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Thank you for your email dated 22 May 2019 in which you request, under the Official Information Act (the Act) the following information about Housing New Zealand's use of Smart Home sensors:

- 1) what information is collected by the sensors and at what interval (e.g. is it every minute, or every hour)?
- 2) whether the tenants of these homes are informed of the presence of the sensors;
- 3) A copy of any privacy policy relating to the sensors provided to tenants:
- 4) A copy of any policy relating to use of the sensors data by Housing New Zealand;
- 5) A copy of any privacy impact assessment relating to the sensors.

Housing New Zealand's response is as follows.

1) what information is collected by the sensors and at what interval (e.g. is it every minute, or every hour)?

The sensors measure and record data on the temperature, relative humidity (amount of water in the air), light and air quality (carbon dioxide). Housing New Zealand does not collect any other information, nor do the sensors track any other activities in the homes.

The frequency of the collection of data by the sensors varies across the pilot. However, Housing New Zealand receives output from the sensors approximately every 30 minutes.

2) whether the tenants of these homes are informed of the presence of the sensors;

Yes. All tenants living in the homes identified for the pilot were given as much information as possible about what to expect. Tenants had the option of opting out of the pilot.

A copy of any privacy policy relating to the sensors provided to tenants;

Enclosed with this letter as Attachment I is a copy of the written communication provided to tenants in the lead up to the pilot. At the end of the letter is a consent form, which they had to complete if volunteering to participate.

Housing New Zealand is working in partnership with two providers for the supply of the sensors. In both instances, we have a Memorandum of Understanding to ensure the privacy of our tenants with their data collection.

A copy of any policy relating to use of the sensors data by Housing New Zealand;

Housing New Zealand's 'Policy for Smart Homes – POL – 312' is enclosed as Attachment II, along with the 'Smart Homes Pilot Qs and As', in Attachment III. The latter is a list of standard questions and answers developed for use by staff, when receiving general enquiries about the pilot.

5) A copy of any privacy impact assessment relating to the sensors.

Housing New Zealand takes the privacy of its tenants seriously. The processes to support this pilot are aligned with the Privacy Act 1993. Housing New Zealand's 'Privacy Impact Assessment' for the pilot is included as Attachment IV.

Additional information

The following commentary is provided as context for the answers to your questions.

Housing New Zealand started its Smart Homes pilot on 18 July 2018 with the intention that it continue for a twelve month period. The information gathered from the pilot will be used to:

- help Housing New Zealand better understand how our tenants are interacting with its properties
- provide practical information to help us work with our tenants to improve and/or enhance the property's performance – for example, the information from the sensors may show that the property needs some form of remediation to help make it a warmer and drier home; or indicate that the tenant should be advised about more frequent ventilating or heating of the property
- improve our understanding of how the collection and analysis of data can enable and support the identification of opportunities
- help validate the retrofitting work completed on the properties.

The pilot was established in partnership with our tenants living in the homes that were identified as appropriate for the exercise. The aims of the pilot, and the way in which it would be run were clearly outlined to our tenants, who were given the choice to participate or not. There is no disadvantage for tenants who chose to opt out of the pilot at the start, or who may decide to opt out during the pilot.

Two different types of sensors have been used in the pilot. The majority are battery powered but in some homes we have installed mains powered sensors. The sensors are installed in the living area and bedrooms or all homes, In some they are also installed in kitchens and bathrooms. The sensors being used do not interfere with the household in any way. They do not produce any noise, unusual light, or interfere with any other electronic equipment in the home. The tenants are not required to do anything with the sensors – simply continue to live as they normally would in the home.

The data being gathered is very specific to what Housing New Zealand wants to learn, with no additional information being collected. What is collected is not being publicly released in a way that would identify the families involved.

In those homes where the sensors are electronically powered, there is a small charge involved for each home. To cover this, we are crediting \$15 on a monthly basis to each home's rental account.

