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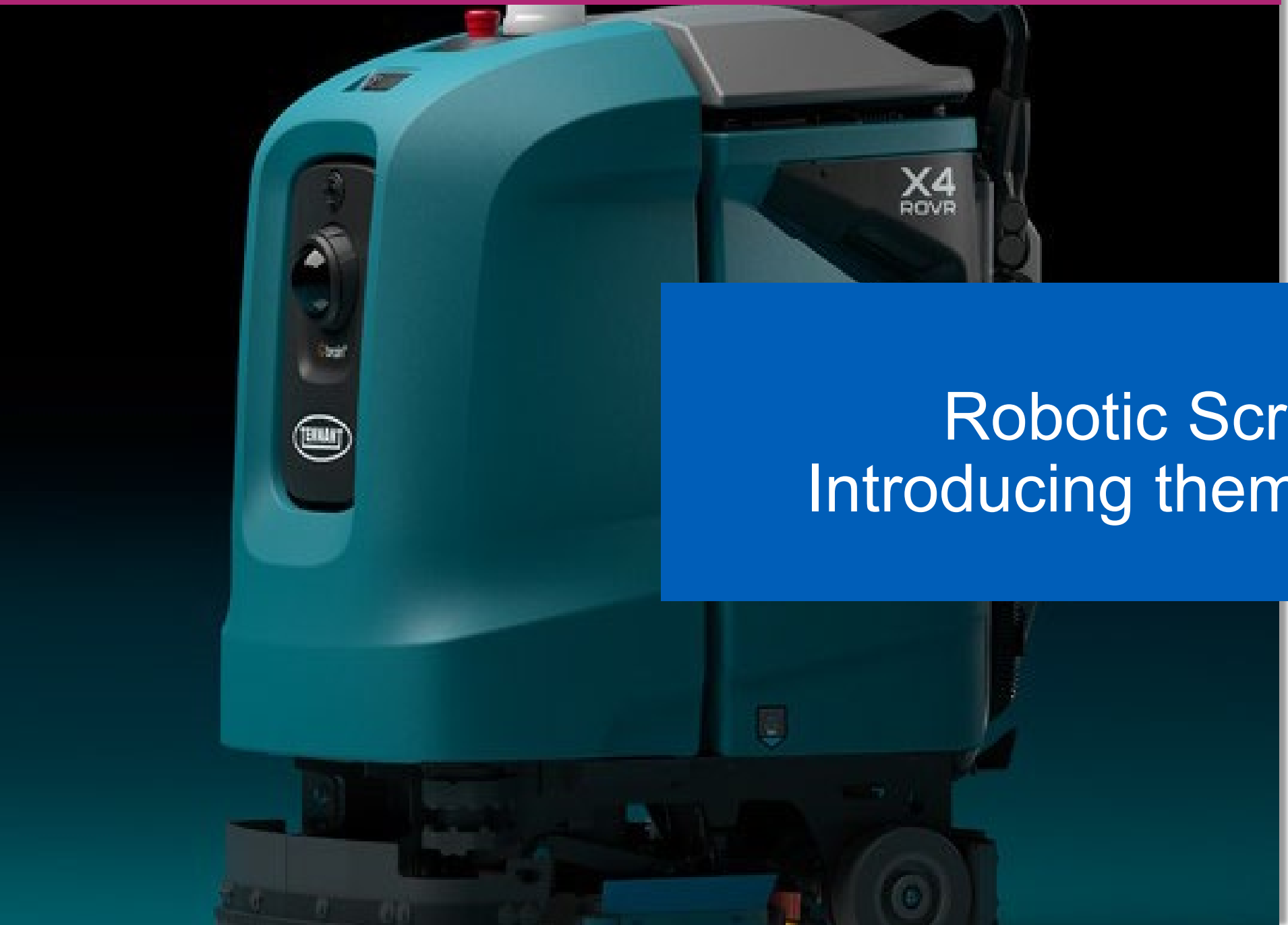

Robotic Scrubber Driers- Introducing them into NHSPS

Trial of ten X4Rovrs across the NHSPS Estate
December ‘25

Introduction & Context

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NHSPS are planning to introduce ten robotic scrubber driers across the organisation as a proof-of-concept trial.

