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Artificial Intelligence and social housing

OPEN

Introduction

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Salesforce

Welcome to the fourth joint thought leadership report between Campbell Tickell and the Disruptive Innovators Network. Through these research projects, we attempt to shine a light on topical subjects but always through a practical lens. This one is no exception. AI is going to change the way we live and work, and social housing is not exempt from this. We hope you enjoy reading this report as much as we did preparing it.

It was Mark Twain who memorably observed: "Prediction is difficult – particularly when it involves the future." We all know AI is the Next Big Thing, but it's harder to know what that will mean for us. It could mean that oppressive authoritarian governments can step up their surveillance to the nth degree. Or maybe it heralds a glorious third industrial revolution, liberating us from humdrum tasks to focus on creativity, caring, fun and living our best lives.

The contributions in this report come from a range of perspectives, focusing mainly on the world of housing – but with lessons for all sectors. Above all, they remind us that AI is already here, improving processes, allowing better customer services, and occasionally getting things very wrong indeed. Sam Nutt helpfully spells out the ethical dilemmas of introducing AI, which may not always be as diversity aware as needed!

In conclusion, we were left pondering Vinay Parmar's cautionary distinction between 'warm' and 'cold' AI. This wave of change will be as good or as bad as we humans choose to make it. If it's just about cost savings and better voice menus, dystopia beckons. If it's about customers, and making our values real, then cautious optimism can be in order.

To discuss any of the issues raised in this report, please email Radojka Miljevic, Ian Wright, or Thomas Lancefield.

This report is supported by Salesforce

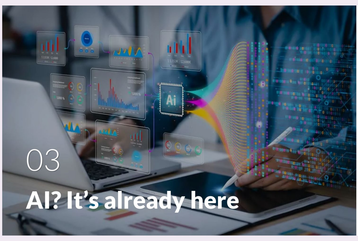
Salesforce is thrilled to support this research paper on AI in social housing, acknowledging its transformative potential for the sector. Over the years, Salesforce has consistently expanded its AI capabilities, introducing advancements such as predictive analytics, natural language processing, image recognition, and now, generative AI, to enhance service delivery.

Committed to the ethical use of AI, Salesforce views it as a tool to augment human roles, aiming to improve customer interactions and help housing organisations meet growing demands effectively. We hope this research paper provides insight and guidance on AI within social housing and how organisations can get started with its transformative powers.

We interviewed a number of leaders and specialists as part of this research. Their quotes are intended to illustrate various points, but should not necessarily be taken as representing the views of Disruptive Innovators Network or Campbell Tickell.

DIN and CT would like to thank Gav Hollander once again for his time in researching and conducting the interviews for this report. He has an ability to take complex subjects such as AI and simplify them to make engaging and insightful content. If you would like to contact Gav for other similar projects, email gavhollander@gmail.com.

Gav Hollander



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Thomas Lancefield,
Lead for Social Housing,
Salesforce

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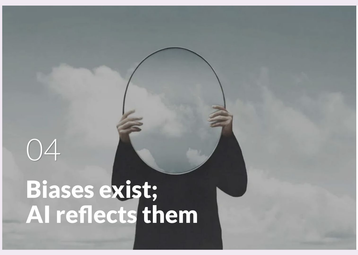

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Biases exist; AI reflects them

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Research and Data
Ethicist, London Office
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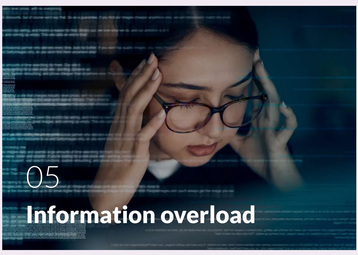

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Julia Mixter,
Executive Director of
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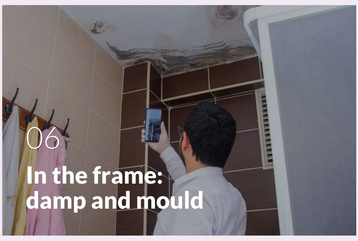

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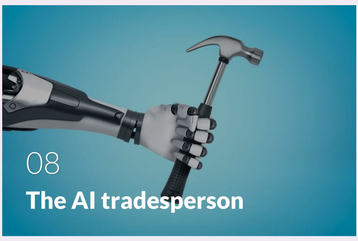

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Chief
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Officer,
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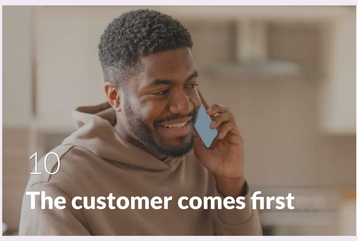

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Vinay Parmar,
Founder,
Dhruva Star

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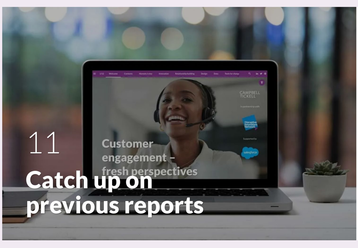

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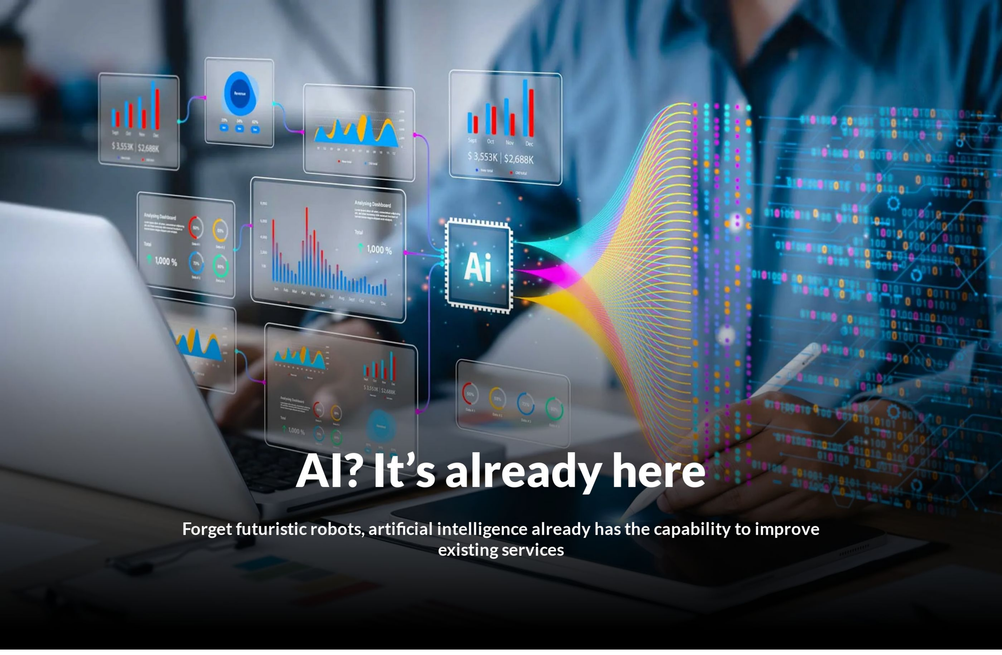


AI? It's already here

Forget futuristic robots, artificial intelligence already has the capability to improve existing services

"I think there's a tendency when people talk about AI, to think of it as a big homogenous thing that's going to take over the world and be a huge problem," says Thomas Lancefield, Lead for Social Housing at Salesforce. "But actually, it's already part of our everyday life. Whether it's when we open a bank account or get emails from brands, they're using AI to communicate with us and we're interacting with that AI. Housing should think about AI in that way as well."