All data collected is shared with the tenant of that home. The cost of any damage to the sensors is covered by Housing New Zealand.

Yours sincerely

Rachel Kelly

Manager, Government Relations



Tenant Authorisation Form



@(current date)

«Correspondence Name» «Street No & Street» «Suburb» «City»

Customer reference: «Party Reference No»

Dear «Correspondence Name»

What is the Smart Homes Pilot?

Housing New Zealand (HNZ) is installing sensors in 160 properties across Palmerston North and Lower Hutt. The data collected from these sensors is being used to help HNZ better understand how our properties perform to ensure they are healthy places for our tenants and their whānau to live.

The information this data provides can also help you understand how healthy your home is and what you can potentially do to make it even healthier. Your tenancy manager will be able to discuss this with you during the pilot. We can provide data about your home and advice to you at any time.

The type of information we are collecting for the pilot

The pilot sensors measure temperature (warmth), humidity (dryness), CO2 (air quality, ventilation), light and air pressure. We will use the data HNZ already has about your home to help us understand what the sensor data is telling us. We may also come and talk to you about your home and how you live in it.

Electricity Bills

To help HNZ better understand what it costs to heat our properties we would really appreciate it if we could have access to your electricity bills for this winter. While the sensors can tell us how warm your property is we do not know what it has cost you to achieve that temperature. By matching how much electricity you use and the average temperature of your home we can better understand how much it costs to heat (or cool) our properties to a healthy level.

Signing the attached authorisation form will allow us to contact your energy provider and access your information about your electricity use directly from them. We will only do so once at the end of September and it will be for the months of June – September.

Will you share the data with anyone else?

Data security and tenant privacy is of the greatest importance to HNZ. While we may share the data collected with external researchers, they will not have access to any identifiable information about your or your whānau beyond the address of your home. We will only share this information to help us better understand the sensor data and what it means for healthy homes. If we do so, there will be an agreement with those researchers to ensure your privacy is respected and the data is secure.

HNZ already collects information about you and your tenancy under the Housing Restructuring and Tenancy Matters Act 1992, the Residential Tenancies Act 1986 and the Housing Corporation Act 1974 so that we can manage you and your tenancy. The data being collected under the Smart Homes Pilot is being collected under the same authority. This does allow us to share data with MSD if you are a customer of theirs; although in this instance this is unlikely.

The data collected will not be used for any other purpose and will have no impact on any ongoing or future relationship you may have with HNZ.

Do I have to participate?

Participation is voluntary and you do not have to agree to participate. If you are willing to participate then please sign the attached form. You can participate in the pilot without sharing your electricity data.

We appreciate that participating in the pilot is a commitment and you may change your mind later. You can leave the pilot at any time by contacting the Customer Services Centre on 0800 801 601 and leaving a message. They will let the pilot team know.

What do I do if I have questions later?

If you have any questions, or concerns, in the future please contact the Customer Services Centre on 0800 801 601.

AFFICIAL MEDICINAL SEFERICIAL SEF When you call, have your customer reference number handy—you will find it at the top of this letter.

Yours sincerely

Area Manager

Tenant Authorisation Form Customer name Address Customer reference Customer reference

Smart Homes Participation

I/We have read the advice about the Smart Homes Pilot on the previous page, or the advice has been explained to me/us, and I/we understand it. I/We understand that by signing this form I/we authorise information about me/us to be used, given and received in accordance with this advice.

Name	M. A.	8
Signature	Date	
Name	SKIKO.	
Signature	Date	

Electricity Usage Access

I/We agree that Housing New Zealand may access my/our electricity usage information for the purpose of understanding how much it costs to heat my home.

0,	YES*	NO	
Account Number		Provider	
Account Holder Name		DoB	
Signature		Date	



Policy for Smart Homes

POL-312

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Originator

Originator	Position of the Originator
Sharon Girvan	SRO Smart Homes Pilot

Approved

Approved		
Signatory		Date
Paul Commons Chief Operating Officer	Policy Leadership Group meeting	6 June 2019
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Introduction

Purpose

- 1. The purpose of this policy is to provide clear guidelines to Housing New Zealand (HNZ) staff about installing Smart Sensors in selected HNZ properties.
- The document specifies the conditions that apply when installing sensors and how the data will be managed.