Robotic scrubber driers are autonomous floor-cleaning machines equipped with sensors, navigation systems, and smart cleaning algorithms.

We want to evaluate the use of Tennant X4Rovr across some of NHSPS's larger sites, and evaluate how they meet the following outcomes:

- Improve cleaning consistency and quality- colleague time can be redeployed to other tasks, which will have a positive impact on infection prevention and control.
- Enhancing productivity- manual floor cleaning is a time intensive and physically demanding task for our colleagues.
- Reduce manual labour strain- floor cleaning is a physically demanding task.
- Support data-driven cleaning through usage analytics- providing assurance to customers that cleaning has been carried out.

Tennant X4 Rovr

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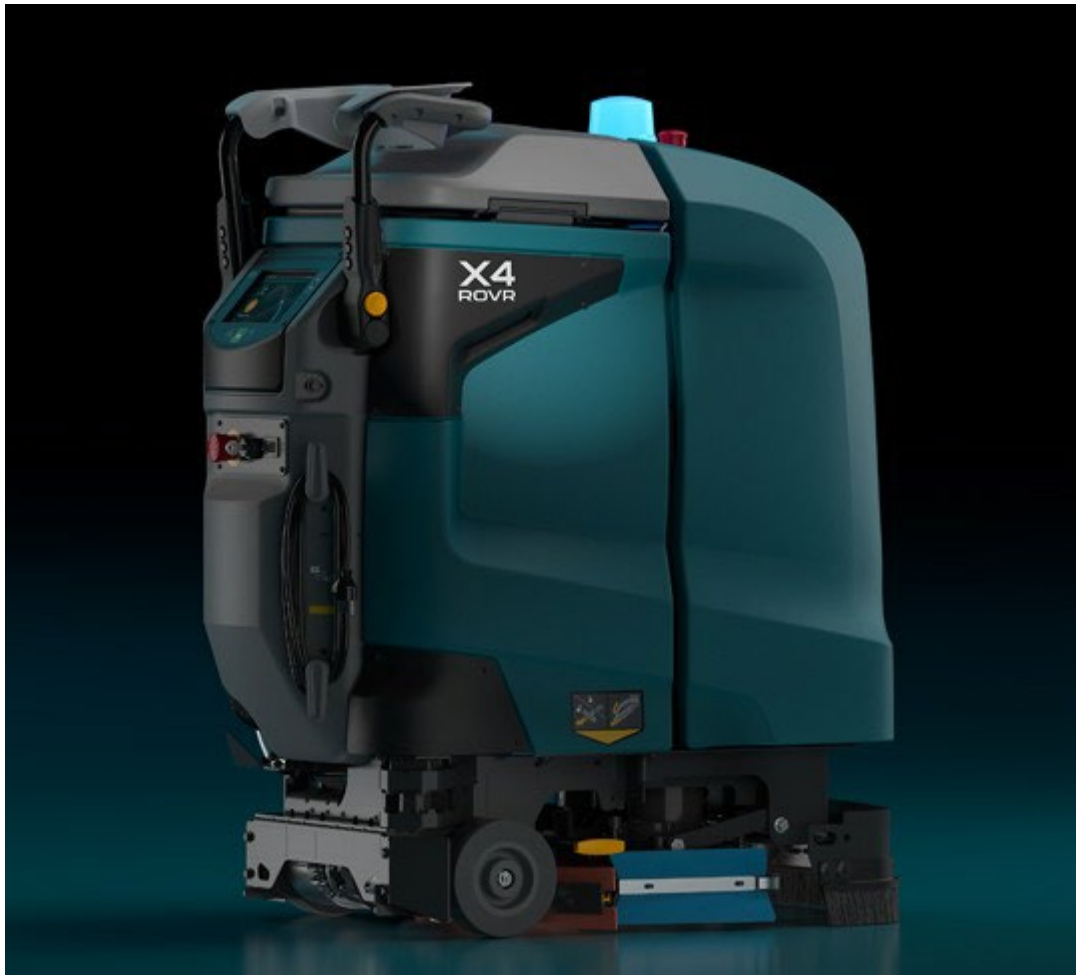

