



Healthcare Conference 2022

17 - 18 March 2022 | QEII Centre, London

Asset management

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Asset management in action

Rachael Ellis

Scan4Safety programme director, Hull University Teaching Hospitals
NHS Trust

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Assets: Maps = Money

*Rachael Ellis, Scan4Safety
Programme Director*

18th March 2022

Numbers worth noting

- 72,000 assets on the equipment list
- 16,500 sterile trays
- 48 Theatres across HUTH
- 126 Transport Trolleys for sterile trays
- We process 2500+ trays a week at peak times
- To date, we have installed 351 RFID readers and antennas (and this will triple)
- Covering 623,499 square feet

On a map it looks like this...

Hull Map

Castle Hill Hospital

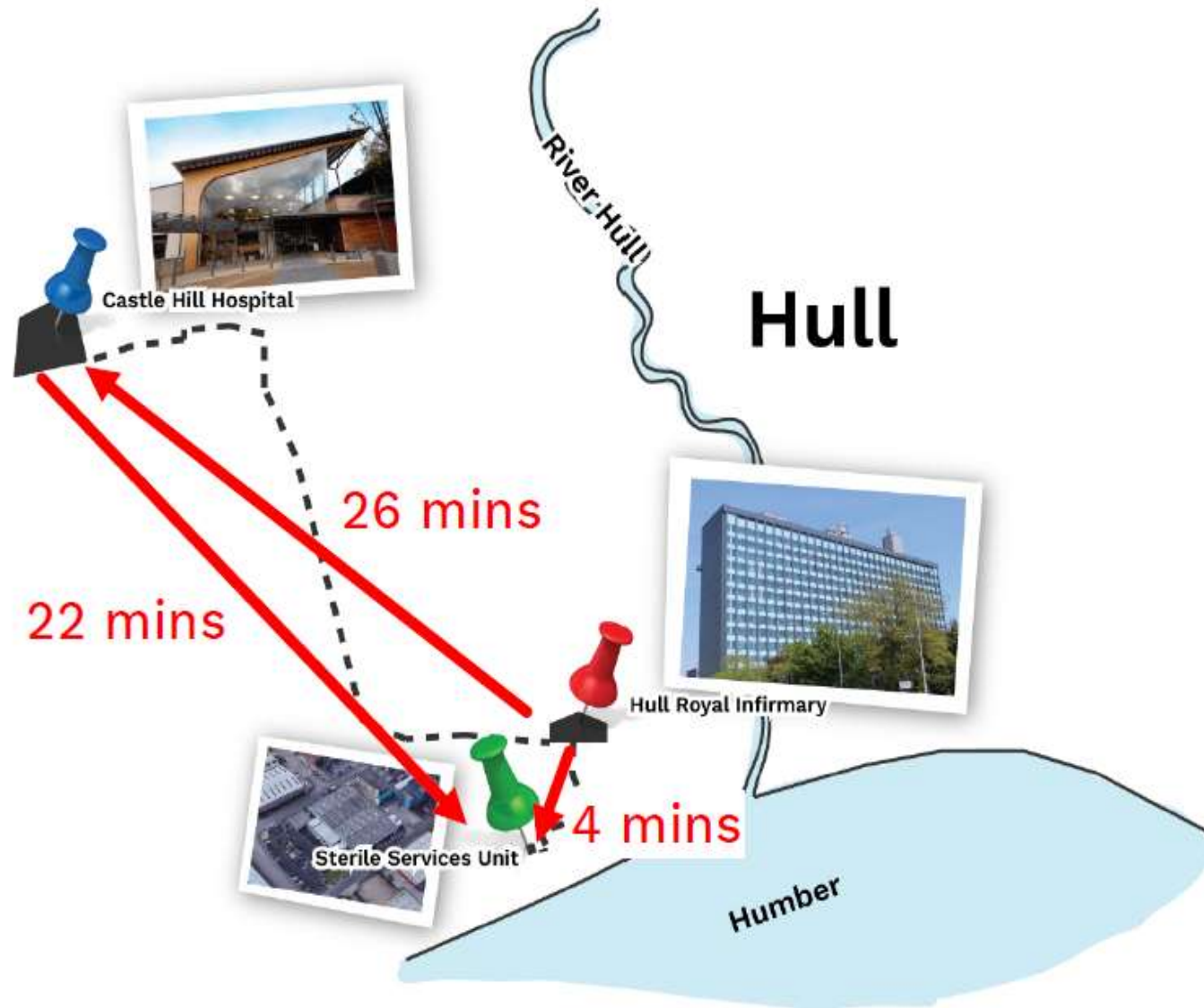
- 26 minutes drive from Hull Royal Infirmary

Sterile Services Unit

- 4 minutes drive from Hull Royal Infirmary
- 22 minutes drive from Castle Hill Hospital