Lancefield confesses to "thinking about AI all of the time and how the sector could be using it". He has a number of practical ideas about how the technology could change the way housing organisations work in small, but important ways. One of these ways involves making the interaction between tenants and customer service teams much more efficient; not by replacing customer-facing staff with AI bots, but by using AI to improve the interactions.

Improving customer experience

"I've sat in contact centres and listened to the calls come in, and a lot of the time, the calls are not necessarily even something that housing providers can handle or deal with," he recalls. "And the organisation itself only has a finite amount of resource, so having AI as a way to easily summarise what that call is about, signpost people in the right direction and support the customer service agent in that role is really important."

When it comes to common issues for tenants, such as damp and mould, Lancefield says AI can also be used to prevent calls having to be made in the first place: "Analytics that use AI or machine learning can find out which block or flat is at risk, so you can be proactive."

Furthermore, when this AI functionality is combined with good data, it can allow landlords to connect the dots better and understand what might be happening across their stock.

"If you are aware of that data – that the block of flats has been having issues with damp and mould – then maybe there are other customers having similar issues in that block. Again, what that does is drive a much more proactive approach from the housing association."

Lancefield is describing use cases that are perfectly possible today and indeed are being used by organisations in a wide array of sectors. This is AI, not as a futuristic job-stealing machine, but as a hyper-efficient data processing tool that uses existing knowledge to provide better, faster solutions.

"AI is already part of our everyday life."

Thomas Lancefield
Lead for Social Housing, Salesforce

"When we talk about use cases for AI, what should be driving it is the outcome you want to deliver and not the system itself."

Data is everything

However, a notable bump in the road within the housing sector is the variable quality of data.

"Obviously, you need good data to be able to do this and I think the sector's problems with data quality and data management is well documented," says Lancefield. "There are technology issues in terms of systems that don't necessarily 'speak' very well to each other, but more to the point, there's a cultural issue around how organisations think about data."

He explains that the heart of this issue is the same problem that impacts housing providers at so many levels: a lack of joined-up thinking between the various services they offer.

"You need to think about the full customer journey," he continues. "We know that customers don't just interact with customer services; they may have a repairs technician, a support worker, etc. You have to think about the lifecycle of data and what people need at each point in time and how that data can be serviced, so that the data the contact centre agent uses is the same as the repairs agency. It helps make sure we don't have these 'islands of data' that then make it really difficult to serve the customer and provide a consistent service.

"At too many housing providers I speak to, the contact centre ends up becoming a triage service because they don't actually know what's going on at the customer's property. But I don't think that's just a technology problem. When we talk about use cases for AI, what should be driving it is the outcome you want to deliver and not the system itself."

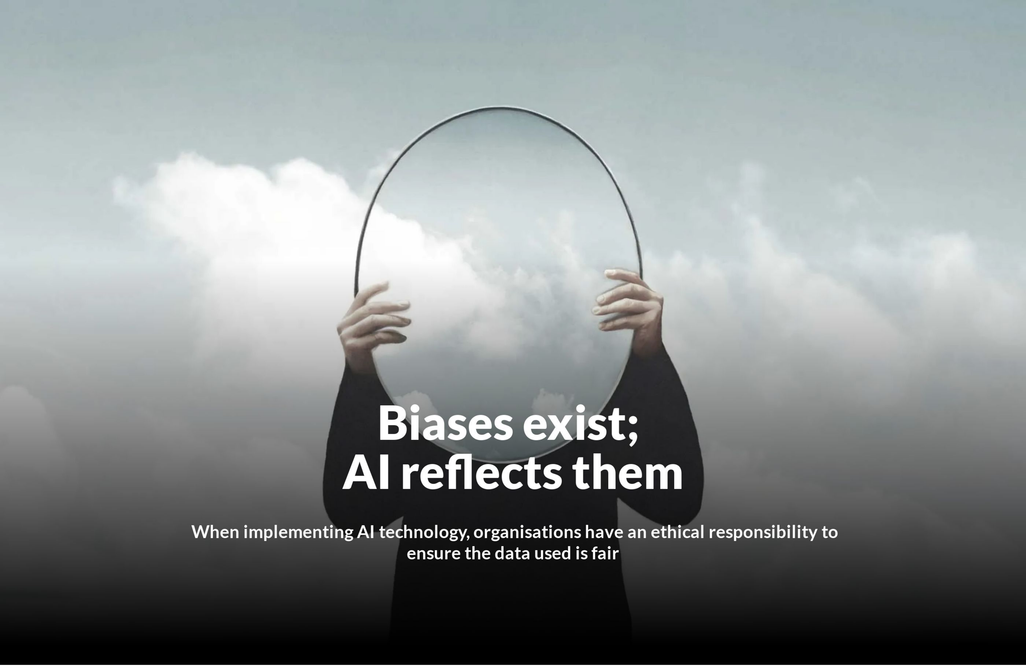
A new generation

Although the use cases Lancefield highlights are mostly about enhancing existing services, he still believes the technology will transform the sector over the next decade or so. "It's not that far away," he says. "So actually, you need to start that journey now because the longer you wait, the further behind your organisation will get."

Part of the reason for the urgency is recruitment, according to Lancefield. Housing providers should be attractive places to work. But the sector could be in danger of missing out on an entire generation if the technology it deploys is outdated.

"People, particularly young people, get turned off because when they turn up to organisations, they're often having to use technology that their mums and dads, or even, their grandparents may have used," he adds. "They're probably not anticipating having to look through databases and scan lots of different systems; they're probably just expecting to have a conversation with a system and be able to get all the information they need that way.

"If you want to retain and get talent into the sector, I think it's important you think about getting your systems and data right and start to be able to innovate and use some of the AI capability that's available."



Biases exist; AI reflects them

When implementing AI technology, organisations have an ethical responsibility to ensure the data used is fair

AI might be set to transform the way housing providers interact with their customers in myriad ways – both known and, as yet, unknown. It is therefore vital that landlords engage with the ethical considerations that come with the adoption of the technology.

Sam Nutt, a researcher and data ethicist at the London Office of Technology and Innovation (LOTI), works with London's councils on how they can most ethically implement new technology. He says that an awareness of the potential bias inherent in AI should be a key consideration for the housing sector.

Mirror to an unfair world

"We've got data that mirrors an unfair world, so I think if you are building things, then even if the data is accurate, it might mirror an historically unfair world, and there's a chance that you could end up with sometimes quite perverse situations."

Nutt gives the example of a council looking to reduce how much it pays out to residents in the small claims courts by addressing the concerns or complaints of those most likely to sue. "You might say, 'let's look at the profile of the people who sue us for the most money'. You could argue that they will be the people who are most disadvantaged. But it could be a certain profile of people who are more likely to take legal action. Whereas people who maybe don't have English as a first language or don't understand the legal system so well, are far less likely to take you to a small claims court and get a payout.

"In that situation, you might think implicitly that the people who sue would be the people who need the most help. But actually, you can end up prioritising helping people who you are only helping because they are better at suing you.

"So your data could be really accurate and the model could be working perfectly, but the model could be working perfectly to reflect an unfair world."

For Nutt, it's about being aware of the biases that could be produced by AI models based around, for example, race, gender and sexuality "because they're trained on unfair data" and coming up with checks and balances to counter them. This is necessarily an iterative process rather than one that seeks perfection.

"Even if you could get it to be technically perfect, if the world is already historically unfair, you could just be continually reproducing that unfair world," he explains.

"You might think implicitly that the people who sue would be the people who need the most help. But actually, you can end up prioritising helping people who you are only helping because they are better at suing you."

Sam Nutt
Research and Data Ethicist, London Office of Technology and Innovation

"Your data could be really accurate and the model could be working perfectly, but the model could be working perfectly to reflect an unfair world."

Automating complaints

Applying this principle to a concrete example, Nutt describes how a council he works with is automating responses to some emailed complaints via an AI.

