

Lamson

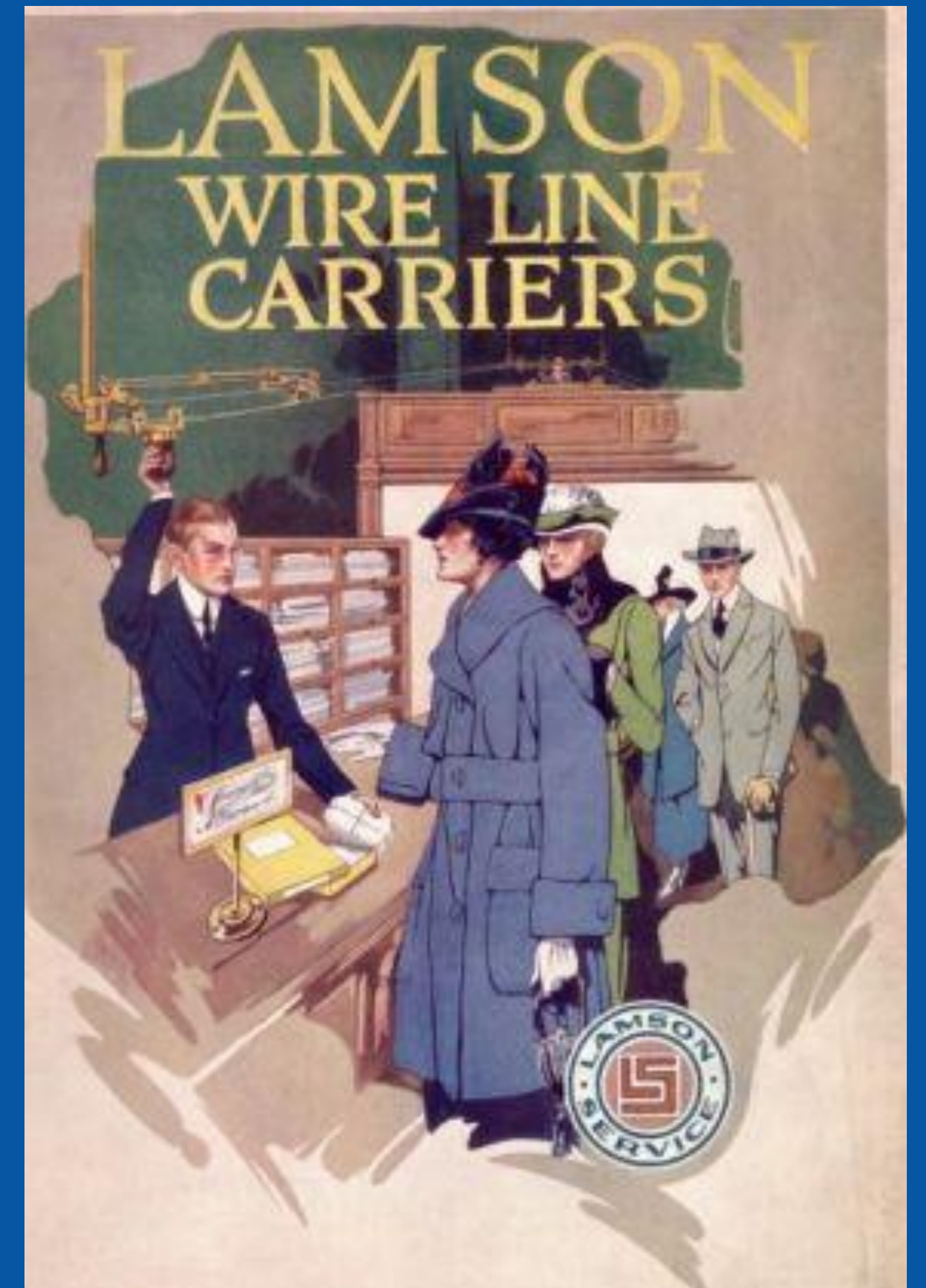
What you need to know about robots,
so your staff can provide more care for
your residents