Background

- 3. Housing New Zealand's primary objective is to ensure all tenants have access to dry, warm and safe new build homes that they can operate within their means. A key constraint to achieving this objective is that a number of Housing New Zealand properties around New Zealand are already approaching the end of their economic and/or functional lives. The Smart Home pilot involves installing sensors in approximately 160 HNZ properties; depending on the assigned cohort (Palmerston North or Hutt Valley Retrofit Properties (HVRP)) and the type of sensor. The sensors will record a combination of temperature, carbon dioxide (air quality), humidity, air pressure and light see figure 1. HVRP will also have a power loggers installed on the circuit boards to capture data related to the power usage and to test for energy consumption against the thermal envelope of the property
- Data from the sensors will enable HNZC to measure how healthy our homes are and how tenants use their properties and whether they live in warm and dry homes.

Objectives

- The objectives of this Smart Homes pilot are to:
 - · better understand how the tenant interacts with the property
 - work with the tenant to improve and enhance the property's performance this may involve property remediation or tenant education.
 - understand data applications and how we can use them to enable and support potential opportunities
 - validate thermal modelling and evidence benefit realisation for the roll out of the Hutt Valley Retrofit programme only.

Strategic framework

Legislation

- The following relevant legislation is referenced in the development of this policy:
 - Housing Corporation Act 1974 (HCA)

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- Residential Tenancies Act 1986 (RTA)
- Privacy Act 1993 (PA)

Policy

7. Decisions regarding tenancy and/or maintenance based on the data from this pilot will remain with the accountable teams within the organisation.

What will the sensors achieve

- The sensors will record a combination of temperature, carbon dioxide (air quality)
 humidity, air pressure and light. HVR will also have power loggers installed on the circuit
 boards to capture data related to the power usage and to test for energy consumption
 against the thermal envelope of the property.
- 9. HNZ intends to use the sensor data to:
 - inform us how tenants use the property on a daily basis
 - inform us how the property performs
 - evaluate and identify what interventions are needed to contribute to tenants' overall well-being
 - confirm the effectiveness of the Hutt Valley Retrofit programme and inform business realisation

Installation of the sensors

- HNZ will identify and approach tenants in Palmerston North and the Hutt Valley region to opt into the pilot.
- HNZ will provide tenants an information sheet outlining the purpose and the objectives of the Smart Homes pilot.
- 12. Once the tenant agrees to participate in the pilot then the Smart Homes authorisation form will be made available for them to complete and sign before the sensors are installed for 12 months.
- HNZ staff or PBMCs will install the sensors throughout the tenant's home upon receiving a formal authorisation from the tenant or a work order.
- 14. Three types of sensors will be used for the duration of the pilot. There will be three cohorts identified by the sensor type and property location.
 - Cohort 1 Palmerston North (approx. 50 tenants) with Switchee and MCOHome sensors (these are mains powered).
 - Cohort 2 is Palmerston North (approx. 50 tenants) with Tether device (battery powered)
 - Cohort 3 is Hutt Valley Retrofit (66 tenants) with Tether (battery powered) and an power logger on the main power board

¹ The Smart Homes pilot will run for 12 months in the selected Palmerston North and the Hutt Valley properties.

- 15. HNZ will ensure tenants do not incur any charges from the sensors such as installation, cost of batteries or any other power source. Credits will be provided to tenants for the cost of any electricity used by the gateway device.
- 16. A vacant property may already have sensors installed based on the previous tenant. We may then seek a retrospective consent from the incoming tenant. The tenant will have the right to ask for the removal of the sensors if they do not want to participate in the pilot.
- HNZ will not install new sensors in a tenant's new property if the tenant is relocated to a
 property that is outside of the selected properties for the pilot.

