reduces staff stress and pressure. So it has value at different levels and recognising that is possibly one of the wider implementation challenges.

What is the future potential for this technology?

ME: From a housing provider's perspective, there's a lot of value in using sensors before doing any decarbonisation improvements on a home to show us how well the property performed before and after, and allowing us to benchmark against other homes that have had similar work.

With the transition to sustainable heating systems, our customers can't always adjust to those systems immediately so they sometimes need a bit more support. The technology will help housing providers check that their systems are performing the way that they were designed to. If you can't see into a property and if you can't see the data, then you won't know the customer's not using the system quite right and inadvertently costing themselves lots of money.

EB: As well as the climate agenda, we see real potential for working more closely with health services. For example, can we use this technology to help get people home from hospital earlier or help them stay at home for longer and prevent conditions deteriorating? That requires different services to work more closely together so we're working with the health services and with the voluntary sector to see how this kind of technology could be used. There's lots of potential and we're keen to take the lessons from Smartline further.

Professor Emma Bland is the associate professor of practice in the European Centre for Environment and Human Health at the University of Exeter Medical School. Mark England is the head of innovation, maintenance and group procurement at Coastline Housing.

Poplar HARCA's validation of Aico environmental sensors

Poplar HARCA knew it needed to make its residents' homes safer, greener and healthier, and it was also looking for better ways to manage its housing portfolio.

The beginning – Tech, meet human ingenuity

It all started when Peter Marcus, Poplar HARCA's assistant director of research, development and transformation, wanted to prove that the air-conditioning in the housing provider's offices was too cold. This led him to build a Raspberry Pi gateway (think of it as a DIY device) that could connect to sensors and measure temperature and humidity.

Poplar HARCA realised that this technology could be used in its residents' homes. It started exploring IoT solutions and saw how they could be integrated to unravel the many problems faced by housing providers.

It identified that tackling fuel poverty would make a real difference to people's lives and that this was something a monitoring solution could do, besides tackling some of the wider strategic issues that it faced, particularly decarbonisation and the asset management costs associated with condensation and the overall condition of its housing stock.

The challenge – Evolving to scale

There were a number of barriers to rolling out what Poplar HARCA already had to every home. The Raspberry Pi gateway (while very impressive) took time and required an effort similar to that of any DIY project, and there were questions surrounding CE marking and ensuring that whatever device went into each home complied with the applicable laws.

The housing provider tried other comparable technologies only to find that these were impractical and out-of-date, delayed (or had unrealistic time frames), intrusive or temporary.

One example is the data-logging fan being marketed as a solution to resident-driven condensation, which requires data to be downloaded to a USB stick. This means having to collect it, download/upload the data and analyse it for any trends, and then repeating this cycle, or removing it after a certain period, thereby denying relevant parties the chance to gain an understanding in the long term.

The middle – Testing and use-cases

The partnership between Poplar HARCA and HomeLink can be split into three phases, two of which are explored in this section.

The first phase (mid-2019) involved the deployment of sensors to test and learn, validate the stability of connectivity and ensure that any previous concerns were not an impediment to the project.

The second phase (February 2021) included a larger roll out, this time to look at specific use-cases:

1. Ventilation, fuel poverty, indoor air-quality monitoring & void detection

60 environmental sensors (40 humidity & temp. sensors and 20 humidity, temp. & CO2 sensors) along with 20 gateways were installed in 20 homes. To test this use-case, 'problem properties' and other 'listed' properties were chosen to explore inefficiencies and test various interventions.

2. Mould monitoring & intervention

36 sensors and 12 gateways were installed in 12 homes for the mould use-case. Properties and residents were chosen according to who called in with a mould complaint. Instead of sending the usual 'condensation & mould data logger', the HomeLink kit was installed, comprising three environmental sensors (covering humidity, temp. & CO2) and one gateway.

The second phase also included a large update in terms of the overall solution provided by HomeLink. Poplar

HARCA's residents had access to the brand-new (at the time) HomeLink app which gave their residents the opportunity to take control of the health of their homes, as well as a considerable number of updates to the HomeLink portal.

The outcome – An all-in-one connected home solution

1. Custom notifications
With the portal configured to send notifications via email to specific departments within Poplar HARCA, the right people were notified when a relevant medium or high risk was identified or if an event required further investigation.

Elizabeth Williams, assistant director of asset management, Poplar HARCA, said, "While still at a relatively early stage, Peter's project already has tangible benefits for our asset management. In properties where the HomeLink devices are fitted, we can support residents before mould proliferates which benefits their health and reduces our costs – this is a great achievement."

2. Fuel poverty detection
Poplar HARCA discovered a resident struggling with fuel poverty after noticing the 'insight' being raised on the portal. It inspected the property and found that the resident was only heating one room in their property to save electricity. Poplar HARCA was able to intervene and provide advice and support.

3. Void detection
The housing provider successfully identified two empty properties because of the void detection 'insight'. It confirmed that the residents had definitely left and re-let the void properties.

4. Time & cost savings
Replacing 'condensation & mould data loggers' with environmental sensors has meant reduced costs, effort and time for Poplar HARCA's repairs team because no repeat visits were necessary to collect and analyse the mould situation. The housing provider could act remotely, intervening physically only after residents had attempted all other methods of reducing the risk of mould. Poplar HARCA also reduced visits and callouts to intervene or give advice because the HomeLink app provided residents with information to help them prevent mould from occurring in the first place.

5. Happier & healthier residents
The app gave recommendations to improve conditions such as reducing indoor air pollution, optimising the temperature within one's home, reminders to test their smoke and CO alarms and other tips related to improving their health and safety.

The end… is really just the beginning
With the use-cases validated, the third phase (full-scale rollout) of the project has begun. As of January 2023, Poplar HARCA has 391 properties with IoT devices installed, 2,877 rooms are being monitored and 3,231 devices are now connected.

Future use-cases include retrofit validation and energy monitoring to reach net-zero goals, as well as ensuring Poplar HARCA's smoke and CO alarms are connected to the HomeLink platform to ensure a holistic view, eliminating visibility gaps and unifying 'insights' that will increase the health and safety of its housing portfolio.

Assess your Microsoft environment to target security risks

Jason Rothwell, Solutions Architect, Littlefish

The housing sector is a tempting target for cyber criminals. With an estimated 2.4 million homes under management in the UK, we know that housing providers hold a wealth of confidential and sensitive data of the sort that is stolen in droves every year, such as phone numbers, bank details, addresses and other personally-identifiable information (PII).

Successful data breaches which leak these kinds of records can be a very profitable business for cyber criminals because PII is a hot commodity on the 'dark' web and can be sold on for all kinds of malicious uses, from identity theft and account takeovers to spear-phishing and extortion.

Our cyber team has recently been considering the benefits of a Microsoft environment security assessment for public-sector organisations. Acting as a security health-check for housing providers, the majority of which run Microsoft 365 at their core, this assessment would allow housing providers to understand their cyber vulnerabilities and overall security stance, as well as take positive action to improve the maturity of their long-term security.

The benefits of this, including cost savings, documenting compliance and steering cultural change by increasing cyber-security awareness, are all worthwhile reasons for housing providers to consider a Microsoft environment security assessment. The assessments can also inform where technology investments should be made for the maximum return in terms of security.

Still, there's more to be said about the housing sector's particular cyber-security concerns in 2023, especially because the public sector continues to face an uphill battle against years of austerity, lingering pandemic ramifications, inflation and other geopolitical events impeding its resources.

Indeed, compared to other organisations with larger budgets for security, less-stretched IT teams, and more modern, strategic cyber-security systems, the housing sector's key security risks call for closer inspection.

Below, we consider four ways a Microsoft environment security assessment targets housing providers' key cyber-security concerns.

Viruses & malware from third-party devices

Many housing providers' networks are complex and outdated (i.e. they don't collaborate seamlessly) so the prevalence of mobile storage devices (such as USB/flash drives) used to share data across different platforms continues to be a problem when it comes to endpoint security.

This makes sense because, unfortunately, it doesn't matter how well-secured email and web channels are against malware, if there is an open back-door in the form of a third-party device, the entire organisation is at risk.

A Microsoft security assessment can help housing providers better manage their endpoints by highlighting their vulnerabilities across the entire attack surface and helping IT teams keep track of what endpoint security measures are in place and, indeed, whether these require improvements or upgrades.

Sharing information

Although they are likely to be due to human error rather than malicious intent, many security breaches in the public sector happen because of employees sharing sensitive data with unauthorised recipients such as colleagues or suppliers.