Leonie Mulheran RN





1. Automation is not new



AUTOMATION

History



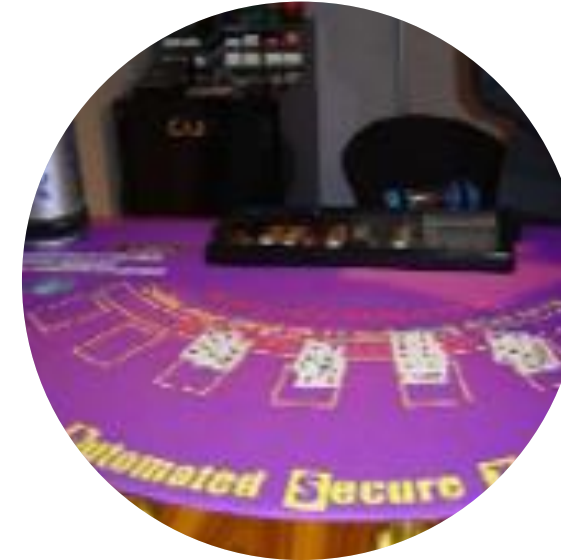
Rapid cash wire system



Pneumatic tube system grocery stores



Pneumatic Tube System Hospitals



Lamson Patented Casino Carrier



RFID in pneumatic tubes

1st Unit Dose Robot in Australia

Autonomous Mobile Robot Aged Care



Est 1898 Sydney

1879

1898

1912

1940

1960

1970

1985

1988

1992

1999

2012

2016

2017

2018

2019

2020

Ball System



Department store pneumatic tube



Tel lift Track System



Automated Guided Vehicles National Library



All grocery stores installed Pneumatic



Automated Guided Vehicles Royal North Shore Hospital



Bulk pharmacy dispensing robot



Autonomous mobile robot hotels, hospital and office buildings



Opportunities for robots in Healthcare

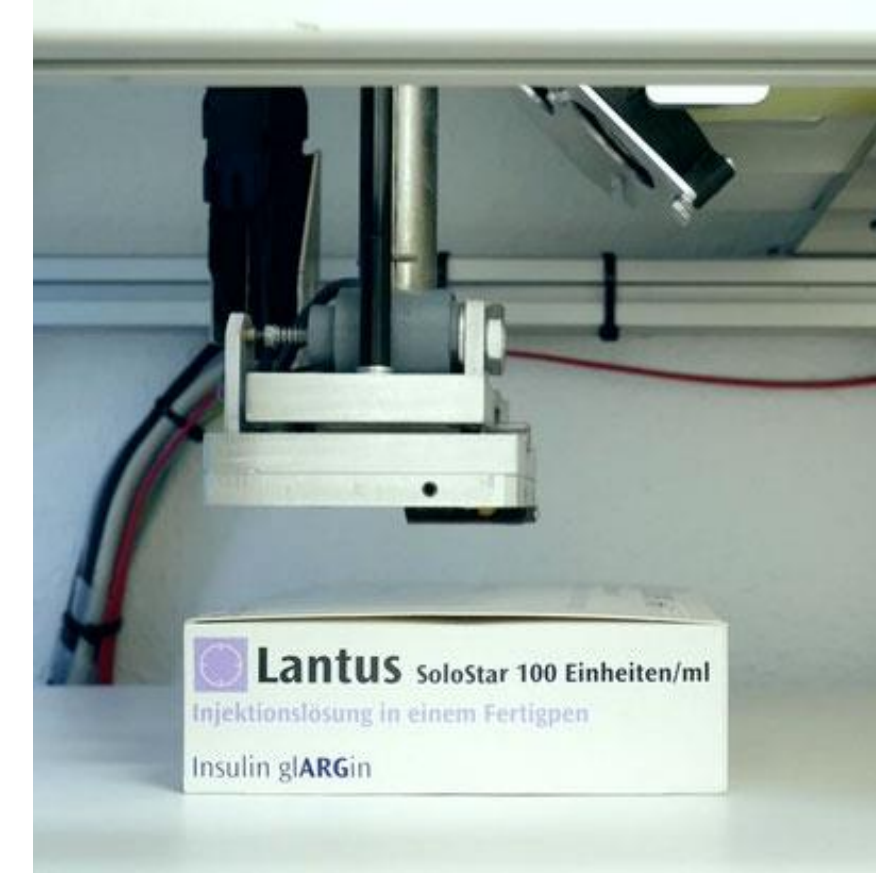
Logistics



Delivery



Pharmacy



Concierge

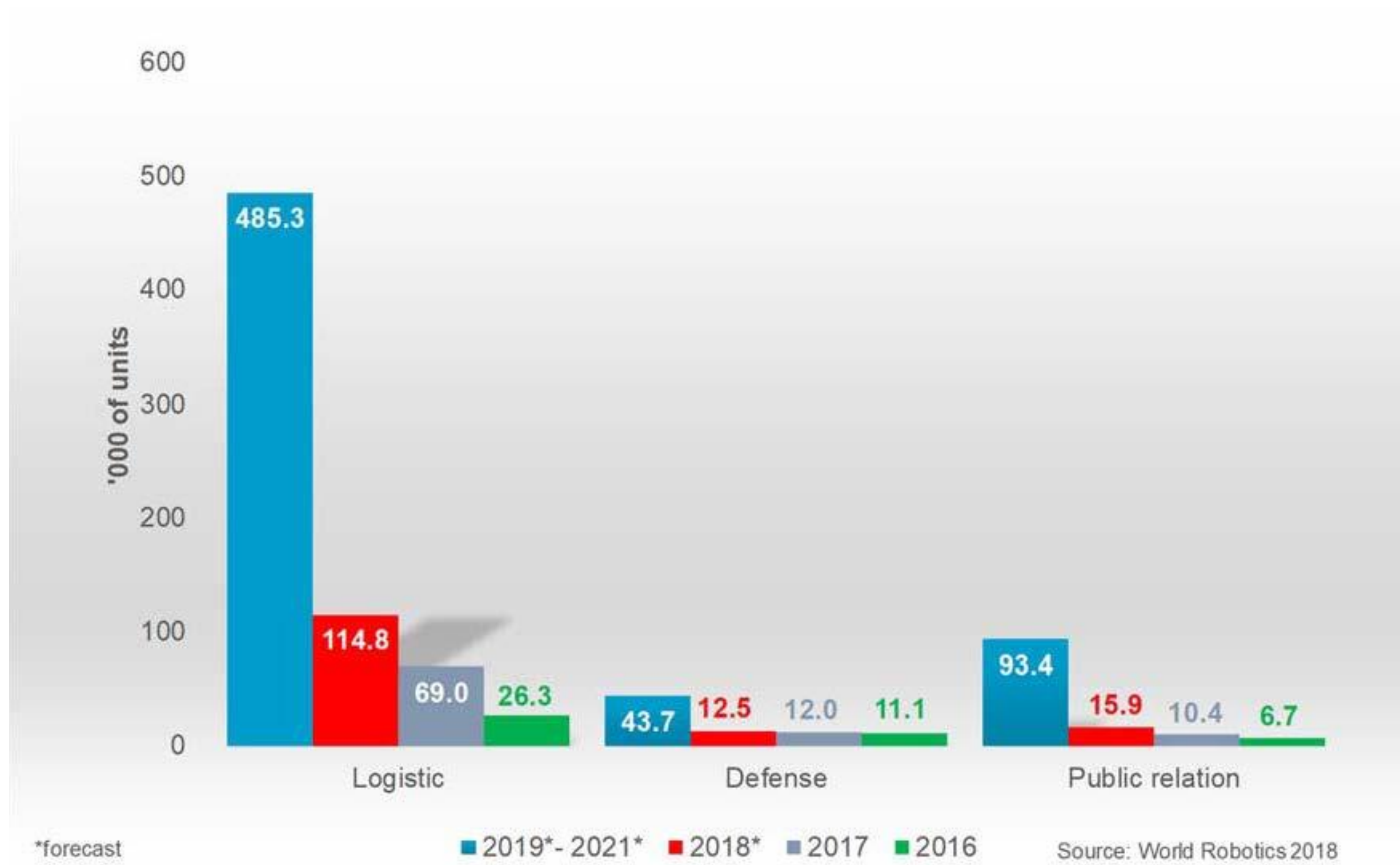


Lifting Companion Exoskeletons



Cleaning
Food preparation
Therapy
Lab work

Service Robots - Logistics



- 114,800 Logistics
- 12,500 Defence
- 15,900 Public Relations

2. Menial Tasks

REMOVE THE MENIAL
MEANS MORE CARE

Menial tasks

Staff currently perform manual or low-value add activities

Menial tasks take huge number of hours each day and many not directly care related