Hull Royal Infirmary

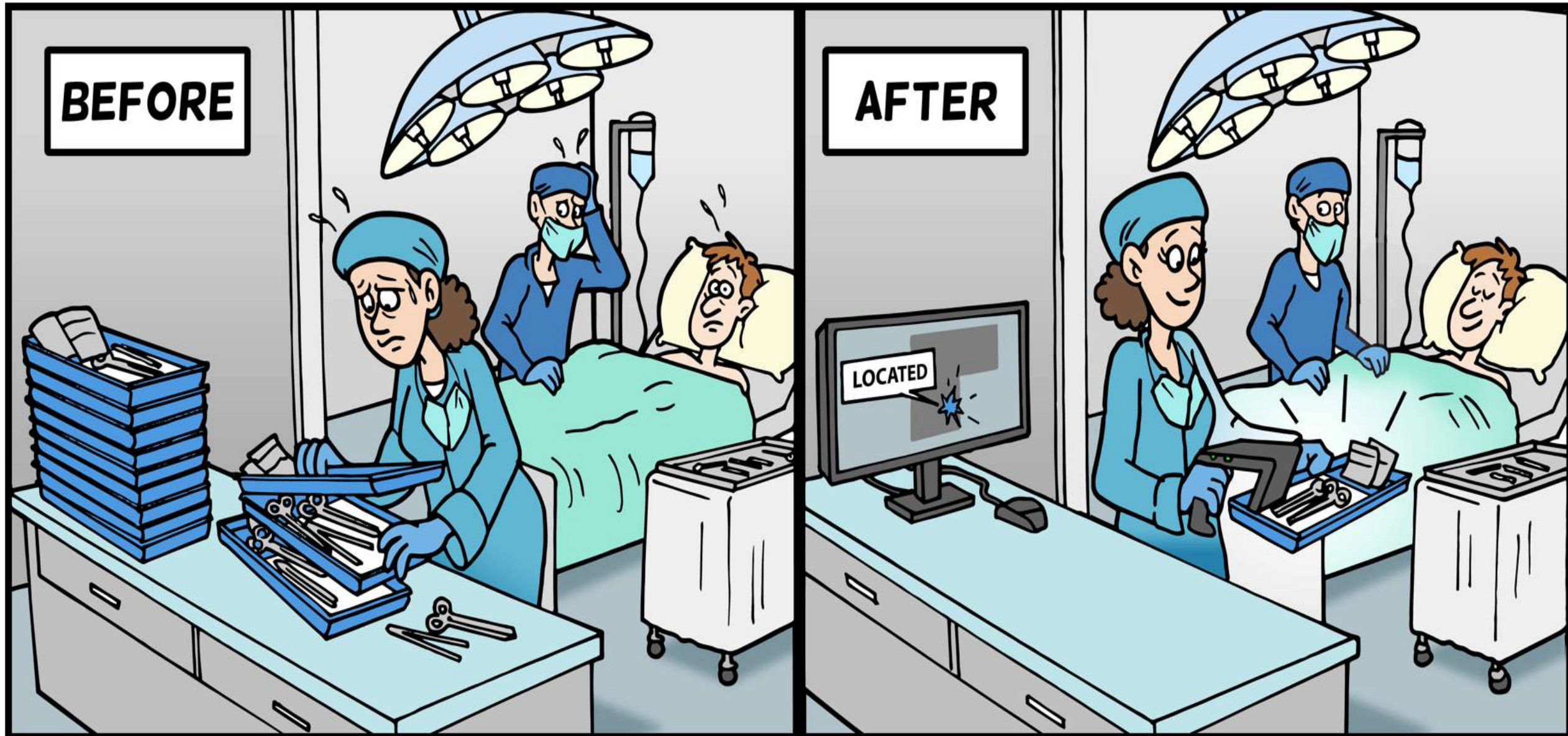
- 26 minutes drive from Castle Hill Hospital
- 4 minutes drive from Sterile Services Unit



In reality it felt like this...



At HUTH - We have changed the landscape



HUTH have discovered the benefit of chips and wands!



Maps really do equal time and money...



Money Saved



Resource time saved



Patient Care = Improved



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Asset management in action

Richard Price

Senior category manager, University Hospitals Plymouth NHS Trust

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Tracking Hospital Assets using GS1 Standards & RFID



Why is RFID and GS1 important?

- Large trauma and teaching hospital serving the South West Peninsula
- Main building 12 floors with lots of corridors and rooms
- Other buildings and off-site locations
- Circa 100,000 Medical, SDU and IT assets
- Maintaining a schedule for asset service and repair
- Turnaround time to bring equipment back into use
- Replacing Medical equipment costs £100,000+ each year
- Clinical staff spend a lot of time looking for assets
- Issuing/Borrowing of assets that are not returned



Implementation

Already using GS1 GIAI standard for Medical and SDU assets, but implemented in isolation

Roll-out Trust-wide a new GS1 structure agreed with departmental prefixes

Started by re-labelling medical devices

400+ models' label placement optimised for scans

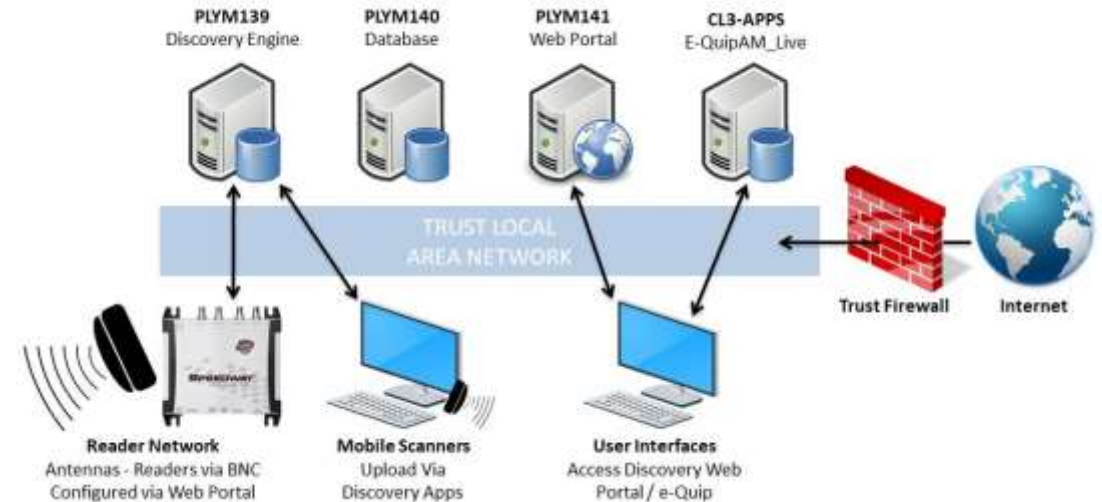
New process flow / security documents created