As well as putting the organisation at risk of a data breach, this practice also illustrates how easy it is to risk organisational compliance and break GDPR and data protection directives. A Microsoft environment security assessment can help housing providers balance

their security needs against ease of collaboration by offering a detailed analysis of the organisation's internal and external collaboration settings and also its Microsoft SharePoint admin centre (including communication sites, channel sites and sites that belong to Microsoft 365 groups) so that site admins and group owners can be added or removed to maintain data integrity.

The need to remotely access data

Enabling remote working is a 'must' for housing providers because many housing staff work remotely. Many office-based staff have also moved to permanent hybrid- or remote-working, meaning that controls for remote workers are that much more important to consider these days.

Unfortunately, connecting to a network remotely can be risky because not all devices will be secure and up-to-date when it comes to security settings and software; it only takes one hacked or infected device to compromise the entire network, infecting hundreds of machines and potentially accessing sensitive tenant records. Additionally, once criminals breach a system, they can encrypt data to prevent the organisation from accessing it (ransomware).

A Microsoft environment security assessment examines all security and access points including:

- **MFA settings;**
- **Identity protection;**
- **Conditional access;**
- **Defender for Office 365;**
- **Email security.**

This affords housing providers visibility into their networks and systems and offers a better understanding of any additional security measures that could be taken to protect remotely-accessed data.

Outdated or under-used technology

Limited budgets, legacy software and a hesitancy to install and learn new systems can mean that 'everyday IT' at housing providers is outdated or overly-complex/non-collaborative. The sector can also suffer from 'supplier sprawl' (when organisations try to juggle too many IT solutions, vendors and services at once) and, due to this plethora of systems, tends to overlook or under-use features already included in their current Microsoft licensing, and this includes built-in security features.

A comprehensive Microsoft environment security assessment gives housing providers a full grasp on which security features are not being used, identifying those which would help the organisation and could be used instead of other third-party software to save money.

Furthermore, the assessment helps housing providers organise and take stock of their Microsoft security tools (whether supplied by a third-party or not) and measure whether the RoI on these is worthwhile from a security and budget standpoint and assess what could be improved.

Jason Rothwell is a solutions architect at Littlefish.

Sovereign pilots CTG fibre-optic broadband

Sovereign Housing has partnered with Complete Technology Group to install fibre-optic broadband in its communal properties.

The first phase of Sovereign Housing's project is to assess the suitability of various areas and properties for fibre-optic connections, followed by initial digital infrastructure works. The second phase will be for ISPs to give Sovereign's residents the option to sign-up for fibre-optic broadband services. The pilot project is also intended to help address digital exclusion among Sovereign's residents.

Once the pilot projects have been finished, Sovereign Housing will decide which telecoms providers to work with across its entire housing stock to improve the customer experience.

Donna Collins-Lindsay, project manager, Sovereign Housing, said, "These fibre-optic pilots show that we are serious about investing in our existing homes and improving the customer experience. As internet providers begin to retire

their copper networks, this project goes one step further by helping us to identify where we can future-proof our communal buildings."

Making the most of your Microsoft platform

Kirsty Marsden, Head of Housing, TSG

At the Housing Technology 2023 conference, we discussed how housing providers are embracing Microsoft technologies to future-proof their organisations, using examples from our own customers because we knew that the results spoke for themselves.

Whether you are streamlining the processing of landlord certificates, automating your authorisation-to-recruit process or improving your mobile working, there is a Microsoft platform that you can take advantage of. In fact, you may already be paying for it within your Microsoft 365 subscription.

In our presentation, we discussed some of the ways we've partnered with housing providers to deliver a wide range of IT services. As a Microsoft solutions partner, we have a particular specialism in helping housing providers get the most from their IT estates, from 'cloud road-mapping' to map out their infrastructure's current and future states, optimising their licensing and storage requirements, to leveraging Microsoft applications and developing a Microsoft-first strategy that adds value to their organisation.

Microsoft Power Platform & Dataverse

Soha Housing's Power Platform & Dataverse solution for stock conditions and survey management is an example of how we've supported housing providers to embrace Microsoft to help change the way they work.

Soha Housing needed to implement a digital solution for its staff to carry out stock conditions surveys. To address the challenges and to support Soha Housing's objectives, we proposed a Microsoft Dataverse cloud solution with a canvas PowerApp for field use. The solution was built on Soha Housing's Microsoft Dataverse instance to:

- Deliver an experience that's easy to use, off-line capable, and familiar to staff;
- Offer future opportunities around the automation of processes and business intelligence through a single dataset to interact with and report on;
- Provide a solid business platform that can be further built on, to Soha Housing's desire to continue its post-project digital transformation journey;
- Upskill Soha Housing's internal resources on the Dataverse platform;
- Provide bi-directional integration with Aareon.

The Dataverse application can be complemented by other services that form part of the same platform. These include:

- Power BI for business insights and intelligence;
- Power Automate for the automation of business and system processes;
- Model-Driven Apps for the desktop user interface.

What were the benefits?

The simplicity of the app meant that surveyors found it easier to use. Soha Housing's surveyors check around 100 data points during each survey, with each survey now taking around 30 minutes to complete. By building on the Microsoft Dataverse solution, the housing provider found that compared to 2017, our survey solution is saving over 1,000 surveyor-man-hours per month.

Furthermore, the quality of the data is better thanks to Dataverse and Power BI's capabilities, resulting in more meaningful relationships between different datasets. Soha Housing can also now automate the scheduling of any repairs that arise from the completed surveys.

Soha Housing told us, "TSG complied fully with our brief and developed an easy-to-use electronic survey form populated with our existing asset data that our surveyors can verify while carrying out their inspections and can make any necessary adjustments.

"TSG provided regular progress reports during the design and implementation phases, kept to time and budget, resolved issues quickly and delivered a high-quality product. I would highly recommend TSG to other housing providers looking for a bespoke IT solution."

Your 'go-to' Microsoft solutions partner
When we build partnerships with housing providers, we work as an extension of your team. This means that the Microsoft Dataverse and Power Platform solutions we propose to you are:

• **IP free;**
• **Your product;**
• **Your roadmap;**
• **Your data;**
• **Completely under your control.**

Moreover, we have a wealth of experience in delivering Microsoft solutions across a range of social housing projects.

We understand housing
Every organisation has processes that can be improved, but few organisations have processes that are as highly regulated as the social housing sector. You're caught between two worlds; complying with strict regulatory requirements at the same time as giving your tenants the best possible experience.

That's why it's important to have an IT partner with a deep understanding of the social housing sector.

For example, we helped English Rural Housing move to Microsoft Azure with a fully-managed service. This enabled the housing provider to create a strong cloud strategy and improve security, mobility and user experience. Our partnership with English Rural Housing gave them access to our knowledge and expertise whenever they needed it, which in turn enabled them to make the right decisions for their project.

Kirsty Marsden is the head of housing at TSG.

Keep the hackers out of your homes

Stefan Schachinger, Senior Product Manager for Network Security, Barracuda

The appeal of connected things
Research by Housing Technology shows that across the housing sector over 75 per cent of organisations are deploying or planning to deploy IoT projects within the next 24 months. The main drivers for these IoT projects are improving tenant and building safety, better asset management, and more efficient repairs and maintenance.

There are several parts to an IoT system: the installed devices; the infrastructure or communication channels that transfer this data; and the data storage and analysis systems (often in the cloud, via Microsoft Azure or Amazon Web Services).

The ever-expanding attack surface
This spider's web of connectivity and communications significantly expands what is known as the 'attack surface' – the area that cyber attackers can target in their attempts to breach a network, steal information, disrupt operations, build botnets, release ransomware and more.

The results of such an attack can range from disruption and downtime to the loss of large amounts of sensitive data. This could put the organisation in breach of data protection regulations, adding to the cost and impact of an attack. In some cases, such as where IoT devices are used for health or safety monitoring, a cyber-attack could potentially prove fatal. An effective approach

to cybersecurity is therefore critical. Here is our recommended cyber-security checklist for IoT systems:

1. Know what you have, where it is, and have full visibility of what's going on all the time

It's important to keep track of the IoT devices being connected and disconnected to your network and ensure you have overall visibility and management control so that suspicious alerts and threats aren't missed. Ensuring that your security technologies can talk to each other and share data on new or potential threats is also key; a disconnected patchwork of point security solutions won't work for IoT.

2. Determine the size of your attack surface

To do this, you need to determine the sum of vulnerabilities or weak points currently present on your network, both physical and digital. There are three places to look:

- Vulnerabilities within connected endpoint devices such as sensors or cameras or in the underlying software and hardware. Attackers can target any outdated components, unpatched software, insecure default settings and under-protected connections to the internet and IoT, among other things.
- The underlying infrastructure that connects all your IoT devices and transfers the data traffic; data can be intercepted or the traffic systems overwhelmed in denial-of-service (DoS) attacks.
- All the applications and software your organisation relies on. Each application and piece of software carries risk and many web applications and application programming interfaces (APIs) have access to sensitive data that they don't always adequately protect. A breach can result in identity theft, credit-card fraud and exposure of confidential information.