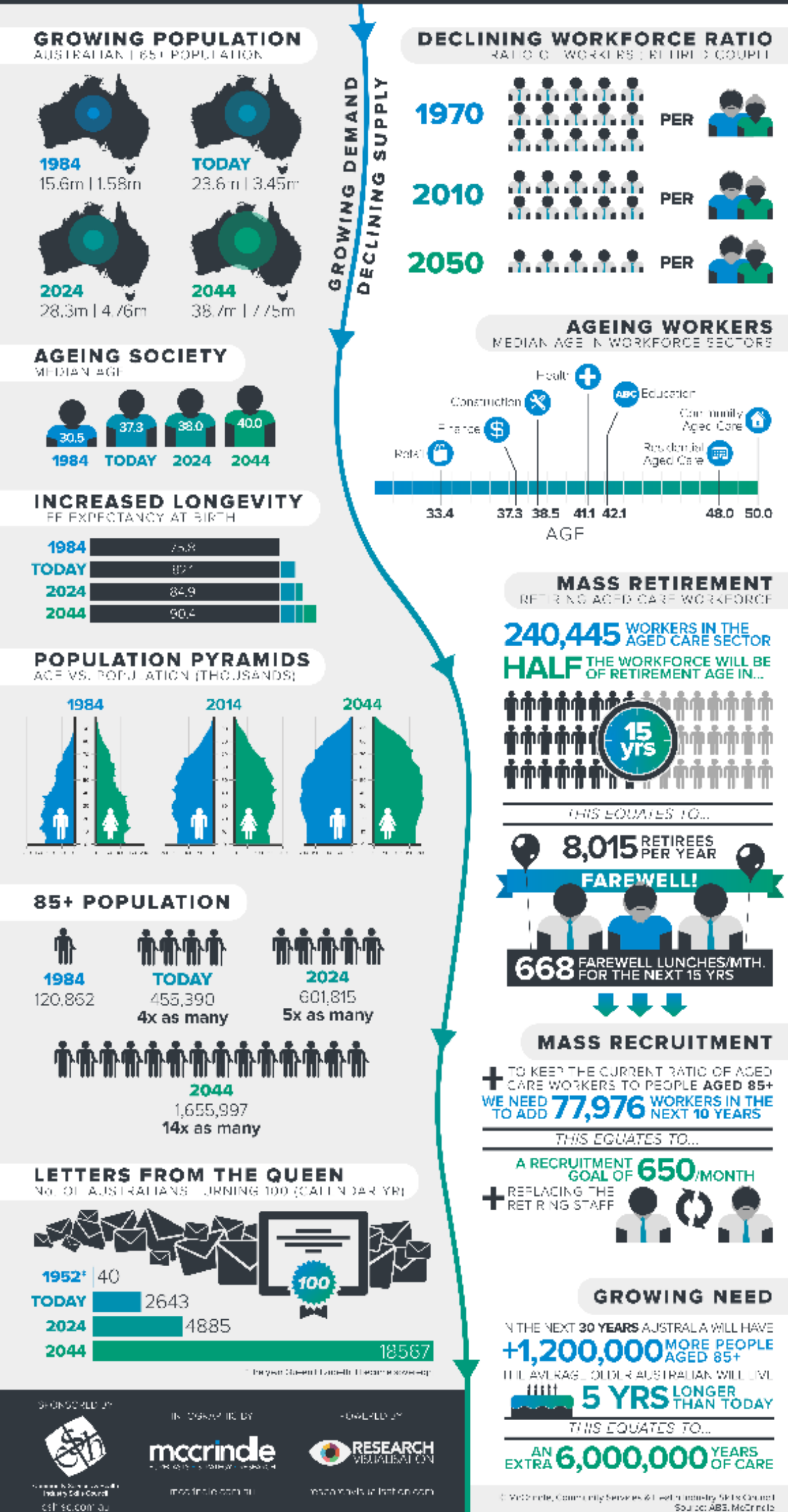
Higher standards means 'more care time' with the same budget

Removing menial tasks frees up staff to do this



THE AGED CARE PUZZLE

DEMAND VS SUPPLY



AUTOMATION MEANS LESS INJURIES



Care Workforce

Large number of trolley transports each day for a workforce of median age of 48 – 50 years

- Between 50-100 trips a day
- 3,000 to 11,500km/annum/site
- Removing this activity alone saves 5-20 hours /day, costing and an average of \$2.39/resident per day
- Aged care needs to add 650 new employees/month for the next 10 years plus replace retiring staff to maintain current staff to resident care ratios
- Staff supported by automation will work longer with less injuries

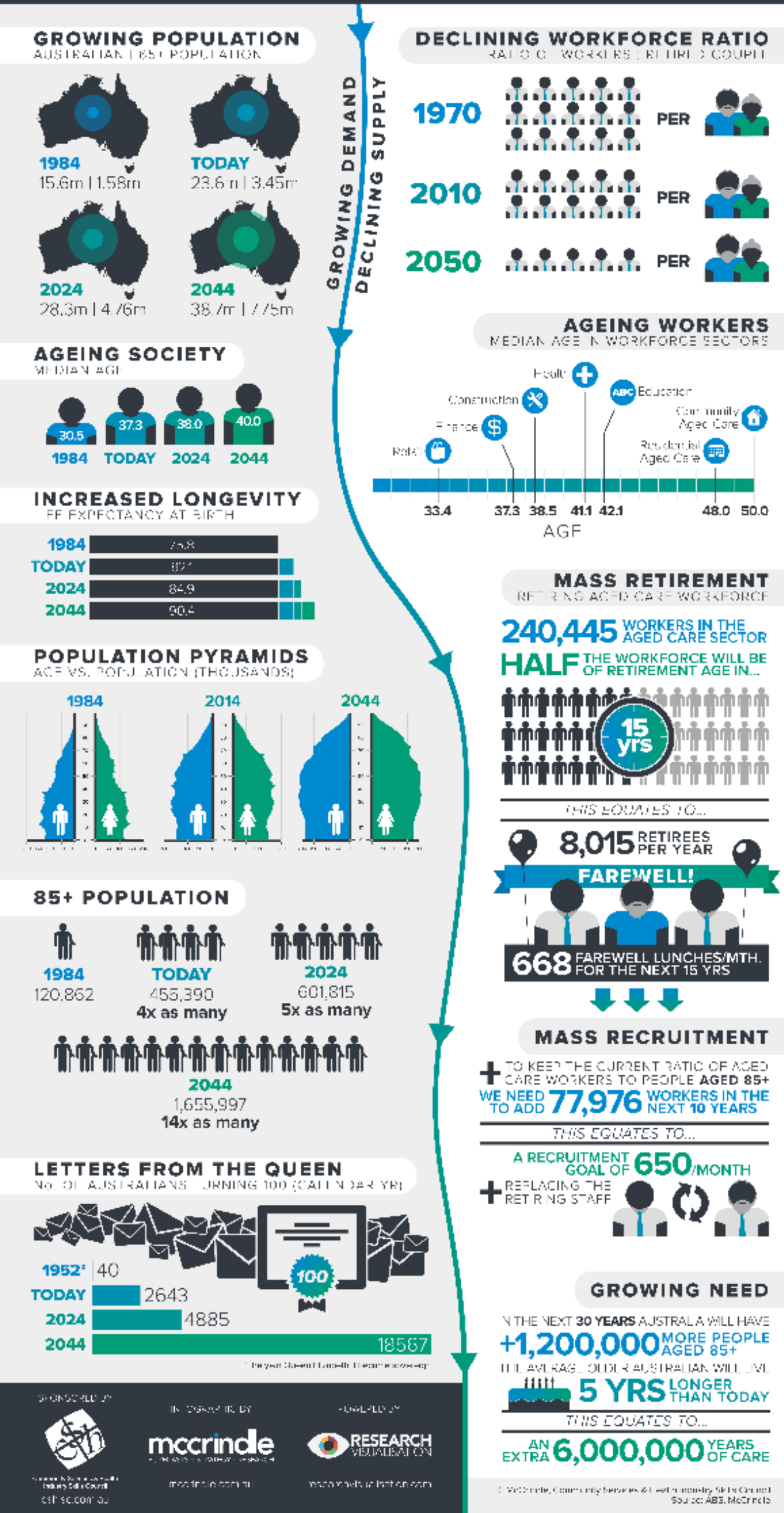
OCTOBER 13, 2019

SYDNEY MORNING HERALD

Survey 4,138 staff in RACF's and 730 workers providing "in-home" aged care:

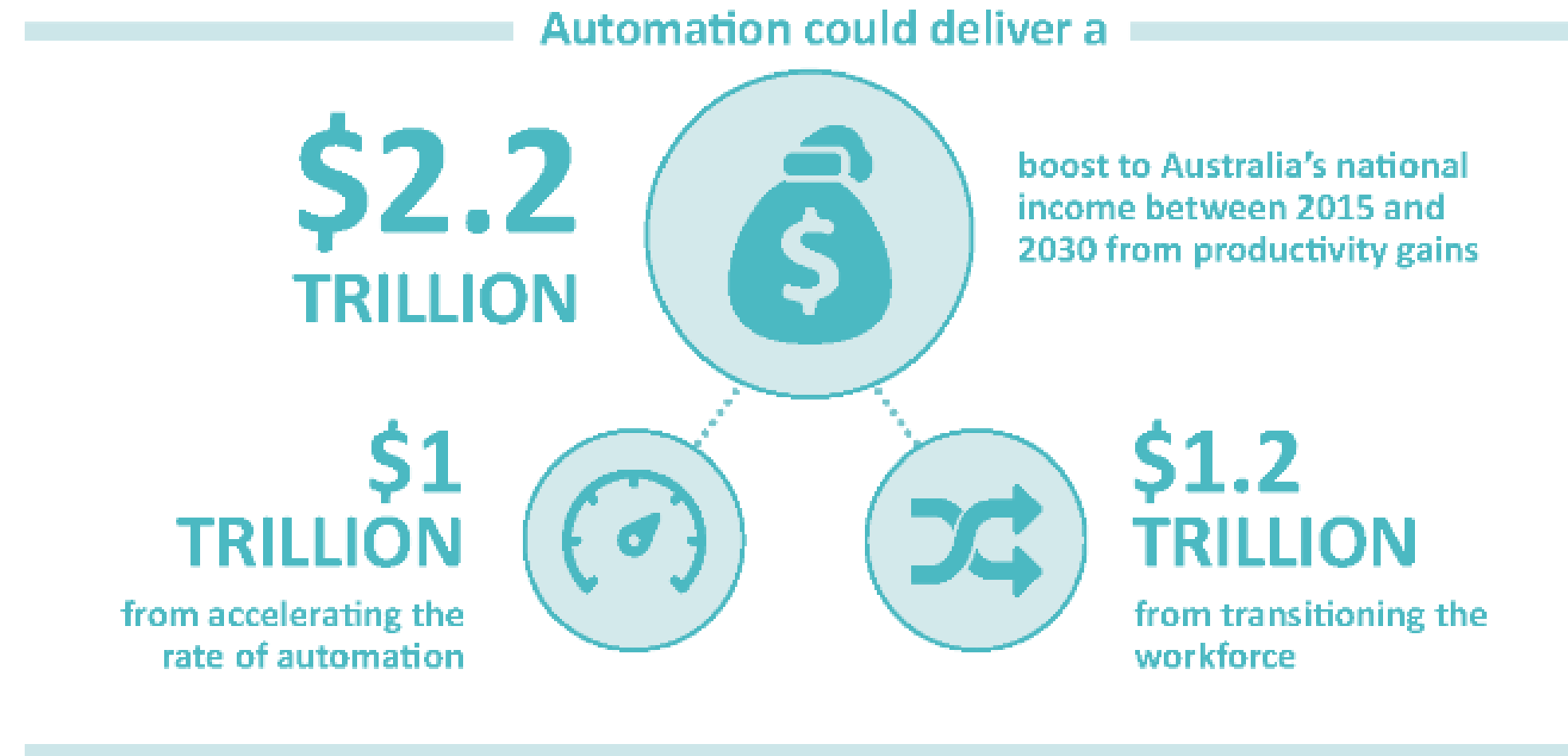
- 36.7% claim they were unlikely to be working in residential aged care in five years, citing reasons such as low pay, stress and exhaustion
- 87% admit they have to hurry people in their care because there are too many tasks to complete
- 94% say they don't have enough time to talk to residents
- 43.5% report that they have suffered a work-related injury

The survey, conducted by Australian Community Research on behalf of United Voice and the Health Services Union, took in the views of 4138 staff working in residential aged care facilities and 730 workers providing "in-home" aged care.



ABOUT ROBOTICS

Benefits of Automation



- 94% of CEOs say robotics has increased productivity in their business
- 67% of CEOs agree robotics will create new & exciting opportunities for their employees by automating repetitive tasks