"One of the concerns we had when we were doing this was, what happens if people can write better complaints? Can they game the system? But people can already game the system in that certain types of complaints get better quality responses." In other words, a bias is likely to exist within a system, irrespective of whether an AI or a human responds.

This use case raises other interesting ethical dilemmas though. One is whether customers and tenants need to know whether their responses are generated by humans or AI.

"When you engage with the council, to what degree are you expecting to speak to a human?" muses Nutt. "One of the things that we talk about at LOTI is the difference between transactional and relational interactions with the public. There are some things that are transactional, and in my view, frankly, humans sometimes get in the way of doing these things effectively. They're also the tasks that officers don't particularly want or enjoy or need to do – they're the tasks we should be looking to use AI for.

"Some complaints cover things that are much more transactional. And in these cases, if you do make that evaluation that there isn't potential for bias or inaccuracy, or other areas that residents may be particularly concerned with, then I think it's okay to proceed with them."

Ethical procurement

A relationship that Nutt views as central to this delicate interplay between landlord and resident, is between those supplying the technology and those who are using it.

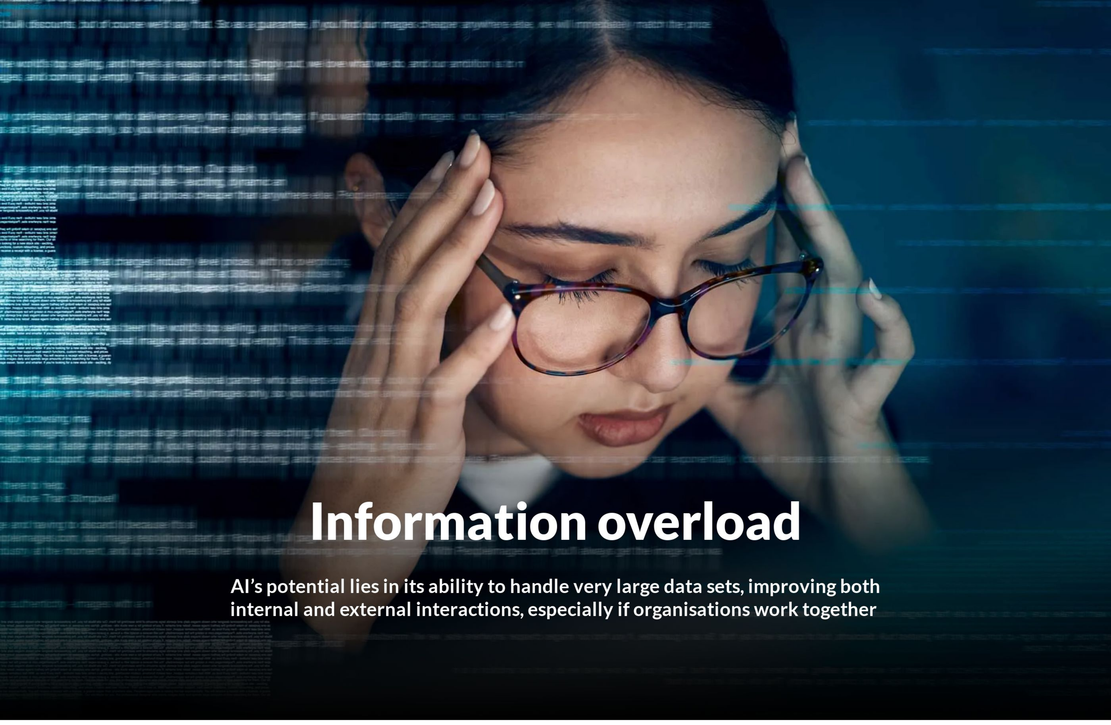
"The ethics piece also comes down to the people buying the technology," he elaborates. "That means procurement and commissioning staff – we need to make sure they are asking the right questions of vendors and suppliers, so that when we're buying technology, we're getting the information we need from them in terms of assurance.

"It's so we know that the models are fair, or that they're continually being checked for fairness, and they're going to tell us if something comes up. It's a big thing for when we're buying these systems. It's about doing the assurance really effectively and I think that's a real priority that we should be thinking about as a sector."

Assurance is also at the heart of a final point Nutt makes about deploying AI as safely as possible, namely the importance of collaboration. With resources stretched at local government level – just as they are for many housing associations – collaborating to road test new ways of working can create a hugely beneficial shortcut to implementation.

"If you can create safe environments to test these things upstream as early as possible, that would help," he concludes." I think it's a lot of pressure to put on one council to do this for any one thing, which I think is a huge hurdle, so collaboration is important."

"We need to make sure [procurement and commissioning staff] are asking the right questions of vendors and suppliers."



Information overload

AI's potential lies in its ability to handle very large data sets, improving both internal and external interactions, especially if organisations work together

While there may be understandable issues, both ethical and technical, around creating AI chatbots that interact directly with customers, what if the AI was used internally by customer service agents to better guide their interactions instead?

That was the innovation that Julia Mixter (now at Anchor) imagined when considering how AI could improve services when she was director of transformation at Raven Housing Trust.

Too much information

Explaining the genesis of the idea, Mixter says: "I think as human beings, we are expected to consume, understand and read vast amounts of data and information way beyond our capacity. A great example is people who get 100 to 300 emails a day. In those emails, you might have five attachments. If you get board packs as a member of an exec or a board, you're going to be reading 500 to 800 pages of information. And if we stand back and ask if that's a good and robust way of managing businesses, it's really not.

"So if you take that to a more frontline level and you think about customer service teams, the idea that someone can just hold and retain 250 policies that are relevant to customers and know the answer quickly without reference to materials is unrealistic. That's where AI has so much potential."

Mixter says she turned to LinkedIn to find out if anyone had already built something that would create huge time savings for frontline customer-facing staff: "The idea was to try and build something, not for external customers, but for the internal customer service agents, so that the chatbot could go and interrogate your SharePoint site – a set of curated documents – and come back with an answer."

Mixter wanted to find a model that was working effectively in the real world that would prevent her from having to spend months carrying out the build work for something that may never even get deployed at a meaningful scale. She found data scientist, Andrew Burgess, who had built something similar for a different client.

"So we gave him a curated data set and he went on and built a proof of concept chat bot model," she explains. "We tested it and it came back with really good, solid answers, and those answers were referenced back to the original source material. So we were really starting to see the potential gains of using it internally."

Julia Mixter
Executive Director of
Business Services, Anchor

"The idea that someone can just hold and retain 250 policies that are relevant to customers and know the answer quickly without reference to materials is unrealistic. That's where AI has so much potential."

Stronger together

Although Mixter has since left Raven, the landlord is now working on the business case to scale the AI model up and make it operational throughout the business.

For Mixter, the important part of this story isn't so much the AI model itself, but how important collaboration is for the housing sector if it is to unleash the full potential that lies latent in the technology.

"I think where there is huge potential for value is at a national level," Mixter explains. "Housing associations are like behemoths that merge and grow, but at the same time, we put these artificial boundaries around our stock, and we say 'this is mine' even though we know we are operating side-by-side in the same counties.

"We talk about what's best for our customers, but then we talk about our customers within our housing association, as opposed to saying, 'actually, AI works at its best on very, very large data sets.' So if we were to be able to finally reach a point where we could have a common data model around our property, then you could look at how AI can be applied to that data model."

"I think where there is huge potential for value is at a national level."