3. Robust access controls

One set of stolen account credentials can be all it takes to access your IoT network. Such credentials are often scarily easy to come by. Attackers could target employees or residents through 'phishing' emails designed to trick them into sharing their login details or buy previously-compromised credentials on the dark web. 'Brute forcing' accounts, with many combinations of name and password, may well succeed if the password is easy to crack.

The solution is to have a robust email security solution, effective password policies and to raise employee awareness about basic cyber hygiene. Ensure that only people who need access to certain systems are granted access. In addition, consider introducing multi-factor authentication for accounts and even moving towards zero-trust access policies to really secure your IoT system.

4. Protect data at source, during transit and in storage

Data on the move is often vulnerable, especially if it is unencrypted or if access controls are weak. The same applies to the place where data is stored. Wherever your data is, it needs to be encrypted with strong access controls. The transfer and storage of data needs to be via network security tools such as firewalls, including web application firewalls for cloud storage and network access controls.

5. Secure software applications

Many applications are now API-based. This creates a large new attack surface for cybercriminals as API-based applications offer direct access to all the sensitive data for the application. Having application security in place and making sure it is configured correctly is essential.

Network and web application firewalls will also help to keep the botnets at bay. Botnets are webs of internet-connected devices designed to steal data, compromise networks, send spam, distribute malware and more. The botnets carry malware to access and infect IoT devices and breach the network they are connected to. They also scan applications for weaknesses.

Many botnets are also looking to recruit additional 'bots' and your infected IoT devices could be co-opted into a giant botnet and used by attackers to target other devices, often without your knowledge.

6. Don't forget about physical tampering

Distributed devices installed in accessible places can be tampered with physically and this can also represent a cyber risk. For example, devices installed in publicly-accessible hallways or outside could allow attackers to steal a memory card to read its contents, thereby accessing data and information that might let them access other connected systems.

As housing providers continue to integrate cloud technology into their daily processes, the number of devices connected to the network grows. This increases risk, making monitoring an even more challenging task. Effective cyber-security designed for cloud-based, distributed IoT systems, accompanied by device management systems and employee (and user) education are all vital ingredients of a robust security posture.

Stefan Schachinger is a senior product manager for network security at Barracuda.

Broadacres Housing boosts cybersecurity with Arctic Wolf

At the beginning of 2021, when Broadacres Housing noticed a sharp increase in the number of cyber-threats it was receiving, the housing provider started looking for reinforcements as part of its wider cyber-strategy. After numerous product demonstrations and testing different security platforms, Broadacres Housing chose Arctic Wolf and its Concierge Security Team.

Steve Cook, infrastructure and security manager, Broadacres Housing, said, "Arctic Wolf's Concierge Security Team was a deciding factor for us. Advanced technology is useful to help spot anomalies and alert us to potential threats, but you need a team of people to interpret the data correctly and quickly take appropriate action."

As part of its Concierge Security, Arctic Wolf pairs a team of security operations experts with Broadacres Housing's internal IT or security staff to assess their security needs and fine-tune their solutions for maximum effectiveness.

Cook said, "Technology can do a lot of things but it takes a real person to really understand what's going on with your security environment. The fact there are real people on the end of some of the incidents flagged up makes all the difference. On a day-to-day basis, that means fewer but more accurate threat alerts and therefore more time for us to spend on bolstering our security posture."

After a very smooth onboarding process, Arctic Wolf is now working as an extension of Broadacres Housing's security team, allowing the housing provider to take a more operational approach to cybersecurity. During the first two weeks of the onboarding process, the team installed sensors to ingest data from endpoints, network devices and infrastructure, as well as from cloud resources to make sure it could see any potential threats from all angles.

By the end of onboarding, Cook and his team had received immediate alerts on detected threats, alongside a number of weekly reports, including an executive summary report which flagged incoming hazards on Broadacres Housing's external web servers from countries such as Russia, China and the United Arab Emirates, something the housing provider would not have caught before. Through these alerts, Arctic Wolf has notified Broadacres of numerous previously-unknown threats which has led to the organisation hardening its systems against attacks; for example, firewall rules have been created to block countries that the housing provider has no business dealings with.

Arctic Wolf is also running continuous vulnerability scanning for the housing provider, helping to evaluate its existing security controls by interrogating all aspects of the environment for potential risks.

Cook's team had been conducting an annual penetration test to stress test Broadacres Housing's IT systems and security capabilities; under its previous system, this was a manual and time-intensive process that only gave a snapshot at that particular moment in time.

With Arctic Wolf, Cook's team can spot areas of concern and risks to the organisation right across its on-premise networks and devices, public-cloud instances, externally-facing assets and dark web 'account takeover' risks, all by using the AI/machine-learning features of the Arctic Wolf's Security Operations Cloud.

Cook said, "Our vision is focused on business transformation. By getting rid of legacy processes and systems, we can look at more efficient and better customer experiences, all easily accessible from a digital platform. This calls for a new approach in how we reinforce our security posture to protect our customer and employees."

Cyber-threats to IoT & OT technologies

Mike Upton, Head of Public Sector, Quorum Cyber

As more housing providers migrate to the cloud, they're gaining access to a wealth of tools and services that should benefit both their tenants and their businesses.

However, when moving to the cloud, any organisation must overcome a few initial challenges that they might not have faced using a traditional IT set-up, and these hurdles aren't only for the IT team to solve. For example, where on-premise IT is capex-heavy, cloud infrastructure is almost entirely opex-based. Consequently, housing providers' finance teams need to pivot their accounting practices and accommodate fluctuating costs as cloud consumption rises and falls.

Cloud computing, which typically runs on a pay-as-you-go approach, ensures customers always have access to the most up-to-date software and hardware to run their businesses, paying only as and when they use it, with zero or minimal up-front charges.

Necessity is the mother of invention

Housing providers have a huge duty of care for millions of people across the UK. This responsibility has come under widespread scrutiny recently, with news of damp and mouldy homes leading to serious health issues for some residents. But, as often happens, where there's a problem affecting large numbers of people, someone invents a solution, especially if there's a profit to be made.

The digital age continues to inspire innovative people to overcome all manner of challenges. We're currently seeing a wave of innovation around the internet of things (IoT). Billions of IoT devices are now used in almost every walk of life and every business sector; IDC estimates there will be 42 billion IoT devices around the world by 2025.

Located in homes, IoT sensors can measure moisture levels and temperature without anyone needing to enter the home. Data can be collected as frequently as needed so that a housing provider can understand the environment of each property. It's no different from using smoke and carbon monoxide alarms as convenient and affordable early warning systems. Imagine this set-up across entire property portfolios of thousands of homes.

With laws around home safety tightening in the UK, remote IoT-based monitoring systems could soon be commonplace. IoT sensors can now give us information we couldn't collect until recently. They are also driving an exponential rise in the volume of data that organisations need to store and analyse.

Protecting the technology from adversaries

However, while IoT is solving numerous problems, it does have a weakness and one that's been exploited many times in the past few years. IoT devices, together with the operational technology (OT) devices used in industrial processes, have been developed at break-neck speed but adequate security hasn't been built around them. While cyber-security put energy, thought and resources into the in-depth defence of the core parts of the IT estate, the newer IoT devices at the edges were seriously under-protected.

Cybercriminals, who are always looking for the easiest way to breach organisations to steal their data, know all too well about IoT and OT flaws and have successfully attacked these devices to move laterally through the IT networks of numerous companies.

Founded in 2016, Quorum Cyber was born in the cloud and has designed and built its cyber-security services to defend the full breadth of any organisation's IT ecosystem. Our managed extended detection and response (XDR) service monitors absolutely everything, from any vendor, be it on-premise or in the cloud, in IoT or OT, and any cloud environment, including from Amazon Web Services, Google Cloud Platform and Microsoft Azure.

We've years of experience safeguarding some of the leading housing providers in the UK as well as a range of public, private and non-profit organisations around the world. Although we're a team of cyber-security and technology experts, we don't see cyber-security as a technology problem but a risk management challenge.

Mike Upton is head of public sector at Quorum Cyber.

South Ayrshire Council takes on Egress Prevent & Defend

South Ayrshire Council is now using Egress Prevent and Egress Defend to improve security, cut costs and remove complexity from its tenant-facing operations and services.

In order to deal with the sensitive personal and financial information it holds on its tenants, the council wanted to have a secure network completely separate from its main corporate network.