X4 Rovr- Tennant's version of autonomous scrubber dryer

- Run time- 2.5 hours
- Charge time- 2.5 hours
- (can be charged opportunistically)
- BrainOS® powered navigation and diagnostics
- 500mm cleaning path
- Estimated coverage on single tank/ charge- 1,860m^2
- 38L tank- water velocity control
- Purchase price (exc. Maintenance) £46,650 + VAT
- 5 year lease price (inc. Maintenance) £1,272 pm (exc. VAT)

The Ten Sites

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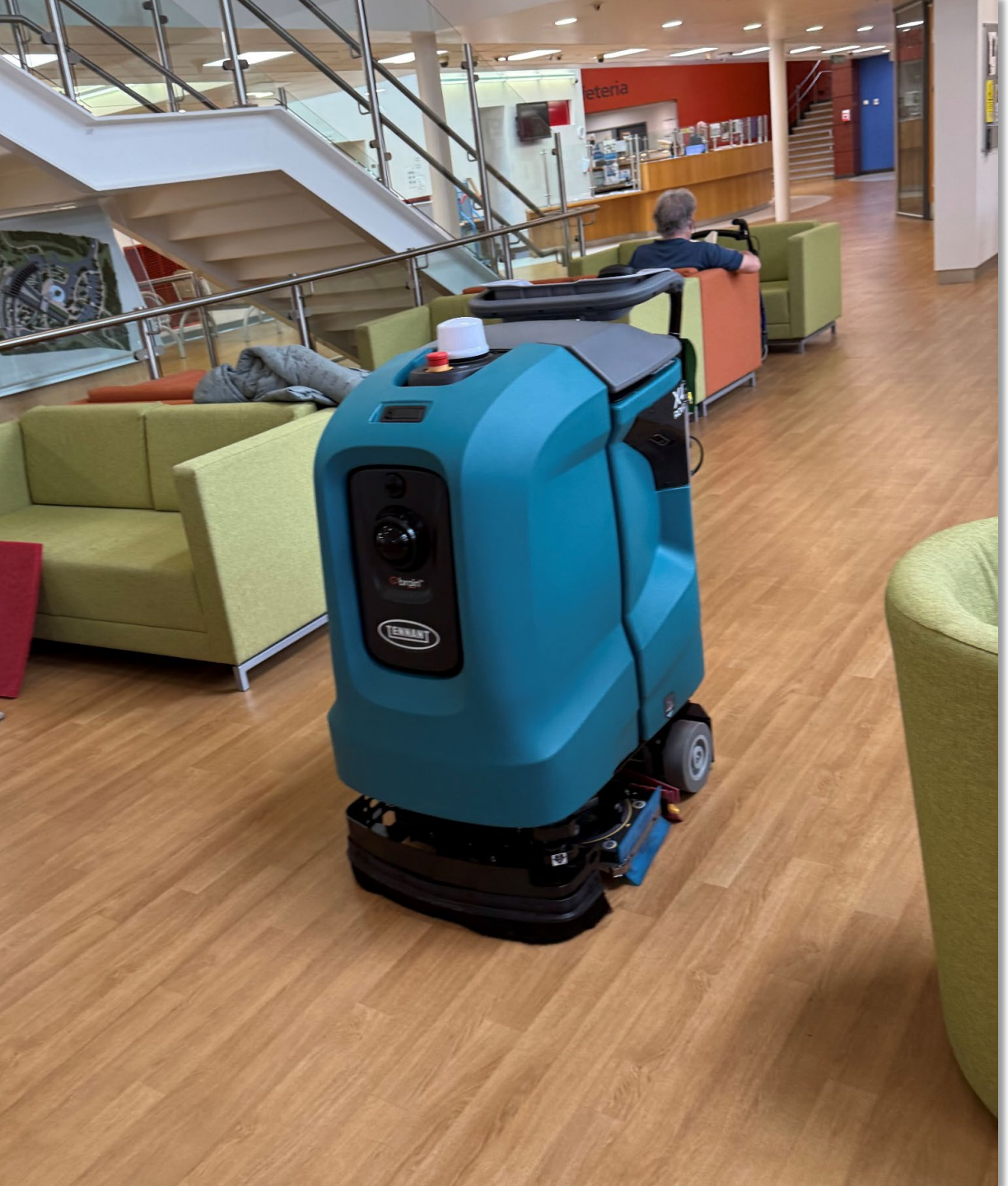
Ten X4Rovrs rolled out into larger sites (aligned to the NHS 10-year plan Neighbourhood Health Centres) across the organisation, and a variety of Soft FMs to maximise testing and feedback gathering