Removal and repair of the sensors

- 18. The tenant will have the right to contact HNZ and opt out of the pilot and request the sensors are removed from the property. A one-month stand down period will apply if the same tenant wishes to have the sensors re-installed back into the property.
- 19. HNZ will repair or replace the sensors at no cost to the tenant

Collation of the data

- HNZ will only collect data relating to the following variables:
 - · air temperature
 - air quality (carbon –dioxide levels)
 - air pressure
 - light
 - humidity
 - power usage
- 21. The sensors will collect data and securely transmit this data to HNZ database.

Storage and access of the data

- HNZ will own and securely store the anonymised data.
- Sensors gather non identifiable data that is securely transmitted to the two providers (Tether and Vodafone/Switchee) who consolidate this data and forward to HNZ where it is kept in a secure database.
- Tether use Amazon Web Services and their database is held securely in the Sydney Data Centre.
- Vodafone use Microsoft Azure and their database is held securely in Microsoft's Data Centre in Ireland.
- 26. The data or (a summary of it) will be accessible by:
 - HNZ
 - Tenants (App or paper report)
 - MSD (upon request only as under any enactment)
 - Police (upon request only as under any enactment))
 - Third party (e.g. Te Tihi (only with the authorisation of the tenant))
 - Third party may receive anonymised data for evaluation only

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Disposal of the data

- 27. When the tenant decides to opt out of the pilot, HNZ will stop collecting the data from the sensors, when they are removed from the property.
- 28. HNZ will store the data for a minimum of seven years, after which the use of the data will be reviewed for the purposes of making a disposal plan, this plan will be informed by how often the data has been used over this period.²

Privacy of the tenant

- 29. HNZ is an agency under the Privacy Act 1993 (the Act) and any collection and storage of personal information is governed by the Act. Raw data collected by the sensors will not identify a particular person but will record particular environmental variables related to an identifiable property only.³
- 30. The Information Privacy Principles outlined in Section 6 of the Privacy Act will govern HNZ's collection, use and disclosure of the data collected.
- 31. The Smart Home consent form will clearly specify the purpose and objectives of the pilot to avoid any interference with a tenant's privacy. The consent form will inform the tenant about:
 - the purpose and objectives of the pilot
 - · what kind of data will be collated from the sensors for the pilot
 - who will store the collated data and for how long
 - who will have access to the data and why.
- 32. HNZ cannot use the data collected from the sensors for a purpose other than that for which it was collected, or disclose the information, except where HNZ believes on reasonable grounds that:
 - the use or disclosure is authorised by the tenant
 - the purpose of the use is directly related to the purpose for which the information was obtained
 - the disclosure is one of the purposes in connection with which the information was obtained or is directly related to those purposes
 - the information is used in a format that does not identify the tenant
 - the information is used for statistical or research purposes and will not be published in a form that could reasonably be expected to identify the tenant
- HNZ will take all reasonable steps to ensure that tenants' entitlement to quiet enjoyment of the property is upheld.
- 34. HNZ will:

The Privacy Act 1993 (Retention Principles) – An agency that holds personal information shall not keep that information for longer than it is required for the purpose(s) for which the information may lawfully be used. The Public Records Act 2005 – Section 17 of that Act requires HNZ to - create and maintain a full and accurate records of its affairs and maintain in an accessible form [...] all public records.

³ The sensor will capture raw data on environmental variables limited to air temperature, air quality, light and humidity only.

⁴ The Information Privacy Principles under the Privacy Act 1993 govern the storage and security of information, and access to a person's own personal information.

