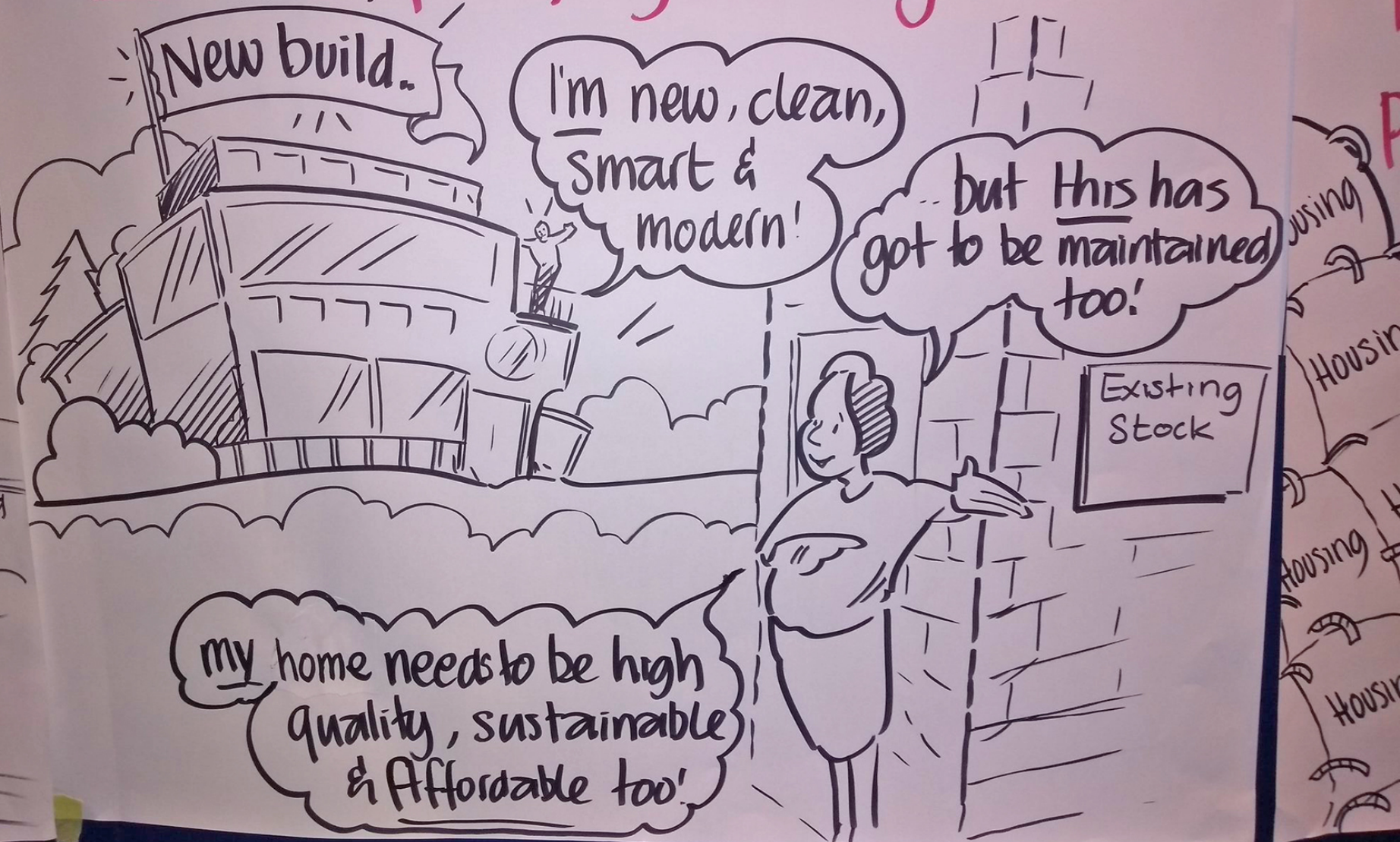


Let's keep saying "existing stock"...