Anne Yeo, senior ICT security analyst, South Ayrshire Council, said, "To handle secure transactions and communications, we had a secure enclave of about 250 machines running our public service network services, but before our ICT team's commitment to change, the corporate network didn't receive the same level of attention around security.

"I think we're the only organisation in Scotland to have approached it like this; all other local authorities ran everything through their corporate networks. It became increasingly difficult because the people who used the secure network to communicate with other local authorities had to have two separate devices, logins and email addresses. Maintaining and upgrading these devices was expensive; even though it was a relatively small network compared with our larger corporate network, there was a lot of cost associated with servicing that for 300 people."

The council's ICT team also wanted to change how the organisation handled security, particularly around increasing end-user awareness.

Yeo said, "We bought an email phishing simulation tool – we had some success at first but we then found that people shared information about the simulation so when we ran simulations, about half the people knew it was a simulation before they opened the email, thereby skewing the results. We could tell that some people learned to slow down and pay closer attention to the email, but many people didn't change their behaviour."

South Ayrshire Council's data governance team also had its own security worries around the prevention of accidental data breaches.

Yeo said, "Information governance and privacy are handled by a separate department to our ICT team, and our data governance team wanted a product that provided protection against people mistakenly sending information out. Previously, they had no idea how often data breaches happened due to inadvertent errors by internal staff.

"We know that data breaches are historically under-reported; people are embarrassed and don't want to get into trouble for a mistake they've made that could have led to a bad situation."

The council's ICT team looked at Egress Prevent to mitigate against outbound data loss and Egress Defend to protect against inbound phishing threats.

Yeo said, "We needed to move away from our security enclave and secure our entire corporate network. Egress Prevent had already come to our attention when we'd been looking for solutions to protect employees who needed to share highly sensitive information with external organisations, and my manager, Stewart McCall, came across Egress Defend and thought its banners and notifications would help our staff.

"We also wanted to replace the training we'd been doing via our phishing simulations with something that would truly impact user behaviour, and we decided that the real-time 'teachable moments' from Egress Prevent and Egress Defend would give us the perfect combination of user education and autonomy."

The council had some initial concerns about how challenging Egress would be to use and how it would affect sending emails but the council's staff have found it straightforward to use as part of their daily work, and from a management perspective, Egress Defend is easy for the council's ICT team to administer and maintain.

Yeo said, "We want to strike the right balance between introducing friction into our employees' daily routines and reducing risk. One of the key things we've done is to completely block any email links that Defend finds suspicious.

"We found that some people were still clicking through links, even though Defend displayed a red banner to indicate that the email was almost certainly phishing; Defend allows us to ensure that users can't click through those links.

"We have to provide a certain level of security for our users who are accessing and sharing sensitive information, but our previous security 'enclave' approach came with significant complexity and costs. By bringing our corporate network up to a higher security standard with Egress, the whole organisation benefits, and by removing the costs of maintaining a security enclave, we've redirected the budget to cover security for the entire organisation.

"We do annual training to meet our compliance requirements and count on Egress Defend and Prevent to help change users' behaviour. More than 1,000 staff now use Egress and the number of times users alert us to potentially suspicious emails has increased."

Getting clever
Business intelligence & analytics

Collecting the right data and understanding what it's telling you

Housing Technology interviewed business intelligence, data science and analytics experts from Civica, FLS – Fast Lean Smart, Housemark, Itica and NEC Software Solutions about how housing providers could take advantage of the latest BI and analytics packages and services, what to look out for, what to avoid and how to embed BI into housing providers' everyday operations.

Why should housing providers adopt BI and analytics?

Jeremy Squire, managing director, FLS – Fast Lean Smart, said, "BI is the use of software to combine business analytics, data mining, data visualisation, data tools and infrastructure as well as best practices to help housing providers to plan more strategically, using technology to manage their assets in a proactive manner.

"BI helps housing providers by showing present and historical data within their business context and enabling their business analysts to predict future trends. Used effectively, BI can help housing providers with compliance, analysis of customers' behaviour and performance tracking to optimise their operations, discover any problems and to predict pathways to future success."

John Doughty, director, Itica, said, "It's important to define what business intelligence (BI) is because it's often assumed that it is a technical solution. BI is a strategy that generates data value and enables organisations to make better business decisions. The main driver for housing providers to develop a BI strategy should therefore be to inform their business decisions and ultimately drive measurable business value."

Trevor Hampton, director of housing solutions, NEC Software Solutions, said, "Adopting BI and analytics will help housing providers identify and understand their tenants and their assets better. They can then target resources where they are most needed to support vulnerable tenants and ensure their properties are safety compliant.

"BI and analytics will be game-changing for housing when it's more widely used to predict and prevent problems before they arise. For example, we've worked with a housing provider who reduced its arrears by £500,000 within 18 months by using analytics to identify patterns and trends in rent payments; this helped it determine which of its households were at risk of arrears and so target its support more accurately and effectively."

Use data visualisation tools to help your staff interpret data better, especially for people not accustomed to handling data on a regular basis.

Daz Chauhan, Principal Data Consultant, Housemark

What's preventing the adoption of BI and analytics?

Sarah Paxton, business analyst, Civica, said, "The cost of investing in BI and analytics can be a barrier, combined with the time and resources it can take to implement them. Furthermore, a lack of expertise, particularly around data science and analytics, can prevent housing providers exploring it themselves. While the amount of data captured within housing management systems is vast, concerns over the quality of the data and how it might be used are also a barrier for some housing providers."

Itica's Doughty said, "In general, it's every aspect of data (i.e. quality, structure, accessibility, primacy, ownership, leadership and governance) that prevents housing providers from really achieving business value from an investment in BI.

"Housing providers should forget about investing in leading-edge technologies such as artificial intelligence until they have addressed their data problems, and it's not as straightforward as trying to fix the problem by just buying some data-cleansing tools; it's usually the human element of the data lifecycle that needs to be addressed as the first priority.

"Some of the IT suppliers to our sector also make this a lot harder than it needs to be yet they will need very deep pockets to fix that. Examples of this include data structures which are poorly-documented or hard-to-follow, data structures not designed for BI and a lack of support for tools such as Power BI."

NEC's Hampton said, "The number-one problem preventing many housing providers from fully adopting BI and analytics is fragmented IT systems. Unconnected datasets leave housing providers drowning in information but not in insights because they can't determine which version of their data is correct.

"Access to accurate, high-quality data is critical to the successful adoption of BI and analytics. Datasets become outdated very quickly if housing providers' staff aren't

trained to understand the importance of collecting and maintaining data within the context of their overall business operations."

Daz Chauhan, principal data consultant, Housemark, said, "The adoption of BI and analytics by housing providers has many challenges related to resourcing, understanding and resistance to change. However, by addressing these challenges and investing in the necessary tools and expertise, housing providers can gain significant benefits from BI and analytics such as improved decision-making, cost savings and enhanced tenant engagement."

Real-time data analytics & reporting is common in other sectors; why not in housing?

Itica's Doughty said, "The reason good analytics is not as prevalent in housing as it is in other business sectors is largely down to a lack of investment (or the ability to invest), organisational capabilities, existing IT suppliers' capabilities and data leadership.