Common platform

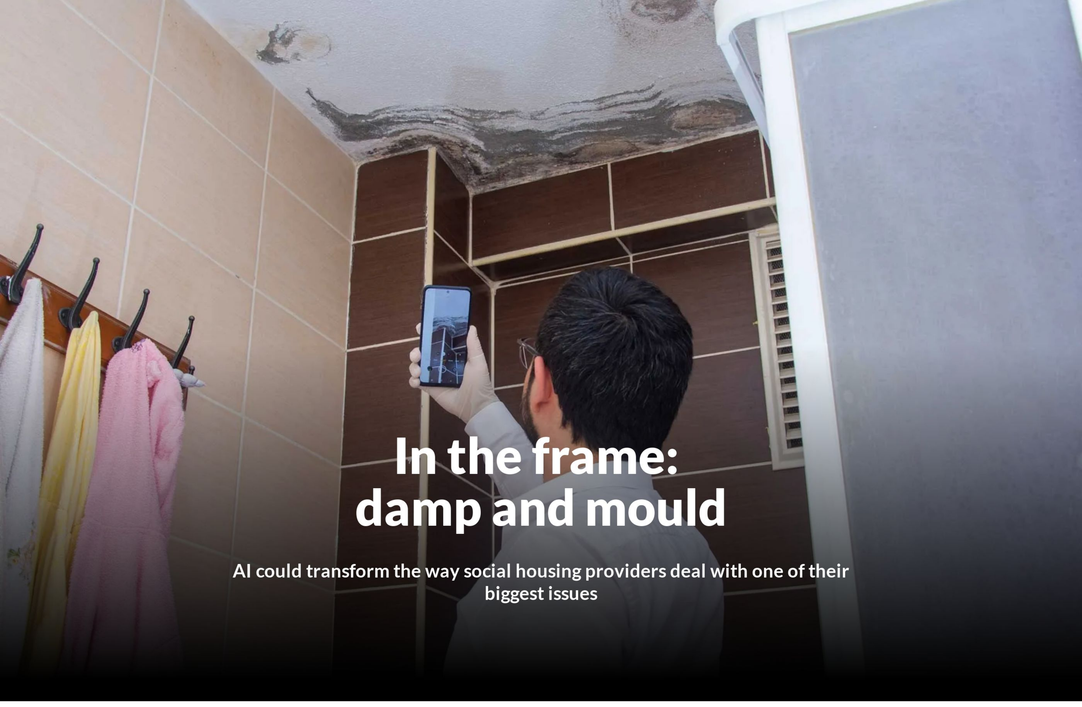
The collaborative model could then extend outside the sector to drive even greater understanding of customers. Mixter elaborates: "You look at big data and how you can feed in information from local authorities, water and energy companies, and there is so much more value we could give to our customers.

"There is a great idea being considered in the sector at the moment by ODX to create a common platform – a customer portal – so any individual, who is looking for social housing, could go on to a platform and look up a property and look at the condition of the property and the EPC performance and everything else at a national level. Because maybe they don't want to just stay in, say, Surrey and only look at this particular housing association's information. Actually, maybe they need to move somewhere else and they'd like to know what their options are elsewhere. That would be when we are truly collaborating and driving sector-level change."

Larger data sets would also drive improved performance within individual businesses, for example, when making predictive assumptions in relation to voids or rent arrears.

"Because the data sets are relatively quite small, particularly when you are looking at a small group of properties, the signals in the data are not strong, and so it's difficult to make future predictions," Mixter adds. "I believe that to get much better at some of the predictive analytics we're all talking about, you definitely need larger data sets.

"If we looked at arrears at a national level, using AI, we may find trends and themes we aren't even aware of at this stage. But I think we need some collaboration around this at a sector level if we really want to make good progress."



In the frame: damp and mould

AI could transform the way social housing providers deal with one of their biggest issues

If collaboration is key to delivering better AI projects, then Jo Sedley-Burke's work with the University of Essex shows how it can address one of the sector's defining problems. Following on from the work of the university's senior AI lecturer, Dr Haider Raza, on the early detection of skin cancer through machine learning analysis of photos, Sedley-Burke, an associate consultant at Campbell Tickell, thinks the same model could easily be applied to the treatment of damp and mould in social housing.

AI as a life-saver

"It uses millions of images to identify what is and isn't serious," Sedley-Burke says, describing the skin cancer project, which Dr Raza revealed during an AI-focused Campbell Tickell webinar has hit 83% accuracy when it comes to detection. "It can then make recommendations in relation to treatment escalation. I see this as an area for social housing, particularly around damp and mould."

Working off pictures from smartphones uploaded to an AI-driven app, Dr Raza believes that his skin cancer project could save lives, given the importance of early detection when it comes to melanoma. And Sedley-Burke sees a parallel opportunity to revolutionise the detection and diagnosis of damp and mould in social housing.

"So we know many of us have this issue," she tells the same webinar. "We don't know whether it's caused by lifestyle, but actually, damp and mould has quite unique imaging [and] there is a lot of it around the world.

"And if we're taking photos of it and then saying, actually, the outcome of this kind of mould was this sort of outcome, it's not going to take long before we can identify what the correct action should be and how we advise the resident. We can also link it all in with the property, so that if we know that we've got X number of properties that might have different addresses, but they're the same age, have the same windows, the same whatever it is, then we can tie that together."

The potential to improve damp and mould detection and treatment is just one of a number of potential AI use cases that could come out of the work with the University of Essex, with anti-social behaviour and repairs being among the other areas Sedley-Burke believes could also be transformed. But she adds that landlords might need to overcome some fears if they are to unleash the potential of the AI revolution.

Jo Sedley-Burke
Associate Consultant, Campbell Tickell

"If we're taking photos of it and then saying, actually, the outcome of this kind of mould was this sort of outcome, it's not going to take long before we can identify what the correct action should be and how we advise the resident."

Risk aversion

"Social housing providers are quite risk averse," she continues. "That's because fundamentally it's residents' money, and so they need to be able to justify that spending to the board and assess the outcomes of any project."

Sedley-Burke's answer to this understandable problem of risk aversion is that organisations should be more willing to work together on solutions, particularly on something like damp and mould, where processes are becoming increasingly standardised.

"A lot of organisations do work already together, and while they tend to have differences in some of their internal processes, most people have the same process to deal with damp and mould. They carry out an inspection and have to make an assessment as to what the next action is going to be. It's very process-driven."

"It's just knowing how and where to spend the money – that's where the challenge is."

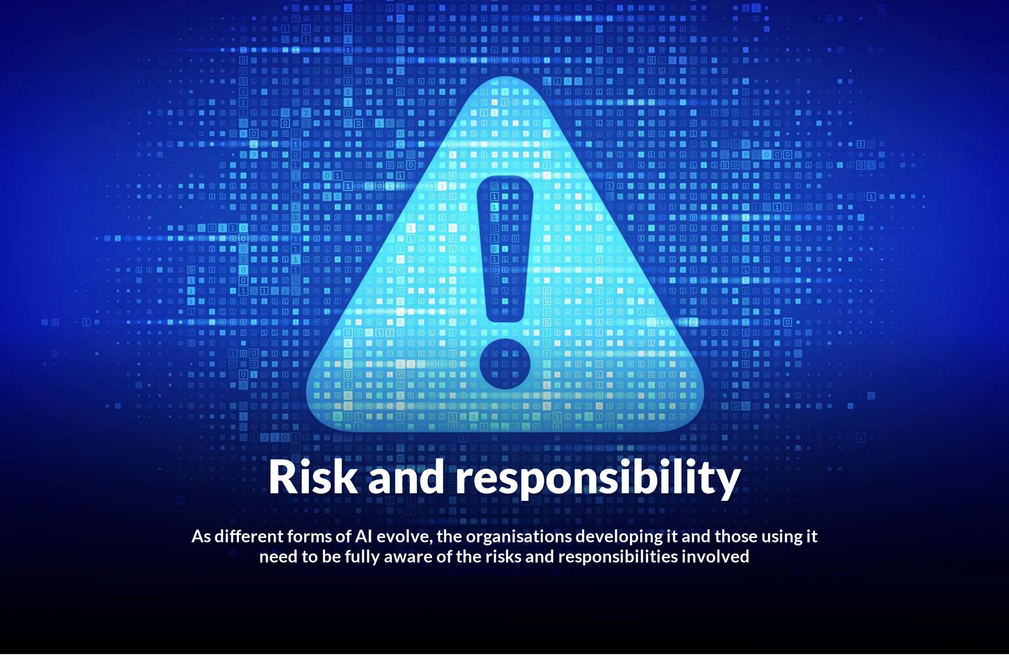
Transforming procedures

And for an issue that is one of the hot topics for the sector – and one for which it faces plenty of criticism – the effect of changing how the industry deals with damp and mould could be truly transformative.