Opportunity taken to correct MDAR anomalies



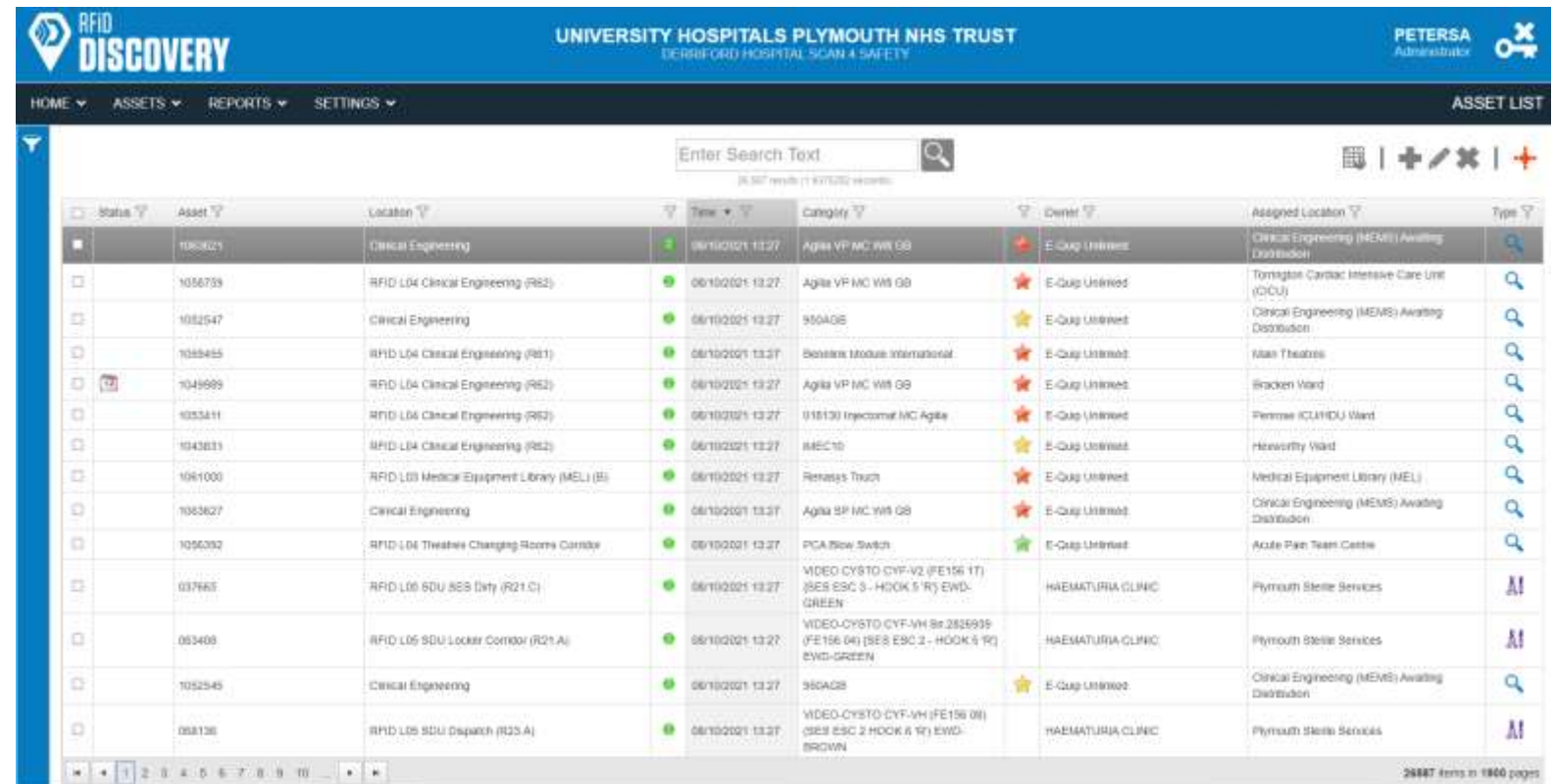
Implementation

Contract awarded to Paragon ID's RFID Discovery solution	122 readers across 2 phases, with approx. 360 antennae	2x mobile trolleys, 10x handheld scanners, 2x RFID printers
Live web portal & interfacing to asset management systems	Antennae's optimum locations mapped out	Digital location tree updated with corridor GLNs
Network elements installed, tested, interfaced	One of the largest GS1-compliant RFID solutions in the NHS	