AlphaBeta, 2017, The Automation Advantage. PwC CEO pulse: Pulse on robotics

MORE SATISFYING



62% of low-skilled workers will experience improved satisfaction

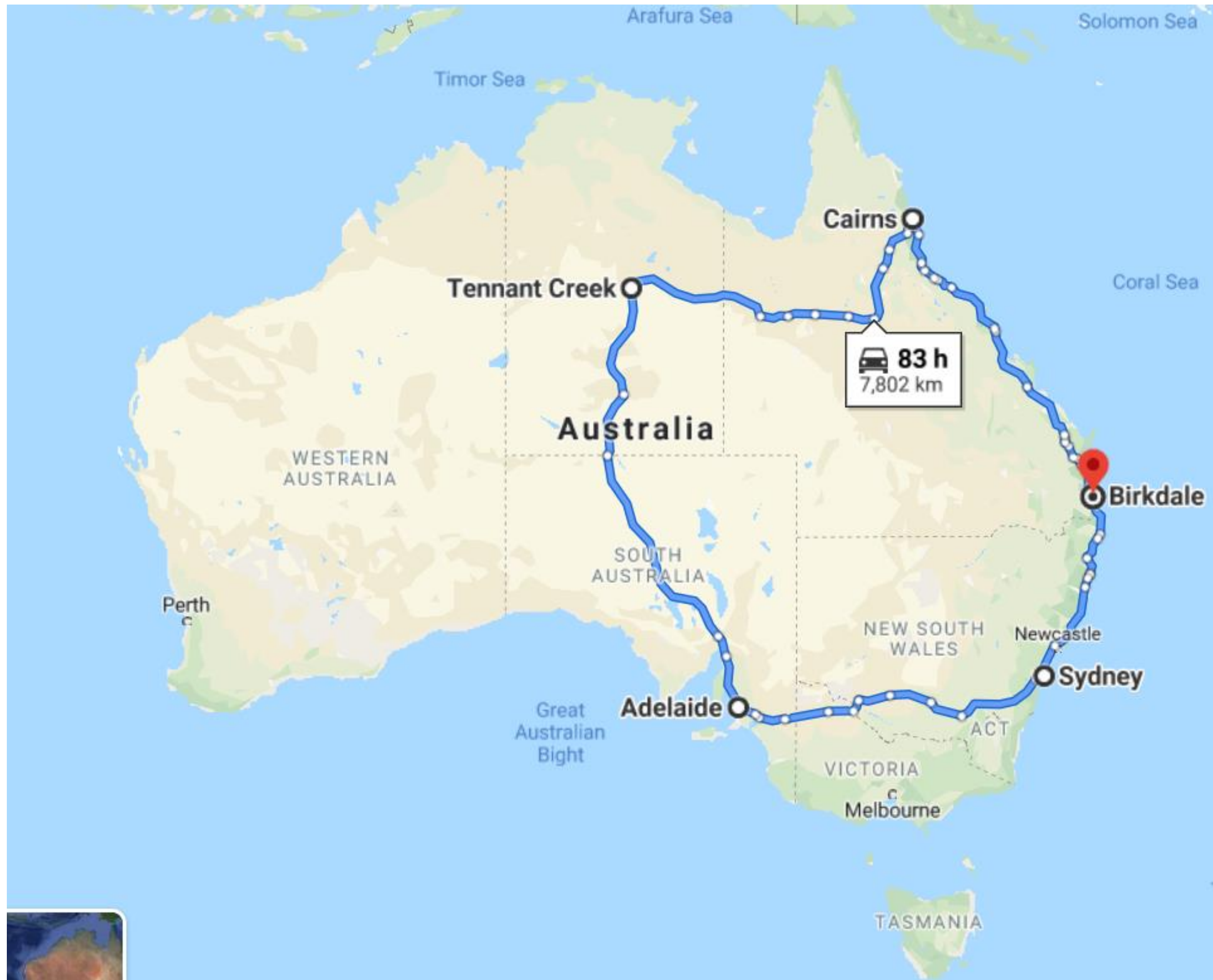
SAFER



Workplace injuries will fall by **11%** as dangerous manual tasks are automated

3. Lamson white paper

Prins Willem Alexander



First to measure manual handling distances in 2017

21klm a day or 7,792klm/annum

Estimated over 4,000 hours a year in trolley transport (11.4hrs/day) or \$192,000/annum of staff time

Approx saving \$2.81/resident/day minus the risk of shoulder/back injuries

Installed two robots in 17/18

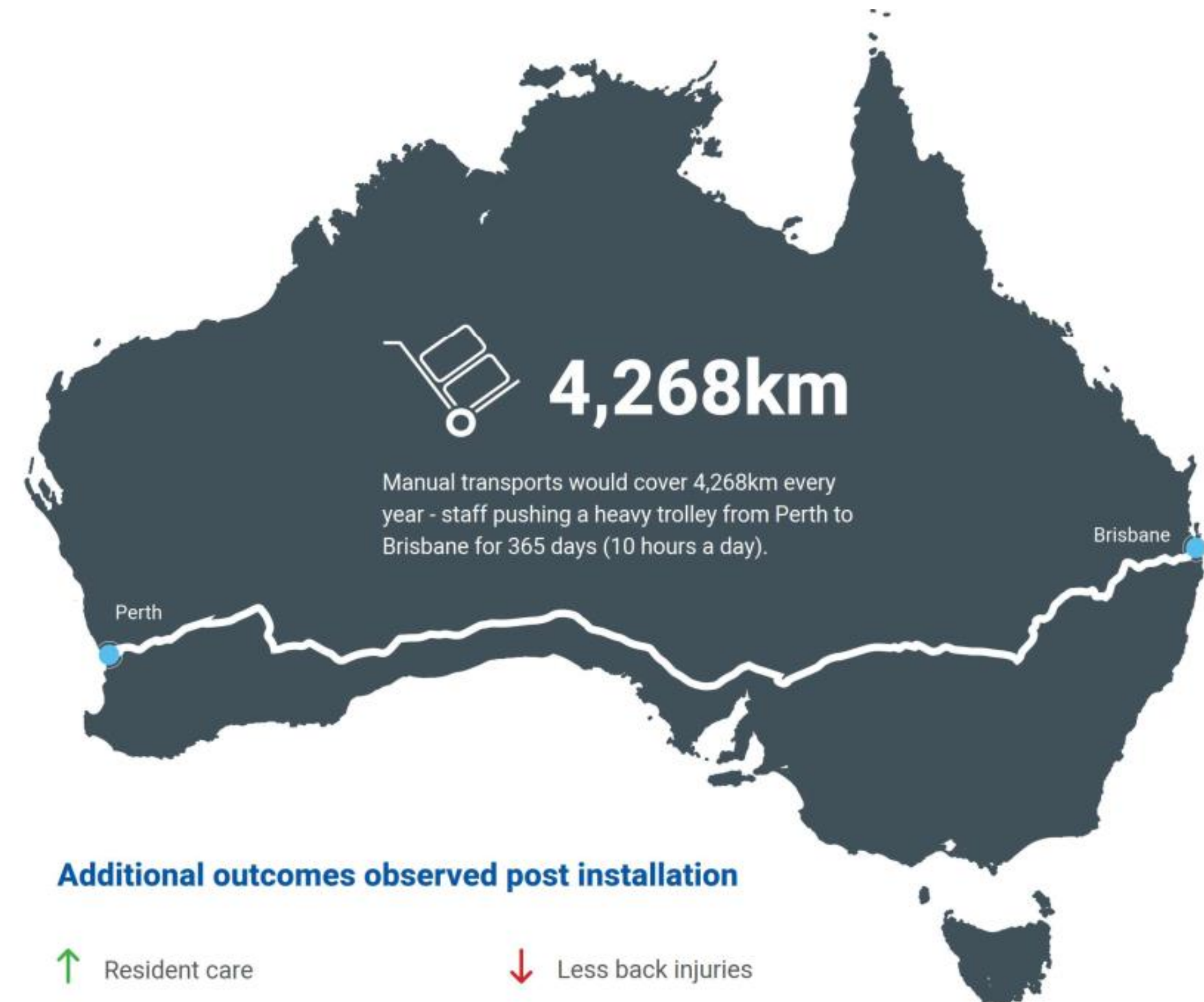
Distances on average staff push trolleys