"At the moment, residents are phoning up saying they've got a damp and mould problem," says Sedley-Burke. "A surveyor might go out and look at it. They might think okay, well, let's treat that with some wash first, clean it, do a wash. But actually, if it's coming from a problem within the building as opposed to a lifestyle issue, the treatment is going to be very different. So [it's about] speeding up that process."

The ability for an AI to pull together data on stock condition, ventilation, heating systems, window types and plenty of other variables, and combine that with a database of images of damp and mould would revolutionise this process. "It would be able to predict and analyse where you go from there, and whether there's something that needs to be dealt with within that building before it gets too late," she explains.

Sedley-Burke acknowledges that the type of change – at scale – that AI could bring about will require both investment and buy-in from key decision-makers. But she thinks the tide is turning: "I think people as individuals at the C suite level and in senior management teams are now seeing that machine learning would be able to assist them," she says. "It's just knowing how and where to spend the money to actually kind of get a better service – that's where the challenge is."



Risk and responsibility

As different forms of AI evolve, the organisations developing it and those using it need to be fully aware of the risks and responsibilities involved

"I don't think there is any AI in social housing, at least not in the way that people assume AI is."

This is Ryan Dempsey's forthright assessment of where the sector currently stands in relation to the technology. As the founder and chief executive of TCW, a service that uses compliance data to advise housing clients managing nearly 2 million homes between them, Dempsey's own business uses AI on a daily basis. But he makes an important distinction between risk-based AI, which is predicated on human instruction, and AGI, or Artificial General Intelligence.

Context-based AI

"When people talk about AI, about it making and learning from the information given to it and making decisions that the user doesn't know it's going to make, what they are talking about is general intelligence to a point where it's leaning into super intelligence.

"The issue you've got is that AI doesn't exist yet, not in a true form. You might have the likes of Microsoft or Amazon playing with it, but within housing, we have something much more like context-based AI."

This context-based AI, Dempsey explains, is one that might combine existing capabilities and technologies to drive efficiency. He gives the example of someone telling a friend they want a fresh sandwich: "Now, as soon as I've said that, the technology is going to say 'well, I know where you are geographically because I have location services; I also know that there's a Google map somewhere that I can search outwards to find the nearest bakery, so I can suggest a route to take you to the nearest bakery; and I know what the cost of it is, and I can get all of that from the conversation we've just had.'

"I think that capability is in housing right now. There's a couple of brands out there that are harnessing that kind of context-based AI and it works very well. Now that's really clever, and it's really good stuff, and it's going to create so much efficiency within the sector. But the issue you have is that when people are saying 'come and use our AI; we've built an AI model', they haven't. What they've done is they've created the facility to make things more efficient and they're trying to promote something up here that really is something that's a little bit lower down in the chain of command."

Ryan Dempsey
Founder and CEO, TCW

"There needs to be a form of accountability to that individual when the council or the authority gets fined millions of pounds for data protection breaches."

A word of caution

Beyond driving efficiency, Dempsey insists that social housing providers and any organisations supplying their technology need to be especially careful when deploying AI – either as it exists now or future in iterations – because of the particular responsibility they have when it comes to their customers.

"What they've got to try to understand is that when they're promoting the service that they've built and they're trying to sell into a sector, they're going to have to do that with a greater sense of integrity and accountability," he says.

"Because if you're telling a client that you can use AI, but you have to hide the fact that there is a risk of bias or a risk around breaching regulations – and you're doing that because you want to improve your bottom line or close a deal for a contract – then there needs to be a form of accountability to that individual when the council or the authority gets fined millions of pounds for data protection breaches.

"If you're telling them you can do X and you provide Y and they assume that they're covered, and then they get dragged through court, the person who told them that they can do X should be accountable and dragged through court with them. And I don't think that's well understood in the sector at the moment.

"I think when people say they use AI, everybody's eyes light up and they get really excited at having loads of robots walking around, cooking us dinner, cleaning our houses and changing our duvets. But the reality of it is, that's not going to be the case."

"When people say they use AI, everybody's eyes light up and they get really excited at having loads of robots walking around, cooking us dinner... But the reality of it is, that's not going to be the case."

In the public eye

Dempsey believes housing providers need to strike a balance between these responsibilities and the need to innovate to drive change in the sector.

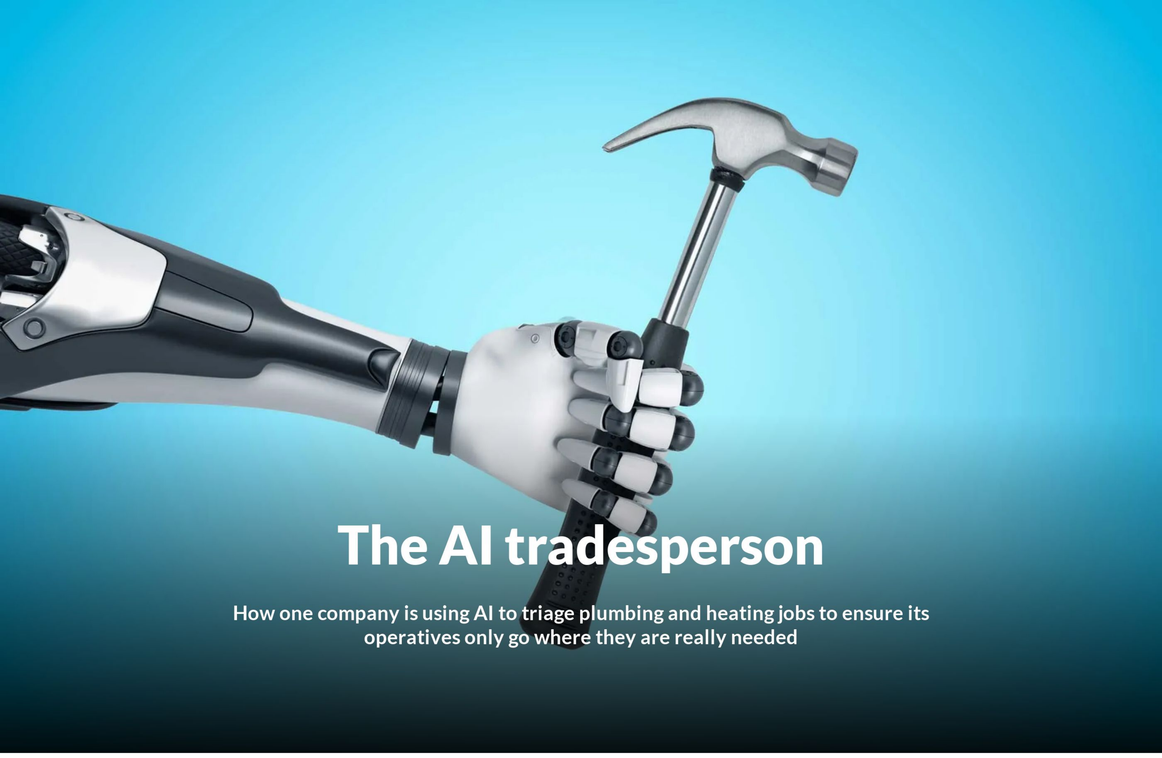
"Social housing is always in the public eye and unfortunately it gets a lot of grief. It's been shot down a lot about how bad it is, when in fact, the way in which social housing manages quality and competence and risk is pretty good.