Progress

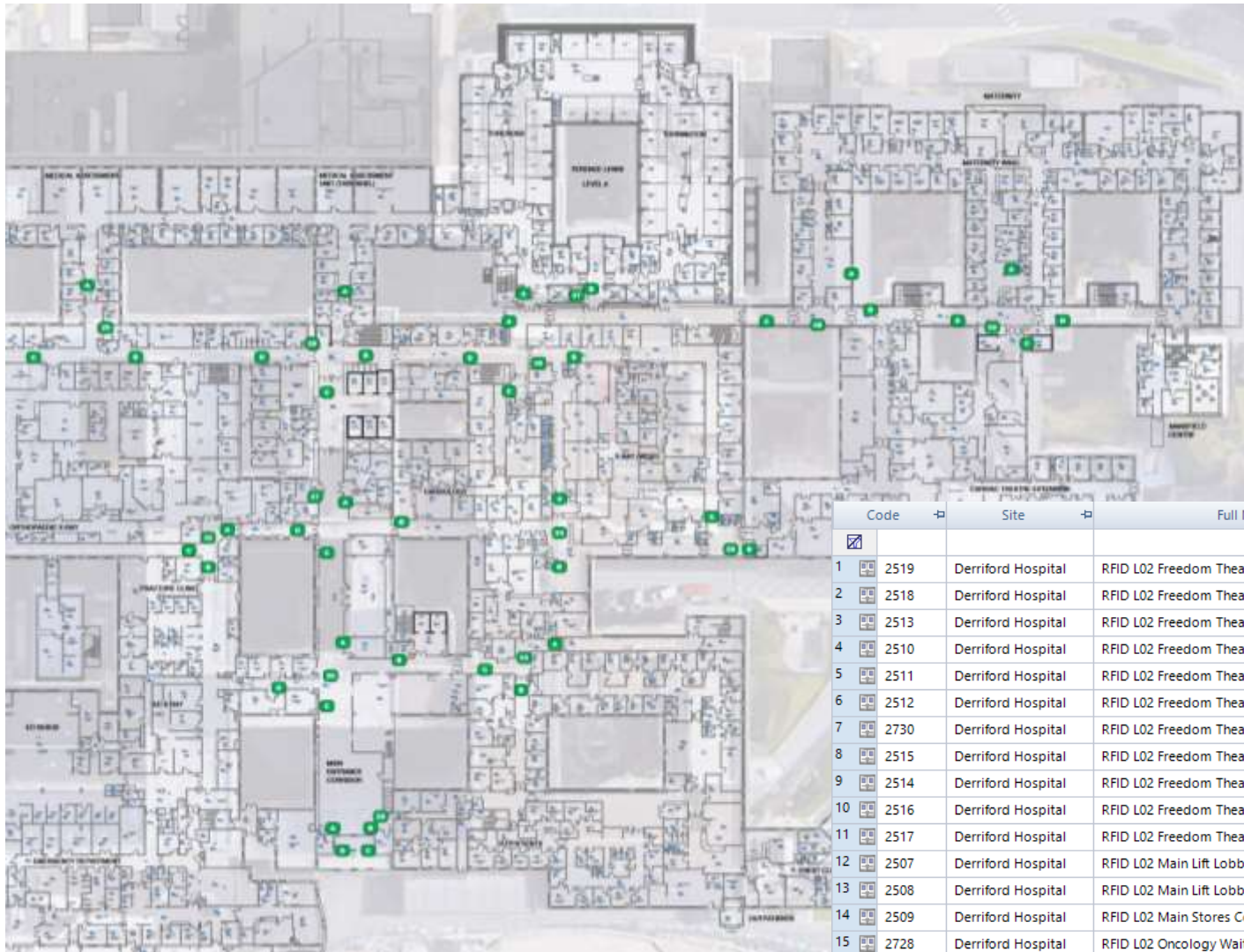
- Web portal is fully up and running
- Training materials created, clinical staff trials being carried out
- 25,000+ medical devices re-labelled; SDU and IT re-labelling underway
- 83/122 total readers installed, networked, and reading assets
- 3,500 assets tracked every day
- Phase 2 of reader / antennae installations near to completion



The screenshot shows the 'RFID DISCOVERY' web portal for 'UNIVERSITY HOSPITALS PLYMOUTH NHS TRUST'. The interface includes a search bar, navigation tabs (HOME, ASSETS, REPORTS, SETTINGS), and a main table of asset data. The table columns are: Status, Asset ID, Location, Time, Category, Device, Assigned Location, and Type. The table contains 15 rows of data, with a total of 26887 items across 1860 pages.

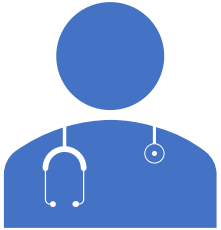
Status	Asset	Location	Time	Category	Device	Assigned Location	Type
🟢	1063621	Clinical Engineering	06/10/2021 13:27	Agila VP MC WR GB	E-Quip Unlinked	Clinical Engineering (MEWS) Awaiting Distribution	
🟢	1056739	RFID L04 Clinical Engineering (R62)	06/10/2021 13:27	Agila VP MC WR GB	E-Quip Unlinked	Torrington Cardiac Intensive Care Unit (CICU)	🔍
🟢	1052547	Clinical Engineering	06/10/2021 13:27	950AGE	E-Quip Unlinked	Clinical Engineering (MEWS) Awaiting Distribution	🔍
🟢	1054455	RFID L04 Clinical Engineering (R61)	06/10/2021 13:27	Baseline Medical International	E-Quip Unlinked	Main Theatre	🔍
🟢	1049699	RFID L04 Clinical Engineering (R62)	06/10/2021 13:27	Agila VP MC WR GB	E-Quip Unlinked	Bracken Ward	🔍
🟢	1053411	RFID L04 Clinical Engineering (R62)	06/10/2021 13:27	U18130 Inycorac MC Agile	E-Quip Unlinked	Femur ICU/HDU Ward	🔍
🟢	1043831	RFID L04 Clinical Engineering (R62)	06/10/2021 13:27	IMC10	E-Quip Unlinked	Hesworthy Ward	🔍
🟢	1061000	RFID L03 Medical Equipment Library (MEL) (E)	06/10/2021 13:27	Renasys Trust	E-Quip Unlinked	Medical Equipment Library (MEL)	🔍
🟢	1063627	Clinical Engineering	06/10/2021 13:27	Agila SP MC WR GB	E-Quip Unlinked	Clinical Engineering (MEWS) Awaiting Distribution	🔍
🟢	1056202	RFID L04 Theatre Changing Rooms Corridor	06/10/2021 13:27	PCA Flow Switch	E-Quip Unlinked	Acute Pain Team Centre	🔍
🟢	037663	RFID L05 SDU SES (R21.C)	06/10/2021 13:27	VIDEO-CYSTO-CYF-V2 (FE156 1T) (SES ESC 3 - HOOK 5 R) EWD-GREEN	HAEMATURIA CLINIC	Plymouth Sterile Services	AI
🟢	053408	RFID L05 SDU Locker Corridor (R21.A)	06/10/2021 13:27	VIDEO-CYSTO-CYF-VH 8e.2826995 (FE156 0e) (SES ESC 2 - HOOK 5 R) EWD-GREEN	HAEMATURIA CLINIC	Plymouth Sterile Services	AI
🟢	1052545	Clinical Engineering	06/10/2021 13:27	950AGE	E-Quip Unlinked	Clinical Engineering (MEWS) Awaiting Distribution	🔍
🟢	068136	RFID L05 SDU Dispatch (R25.A)	06/10/2021 13:27	VIDEO-CYSTO-CYF-VH (FE156 0e) (SES ESC 2 HOOK 5 R) EWD-BROWN	HAEMATURIA CLINIC	Plymouth Sterile Services	AI