- carefully consider what issues raised by the data would warrant a tenancy manager contacting the tenant (for example, significantly raised moisture level or other relevant anomalies)
- refrain from making unnecessarily repeated contact with the tenant
- avoid taking steps that might cause the tenant to feel that his or her reasonable use
 of the property is constrained in a material way
- 35. HNZ will limit the duration and frequency of visits as far as reasonably possible by its staff or contractors to install, maintain or replace the sensors and provide proper notice of its intention to access the property.⁵

Health and safety

- 36. We are committed to providing our tenants, neighbours and communities with healthy and safe living environments and providing our workers with a healthy and safe working environment.
- 37. We will comply with relevant legislation, standards, procedures and codes of practice in protecting our tenants, workers, neighbours and the community.
- 38. If the Business Intelligence Smart Homes dashboard detects data that poses potential risks⁶ to the lives of the tenant(s), HNZ will take remedial action where possible in accordance with the standard procedure.

Glossary

The following glossary clarifies some of the key terms used.

Term	Definition
Anonymised data	Data anonymisation is a type of information sanitization whose intent is privacy protection. It is the process of either encrypting or removing personally identifiable information from data sets, so that the people whom the data describe remain anonymous ⁷ .
Data	The information about the properties collected by the Home Smart Sensors and stored in HNZ data warehouse
Tenancy Manager	This role refers to the staff member who is the main contact for the tenant during the Smart Homes Pilot. In the case of Palmerston North, this person is the Kainga Whanau Ora Case Manager.
Smart Sensors	Sensors installed in HNZ properties that will measure temperature, humidity, light, air

⁵ HNZ's right of entry to the property s48 of RTA.

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⁶ The possible situations where the life of a tenant(s) can be at risk are – the temperature at the property is too high that could lead to a possible fire or the carbon dioxide level is dangerously high.

https://www.privacy.org.nz

Term	Definition	
	pressure and air quality (carbon dioxide)	
Data loggers	Cohort 3 will also have data loggers installed on their switch boards. (note: this is still to be finalised)	
Smart Homes Authorisation Form and Q&A information sheet	A form to give consent to HNZ by the tenants to install the sensors in the property tenanted to them, and to collate data for the purpose of the pilot.	

Version control

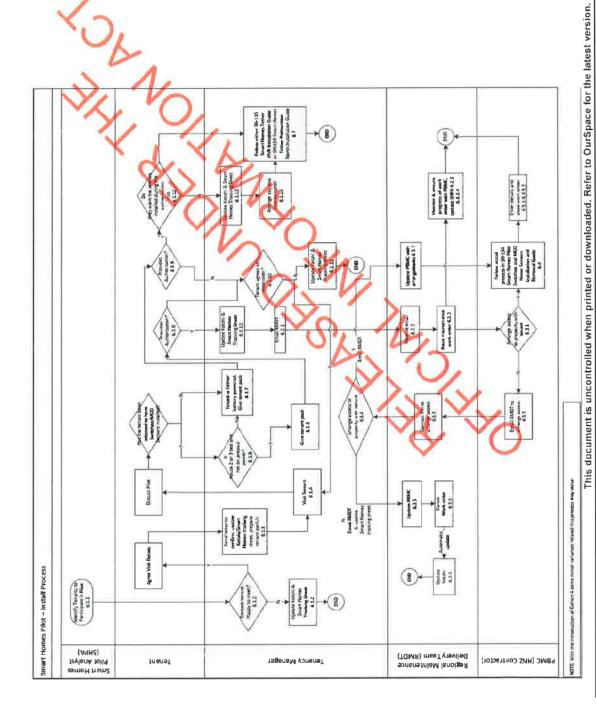
Details of previous versions are stored in Housing New Zealand's document management ocess Philippin system (Objective). Refer to header and footer information for reference document elements or for any queries contact OurSpace@hnzc.co.nz.