"While we should question the absolute need for widespread real-time data in housing, there is definitely a place for it when it comes to asset-performance alerts, such as via IoT sensors detecting the failure or degradation of an asset component."
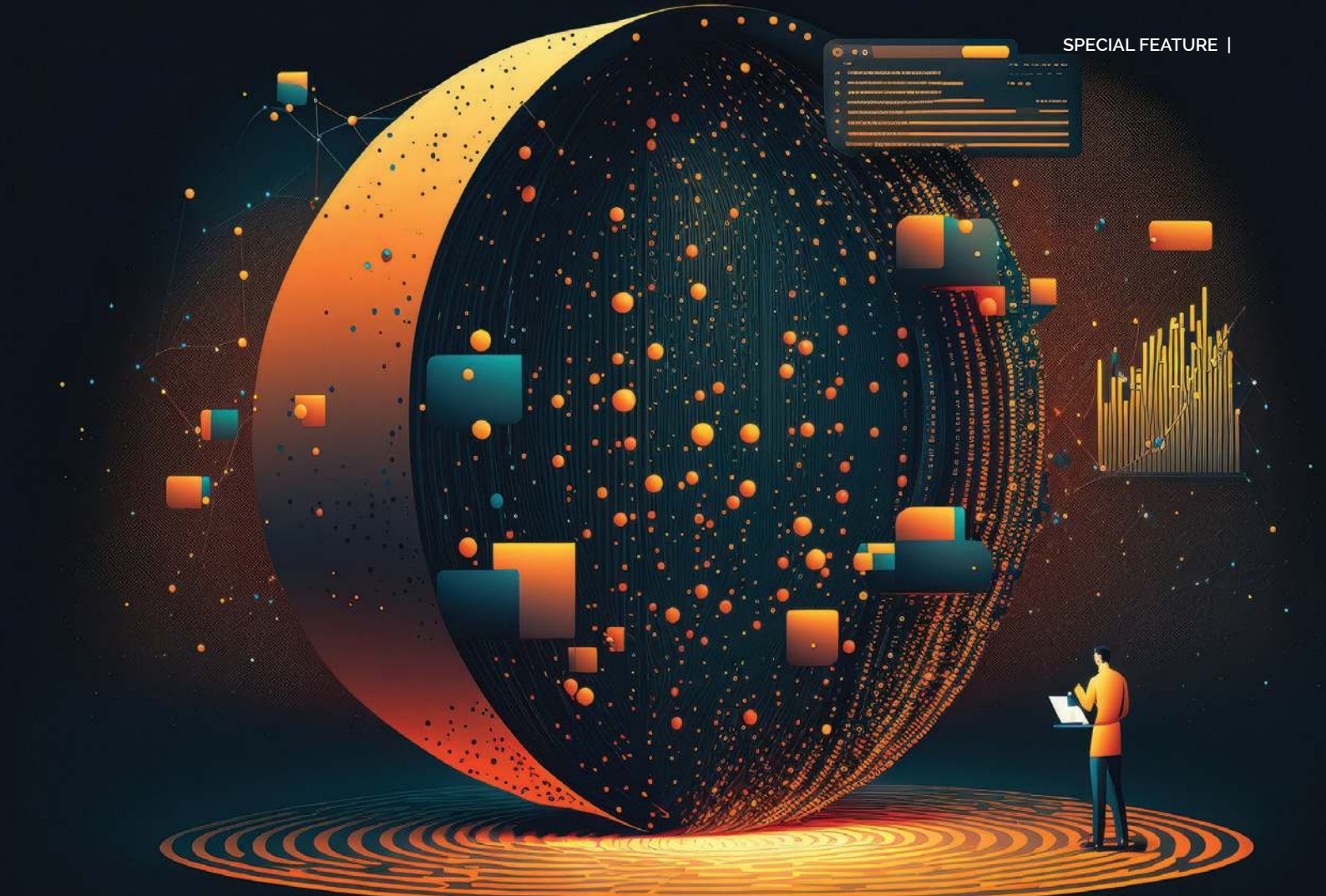
NEC's Hampton said, "It's important to recognise that significant progress is being made by our sector in using real-time data analytics and reporting. The fact that it's less common than in other sectors comes down to either a lack of integrated IT or because the housing provider doesn't have real-time data analytics and reporting embedded at the heart of its systems.

"For example, housing staff should see their priority tasks as soon as they log on. For this to happen, they need access to real-time information about repairs, complaints, rent accounts and asset compliance. Confidence in the data is also key; for many years, housing providers only had access to low-quality data, leading to an understandable reticence to actually trust their information."

FLS's Squire said, "The paybacks from using real-time analytics are huge. For example, since we've been working with housing providers' in-house repairs and maintenance teams, it's common to see increases of 30 per cent in job completions by operatives, based on (in our case) real-time scheduling and reporting of repairs."

Do you need dedicated BI & analytics software?

Civica's Paxton said, "Our role as a supplier is to deliver solutions within our software which make use of the specialist tools so our customers can embrace them, from embedded Power BI dashboards and interfaces to smart sensors through to machine-learning algorithms to predict arrears. Introducing a new module to existing software that's already familiar to end-users not only makes its adoption easier, faster and cheaper but also means that specialist, in-house skills aren't needed."

FLS's Squire said, "Although off-the-shelf solutions are available, we've found that each housing provider wants to combine data from their own range of IT systems, so bespoke solutions can work better.

"Rather than simply analysing the data, predictive analytics helps to anticipate long-term business outcomes more confidently, using historical data, machine learning and AI to predict what will happen in the future. This involves feeding historical data into an algorithm that looks for trends and patterns in the data and creates a model for them."

Housemark's Chauhan said, "Whether or not housing providers need dedicated BI and analytics software will depend on their specific needs and circumstances. While dedicated BI software may provide more advanced analytics capabilities, there are alternatives that might be more feasible or cost-effective for some providers.

How do you ensure you've the right data?

NEC's Hampton said, "You need to ensure that the right data is collected so that when it's analysed, it can answer the questions you want it to. We're working with customers on several co-design and customer segmentation projects, including building more robust datasets around damp and mould. Properties and tenants can be ranked according to risk if the key initiators have been correctly established. For example, some properties will be more at risk due to their intrinsic structural design, putting them into a higher risk category; knowing this information will make it easier to take preventative action."

Itica's Doughty said, "This is where the definition of a good data strategy becomes an absolute priority. A properly-defined and well-implemented data strategy will help you to change the attitudes and behaviours towards data in your organisation. If you don't invest time in this then you'll always have a leak in your proverbial bucket, regardless of how much money you spend on data cleansing and other technologies.

"When defining a data strategy, it's important to take an intrinsic look at your data assets, regardless of whether they are held in databases, spreadsheets or documents. A good data strategy will ensure that an organisation can leverage the potential value of its data, making it clear who is responsible for what across the data lifecycle and ensuring that everyone knows where the 'version of the truth' lies. Getting people to care about the data is half the battle in making sure you have good quality data for BI purposes."

Civica's Paxton said, "Understand the problem you are trying to solve and work out what data you will or might need. Data integrity is always a challenge – for example,

historic or poorly-managed data can cause real problems to your BI and analytics outputs.

"It's really important to ensure that everyone understands the importance of what data is captured, what that data drives from a BI and analytics perspective and then how it can affect decisions further down the line. The visibility of data at different levels within a BI solution can really help to bring data quality to the forefront."

What are the bottlenecks to achieving good BI?

Itica's Doughty said, "BI is only as good as the data value it generates; data quality and a lack of a good data strategy are the primary bottlenecks to generating good data value. Some of the IT suppliers don't make things easy and we would advise spending more effort on this area when evaluating new or replacement solutions.

"The important things to look for are external reporting repositories that are easy to get at (using tools such as Power BI), well-designed, documented and published data structures, data 'snapshotting' (a big requirement in housing), data aggregation and data dimensioning, combined with strong, built-in dashboarding and reporting."

> *The number-one problem preventing housing providers from fully adopting BI and analytics is fragmented IT systems.*
>
> Trevor Hampton, Director of Housing Solutions, NEC Software Solutions

NEC's Hampton said, "The main bottleneck to achieving good BI is when there are too many disparate systems. Data quality is also a key barrier because inaccurate or incomplete customer and asset data won't provide an accurate picture. Furthermore, a lack of data sharing between departments can also be a blocker because sharing data improves its quality."

How do you democratise BI & analytics?

Civica's Paxton said, "Make your BI and analytics easily accessible to your housing staff. If you can embed it in the software they're already using and it can be accessed at the click of a button, they're much more likely to use it.

"Make sure your BI is relatable to the jobs they're doing – it's not just about KPIs and percentages, there's a huge amount of data available in housing systems and some of the supplementary or circumstantial data can help paint a much clearer picture. Where possible, use real-

time data to demonstrate how end-users are making a genuine difference. And remain open to suggestions about improvements; the journey doesn't just end once something is live."

> *Make sure your BI is relatable to the jobs your housing staff are actually doing – it's not just about KPIs and percentages.*
>
> Sarah Paxton, Business Analyst, Civica

Housemark's Chauhan said, "Offering training to help housing staff understand how to use data analytics tools and techniques effectively is vital to achieve true self-service. This might include formal training sessions and qualifications as well as ongoing support and guidance. Use data visualisation tools to help staff understand and interpret data more easily to ease the learning curve for people not accustomed to using data on a regular basis."

Itica's Doughty said, "This is not a question of technology – housing staff need to be genuinely empowered to make decisions at the appropriate level and have the right skills to understand the data and ask the right questions of it.

"Making sure housing staff can interact with the data is critical to exploiting its potential value. This has been difficult in the past because the cost of some of the BI solutions, particularly with user-based licence models.

"For example, Microsoft is making this much easier for housing providers, with multiple ways of presenting BI data being already included as part of its 365 licensing that most housing providers already have. The cost of Power BI Pro licences is still relatively low but not everyone will need these, particularly if their line-of-business applications have good built-in BI capabilities."