All progressed during COVID



	Code	Site	Full Name	Team	Parent Location	Location Type	GS1 Global Location	Area
1	2519	Derriford Hospital	RFID L02 Freedom Theatre 4 Corridor	Scientific Computing	RFID Reader 58	RFID Location Point	01048	61034061034
2	2518	Derriford Hospital	RFID L02 Freedom Theatre 5 Corridor	Scientific Computing	RFID Reader 58	RFID Location Point	01048	41039041039
3	2513	Derriford Hospital	RFID L02 Freedom Theatres Corridor North	Scientific Computing	RFID Reader 55	RFID Location Point	02380	56126056126
4	2510	Derriford Hospital	RFID L02 Freedom Theatres Entrance	Scientific Computing	RFID Reader 54	RFID Location Point	00614	58166058166
5	2511	Derriford Hospital	RFID L02 Freedom Theatres Equipment Store	Scientific Computing	RFID Reader 55	RFID Location Point	02373	57142057142
6	2512	Derriford Hospital	RFID L02 Freedom Theatres Reception	Scientific Computing	RFID Reader 55	RFID Location Point	00362	50137050137
7	2730	Derriford Hospital	RFID L02 Freedom Theatres Recovery Area	Scientific Computing	RFID Reader 56	RFID Location Point	02595	52107052107
8	2515	Derriford Hospital	RFID L02 Freedom Theatres Recovery Area	Scientific Computing	RFID Reader 56	RFID Location Point	02595	53115053115
9	2514	Derriford Hospital	RFID L02 Freedom Theatres Recovery Corridor	Scientific Computing	RFID Reader 56	RFID Location Point	02649	63100063100
10	2516	Derriford Hospital	RFID L02 Freedom Theatres Waiting Corridor North	Scientific Computing	RFID Reader 57	RFID Location Point	00720	59080059080
11	2517	Derriford Hospital	RFID L02 Freedom Theatres Waiting Corridor South	Scientific Computing	RFID Reader 57	RFID Location Point	00720	55065055065
12	2507	Derriford Hospital	RFID L02 Main Lift Lobby	Scientific Computing	RFID Reader 54	RFID Location Point	00683	60190060190
13	2508	Derriford Hospital	RFID L02 Main Lift Lobby Corridor	Scientific Computing	RFID Reader 54	RFID Location Point	00683	42177042177
14	2509	Derriford Hospital	RFID L02 Main Stores Corridor	Scientific Computing	RFID Reader 54	RFID Location Point	00843	75178075178
15	2728	Derriford Hospital	RFID L02 Oncology Waiting Area	Scientific Computing	RFID Reader 53	RFID Location Point	01321	210086210086
16	2506	Derriford Hospital	RFID L02 Oncology Waiting Area	Scientific Computing	RFID Reader 53	RFID Location Point	01321	205077205077
17	2726	Derriford Hospital	RFID L02 Oncology Waiting Area	Scientific Computing	RFID Reader 53	RFID Location Point	01321	209070209070
18	2727	Derriford Hospital	RFID L02 Oncology Waiting Area	Scientific Computing	RFID Reader 53	RFID Location Point	01321	220084220084
19	2505	Derriford Hospital	RFID L02 Radiotherapy & Oncology Corridor	Scientific Computing	RFID Reader 52	RFID Location Point	01369	223120223120
20	2504	Derriford Hospital	RFID L02 Radiotherapy Corridor	Scientific Computing	RFID Reader 52	RFID Location Point	01482	236126236126

Operational Benefits



Clinical Staff

See live availability of models in the equipment library

Locate desired or lost devices from neighbouring wards

Reduces time searching for devices



Technical Staff / Trust-wide

Locate devices due maintenance, upholding device compliance and reliability/safety

Gain awareness of devices in demand, high turnover, frequently lost etc.