"But it can improve – it always can. And I think the issue is because it's in the public eye, organisations need to be seen to be innovating to try to improve in an efficient way. They might think AI can provide that when, in actual fact, it probably can't to the level that they need it to.

"So the sector needs to be aware of how good it is now at doing the stuff it does, but also be acutely aware of what technology is available and whether or not that can slowly fit into the process to improve the organisation over a 20 to 30-year period. It's not about bringing this computer in, shoving in our database, and tomorrow – voila - we're in a much better position."

Dempsey acknowledges that he can sound 'negative' about the prospects of AI transforming the social housing sector. That is far from the case, but he emphasises caution when it comes to how the technology should be handled.

"It is exciting, and it is going to change the world, but we just need to be very careful. It's about being accountable for what you're saying, not just what you're delivering."



The AI tradesperson

How one company is using AI to triage plumbing and heating jobs to ensure its operatives only go where they are really needed

If the fear over AI among some of the wider population is that these shiny new tools will take our jobs and leave human beings redundant, then Ettan Bazil is probably a reassuring voice.

"I think everyone's somewhat scared of AI at the moment," he agrees. "They're worried that AI will replace human connection and they don't want that to happen, but what's exciting for me, is using AI to enhance human interaction. It's about making that contact centre interaction more valuable and impactful."

Bazil, a trained gas engineer and plumber, founded his Trade Innovations company in 2019. He had the idea of combining AI and machine learning with a network of semi-retired, remote-working tradespeople to create a better way of triaging plumbing, heating and other housing repairs jobs.

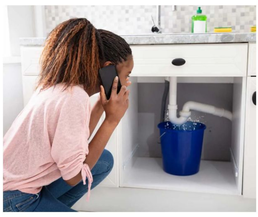
Prioritising jobs

Bazil has created a triage and diagnostics product – **Help me Fix** – which uses an AI assistant (known as Aidenn) to process massive amounts of data to help understand the type of repair work that is needed. Aidenn also helps determine if a call-out is required or whether the work can be resolved remotely via the network of tradespeople or by the customer watching a guidance video.

According to Bazil, Aidenn isn't replacing the job of a human; it is helping make sure the human engineers and tradespeople are deployed when and where they are genuinely needed.

"This is an example of AI dealing with the separation of the wheat from the chaff," he explains. "So if it's something really simple, AI would be able to deal with it and then it can escalate the more complicated stuff up to triage.

"If it's something that's going to require professional oversight, such as anything to do with boilers or live electrics, it will connect the resident to a triage engineer or dispatch someone. But if it's something like a consumer unit reset, then it will respond with a helpful video."



"AI can escalate the more complicated stuff up to triage."

Ettan Bazil
Founder and CEO, Help me Fix

"AI is going to change the way we live our lives in general, but in housing, we're talking about stopping bad things before they happen... because it can detect patterns better than people can."

Data-led diagnostics

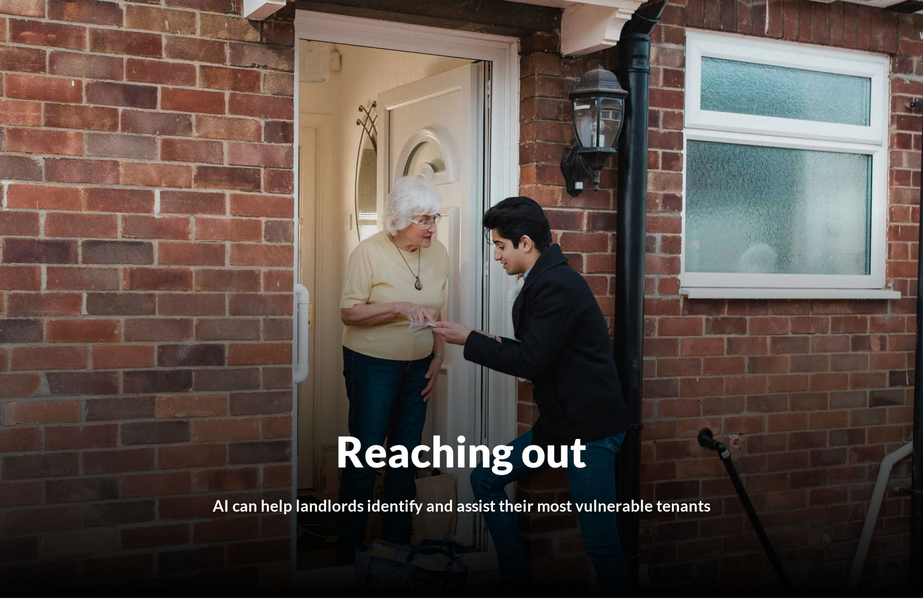
The system can only work because of the mountain of data that is fed into it from a huge variety of sources, which Aidenn then immediately contextualises. Bazil says: "It instantly knows every detail about a property, such as the type, construction materials, insulation details, the heating system, and even, environmental factors, such as the weather, so it can deliver relevant diagnostics quickly."

"Once it gets the address from the resident, it grabs the UPRN (Unique Property Reference Number) and identifies the latitude and longitude, pulls down the EPC certificate, and then finds out what the weather is like at the property. Once we've got all of that information, we're able to contextualise the repair. So if, let's say, we've got a leak coming through a ceiling, and we know that the property is a bungalow and it's raining, then the issue is most likely being caused by a leaking roof. So that will be the route that Aidenn takes. Whereas, if the property's in a block, and it's in the middle of the block, and there's beautiful sunshine there, the leak is most probably being caused by a plumbing problem."

Aidenn also has access to a database of triage calls and call reports, so it can find similar situations where a fix has been provided. But the key for the future, says Bazil, is that the model continues to evolve. He is working to get data from National Grid distribution network operators (DNOs) on gas and electricity interruptions and has invited housing providers to share their own data, as well; all of which will improve the performance of his products.

"I'm a big believer that AI is going to change everything," says Bazil. "It's going to change the way we live our lives in general, but in housing, we're talking about stopping bad things before they happen. I think this is one of the main things AI will be able to do because it can detect patterns better than people can. There are examples where AI can miss things, but it will get there soon.

"I think that the contact centre will be redefined. So rather than have people as a first port of call, you'll have AI-enabled contact centres and then people as a second stage."



Reaching out

AI can help landlords identify and assist their most vulnerable tenants

There is lots of talk about how technology can leave some of the most vulnerable service users behind. 'Digital exclusion' is a very real concept and one that social landlords – as organisations responsible for the welfare of often ageing and vulnerable customers – have to be acutely aware of. However, AI technology can also be used to assist landlords in their efforts to reach some of their most vulnerable tenants, as Platform Housing Group has discovered.

Silent tenants

Taking its lead from high profile cases of tenants of other social landlords being found dead in their homes having not been contacted for years, Platform's idea was to use AI and machine learning to improve its service to those most at risk. Using an unsupervised regression-based machine learning algorithm, Platform has been able to identify what it describes as 'silent tenants' and place them into a risk category that then dictates how the landlord will engage with them in the future.

"Logistics means we can't visit every property every two months," explains Jon Cocker, chief information officer at Platform Housing Group. "So we used a machine learning model with our data scientists to produce the propensity of a customer being silent. We looked at different variables and then intertwined them with our operational and tenancy teams and welfare visits."