Good and bad example of BI and analytics

Civica's Paxton said, "Our Arrears Analytics functionality is a good example of what's possible. It uses machine-learning to analyse rent accounts and identify those accounts that would benefit from interventions. It's augmented with embedded Power BI dashboards within our software as a single solution – this lets us show the end-users not only the results of the account analysis but also a much wider dataset from across the system to provide a detailed picture for each account and the circumstances which exist but may not necessarily be immediately obvious. Putting the user at the centre of

the solution and empowering them with the right data at the right time allows them to make the most appropriate decisions about how to act."

FLS's Squire said, "Insights from AI and IoT, such as using data from Switchee devices to monitor and identify condensation, damp and mould, are being used to take a proactive approach to tackling disrepair problems before residents even report them. For example, Your Housing is using our dynamic scheduling software to enable wider visibility, freeing its scheduling team to focus on other areas. The data from the system also enables optimised tracking and analysis of performance in a way which was not possible before."

Housemark's Chauhan said, "Some instances of 'good' BI might include using data analytics to identify vulnerable tenants or those at risk of arrears, or to identify trends in repairs and maintenance requests. A couple of examples of 'bad' BI include using data analysis to profile tenants and identify those who are likely to be a nuisance or cause problems, and using data analytics to inform decisions around the allocation of housing, which could lead to unfair or unequal access to housing and reinforce existing social inequalities."

Itica's Doughty said, "One housing provider went beyond the 'basic' skills needed to set up BI reports to a full-on 'data science' approach of understanding what its data was portraying; one immediate insight was that over half of the housing provider's arrears (by value) was due to fewer than 50 tenancies. Another housing provider simply added an extra field to a BI report for customer segmentation; this revealed that around two-thirds of the tenants had some form of disability, leading to a change in how its services were designed and the way in which tenant interactions were handled.

> *Getting your staff to care about the data is half the battle in making sure you have good quality data for BI purposes.*
>
> John Doughty, Director, Itica

"The two most-common examples of 'bad' BI that we come across are, firstly, housing providers that have treated BI as a technology project not a business strategy, resulting in poor returns on their investments, and secondly, prolific use of spreadsheets for manipulating data – while there is nothing wrong with spreadsheets per se, failures in governance relating to user access, version control and data management will create problems with compliance and regulatory reporting."

NEC's Hampton said, "The best examples of housing providers harnessing BI and analytics are when a 360-degree view of their tenants and their property assets are combined in one platform. This shows a holistic picture of how the tenant is interacting with the property, giving the housing provider a deeper insight into any problems that arise. One housing provider we work with was able to analyse its entire stock and predict instances of damp and mould at an accuracy of 75 per cent with very little effort."

Housing Technology would like to thank Sarah Paxton (Civica), Jeremy Squire (FLS – Fast Lean Smart), Daz Chauhan (Housemark), John Doughty (Itica) and Trevor Hampton (NEC Software Solutions) for their editorial contributions.

AI-powered housing?

George Grant, CEO, Broadcaster & Publisher, Housing Technology

With almost 30 years' experience in social housing under my belt, I'm constantly driven to uncover innovative ways to improve the lives of tenants and optimise housing providers' operations. I recently came across something that truly captured my interest – a ground-breaking chatbot called ChatGPT which has immense potential to transform our sector.

You're probably rolling your eyes at the mention of yet another chatbot. We've all had those underwhelming experiences with customer service chatbots, leaving us feeling frustrated and longing for a real human to talk to. However, I believe that things are different this time.

ChatGPT is an AI-powered assistant that delivers human-like responses and learns from every interaction it has with real people. It has been making waves in the tech world and is even considered a potential rival to Google. While Google provides search results, ChatGPT takes things a step further, offering tailored information in the form of well-written reports – almost like having your own personal research assistant.

Think about the benefits of having an AI chatbot that can automate repetitive tasks, provide 24/7 support, and engage with your tenants in more personalised and meaningful ways. Tenants could report issues, get information and have their concerns addressed without having to wait for office hours.

ChatGPT's ability to learn and adapt means it can continuously improve the accuracy and relevance of the information it provides. By tapping into housing providers' core business applications and offering real-time responses, this chatbot could revolutionise the way we support our tenants.

As this AI chatbot continues to listen, learn and evolve, I'm interested to see how it can help us shape a better future for our tenants and our sector as a whole.

George Grant is the CEO, publisher and co-founder of Housing Technology.

HOUSING TECHNOLOGY
HOUSING | IT | TELECOMS | BUSINESS | ECOLOGY

Advantages	Disadvantages
24/7 availability	Lack of human connection and nuance
Cost-effective	Limitations in understanding complex issues
Personalised support	Risk of cybercrime
Improved accuracy and relevance of information	Possibility of providing inaccurate information
Faster resolution of problems	Dependence on technology
Increased tenant satisfaction	Potential for job loss
Valuable feedback	Need for continuous improvement
Google's rival	Potential for bias
Easy to use	Limited creativity and depth
No salary or holiday entitlement	Lack of empathy

Smart tech at Yorkshire Housing's offices

Darren Williams, Solutions Architect, Yorkshire Housing

Six months ago, we opened our new 10,000sq ft workspace in the 'climate and innovation' district of Leeds after selling our old 40,000sq ft office block.

Our new hub (The Place) isn't your typical workspace. It's Yorkshire's first zero-carbon office building designed and built just next door by Citu. It's made using a highly-insulated timber frame and uses a state-of-the-art heat recovery system to maintain a comfortable working environment. Heat recovery systems are just one of several cutting-edge features that will see us save more than £1m over the next ten years, money that we plan to reinvest in new and existing homes.

The Place is a highly-sustainable workspace designed to inspire creativity and collaboration between colleagues. Every working style is catered for through the clever use of space, furniture and lighting.

Time to settle in…
Like any new space, it inevitably takes time to understand how different areas will be used. Some areas will be more popular than others, some will be underused or misunderstood, and some will be too hot or too cold. Usually, organisations rely on colleagues' feedback via surveys and other qualitative data; gathering this information takes time and the data itself is often difficult to interpret meaningfully.

The relationship between a workspace and the people who use it should be symbiotic and mutually beneficial. To do that, our award-winning innovation team was asked to find a way to gather real-time temperature and occupancy data to help fine-tune the space.

Building performance
Yorkshire Housing called in Purrmetrix, specialists in using data to deliver insights into a building's performance. With the help of our innovation team, Purrmetrix installed 30 sensors to remotely measure temperature, humidity and movement so that we could begin to understand how different spaces were being used and how the building's heat recovery system was performing.

Last summer, a month after The Place first opened, the UK experienced record temperatures, with the temperature reaching 39.2° in Leeds in July 2022. Most workplaces in the UK aren't set up to deal with such extreme heat, let alone measure its impact.

The July heatwave allowed us to see how our new workspace reacted to such extremes in real time. We were constantly learning how the building lives and breathes during extreme heat. The data enabled us to fine-tune the building's systems and we quickly understood how best to reduce the build-up of heat, for example, by using a technique called purge ventilation during the coolest time of the day.

The data we are gathering is helping us to understand how to make the space comfortable for colleagues, even during a heatwave. Hot summers are becoming more frequent so it's important that we know how to respond to keep people cool and maximise productivity.

Real-time data
Data from the sensors also allows us to monitor the effectiveness of the heating systems in real time to make sure they're balanced between creating a comfortable working environment and avoiding energy wastage.

We are also using the sensors to monitor occupancy levels of different meeting rooms, work pods and other spaces to find out which are the most popular and when. The Place has been designed to be a flexible space that we can adapt and change easily to make sure our colleagues always have what they need. By analysing
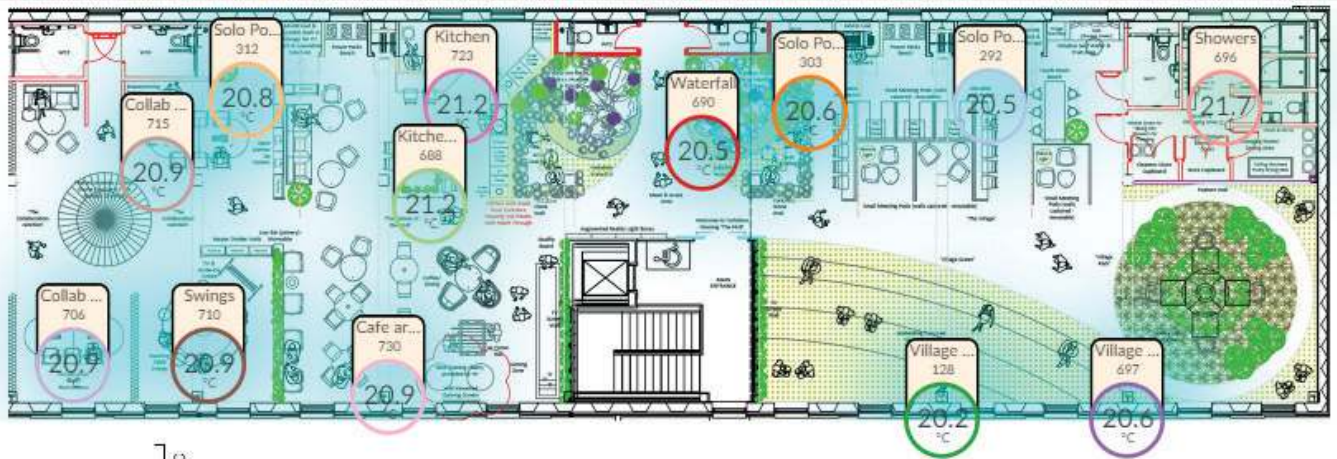
how the different spaces are used, we can move things around, add new furniture and improve the overall working environment.