Automated tracking of expensive assets / those on loan to the trust

Operational Benefits



- **3,500** medical devices tracked every day (15% of medical equipment database)
- **£50k** spent on an external company to audit entire hospital, taking a couple of weeks to complete. RFID system allows the Trust to audit the same quantity of medical devices in a single day.
- **£70k** a year (serviced on time)
- **£620k*** each equipment le hour
- In addition, in lost assets ea **£100k** in repl
- Trust-wide and external revalidation showed circa **£22m** assets on the Asset Management system have not been seen on the RFID system for 3+ years**.
- By ensuring scalability in our infrastructure, benefits can expand to other departments and assets, not just medical devices.
- The Trust has entered the 'best global healthcare award' nomination for the implementation of RFID asset management

Releasing time to care and increasing patient safety.....



**Patient stay costs est. £400 per 24 hours = £17 per hour per patient. On average there are 100 discharges a day (£17 per hour x 100 patients x 365 days)*

*** a full-time role has been agreed to investigate*

Operational Benefits

Clinical Staff



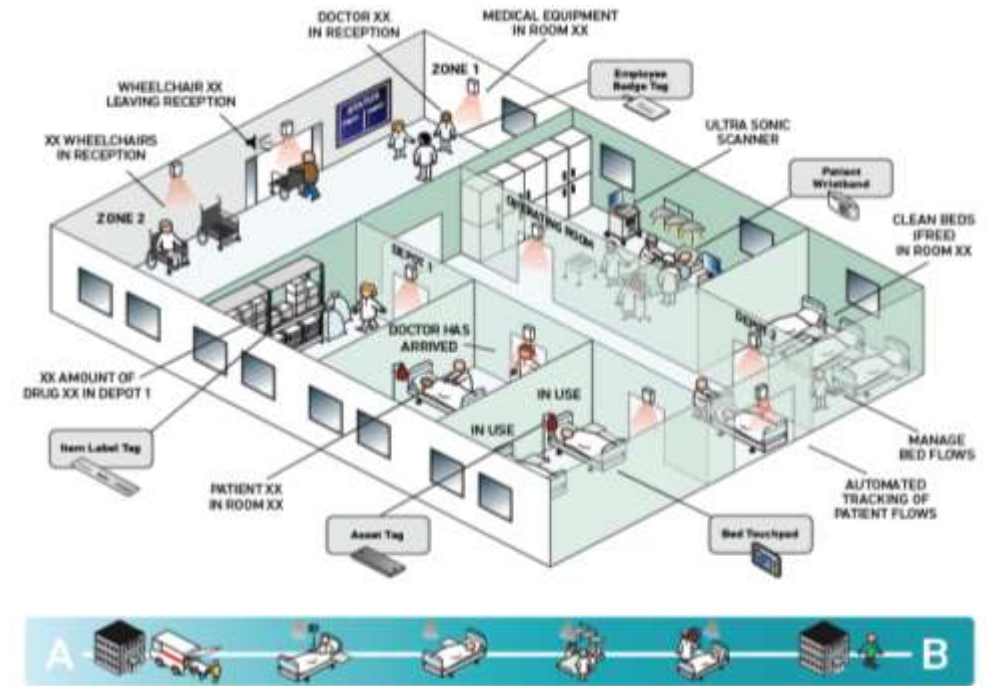
‘This is definitely a really useful tool – we use it to track wheelchairs as many get abandoned around the site and are then not available for use at entrances’.

Technical Staff / Trust-wide



‘The system has been hugely beneficial for us by tracking devices as they come and go, enabling us to see whether they are actively in use. Even more crucially we can now see at a glance what is in stock, saving clinical staff a wasted trip to the MEL.’

Our Future Roadmap



- Infrastructure in place for more services/uses: e.g. Estates, Stores, Patients, Staff
- RFID Readers included in expansion/refurbishment costs
- Views to expand to external buildings, then external sites
- Live maps on web portal to aid visual guidance
- Potential to enable other projects e.g. visitor guidance apps, automated patient check-ins, etc.



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Asset management in action

Aubrey Sitch

Scan4Safety programme manager

Martha James

Scan4Safety project manager, Airedale NHS Foundation Trust and Bradford Teaching Hospitals NHS Foundation Trust

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BTHFT's Journey to RFID

Aubrey Sitch & Martha James - Scan4Safety Programme



BTHFT

- **BTHFT** – An acute trust serving a population of 0.5m (specialist services to 1.1m across West Yorkshire)
- **Active** – Annually: 6,000 babies delivered; 300,000 operations performed; 140,000 A&E attendances and 500,000 outpatient appointments.
- **Mature** - One of the few Trusts in the UK to deliver **care, teaching and research**.
- **Ambitious** – First GE Command Centre in Europe to manage patient flow; Digital aspiration for HIMSS level 6
- **Collaborative** – WYAAT; Shared EPR with CHFT; Airedale & BDCT Place based partnership.



