The Innovation Hub

for Affordable Heating and Cooling

Lesson Learnt Report

Sustainability monitoring and energy innovation in 5 NSW Govt Buildings

Project DCH4

19 November 2021

PROPERTY NSW

About i-Hub

The Innovation Hub for Affordable Heating and Cooling (i-Hub) is an initiative led by the Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH) in conjunction with CSIRO, Queensland University of Technology (QUT), the University of Melbourne and the University of Wollongong and supported by Australian Renewable Energy Agency (ARENA) to facilitate the heating, ventilation, air conditioning and refrigeration (HVAC&R) industry's transition to a low emissions future, stimulate jobs growth, and showcase HVAC&R innovation in buildings.

The objective of i-Hub is to support the broader HVAC&R industry with knowledge dissemination, skills-development and capacity-building. By facilitating a collaborative approach to innovation, i-Hub brings together leading universities, researchers, consultants, building owners and equipment manufacturers to create a connected research and development community in Australia.

This Project received funding from ARENA as part of ARENA's Advancing Renewables Program.
The views expressed herein are not necessarily the views of the Australian Government, and the Australian Government does not accept responsibility for any information or advice contained herein.

Primary Project Partner

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i-Hub Lessons Learnt Report

Guidance notes for completion of the Lessons Learnt Report:

- This report is intended to be made public.
- Please use plain English, minimise jargon or unnecessary technical terms.
- Please use your organisation's branding for the report.
- The report should meet your organisation's publishing standards.
- Please use one template per each major lesson learnt and include as many as are relevant for your sub-Project. If what you learnt is more technical, this is the section to include technical information.
- The content of these Lessons Learnt Reports can be compiled (and updated, where necessary) for inclusion in the (public) Project Knowledge Sharing Report, for submission at the completion of your sub-Project.

Lead organisation	Property NSW		
Sub-Project number	DCH4		
Sub-Project commencement date	26th February 2021	Completion date	30 May 2022
Report date	19th November 2021		
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Lessons learnt

Lesson learnt #1	The choice to undertake Data Integration to the Data Clearing House from PNSW IOT Systems using API Method.					
Category	Technical					
Choose from:	*Technical*	*Commercial*	*Social*	*Regulatory*	*Logistical*	*Other (specify)*

Describe what you learnt about this aspect of the Project.
This aspect of the project is a key requirement to the success of the Data Clearing House project. The IOT provider for Property NSW collects a wide range of building data from various sources, including temperature, indoor air quality, occupancy and plant operating conditions from building management systems. The nature of building data is that it is dynamic with source of data being added, removed or changed in response to changing building requirements. The choice of methodology to onboard data to the DCH using the Senaps API was driven primarily by ensuring that the method could adapt to changes on the IOT system side with minimal additional work to onboard the new or changed data. The API method using the Senaps API was preferred after careful consideration and the PNSW IOT provider developed a software application on their platform to package time series data and send to the DCH. This approach was proven to be a sound approach when 6 off additional building data was onboarded in April 2022 in a very timely and cost effective manner from the JLL IOT system.
Please describe what you would do differently next time and how this would help. What are the implications for future Projects?
If your Project learnings have identified any knowledge gaps that need to be filled, please state it below.
Refer above.
Please include any other information you feel is relevant or helpful in sharing the knowledge you learnt through this stage of the Project. This may be qualitative or quantitative and may include a graph, chart, infographic or table as appropriate.

Lesson learnt #2	Data Modelling Process					
Category	Technical					
Choose from:	*Technical*	*Commercial*	*Social*	*Regulatory*	*Logistical*	*Other (specify)*

Describe what you learnt about this aspect of the Project.

Semantic data modelling of the DCH received from the Property NSW IOT system contextualises data and describes relationships in a machine-readable format using the Brick schema (https://brickschema.org/). In the absence of widespread use of the schema a process of using various tools within the DCH along with an information gathering exercise for the buildings using drawings, BMS screenshots and other building services documentation. This process is time intensive and is heavily reliant on the quality and accuracy of data that is available for building, which can be challenging for older building stock.

Please describe what you would do differently next time and how this would help. What are the implications for future Projects?

The learnings from this process is to further develop guidelines and templates for building owners and managers to provide information in a way that reduces the amount of manual handling and interpretation of data.

If your Project learnings have identified any knowledge gaps that need to be filled, please state it below.

N/A

Please include any other information you feel is relevant or helpful in sharing the knowledge you learnt through this stage of the Project. This may be qualitative or quantitative and may include a graph, chart, infographic or table as appropriate.