The Midlands-based landlord then used AI tools to help it prioritise visits to those tenants deemed most at risk. Cocker says the AI itself is "continuously updating and learning around what makes a silent tenant", meaning its identification of those who might be at most risk improves over time.

"There have been some really nice human stories as a direct result of this, where we've found people have not contacted us and we've insisted that we go and visit them," continues Cocker. "When we found that they're living in poor conditions, we've managed to get them the help and support they need. So it's been a really good news story that we're building on."

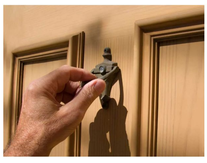
Developing the model

So far, the identification of silent tenants has been restricted to small pilot projects. But as the machine learning model expands out to the entirety of Platform's 49,000-strong stock, the idea is that it will grow and develop to the point where it is integrated with the organisation's wider systems.

Explaining how the model works, Platform's director of data and applications, Rob Fletcher, says: "It looks at huge quantities of data and creates data point clusters. When there's outlying data points that don't sit naturally within a cluster, the algorithm then sorts those outliers into high, medium and low risk cases."

Once these tenants are identified, Platform uses an outbound automated dialler called Voicescape to contact those who are in the outlying high risk data points and asks if they want a tenancy visit.

"If the answer is 'no', we remove them from our list, but if there's no answer, it reinforces the fact they're a silent tenant," explains Fletcher. "So if the answer is 'yes, we would like some support', or there's no answer at all, then it triggers targeted tenancy visits."



"Logistics means we can't visit every property every two months."

Jon Cocker
Chief Information Officer,
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"There have been some really nice human stories as a direct result of this, where we've found people have not contacted us and we've insisted that we go and visit them. When we found that they're living in poor conditions, we've managed to get them the help and support they need."

Integrating AI

"That's how it works now, but the future version will enable us to get to a point where we trust those high risk recommendations so confidently that we're prepared to inject the recommendations straight into the heart of our Customer Relationship Manager (CRM) case management system and remove the human decision-making from the process.

"You're never going to rule out false positives 100%, but you want to get to a point where you're 99%-plus confident that you're not wasting organisational resources because of false positives."

Integrating AI and machine learning into existing organisational systems is the next step on Platform's journey, according to Fletcher: "We've done a proof of concept where we're able to infuse our machine learning models within the heart of our CRM and case management platforms. We can genuinely get to a point where we have a discrete number of machine learning models running in real-time, ingesting huge amounts of both our own data and open source external datasets to create predictions – and those predictions can quickly go from predictive to prescriptive.

"So we can inject recommendations from these predictive machine learning models into the CRM, so that cases are created automatically based on the predictions."

These predictions could be used to prescribe action on everything, from boiler failure to the risk of a tenant falling into rent arrears. And although Fletcher says this model could be deployed this year, it's likely that Platform will wait until 2025 before moving the project forward.

"We have an ethical framework that we developed a couple of years ago that we've adapted for AI."

Rob Fletcher
Director of Data
and Applications,
Platform Housing Group

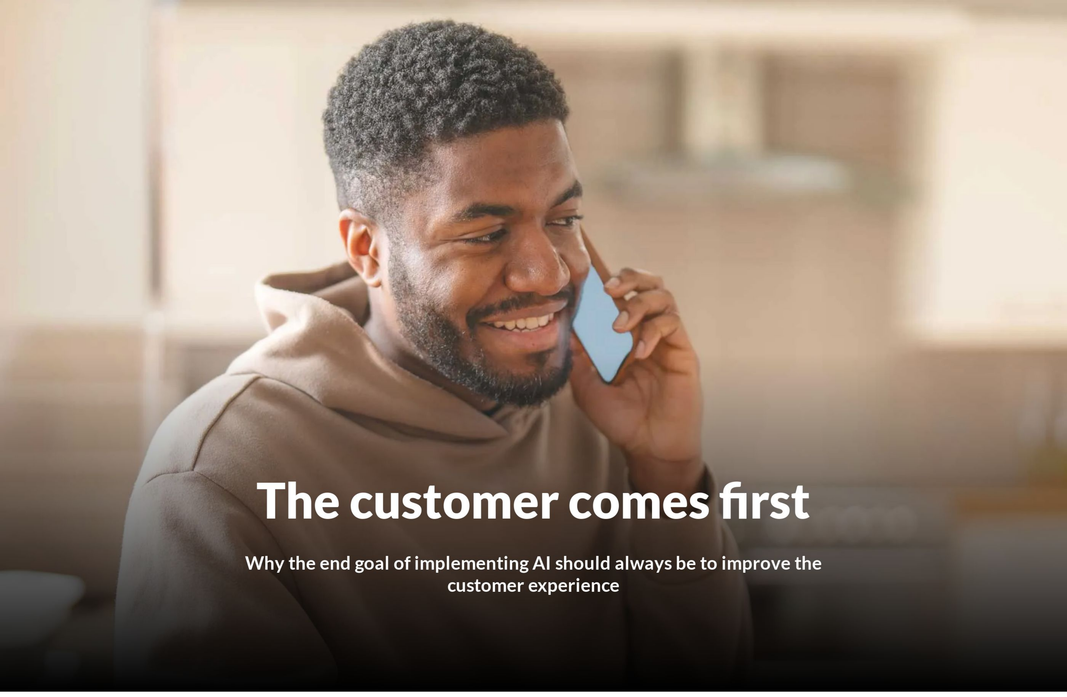
"We can inject recommendations from these predictive machine learning models into the CRM, so that cases are created automatically based on the predictions."

Taking things slowly

The delay in rolling out proven technology speaks to another key element of AI for Platform: that it has to be used ethically and with a high degree of tenant buy-in.

"We have an ethical framework that we developed a couple of years ago that we've adapted for AI," says Cocker. "That's got a number of steps in it, not just to determine what we're going to do, but whether we should be doing it. There needs to be transparency with the customer about what we're going to use the information for. And we need to ask ourselves, is artificial intelligence the right tool to do it in the first place?

"It's that type of question that we need to pick up. That ethical side is a real hot potato because there's no clear regulation anywhere on what we should be using it for – it can be a bit like the wild west out there at times."



The customer comes first

Why the end goal of implementing AI should always be to improve the customer experience

As an expert in customer experience across a range of industries, Vinay Parmar, founder of consultancy, Dhruva Star, is a firm believer in the principle that AI should only be deployed if it is done so in the service of the customer.

"In this space, there's lots of conversations about AI," he says. "At every conference I'm going to, people are talking about it.

"But it's all about understanding how each interaction affects customer satisfaction. Either they will increase trust, advocacy and loyalty, or you inadvertently cause distress, which reduces satisfaction, causes customer churn and pushes people away from your services and causes complaints. When you look at the whole tapestry across all of the interactions you have; all the way from brand awareness, right the way through, how customers feel about you is the key thing.

"It's never about technology; it's about the application of technology and the clarity of understanding why that technology is being used in the first place."

Warm vs cold AI

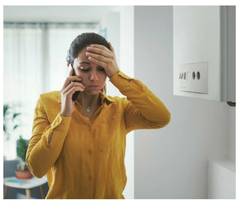
Inspired by the work of author Terence Mauri, Parmar says there is an important difference between what he describes as 'warm AI' and 'cold AI'. "Cold AI is driven by costs – how we can do everything cheaper. But if you're implementing AI based on cost and cost alone, you're going to fail because you'll implement it for all of the wrong reasons, in all of the wrong ways and for all of the wrong things. Warm AI is where it's people-centric or customer-centric, and that's really about understanding what it is that we want to create – what is the experience we want our customers and employees to have and how can the technology enable it to happen?