# Digital Asset Management

## Workshop 1C

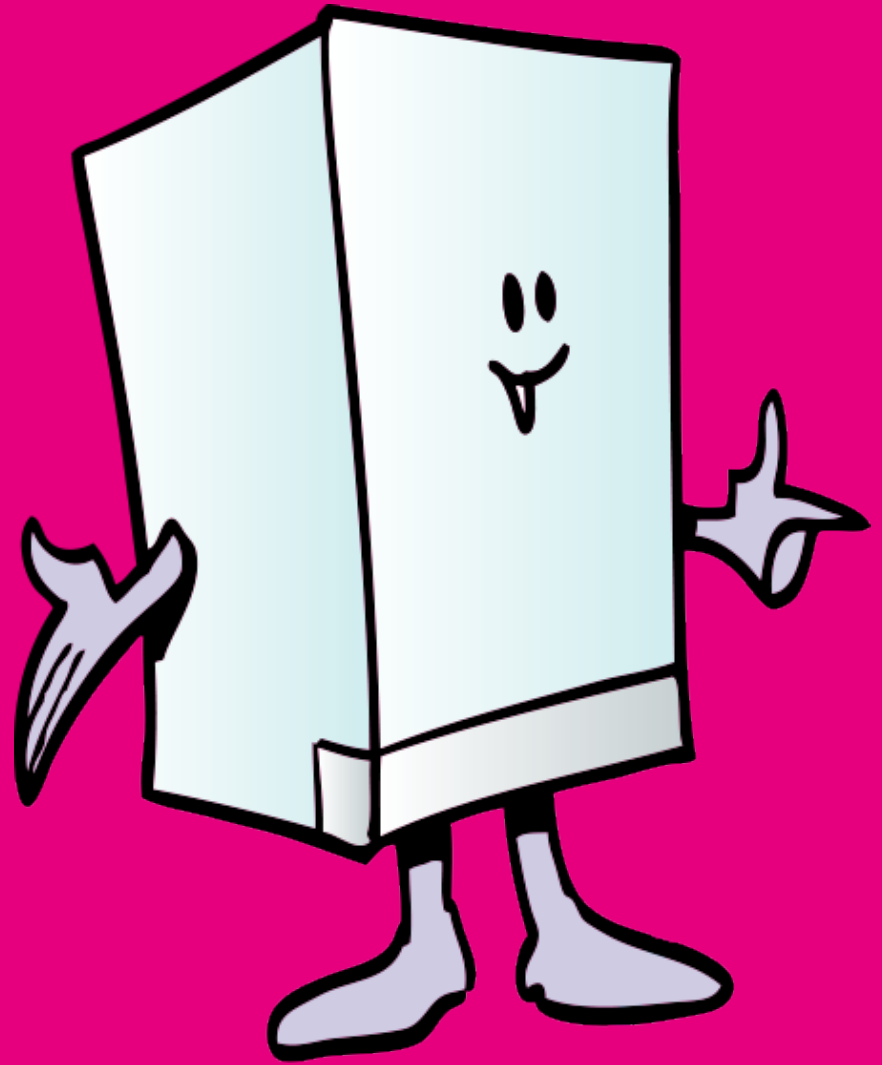


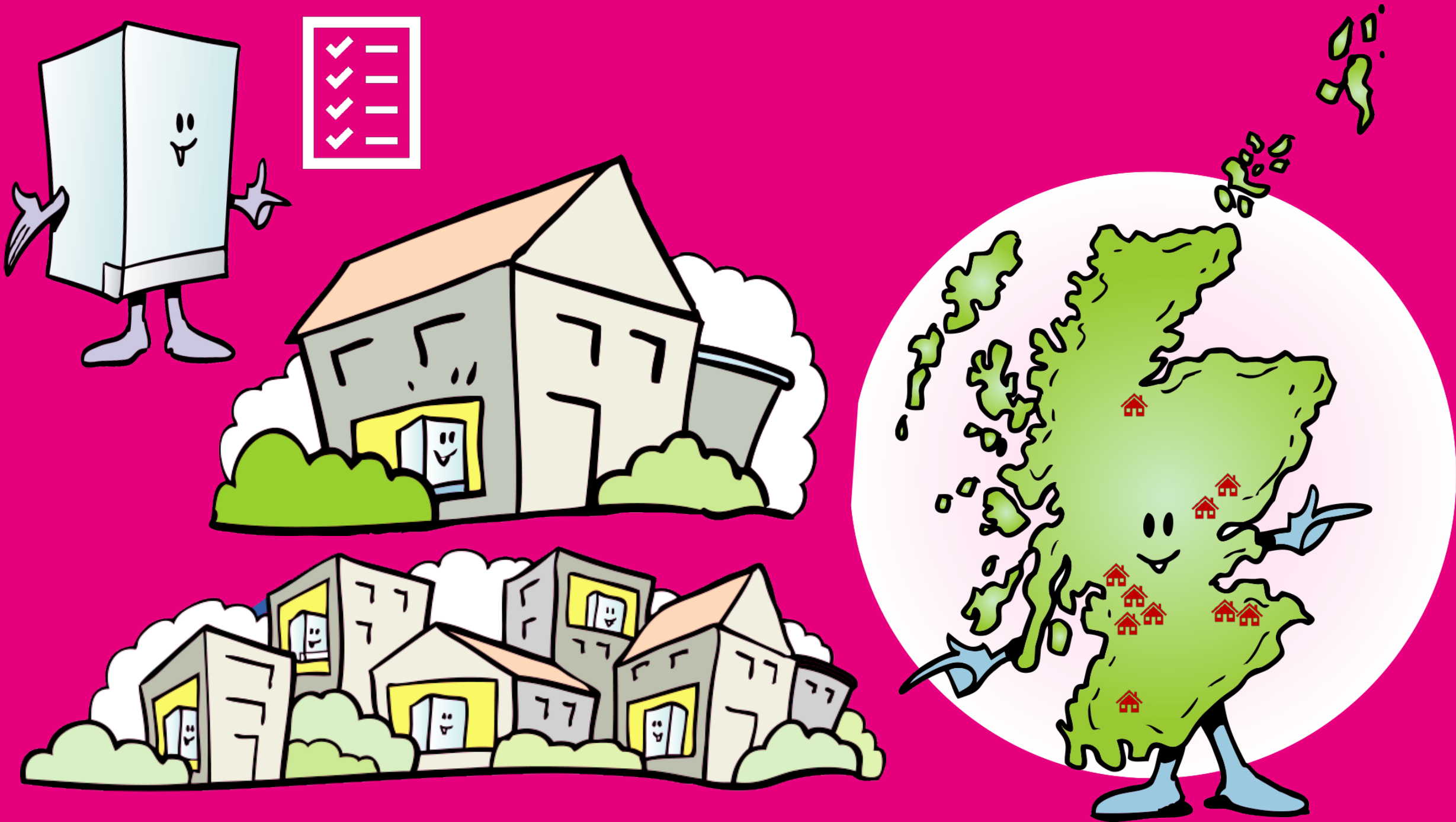




What if there was a way to integrate the information you have on your built assets?

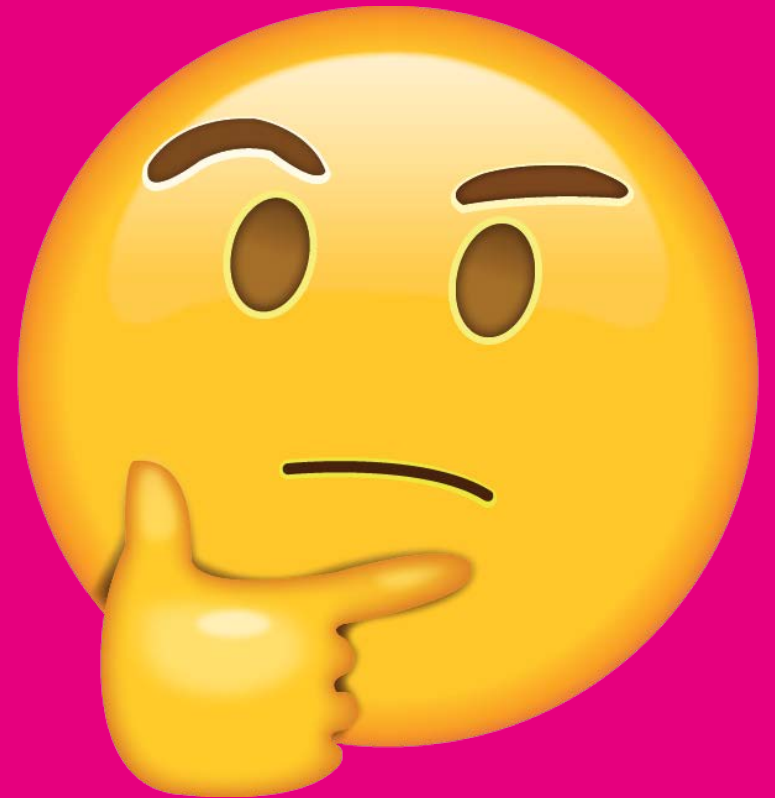
Consider a boiler...







Is there a better way of collating and using the information we have to make better decisions?



# Some ideas...

- Whole life monitoring/ costing
- Appliance use monitoring
- Technology enabled care
- Virtual tenant handbook
- Statutory compliance
- Review performance of previous components
- Auto-flag repairs
- Monitoring/ capturing energy use