Savings per
resident, per day

\$2.89

Annual savings per
aged care facility*

\$133k

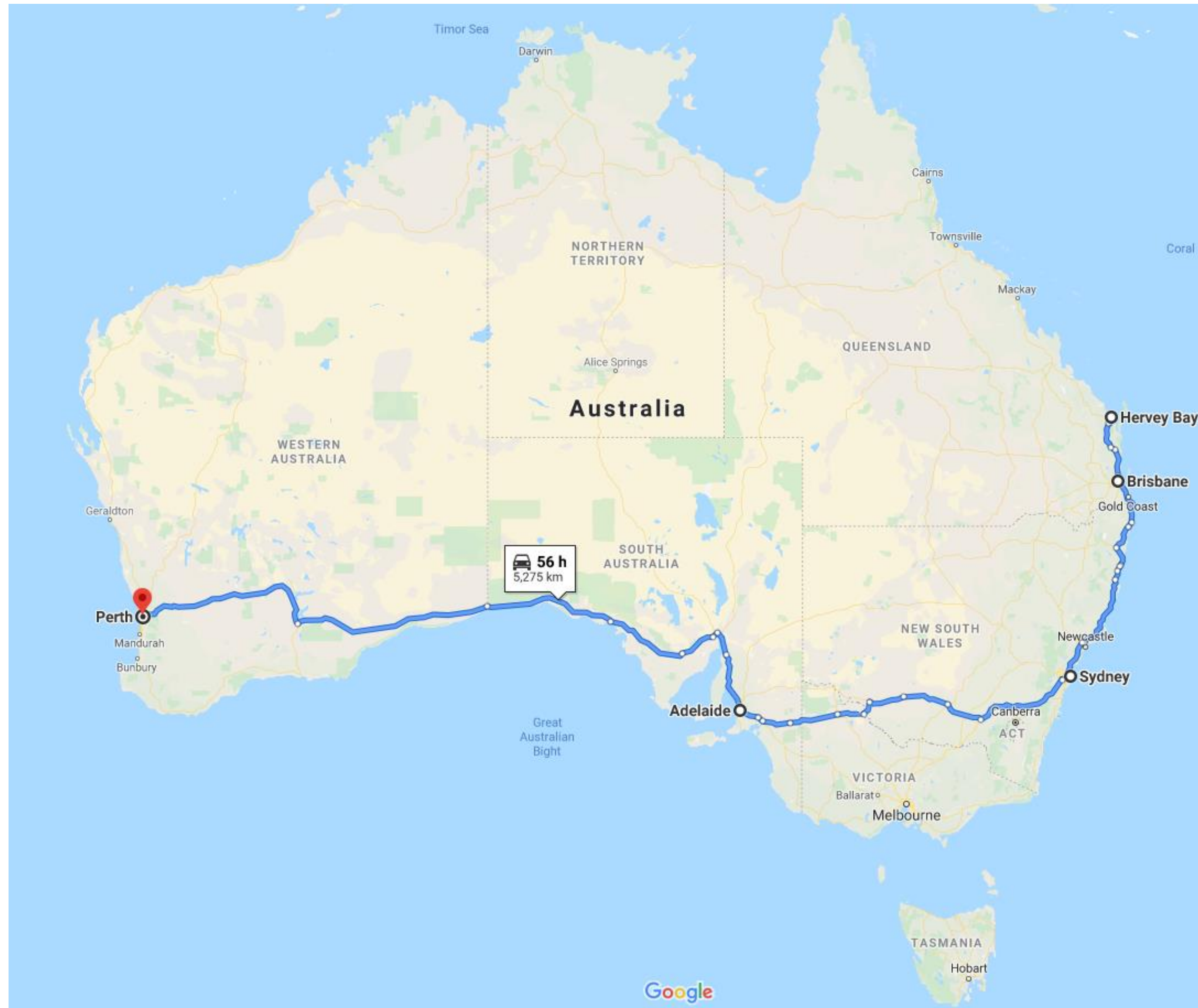


Additional outcomes observed post installation

- | | |
|-----------------------------------|----------------------------|
| ↑ Resident care | ↓ Less back injuries |
| ↑ Resident safety and supervision | ↑ Meal and laundry quality |
| ↓ Collisions with residents | ↓ Damage to walls |

*Average of 127 beds, 87 trips/day and saving \$133,624 in staff time (average based on 37 Australian aged care facilities).
Excludes staff distraction time during transports plus various benefits to residents and staff noted by providers post installation.
(Lamson 2019)

Ozcare Hervey Bay



Installed three robots in 2018

154 residents, 11 serveries

In first 12 months robots took 25,670 transports (60-80% resident capacity)

Removed 5,397klm of heavy trolley pushing

1,984 hours/year put back into care

Approx saving \$2.25/resident/day not including the risk of shoulder/back injuries

Facility XYZ



Future proofing extension to install robots

11,501km every year, equivalent of staff pushing a heavy trolley from Brisbane around Australia and back to Brisbane

16.6hrs 100% pushing trolleys/day from station to station without distractions

\$4.91/resident/day

Review based on a 130-bed aged care facility, nil distraction or “just in case” deliveries



4. Automating trolley transport

Automating Transport

- ✓ Food
- ✓ Clean linen
- ✓ Waste
- ✓ Clothing
- ✓ Dirty linen
- ✓ Supplies/deliveries
- ✓ Luggage
- ✓ Nurse support in wing
- ✓ Pathology
- ✓ Sterile or secure transport
- ✓ Mail/medical records
- ✓ Pharmaceutical goods