"It always comes back to what's the outcome you want to create in the organisation? And how does the technology enable it to happen? That's a better starting point then saying, 'I want to save 20% from our bottom line.' You will still save money, but you'll do it in a much more holistic way."

Parmar is also a non-executive board member at housing association, Curo. He knows that housing providers have a different relationship with customers compared to other industries.

"What housing organisations particularly need to be aware of, because of the responsibility they have to their tenants, is the impact their customer experience has on tenants' quality of life and mental wellbeing," says Parmar. "Because if tenants think they're not getting the service they expect every time they engage with their landlord, they will lose trust in them.

"They'll think, 'I've got no choice because I have to live in this house, but I don't trust them to do the right thing for me.' That can drive all manner of behaviours, so you need to build trust into the system."



"Housing organisations need to be aware of the impact their customer experience has tenants' quality of life."

Vinay Parmar
Founder, Dhruva Star

"If you're implementing AI based on cost and cost alone, you're going to fail because you'll implement it for all of the wrong reasons, in all of the wrong ways and for all of the wrong things."

Bottom-up design

The important thing in designing customer experience is to start from the bottom up, or as Parmar puts it to "start with the customer first and work backwards with the design." Applying this principle could even mean that organisations need to slow down their rush to use AI for things, such as customer service bots.

"The initial gusto has been rolled back," says Parmar. "They've realised how hard it is and how much work is involved in getting their organisation AI-ready to be able to unleash a generative AI bot on customers with confidence.

"It's more about co-piloting. How can generative AI be a co-pilot to empower the agent better, deliver a service or empower the engineer, who is out in the customer's home, to deliver a better service?"

From reactive to proactive

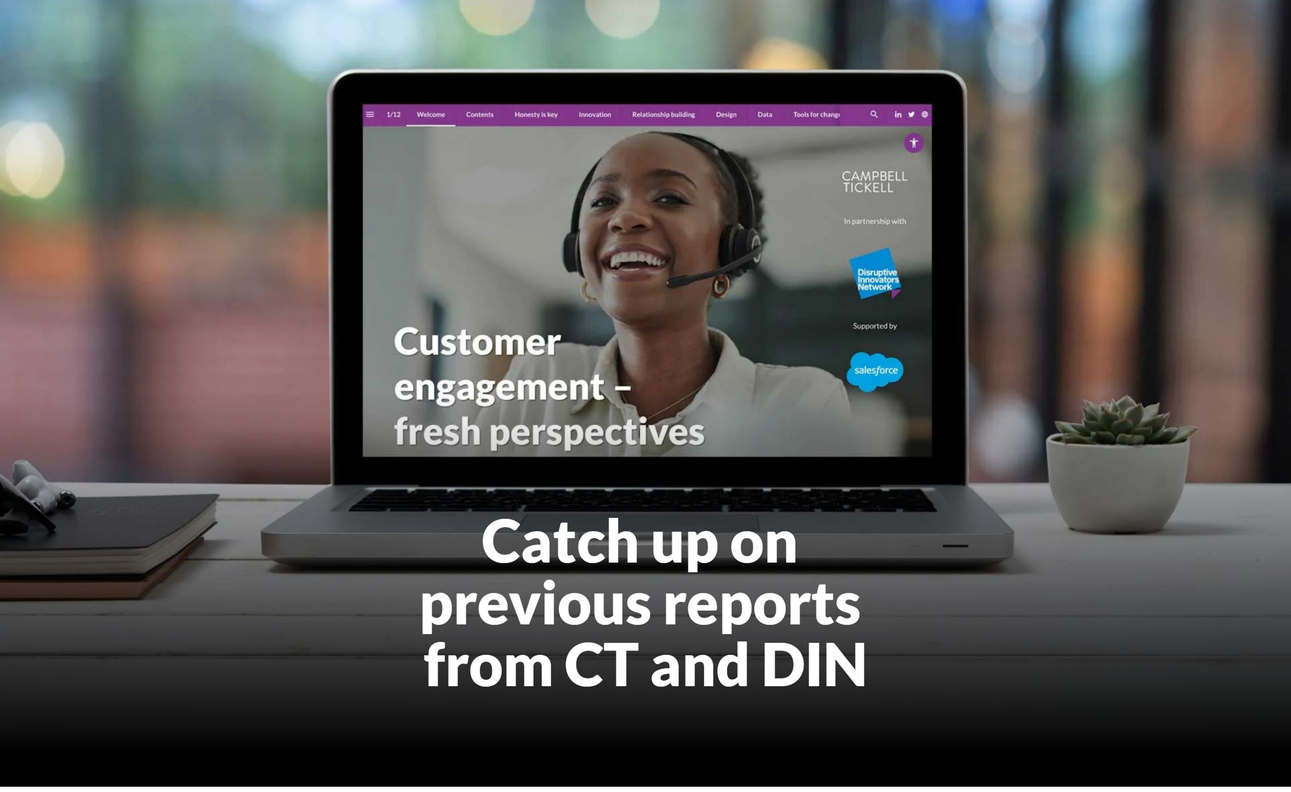
In housing, Parmar thinks one of the other big cultural changes that AI can help bring about is to allow landlords to respond proactively instead of reactively. That proactivity can apply just as much to tenant engagement as to planning how to develop new housing.

"The data and analytics piece is huge and that's where the biggest opportunity is," he explains. "There's analytical data we're collecting all of the time from our interactions, so the question is how we are using it to model the future. 'How do you use that to be able to say that? And based upon this data, these are the customers who are most likely to need us in the winter.' By taking this approach, we can be more proactive about planning activity."

Being able to build digital twins – or a digital sandbox environment – can also allow landlords to simulate certain outcomes, Parmar says, and this could be used to make better decisions around new build planning.

"From a new building perspective, if you're looking at sites where you're developing housing, we could almost simulate a model that said if there's housing going in here, can we predict what the demand on services is going be like," he explains.

"You can do it in the traditional town planning way, but I think AI could take you to another level, bringing those data points together in a really sophisticated way, which then helps you with forward planning and validating some of your hypotheses, rather than basing it on models created in Excel spreadsheets."



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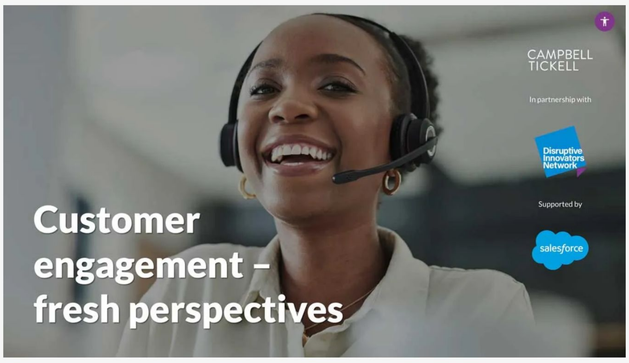

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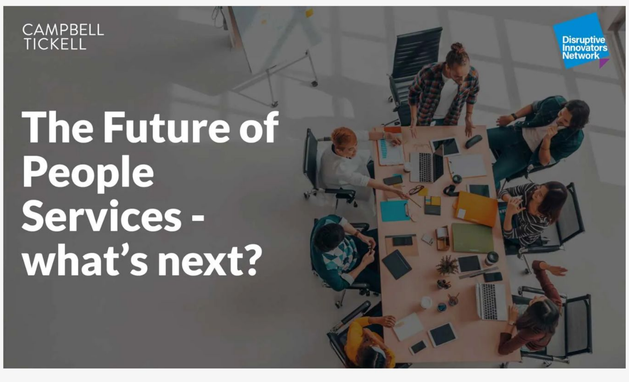

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