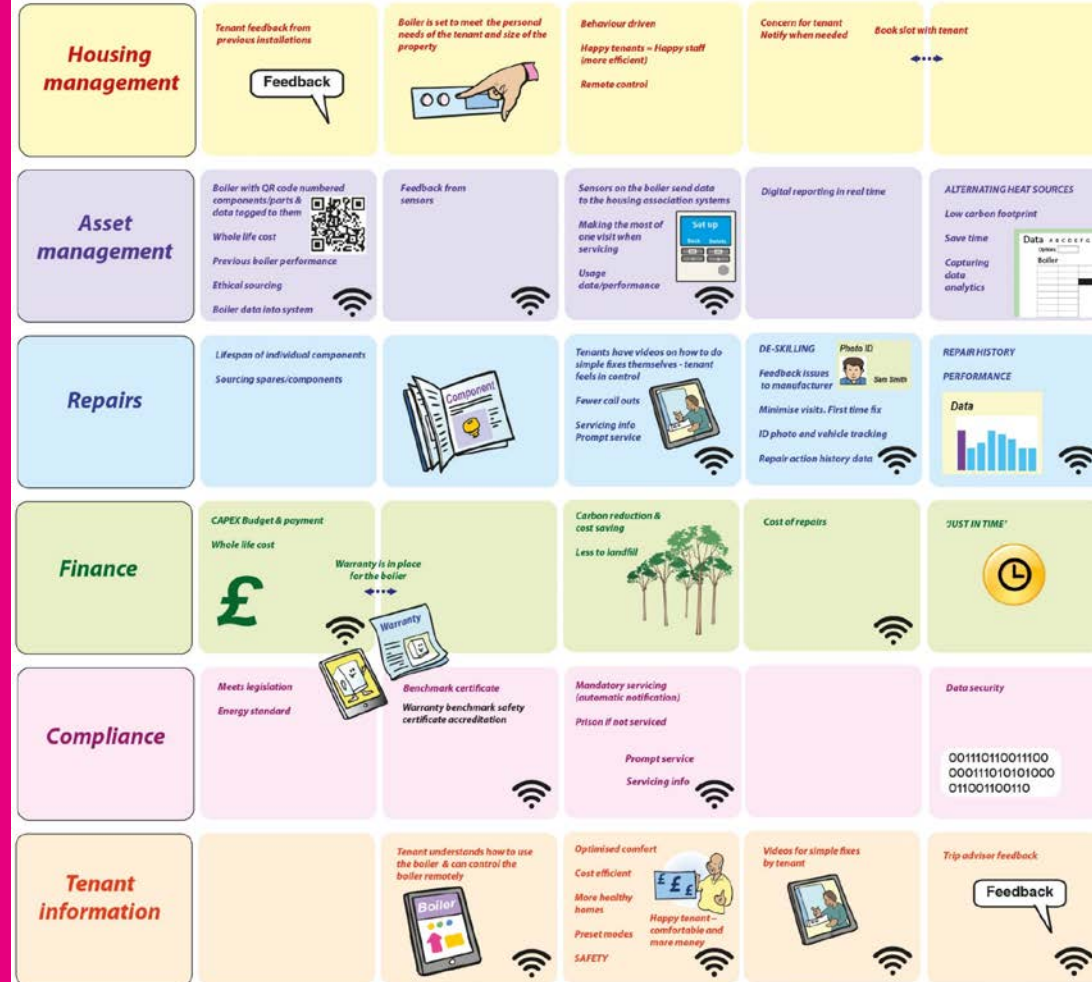


Shortly we will workshop  
your ideas



# The life cycle of a boiler

## Life of a Boiler









## Housing management

Tenant feedback from previous installations

Feedback

Boiler is set to meet the personal needs of the tenant and size of the property

Behaviour driven

Happy tenants = Happy staff (more efficient)

Remote control

Concern for tenant

Notify when needed

Book slot with tenant

←...→

## Asset management

Boiler with QR code numbered components/parts & data tagged to them

Whole life cost

Previous boiler performance

Ethical sourcing

Boiler data into system

Feedback from sensors

Sensors on the boiler send data to the housing association systems

Making the most of one visit when servicing

Usage data/performance

Digital reporting in real time

ALTERNATING HEAT SOURCES

Low carbon footprint

Save time

Capturing data analytics

## Repairs

Lifespan of individual components

Sourcing spares/components

Tenants have videos on how to do simple fixes themselves - tenant feels in control

Fewer call outs

Servicing info

Prompt service

DE-SKILLING

Feedback issues to manufacturer

Minimise visits. First time fix

ID photo and vehicle tracking

Repair action history data

REPAIR HISTORY

PERFORMANCE

Data



## Finance

CAPEX Budget & payment

Whole life cost



Warranty is in place  
for the boiler



Carbon reduction &  
cost saving

Less to landfill



Cost of repairs

'JUST IN TIME'



## Compliance

Meets legislation

Energy standard

Benchmark certificate

Warranty benchmark safety  
certificate accreditation

Mandatory servicing  
(automatic notification)