Property Name	EDP	Soft FM
Altrincham Health and Wellbeing Centre	Lauren Ridgard-Weir	Paul Lever
Ashfield Health and Wellbeing Centre	Michelle Stansfield	Nicola Tulley
Blaydon Primary Care Centre	Emma Fisher	Sandra Herron
Cleadon Park Primary Care Centre	Emma Fisher	Tracey Green
East Cleveland Hospital	Andrew Bell	Kirsty James
Johnson Community Hospital	Luke Allen	Sally Smith
Moorgate Health Centre	Kelly Barton	Paul Hart
Pallion Health Centre	Andrew Bell	Tracy Rutherford
Royal South Hants Hospital	Jason Millard	Victoria Smith
Sheppey Hospital	Daryl Raveneau	Jane Cashin



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Houghton PCC Demo

This property is well maintained, and floors look very well cared for, however…

One pass of the Robotic Scrubber Drier

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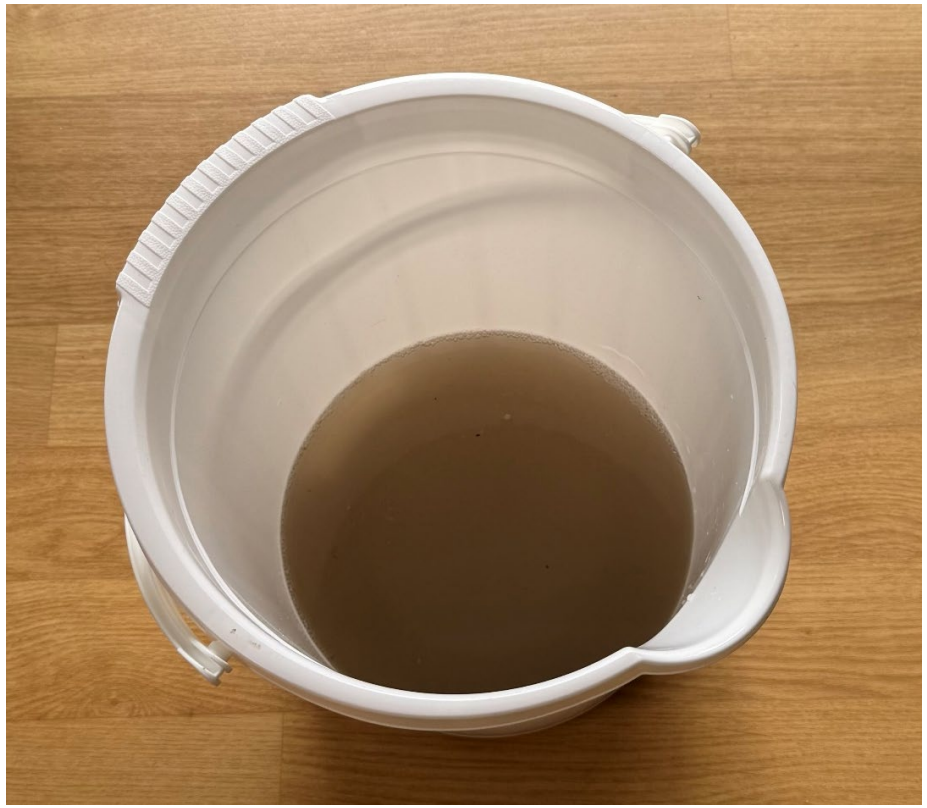
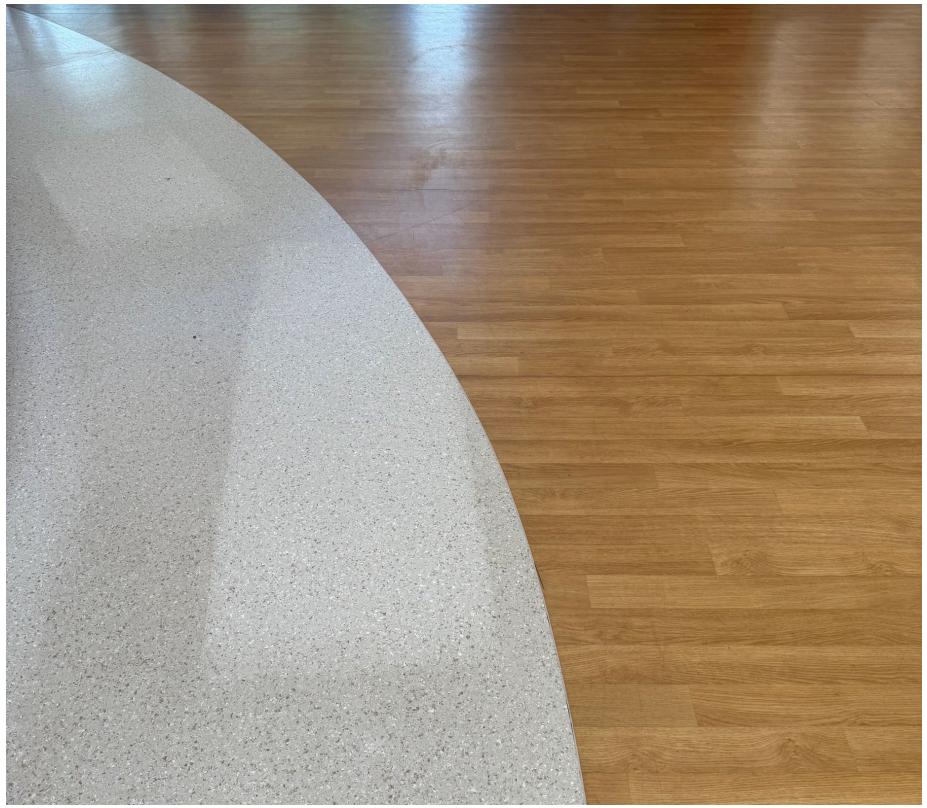


The waste-water from one pass of the robotic scrubber drier X4 Rovr. Even though the Houghton PCC floors are regularly managed with Scrubber Driers, clearly there is a benefit from making this process autonomous so frontline domestic colleagues can focus on detail tasks and improve Infection Prevention and Control.



While the floors at Houghton PCC are well maintained with Tennant T300 machines, they have an awkward light colour around their reception desk, and naturally high foot traffic here. The robotic scrubber drier could be programmed to regularly patrol the reception area to keep this area looking its best.

Why are we doing this?

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Estate Optimisation & Real-Time Usage

- **Smart cleaning schedules**: The X4 Rovr can be programmed based on real-time occupancy data, ensuring cleaning happens when areas are least used.
- **Usage analytics**: These robots can log cleaning frequency and traffic patterns, feeding data into systems to help identify underutilised or overused spaces.
- **Automated cleaning between bookings**: In sessional-use spaces, robots can clean quickly and consistently between appointments, improving turnaround and hygiene.

Enhancing Our Colleagues' Work

- **Cleaning floors is a manually intensive process:** Introducing robotic scrubber driers allows a potential reduction in physical strain on our domestic colleagues.
- **A positive effect on IPC standards**: By reducing the floor cleaning requirement, colleagues will be able to focus their time on tasks which will have a positive effect on infection, prevention and control.
- **Colleagues have access to new technology:** Allowing our colleagues to train in this area enhances their skillsets, enabling Get, Grow, Keep.