Hermione Crease, CEO, Purrmetrix, said, "We know that even the best-designed offices benefit from performance data to help review and optimise how they're used. It is particularly pleasing to run a project in such a cutting-edge building, and it's a timely reminder that in a housing or office environment, better data delivers better outcomes for the occupants."

What's next?

We aren't stopping at temperature and occupancy data. We plan to integrate environmental, usage and energy data to fully understand how The Place operates to create the most sustainable and productive environment for our colleagues.

We can also use what we've learned and apply some of the technologies to our tenants' homes. We want to create homes that are fit for the future; smart technologies and the consequent data can help us to achieve that.

If the last two years have taught us anything, it's that we need to be ready to adapt and change quickly; technology can help us to do that.

Darren Williams is a solutions architect at Yorkshire Housing.

Structured flexibility

Stephen Repton, CEO, One Consulting

During my career, I've realised that some of us like to plan in meticulous detail and some of us go with the flow and plan as we move along. There is nothing wrong with either approach, both have their benefits. And if you're lucky enough to resist falling into either bracket, you can get a good mix of both and have what I call 'structured flexibility'.

In a work setting, it's important to have structure yet be sufficiently flexible to deliver change and improvement successfully. We often see organisations create their own challenges because they haven't allowed time or space to think things through or take an organisation-wide approach to planning. Is this because the 'day job' takes over, one wonders?

In a personal setting, planning is also just as important. For example, a weekend away would usually involve choosing a location, checking what the weather will be like, booking a hotel, agreeing the route, booking a restaurant and so on, all things we know we need to do in our heads, and we subconsciously plan for while managing and multi-tasking the other things going on in our lives.

So why is it so difficult in a work setting to plan change and improvement projects?

My experience and insights suggest that for smaller projects, an Agile delivery method works well, but when it comes to more complex, larger projects, an Agile approach makes it much harder to deliver successful outcomes. Is this because larger projects require a different way of thinking? It's certain that larger projects most definitely require structured governance, processes and people with skills and experience to deliver. Few (if any) projects run smoothly but getting the right delivery approach is crucial in helping to overcome challenges when they come along (and they will).

The debate between allowing a free rein and having structure is thought-provoking in itself. My view is that a good mix of the two is what enables people to thrive and allows change and improvement to continually evolve in any organisation. When delivering change and improvement projects, there are some key considerations:

1. Doing the right thing

Lots of organisations throw themselves headlong into change without stepping back and asking themselves: what's the problem we are trying to solve, what do we need to do to solve it, and what's the outcome we want?

Projects are often born from just an inspiring idea and it's important to be creative, but sometimes little thought is given to 'doing the right thing'. Having 'structured flexibility' considers the change delivery approach, meaning that the best and most appropriate way forward can be defined and agreed. It allows the scope and complexity of a project to be designed and it also considers other delivery approaches before getting into the details of the delivery itself.

2. The cultural approach

Organisational culture is a key component of successful change; it enables an organisation to evolve, but there's no 'one size fits all' when delivering change. It's not just about planning and the technical side of things, it's also about a way of thinking, predicting and acting.

Sometimes 'structure' can be seen as a barrier to moving things forward and stifling creativity, but 'structured flexibility' allows people to develop and learn new skills while testing themselves. It provides assurance that things are being done in the right way by people who can balance agility against the need to deliver the best outcomes, people who can learn from lessons without fear of failure.

Structured flexibility ensures that the benefits are identified, measured and realised. It allows costs to

be controlled and it ensures that risks and problems are being dealt with effectively, while exploiting opportunities when they come along. Above all, the right cultural approach ensures the ownership of a project's deliverables by people who actually care about what's being delivered.

3. Appreciation of risk

As the saying goes, "If you don't invest in risk management, it doesn't matter what business you're in, it's a risky business." Often in change projects without structure, risk is overlooked.

My opinion is that risk is often misunderstood within projects; sometimes the approach is to plough ahead without really considering risk, particularly with Agile projects. Conversely, some structured projects do consider risk, but there is a tendency to think lots of risks are a good thing and that this goes some way towards justifying the value of a project. Is this a cultural issue?

Structured flexibility allows risk to be treated in a manageable way. It enables the focus to be on what's important and it lets project teams and organisations plan for things that might go wrong and identify what needs to be done to keep things on track. Preparing for risk is a key element in any project delivery method, but not everyone appreciates risk and some see it as a barrier when in fact appreciating and embracing risk is a great opportunity to learn.

In all projects it's important to be prepared, so ask yourself:

• Are the risks in your change projects clear?
• Can you be sure they are being effectively managed?
• Is there business ownership and accountability within your change projects?
• Do you have a project governance approach that provides confidence?
• Are your risk management responsibilities clear?
• Does your organisation proactively manage project risks, including scrutiny of policies, technical activity, testing, contingency and assurance?
• Lastly, do you have a culture that appreciates risk and sees its value?

Good practice is essential to delivering successful outcomes and addressing the areas above (and more) when undertaking complex change projects. Positive scrutiny is essential to help move forward and having a structured and flexible delivery methodology will provide assurance that things are going in the right direction.

Stephen Repton is the CEO of One Consulting

Plus Dane goes omni-channel with Britannic Technologies and 8x8

Britannic Technologies has won a tender to supply Plus Dane Housing with a cloud-based, unified communications and contact centre solution from 8x8.

Plus Dane wanted to augment its customers' journeys by offering a full omni-channel service spanning phone, email, web chat and social media, underpinned by 100 per cent reliability.

Britannic will be designing and implementing 8x8's XCaaS ('eXperience Communications as a Service') solution for better communication and collaboration between Plus Dane's staff and external agencies, alongside 8x8's multi-channel solution for its customers.

Kate Jungnitz, director of customer service, Plus Dane, said, "We were looking for an IT provider that understood our sector and could help us change to a new system. Britannic's tender was extremely thorough and stood head and shoulders above the rest. We're excited to modernise our telephony and improve our customers' experience."

Once the implementation is complete, Plus Dane plans to use the combined Britannic and 8x8 system to introduce video-calling, enabling customers to video-call into the 8x8 contact centre to show their problem and repairs in real time so that the agent can then book an appointment with the correct operative to fix the problem.

HOUSING TECHNOLOGY 2023
IN PICTURES

The Housing Technology 2023 conference took place at the start of March, with over 500 people taking part during the two days of the amazing event despite snow covering much of the country.

Now in its 14th consecutive year, the Housing Technology community gathered for two days at our fantastic new venue in Nottingham to join in the keynote panel discussions, listen to a wealth of talks from housing providers and IT suppliers, visit the exhibition hall, share experiences and mingle during the evening drinks receptions.