Prison if not serviced

Prompt service

Servicing info

Data security

```
001110110011100
000111010101000
011001100110
```

## Tenant information

Tenant understands how to use  
the boiler & can control the  
boiler remotely



Optimised comfort

Cost efficient

More healthy  
homes

Preset modes

SAFETY



Happy tenant –  
comfortable and  
more money

Videos for simple fixes  
by tenant



Trip advisor feedback

Feedback

# How might we interface with this information?





AutoSave On

COBie Export

FileHomeInsertPage LayoutFormulasDataReviewViewHelp

Tell me what you want to do

Share

CutCopyFormat Painter

Paste

Arial10

B I U

Font

Wrap Text

Alignment

General

Number

Conditional Formatting

Format as Table

NormalBadGoodNeutralCalculation

Check CellExplanatory...InputLinked CellNote

Styles

InsertDeleteFormat

Cells

AutoSumFillClear

Sort & Find & Filter

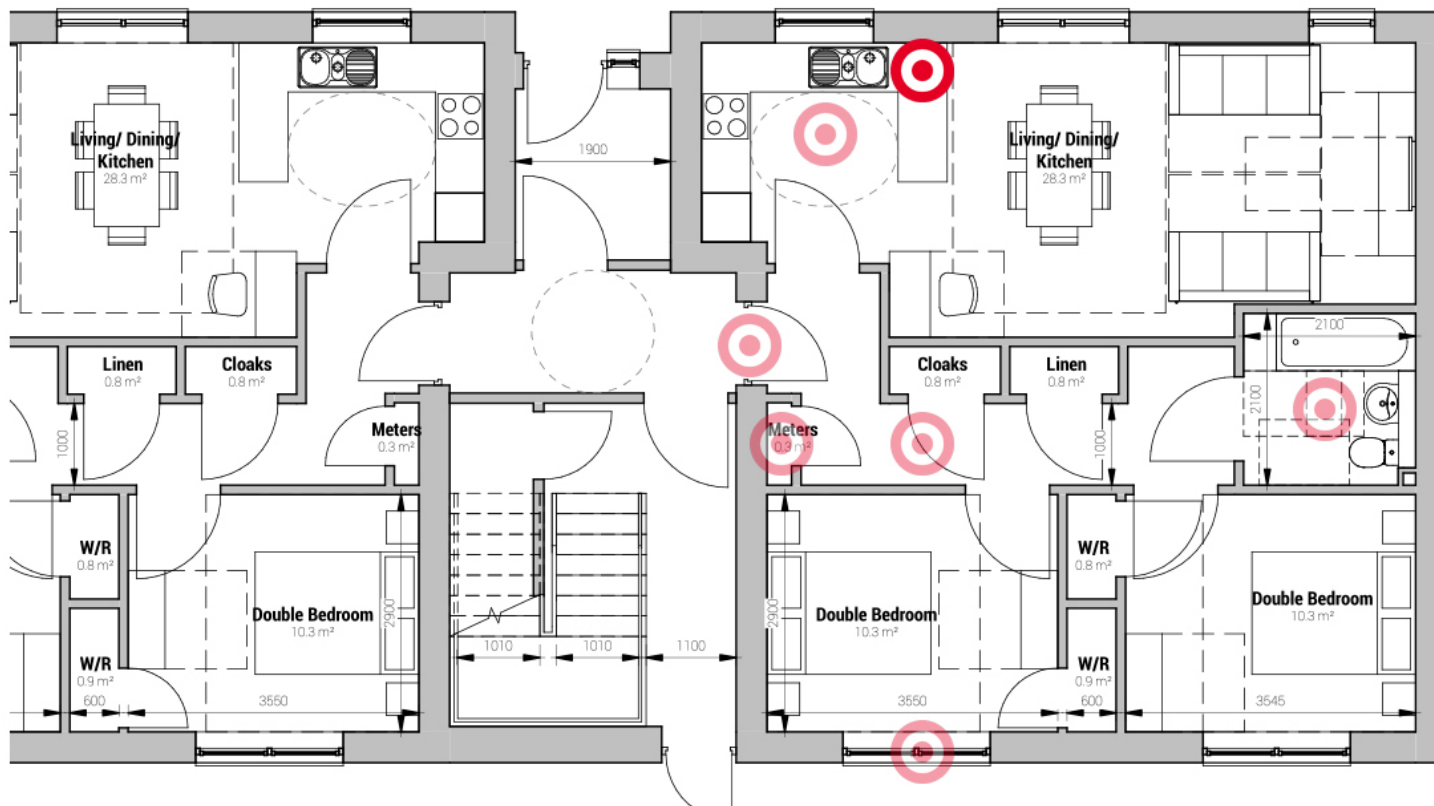
Editing

	A	C	D	E	F	G	H	I
	Name	CreatedOn	TypeName	Space	Description	ExtSystem	ExtObject	ExtIdentifier
5	Ceilings	2017-01-28T12:33:30	Ceilings_Ceilings	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Ceilings	de2d1ea0-4acf-42bf-886d-6b66a64fe1c2-000533dc
6	Ceilings	2017-01-28T12:33:30	Ceilings_Ceilings	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Ceilings	28b94da6-e17b-4730-977d-5ccc193bf228-00057b61
7	Ceilings	2017-01-28T12:33:30	Ceilings_Ceilings	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Ceilings	28b94da6-e17b-4730-977d-5ccc193bf228-00057b6b
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9	Ceilings	2017-01-28T12:33:30	Ceilings_Ceilings	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Ceilings	28b94da6-e17b-4730-977d-5ccc193bf228-00057b7b
10	Ceilings	2017-01-28T12:33:30	Ceilings_Ceilings	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Ceilings	28b94da6-e17b-4730-977d-5ccc193bf228-00057b83
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13	Doors_2	2017-01-28T12:33:30	Doors_Doors_IntSgl_47	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	042a5d20-ae35-41f1-ac05-81c107a7ede0-0005125a
14	Doors_3	2017-01-28T12:33:30	Doors_Doors_IntSgl_41	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	042a5d20-ae35-41f1-ac05-81c107a7ede0-00051a8e
15	Doors_5	2017-01-28T12:33:30	Doors_Doors_ExtSgl w-Glazing_Bars_2_73	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	c049f7e-79a9-4371-a228-b6fe4f62586c-000526e2
16	Doors_8	2017-01-28T12:33:30	Doors_Doors_IntSgl_42	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	fd8e3b8e-45e6-4889-b5b6-b472c8ba182d-00052b4a
17	Doors_9	2017-01-28T12:33:30	Doors_Doors_IntSgl_42	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	fd8e3b8e-45e6-4889-b5b6-b472c8ba182d-00052b8a
18	Doors_24	2017-01-28T12:33:30	Doors_Doors_IntSgl_42	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	54e90018-434c-4f0c-85e0-6da089e49ac1-00067366
19	Doors_25	2017-01-28T12:33:30	n/a	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	54e90018-434c-4f0c-85e0-6da089e49ac1-00067616
20	Doors_26	2017-01-28T12:33:30	Doors_Doors_IntSgl_42	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	54e90018-434c-4f0c-85e0-6da089e49ac1-000676fb
21	Doors_27	2017-01-28T12:33:30	Doors_Doors_IntDbl_1_68	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	3cd6d805-90e2-4a29-b36c-0ebcc9c6278a-00069663
22	Doors_28	2017-01-28T12:33:30	Doors_Doors_IntDbl_1_74	n/a,n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Doors	3cd6d805-90e2-4a29-b36c-0ebcc9c6278a-000696e0
23	Floors	2017-01-28T12:33:30	Floors_Floors	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Floors	fd8e3b8e-45e6-4889-b5b6-b472c8ba182d-000527a9