Appendix

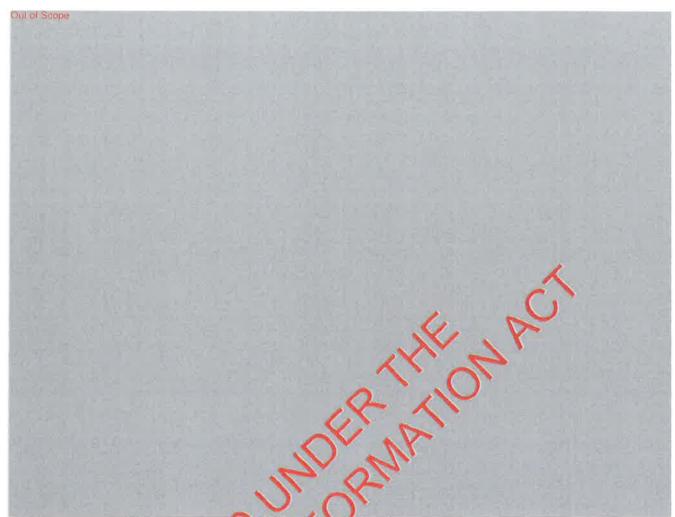
The following appendix is attached to this policy

Appendix A: Smart Homes Install Process

Appendix A: Smart Homes Install Process



POL-312 Smart Homes Policy 6 May 2019



Smart Homes pilot Q&As

Page published: 18 Jul 2018Page updated: 18 Jul 2018

What is Smart Homes about?

We're getting smarter about our homes and how they perform so that we can make sure we provide warm and dry homes for our tenants and their families.

To do this, we're undertaking a pilot that will involve installing sensor equipment in selected properties / homes in Palmerston North and in Lower Hutt.

We are carrying this out to collect information on the health of your home and how it performs. This information will help us better understand how we can provide warm and dry homes for our tenants.

How long is this pilot running for?

12 months.

Who is involved in this pilot?

We are installing sensors 100 homes in Palmerston North and 66 homes in Lower Hutt.

http://ourspace/know/tenancy/household-utilities/smart-homes-pilot/smart-homes-pilo... 28/05/2019

Why are you doing this pilot?

Housing New Zealand is always looking to improve its homes. Installing sensors will help us gather information on air quality, temperature, light and humidity in your home. This will help us know what we need to do to make our homes as warm and dry as possible for our tenants.

What information are you collecting?

The sensors will help us collect information on air quality, temperature, light and humidity in your home. They will not be collecting or transmitting personal information. The sensors do not have audio or video recording capability.

What is air quality?

Air quality is how fresh the air is in the room. This is measured by sensing the level of carbon dioxide in the air.

Will smoking in the property affect the pilot?

Smoking in the home will not affect the pilot. The Smart Homes sensors are not affected by cigarette smoke.

How many sensors will you need to put in my house and where?

We'll be installing two different sensors in your living room and one sensor in each bedroom. We need to put them near the light switch and out of direct sunlight so we can get the best readings.

Are they safe for the tenant and family?

The sensors use a very low signal and are not harmful to you or your family. The sensors connect to the Vodafone Mobile Data network and transmit the data every half hour and are not harmful to the occupants.

I have a Pace Maker, will this effect me in anyway?

We have no evidence that Smart Homes equipment will interfere with pace makers. Please consult your doctor if you have any concerns.

I have just noticed that there is no light/light is flashing red or green, does this mean it is faulty?

If you have Switched equipment, the screen may change colour with changes in room temperature. There should be no flashing lights on the unit. We will email your Tenancy Manager to contact you.

What does the tenant need to do?

Nothing, the tenant does not need to do anything.

Tenancy Managers will share the information on the tenants home so that they can see how their home is performing and how it can be made a more healthy environment.

Will this cost the tenant anything?

The sensors are mains-powered, which means that a small cost will be involved. We estimate that this will be less than \$4.00 per month. We will credit \$4.00 to the tenants rent account monthly so that the cost is covered.

The transmission of data will be over a secure network to Housing New Zealand. This does not use any internet connection at the property.

If I sign up for this, can I change my mind and quit the pilot at any time?

We appreciate that having these on your walls is a commitment. So that we can get meaningful information we really need a year's worth of data. Your involvement in this pilot will help other people have warmer and dryer homes. You can leave the pilot if you wish without any kind of penalty.