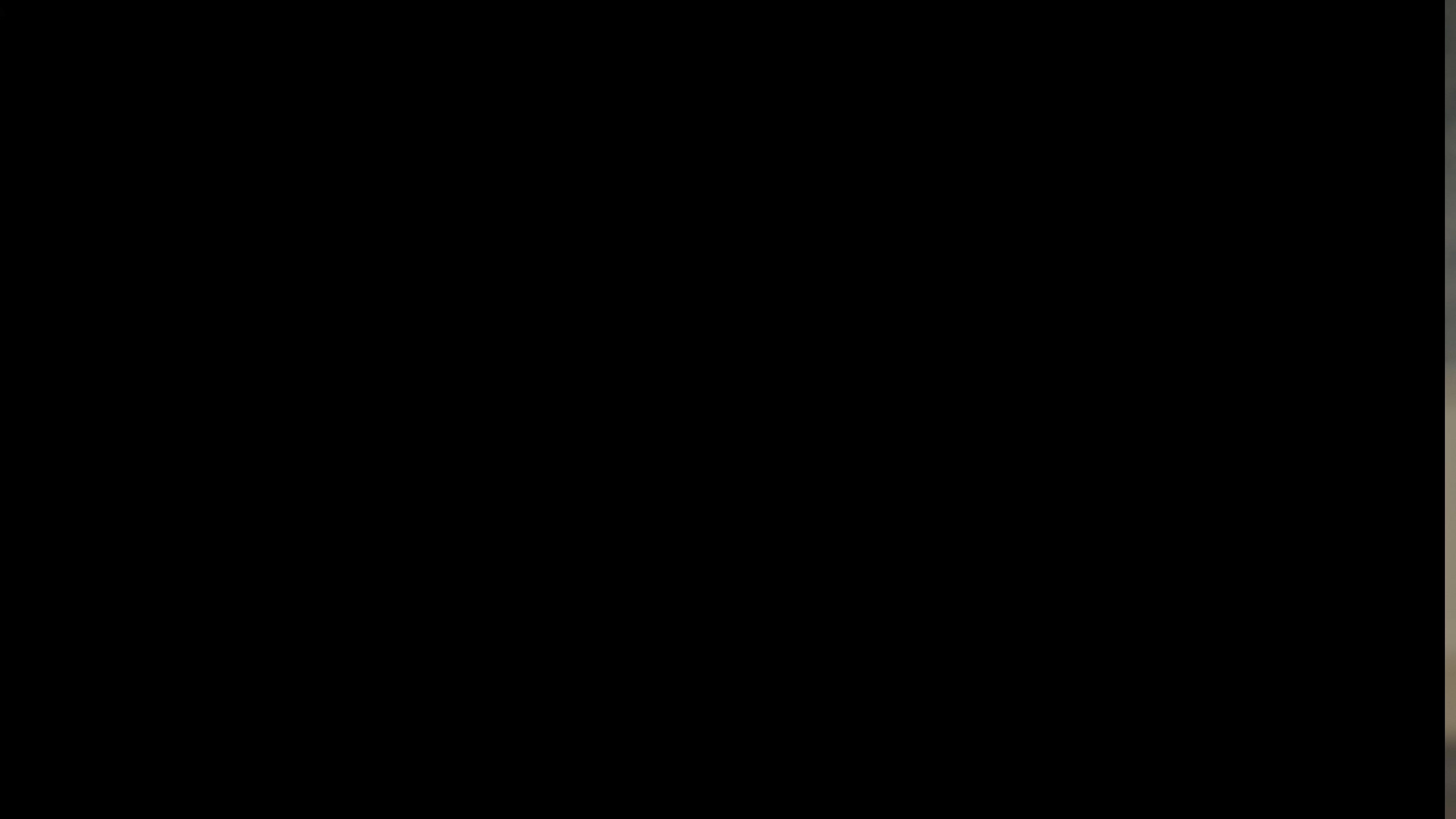
MOVING SUPPLIES FROM ONE PLACE TO THE NEXT

Smaller trolleys



ROBOT TOUR





5. Functionality and design

ABOUT THE ROBOTS

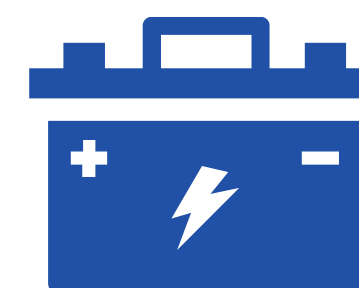
Applications



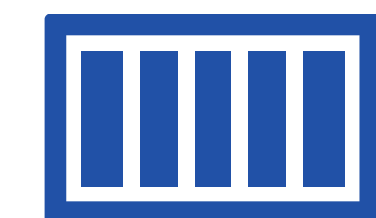
SELF NAVIGATION OBSTACLE
AVOIDANCE



LIDAR SENSORS



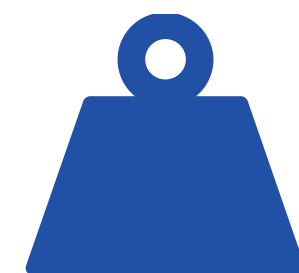
7 YEAR LIFE
13 HOURS RUN-TIME



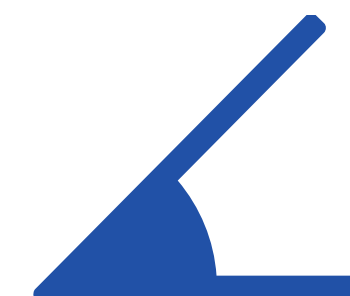
0-100%
3.5 HOURS



UP TO 0.9m/SEC (130 model)
SPEED MOVEMENT



PAYLOAD UP TO 80-100KG
(depending on the flooring)