24	Floors	2017-01-28T12:33:30	Floors_Floors	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Floors	fd8e3b8e-45e6-4889-b5b6-b472c8ba182d-00052bed
25	Furniture	2017-01-28T12:33:30	Furniture_Bathroom Bulkhead	Rooms_1	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Furniture	de2d1ea0-4acf-42bf-886d-6b66a64fe1c2-00054f0e
26	Generic Models	2017-01-28T12:33:30	n/a	Rooms_1	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Generic Models	042a5d20-ae35-41f1-ac05-81c107a7ede0-000515dc
27	Generic Models	2017-01-28T12:33:30	Generic Models_4-ring hob	Rooms_1	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Generic Models	e7efee88-4155-4a49-8678-63878bbecf86-0005651b
28	Bathtub	2017-01-28T12:33:30	Plumbing Fixtures_Bathtub	Rooms_1	1700x700mm Bath	Autodesk Revit 2017, Build: 20170118 1100(x64)	Plumbing Fixtures	de2d1ea0-4acf-42bf-886d-6b66a64fe1c2-00054b34
29	Wash Hand Basin	2017-01-28T12:33:30	Plumbing Fixtures_nbl_WashBasin_Semi-Countertop-1.1	Bathroom	WHB Bathroom	Autodesk Revit 2017, Build: 20170118 1100(x64)	Plumbing Fixtures	de2d1ea0-4acf-42bf-886d-6b66a64fe1c2-000554a7
30	WC (Back to Wall)	2017-01-28T12:33:30	Plumbing Fixtures_Plumbing Fixtures_WC_Wall_Mounted	Bathroom	Back to Wall WC	Autodesk Revit 2017, Build: 20170118 1100(x64)	Plumbing Fixtures	de2d1ea0-4acf-42bf-886d-6b66a64fe1c2-000559fa
31	Plumbing Fixtures_4	2017-01-28T12:33:30	Plumbing Fixtures_Plumbing Fixtures_High Low Dbl-Sink_Kitchen w-Drainboard_2	Rooms_1	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Plumbing Fixtures	e7efee88-4155-4a49-8678-63878bbecf86-00056d09
32	900mm	2017-01-28T12:33:30	Railings_Railings	<Error - Category not found>	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Railings	fd8e3b8e-45e6-4889-b5b6-b472c8ba182d-00052d6b
33	900mm_Pipe	2017-01-28T12:33:30	Railings_Railings	<Error - Category not found>	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Railings	fd8e3b8e-45e6-4889-b5b6-b472c8ba182d-00052d6f
34	Roofs	2017-01-28T12:33:30	Roofs_Roofs	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Roofs	4669d376-832f-498b-8468-4060863d0f72-00057a9f
35	Private	2017-01-28T12:33:30	Stairs_Stairs	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Stairs	fd8e3b8e-45e6-4889-b5b6-b472c8ba182d-00052c17
36	Structural Foundations	2017-01-28T12:33:30	Structural Foundations_Structural Foundations	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Structural Foundations	4669d376-832f-498b-8468-4060863d0f72-00057800
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38	Structural Foundations	2017-01-28T12:33:30	Structural Foundations_Structural Foundations	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Structural Foundations	4669d376-832f-498b-8468-4060863d0f72-0005781a
39	Structural Foundations	2017-01-28T12:33:30	Structural Foundations_Structural Foundations	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Structural Foundations	4669d376-832f-498b-8468-4060863d0f72-00057839
40	Walls	2017-01-28T12:33:30	Walls_Walls	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Walls	04aa2dae-42c7-4959-b877-3493c1c2005e-00050fbb
41	Walls	2017-01-28T12:33:30	Walls_Walls	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Walls	04aa2dae-42c7-4959-b877-3493c1c2005e-00051009
42	Walls	2017-01-28T12:33:30	Walls_Walls	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Walls	04aa2dae-42c7-4959-b877-3493c1c2005e-0005104a
43	Walls	2017-01-28T12:33:30	Walls_Walls	n/a	n/a	Autodesk Revit 2017, Build: 20170118 1100(x64)	Walls	04aa2dae-42c7-4959-b877-3493c1c2005e-0005108d