Will you be collecting personal information?

Your privacy is a priority for us. Information collected from your home will not publically identify you or your family. The sensors do not 'track' your movements in any way.

The sensors do not contain or transmit any personally identifiable data, just the air quality, temperature, light and humidity in your home.

We will not release information publically that would identify you your address or your family.

If I damage them will I get charged for the replacement?

No. But if they are damaged in any way please contact us immediately so we can replace them.

Will they interfere with wifi or mobile coverage?

No.

How do they connect or transmit?

The sensors will transmit the information over the Vodafone cellular network. If you have a mobile or internet connection in your home, this will not use any of your data.

Do I get charged for power usage for them? If so, how will I get compensated?

These sensors are mains-powered, which means that a small cost will be involved. We estimate that this will be \$4.00 per month. Housing New Zealand will credit this amount to your rent account monthly so that you are covered for this cost.

Do you want me and my family to change our behaviour or do anything differently? What do I have to do?

We have supplied you with a 'Warm and Dry' poster for tips on how you can keep your home warm and dry and your tenancy manager may refer to this during the pilot.

Your tenancy manager can provide you with access to your data and regular updates on what we are measuring at your request.

Pilot Sensor Programme - Privacy Impact Assessment by HNZ's Privacy Officer

Project summary

Housing New Zealand Corporation (HNZ) installed sensors inside some of its homes in the Hutt Valley and Palmerston North around April 2018 to collect data relating to air temperature, light, humidity, carbon dioxide levels and weather conditions. The sensor data would show how HNZ properties that had undergone the Warm and Dry and Retrofit programme, performed – did the intervention make a difference to the warmth and health of the home?

The sensors are small and unobtrusive and once installed don't require any maintenance for the duration of the programme.

The data collected is transmitted through the cloud. HNZ would own and securely store the resulting data.

Data collected from sensors as Personal information

The data collected from the sensor is unlikely by itself to identify a particular person and would simply record particular environmental variables and so would not be treated as personal information is defined in the Privacy Act 1993 (Act).

If that data is associated with a particular tenant (linked with an address), and it is used to identify how a property is being used, the resulting data is likely to be *personal information*. As such the Information Privacy Principles (**IPP**) applies to the data collected from the sensors.

3. Collection of personal information

Not all IPP's need consideration here. Most are already addressed or are immaterial. The relevant principles are discussed below –

IPP 1 requires that HNZ must not collect personal information unless it does so for a lawful purpose connected with a function or activity of HNZ and the collection is necessary for that purpose.

The purpose of the pilot is to determine the effectiveness of the Warm and Dry and Retrofit Programmes. Having our tenants living in a warm and dry home is one of the ways HNZ achieves one of its objectives under Section 3B of the Housing Corporation Act 1974, to provide housing in a business-like manner and having regards to the interests of the community within which we operate.

IPP 3 requires an agency that is collecting information to disclose to that individual various matters including the purpose for which the information is being collected and the intended recipients of the information. All of these matters can be addressed in the accompanying consent form.

IPP 10 and 11 place limits on HNZ's use and disclosure of personal information. It can use or disclose information for the purpose for which it was collected or where the purpose or use is directly related to the purpose. It can also use and disclose information where a tenant has authorised the particular use of disclosure. All of these matters can be addressed in the consent form that properly defines the purpose for which the sensors collect data, what the data will be used for and all other uses and disclosures are clearly specified. It should also deal with any third parties who may wish to receive the data.

4. Conclusion

A comprehensive and plainly written consent form setting out the purpose of the sensor pilot programme, what data is being collected and who the data may be shared with is essential to ensure compliance with the Act.

6. Recommendations to minimise impact on privacy

To minimise the impact on privacy, HNZ should -

- Carefully consider how it intends to use the data collected
- How and when data may be disclosed and
- Ensure these matters are carefully addressed in its consent forms