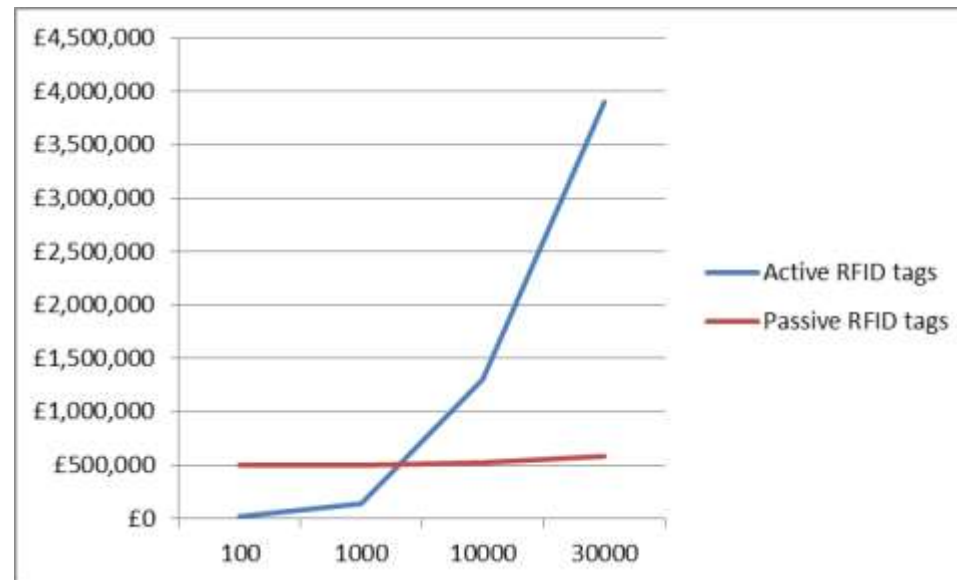
The Problems

- **Clinicians** – Where's my ???
- **Clinical Engineering** – Servicing equipment in COVID
- **Capital Asset Register** – Previously a historic document
- **Infection Control** – Tracing use of equipment
- **Asset Utilisation** – Tracking utilisation data
- **Stock Control** – Could we prevent unnecessary orders
- **Departmental use** – IT, Estates, Pharmacy
- End of Year Financial pressures.



The Options

- **ACTIVE** - WiFi / BLE tags on devices
 - positive – Minimal start-up, live data
 - Negative – Unaffordable at scale, additional servicing, they fail
- **PASSIVE** - UHF RFID at 'choke points' or on demand
 - Positive – Low revenue, scalable, no servicing, failsafe
 - Negative – Is 'last seen location' sufficient?



The Solution

- Lyngsoe Systems - <https://lyngsoesystems.com/>
 - Track 38,000 assets across 2 hospitals using 260 RFID readers above security doors 'choke-points'.
 - Integration with Equip and CARS
- The business case
 - Capital investment covered by NHSE funding c£500k
 - 15 CE techs searching for devices 1hr per day = £63k per year
 - Clinical staff delayed looking for equipment = c£5m per year
 - Unnecessary purchases of under-utilised equipment = £?m