Property Address	123 Main Street Cityburgh Scotland AB1 2CD
Property Details	
Occupancy	3
Bedrooms	2
Storey height	2
Orientation	North
Construction	Tenement, traditional
Built Date	1900s
EPC rating	C
Renewables	None
EESHS	69
MPAN	S01234567890
MPRN	S09876543210
Tenant Details	
Name	Mr Joe Bloggs
Phone	01234 567890
Rent	£120 pcm
Medical requirements	None
Replacements	
Boiler	Gas, replaced March 2016
Kitchen	Replaced Jan 2013
Bathroom	Replaced Jan 2013
Windows	Timber double glazed, replaced 1995
Doors	Unknown
Safety systems	Smoke alarm tested 01 Aug 2018 Heat detector tested 01 Aug 2018 CO detector tested 01 Aug 2018



## Using your boiler

### 3.2.7 Frost protection

- ▶ The boiler has built in frost protection to protect the boiler, the boiler must have power for this to operate.
- ▶ If you are leaving the property unoccupied during cold weather, please leave your programmer on constant and your room thermostat set to around 10 to 15°C.
- ▶ If the temperature within the boiler falls below 8°C the pump will run to circulate water and prevent the system freezing.
- ▶ If the temperature within the boiler falls below 4.5°C the boiler will fire immediately, bringing the boiler temperature up to 12°C to avoid the possibility of the system freezing.
- ▶ This process will be repeated until such time that the boiler temperature does not drop below 4.5°C.

### 3.2.8 System pressure

This boiler is fitted to a sealed heating system which is pre-pressurised. Your installer will advise you of the minimum and maximum pressure indicated on the pressure gauge.

- ▶ Check regularly that the pressure is maintained.

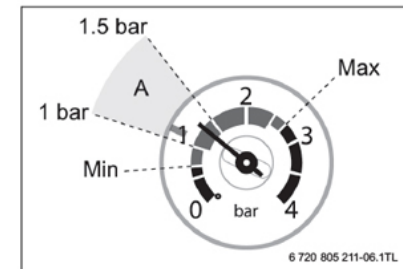


Fig. 5

Optimum system pressure when your boiler is cold (area A) and the pump is off. The indicated pressure will change as the pump switches on, for more accurate readings check pressure when the pump is not running.

- ▶ If the pressure gauge reads less than 1 bar then the system requires re-charging.
  - Check for leaks on heating system (pipe work and radiator valves).
- ▶ Contact your installer or maintenance engineer if a permanent significant decrease or increase in pressure is indicated on the pressure gauge.
  - Constantly having to re-pressuring the heating system should be investigated as the concentration of inhibitor in the system will be reduced; this can result in corrosion within the heating system.

### Filling loop

If the sealed system pressure within your system drops to below 0.5 bar (shown on the pressure gauge) you will need to increase the pressure to ensure your boiler continues to run without problems.

**i** Your installer should have informed you where to find the filling system and instructed you in its use.

Once the external filling loop has been located, follow the instructions for re-pressurising the system.

1. Unscrew blanking cap.
2. Attach the hose to the valves, screw on hand-tight.
3. Turn the handle/screwdriver slot through 90° to open valves.
4. The handle/screwdriver slot will be in line with the valves.
5. When the pressure reaches between the 1 and 1.5 bar marks (zone A), turn the handles/screwdriver slots back, through 90°, to close the valves.
6. The handle/screwdriver slot will be at 90° to the valves.
7. Remove the hose and replace the blanking caps.

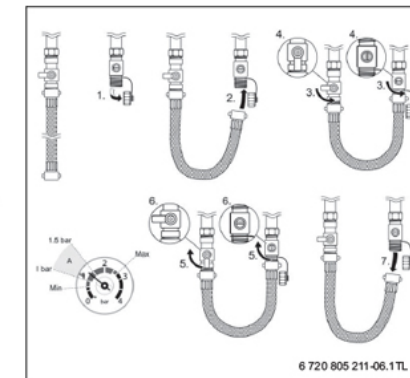


Fig. 6



- Full spherical images (11)
- Full spherical measurement pairs (2)
- HTML links (2)
- Images (44)
- Notes (4)
- PDF documents (3)
- Plans (3)
- Quicktime elements (1)
- Videos (2)