The Housing Technology conference will return again on **06-07 March 2024**, but before then, don't miss our **Data Matters 2023** one-day event in London on **12 September (see housing-technology.com)**.
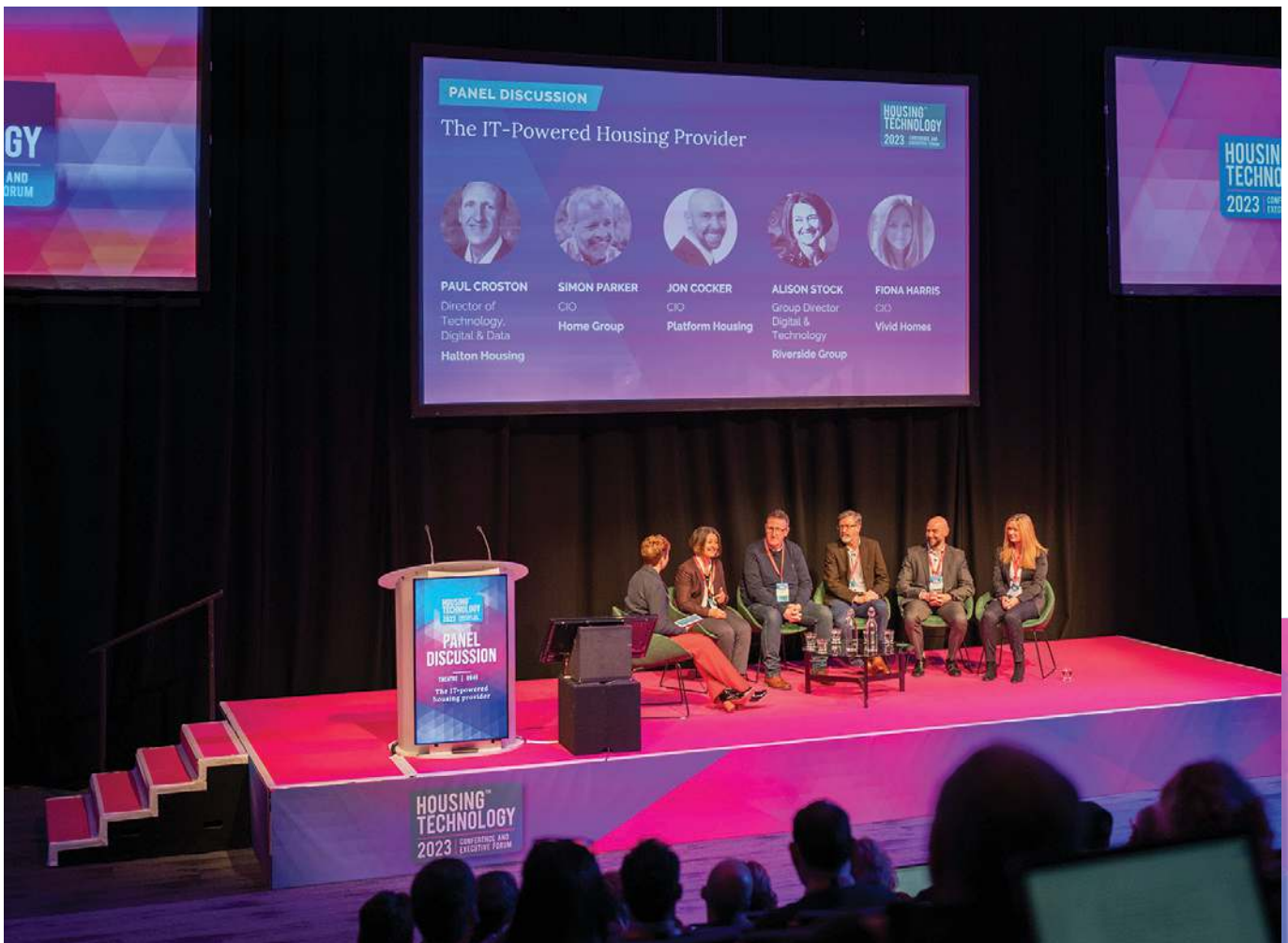
Moving on from a 'human approach' to business intelligence

Neil Forrest, Chief Commercial Officer, Occupi

Rent collection and supporting tenants in financial difficulty has barely changed during the past two decades. Despite advances in technology and data analysis, teams are still being held back by manual, inefficient methods of working. And as the number of homes managed by housing providers increases, the problems are becoming even more evident.

With the economic hardships that the UK has experienced over the past few years, culminating in the current cost-of-living crisis, the percentage of people in social housing who are struggling with debt is rising. According to Resident Voice Index's 'Cost of Living' report, 80 per cent of the 5,700 social housing residents surveyed said they were in some form of debt, including credit cards and rent arrears. Around the same number also said they were worried most or all of the time about meeting their monthly expenses. That report was published in November 2022, before the expensive winter months; the overall picture is likely to be worse now.

With few financial resources to fall back on, housing providers increasing their rents by the maximum 7 per cent, and the expectation that food, water and energy costs will continue to rise, many tenants are concerned about how they will manage to afford basic necessities in 2023.

While income teams do their best to help tenants, their efforts are being crippled by business intelligence and data analytics practices that haven't changed in a generation.

The human approach

I refer to the current, most common method of data analysis in income teams as the 'human approach'. In short, the human approach is where the management of debt (including assessing tenants' data regarding financial inclusion support, future arrears risk and current arrears management) is performed by a human.

On the face of it, this doesn't sound awful. Income and financial inclusion teams are specialists when it comes to helping people manage their financial situations, so let them take the reins, right?

However, as most readers will know, it's not so simple. If you consider that 4.4 million homes are managed by housing providers (October 2022), and that most housing providers' income teams comprise just a handful of people, it's obvious that demand outstrips supply when it comes to housing professionals. Yet despite their limited capacity, housing providers are still tasking their income teams with sifting through thousands of cases by hand to find those that actually require attention.

Organisation by arrears

To create some semblance of order in their caseloads, most housing providers using the human approach organise their cases by the size of each tenant's debt. The idea is to contact those with the greatest debt first and do what can be done to manage their arrears, and then move onto the next case.

However, limiting their analysis to just one data point leads to significant problems. For example, imagine Tenant A has a large but slowly decreasing arrears total, and Tenant B has a small but quickly escalating arrears total. Tenant A would be contacted first and Tenant B wouldn't be prioritised unless their debt grows, making it harder to manage. Tenant A would also be contacted regularly by income teams, despite their debt being under control. Prioritising cases by arrears also results in false-positive cases (also known as 'technical arrears') clogging up an income team's caseload. Technical arrears are where a tenant regularly goes in and out of debt because they get paid days or weeks after their rent is due, meaning they're always paying late. Caseloads based only on arrears include 30-40 per cent technical arrears, which could just be removed.

Instead, a more sophisticated system would analyse the stability of each arrears case and then prioritise the most unstable cases first. Going back to our previous example, Tenant B's arrears would be considered unstable because the debt is rising quickly, whereas Tenant A's arrears would be considered stable and managed so would be deprioritised. Finally, as technical arrears cases are self-resolving by nature, they would be removed from the main caseload.

Reactive rather than proactive

The second problem with the human approach is that it leads to a reactive form of income management and financial inclusion. This is because income teams can only provide people with help once they are already in large amounts of debt. Due to the limitations of the human approach, only cases with large arrears totals are prioritised, meaning that many tenants accrue preventable debts before they are actually given support.

Of course, income teams would love to be proactive. When we asked income teams in January 2023 what they liked most about their jobs, the top two answers were: helping tenants to manage their finances; and helping tenants to plan for their futures. Yet the current approach limits the positive impact they can have and also adds to their housing provider's total arrears by leaving many unstable arrears cases unchecked.

If housing providers could instead create robust stability profiles for each tenant, they could intervene earlier and prevent larger arrears from arising. In some cases, they could even identify and help with arrears before the debt even happens.

Using AI analytics

Thankfully, there is another approach that uses all of the technological advancements available to us in 2023. What I'm referring to is the AI approach, where artificial intelligence is placed at the heart of your data analytics.

AI systems are no longer a technology of the future. They are here now and not taking advantage of them is a mistake that's affecting millions of people in social housing in the UK. As Oren Etzioni of the Allen Institute for Artificial Intelligence said, "AI is a tool; the choice about how it gets deployed is ours."

By using AI, your team can have access to a full analysis of all the data points you have on a tenant (including debt total, payment schedules, benefits received, changes to rent, changes to income, seasonality and much more) which then creates a stability profile for each tenant.

Using these profiles as the main method by which cases are prioritised (another job the AI can do for you) will lead to a huge reduction in the size of caseloads and better managed arrears across the board. The information contained in each profile will also tell your teams which tenants should receive financial inclusion support, additional funds from benefits, tenancy health checks and so on.

The AI approach increases tenant wellbeing by prioritising support based on a detailed understanding of a tenant's financial stability, cutting out the guesswork. With enough data and a little bit of machine learning, AI can also predict which tenancies are likely to fall into arrears in the next few months so that income teams can intervene to prevent that from happening.

Finally, the AI approach removes the strain from income teams by reducing their caseloads, allowing them to spend their time doing what they do best: helping people manage their finances and plan their futures, not endlessly assessing cases.

As Agent Smith put it so aptly in The Matrix, "Never send a human to do a machine's job."

At Occupi, we know such an AI system exists because we've built it, and we know it works because we've seen it in action. The only question remaining is whether this technology will be adopted fast enough to help those who are already struggling to pay their rent.

Neil Forrest is the chief commercial officer at Occupi.
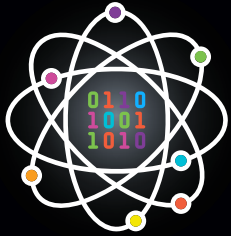
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