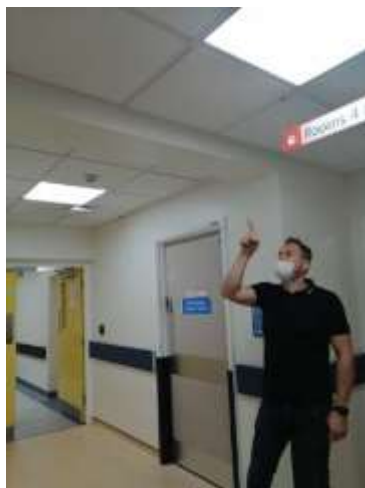


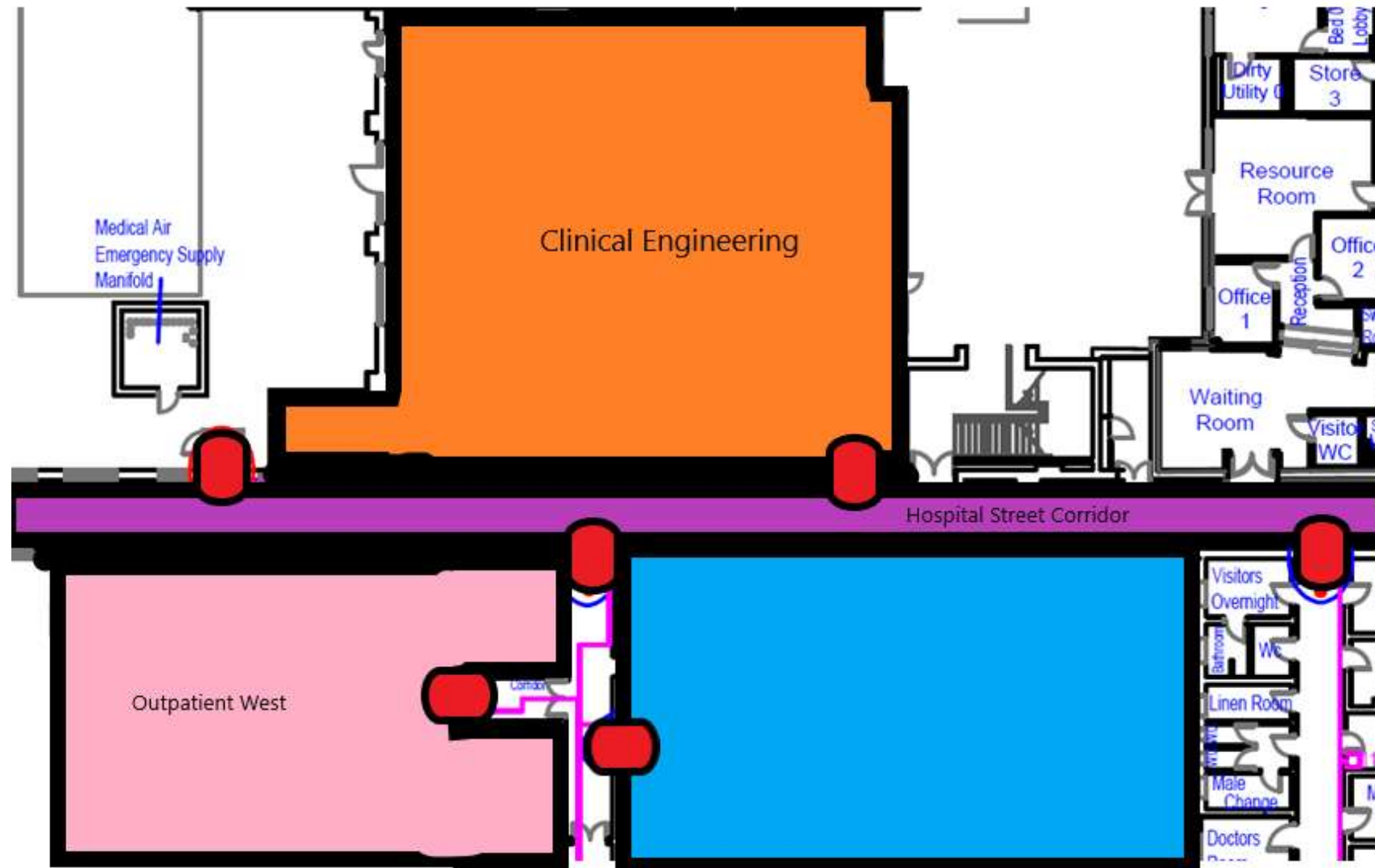
Implementation

- Site Surveys
 - Where should they go?
 - What we considered



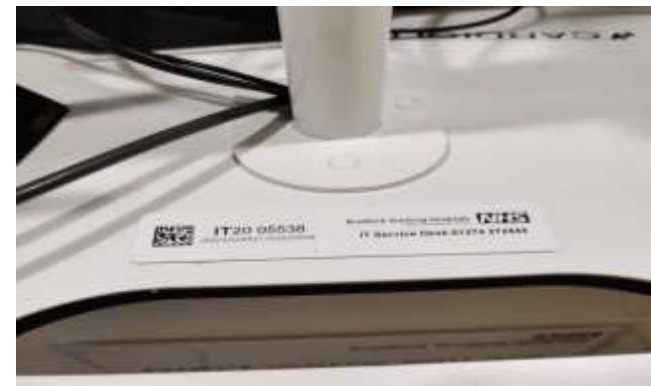
S.6 Bradford Hospital			
Hospital / Site:	Bradford Hospital	Reader ID:	6
Area:	Accident & Emergency	Level:	0
Gateway Identifier:	Dialysis / CDV Junction	Number of Antennas:	3
Type:	Direction		
RP_A_1	RP_A_2	RP_A_3	
Hospital Street Corridor Level 1 (B171)	Dialysis	CDV	
Photos	Photos	Photos	
Ceiling Type:	Fibre tile and plaster board	Ceiling Height (m):	2.4m
Antenna Mount:	Suspended ceiling	Classification:	Hidden
Notes: Antenna placed in the centre line of the double doors. The centre antenna in the corridor will need testing as tagged item may be missed if exiting either Dialysis or CDV due to the width of the corridor.			
Map:			





Implementation

- Installing Phase 1
 - 10 in BTHFT and 13 in ANHST
- Testing
 - Does it actually work?
- Timeline



Our software - X-Tracking

The screenshot displays the X-Tracking software interface. On the left is a dark sidebar navigation menu with the following sections: Home (highlighted), Main (Simple Search, X-Search, Move To Location, Move To Asset), Administration (Asset Administrat..., Location Manage..., Asset Type Mana..., User Management, Read Point Mana...), and Status (Version: Dec 2020). The main content area features a large blue search overlay with the text "Simple search" and "Find assets matching all the specified words". Below this is a search input field containing the placeholder text "Type to search (e.g. wheelchair lobby)" and a search icon. At the bottom of the overlay, there is a section titled "X-Search favorites" with the message "You do not have any favorites". The background of the interface is a blurred image of a hospital lobby with several wheelchairs.



Simple Search



infusion pump



Grouping	Short name	Type	Location	State	Notifications	Last updated ↓ Details
	1000504	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 0 AED X-Ray 2 Entrance	Active	2024-05-01 (Next PPM)	3 hours ago
	1000506	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 0 AED X-Ray 2 Entrance	Active	2024-05-01 (Next PPM)	4 hours ago
	1000095	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 0 AED X-Ray 2 Entrance	Active		12 hours ago
	1000716	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 0 AED X-Ray 2 Entrance	Active	2024-05-01 (Next PPM)	19 hours ago
	1000507	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 1 Hospital Street Corridor Level 1	Active	2024-05-01 (Next PPM)	a day ago
	1000211	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 1 Hospital Street Corridor Level 1	Active		2 days ago
	1000227	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 1 Ward 4	Active		2 days ago
	1000244	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 0 Hospital Street Corridor Level 0	Active		3 days ago
	1000230	...dford Equipment > INFUSION PUMP -----	Bradford > Level 0 -----	Active		3 days ago

Items per page: 100 1 - 100 of 125 < > >>

Short name	Type	Location	State	Notifications	Last updated
1000504	...dford Equipment > INFUSION PUMP AGILIA VP MC WIFI	Bradford > Level 0 AED X-Ray 2 Entrance	Active	2024-05-01 (Next PPM)	3 hours ago

Upcoming challenges

- Communicating how passive RFID works
 - Will staff have a preconceived notion of what RFID is
- Communicating where the geo fences are to staff
 - Knowing where the geo fences are will enable the staff to use the system to the full advantage
- Labelling enough equipment for a working system
 - Will there be enough for the system to be useful?

Summary

- Determine the problem you are solving
 - Who are the end users?
 - What is the end solution you are wanting?
 - Is the benefit quantifiable?
- Determine the most appropriate solution
 - Potential scope
 - Ownership of buildings, ease of install
 - Time/Cost constraints – system ownership