Strategic Estate Transformation

- **Scalable deployment**: Robot scrubbers can be deployed across new Neighbourhood Health Centres (NHCs), ensuring consistent standards
- **Support for flexible layouts**: As estate designs evolve, robots adapt easily to new layouts, reducing the need for retraining colleagues.
- **Fully flexible running**: Limitless numbers of maps can be programmed into the robots, to choose which areas need priority.

Why are we doing this?

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Integrated Digital Infrastructure

- **IoT integration**: The X4 Rovr can connect to building management systems, contributing to a fully digital estate. It can also be managed from a mobile device, reducing need for human interaction.
- **AI-enhanced performance**: The X4 Rovr uses AI BrainOS® technology to detect dirt levels, adjust water usage, and optimise cleaning paths.

Data-Driven Decision Making

- **Cleaning performance metrics**: Robots provide detailed logs on cleaning times, coverage, and maintenance needs, supporting evidence-based FM decisions.
- **Predictive maintenance**: AI can monitor robot health and schedule servicing before breakdowns occur, reducing downtime.

Sustainability & Net Zero Goals

- **Water and energy efficiency**: The X4 Rovr robots use minimal resources, and water velocity control, aligning with NHS sustainability targets.
- **Carbon tracking**: Usage data can be fed into carbon accounting systems to support Net Zero reporting.
- **Chemical-less technology**: The X4 Rovr cleans effectively, to IP&C standards with just water.

Benefits for our colleagues and customers

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Frontline domestic colleague time reallocated to tasks where human input is required, e.g. effective sanitising and disinfecting of surfaces, improving Infection Prevention and Control standards, leading to increased customer assurance.

Reduced cleaning time and reduced human intervention- the X4 Rovr can be managed remotely via a mobile device. Once an area is mapped, the X4 Rovr will follow defined routes, only deviating if an unexpected obstacle arises. X4 Rovr AI technology (BrainOS®) actively seeks out safe alternative routes.

Reduction in Colleague Fatigue and Labour Shortages- it can be difficult to recruit and retain colleagues, especially for repetitive or physically demanding tasks. A robotic scrubber drier would take over routine floor cleaning, reducing physical muscular skeletal strain and allowing colleagues to focus on higher-value tasks.

Elevated View of Cleaning Profession and NHSPS- cleaning is often undervalued and seen as manual labour, missing that cleaning, when performed correctly, is a science. Utilising robotic technology elevates cleaning as a profession, and NHSPS as a forward-thinking organisation.

Enhanced colleague retention and training opportunities- introducing colleagues to new technologies, increasing their skillset.

How will we define if the trial is a success?

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Success criteria for this PoC would include:

- Improved cleaning coverage and consistency
- Colleague hours successfully redeployed into other tasks
- Positive colleague feedback
- Cost-effectiveness
- Sustainability improvements
- Hygiene assurance (e.g. ATP test results if appropriate and approved)

To evaluate whether the trial is a success, we would look to collect various data types (expanded on the next page), both quantitative and qualitative.

We will be able to compare quantitative data, such as reduction in water and chemical use, with previous data. We will also be able to demonstrate improved audit results and improved customer assurance and show no issues with coverage or runtime.

In terms of qualitative data, it should be able to demonstrate that any colleague feedback is positive, or at least not insurmountable with small adjustments. It should demonstrate that it does not need frequent human interaction to effectively carry out its routes, and it should generate positive customer feedback.

How will we define if the trial is a success?

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Quantitative Data

- Robot usage logs- coverage, runtime, water and chemical usage
- Colleague hours redeployed to tasks showing an improved infection, prevention and control standard
- Audit scores- visual scores or utilising evidence-based auditing techniques (such as ATP testing).
- Reduction in energy consumption
- Waste reduction- fewer mop heads disposed of.

Qualitative Data

- Colleague surveys and interviews- demonstrating ease of use of the robot, workload impact, reduced strain
- Observational notes- navigation issues, downtime causes, how frequently human interaction is required.
- Manager feedback- how well has it integrated into operations, the compatibility with existing cleaning schedules
- Any suggestions for improvement from colleagues or managers