Model Tree

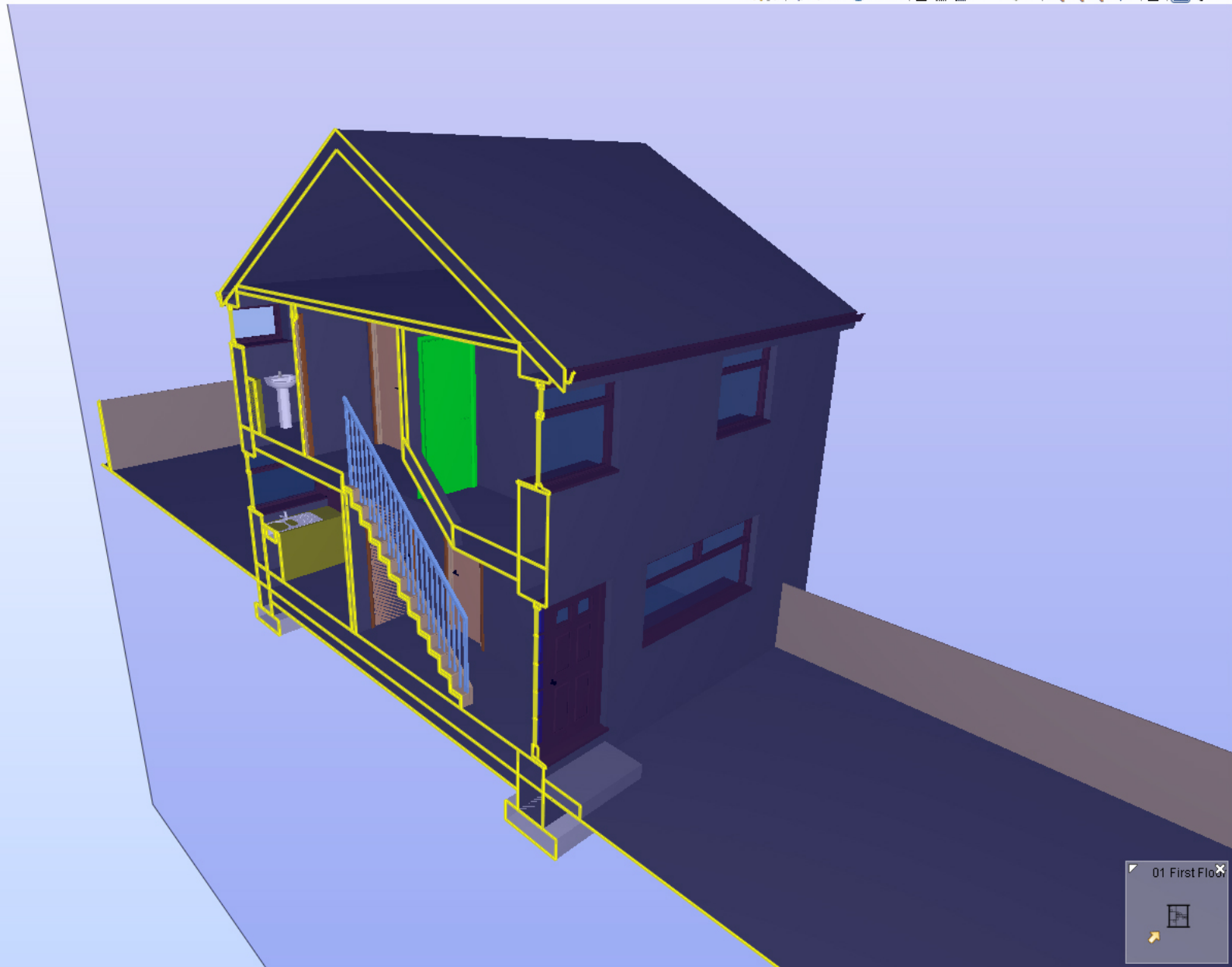
A1174-BDC-ZZ-ZZ-M3-A-0006\_BW

Info

Door. 1.6

Pset_ManufacturerTypeInformation		Pset_ProductRequirements		Pset_QuantityTakeOff		
IfcDimensions		IfcDoorPanelProperties		Pset_DoorCommon		
Identification	Location	Quantities	Material	Relations	Classification	Hyperlinks
Property		Value				
Model		A1174-BDC-ZZ-ZZ-M3-A-0006_BW				
Discipline		Architectural				
Name		Doors_IntSgl_1:726x2110mm:464937				
Type		726x2110mm				
Type Name		726x2110mm				
Description						
Operation		Single Swing Right				
Layer		A-325-M_DOOR				
System						
Building Envelope		False				
Geometry		Boundary Representation				
Application		Autodesk Revit 2018 (ENU)				
GUID		02p6zXf5j1sRYiAXMkGQDp				
BATID		464937				

Show component properties by clicking.



01 First Floor

Selected: 0

## *The life cycle of*



Over to you!

# Final thoughts...

- Organising digital information needn't be complicated
- Some RSLs/ HAs have already started this journey
- Anyone interested in helping with a pilot please let us know