UP TO 5 DEGREE SLOPE



SAFE TO USE IN ALL
APPLICATIONS



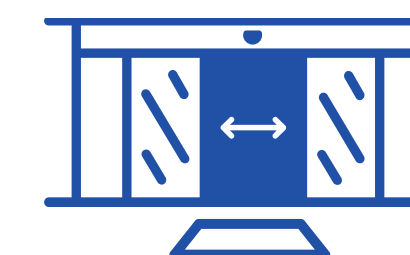
SIMPLE APP CONTROL



PHONE SYSTEMS COMPATIBLE



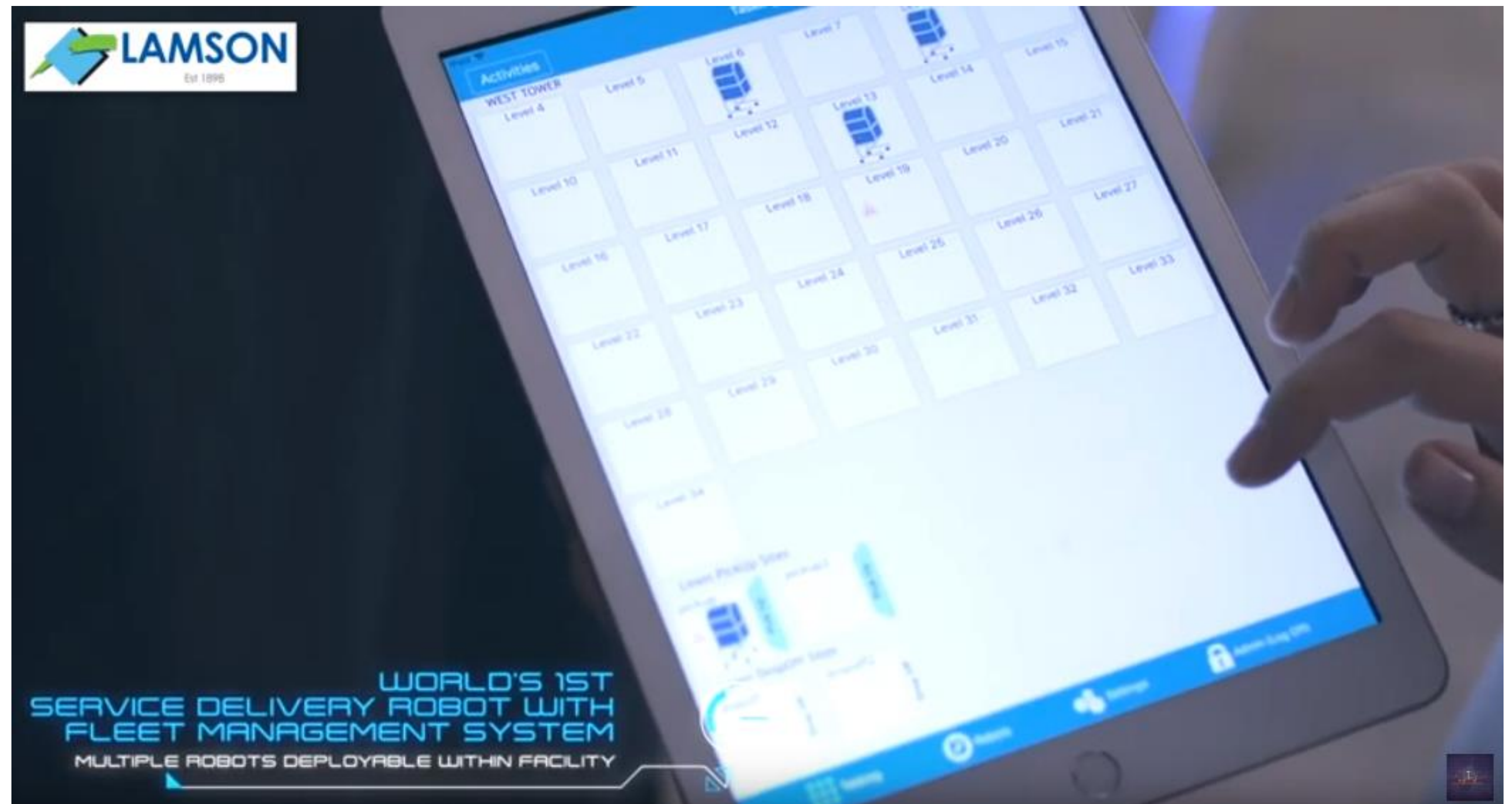
LIFT COMPATIBLE



AUTO-DOOR COMPATIBLE

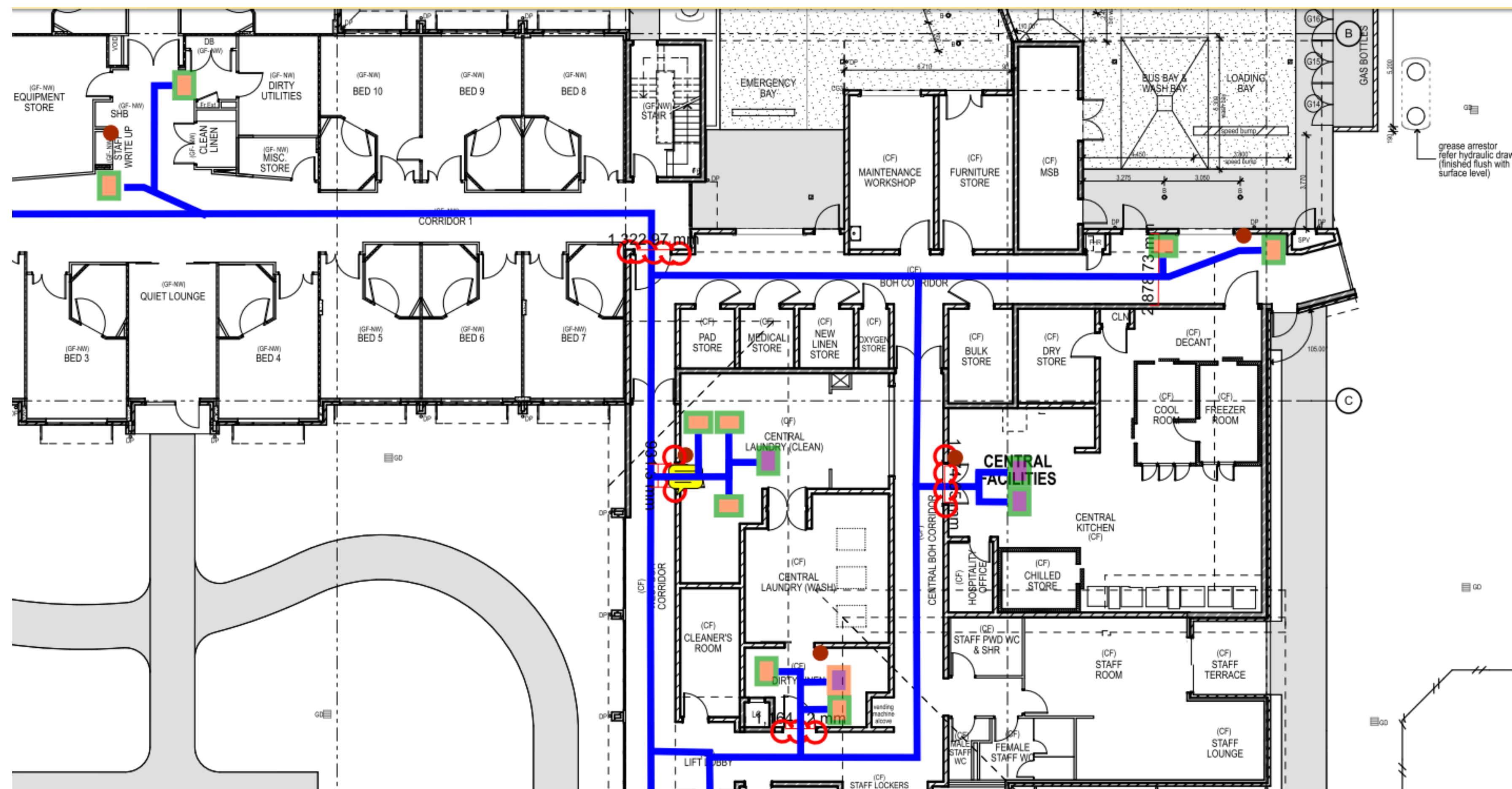
ABOUT THE APP

The app



ABOUT THE ROBOT

Stations & Routes



ABOUT THE ROBOT

Trolley sending schedule for staff

Trolley Sending Schedule and Staff Responsibilities

Kitchen trolley sending order Daintree, Tamborine, Maleny, Glasshouse 1, Glasshouse 2

Laundry trolley sending order Daintree 1, Daintree 2, Tamborine 1, Tamborine 2, Maleny 1, Maleny 2, Glasshouse 1, Glasshouse 2.



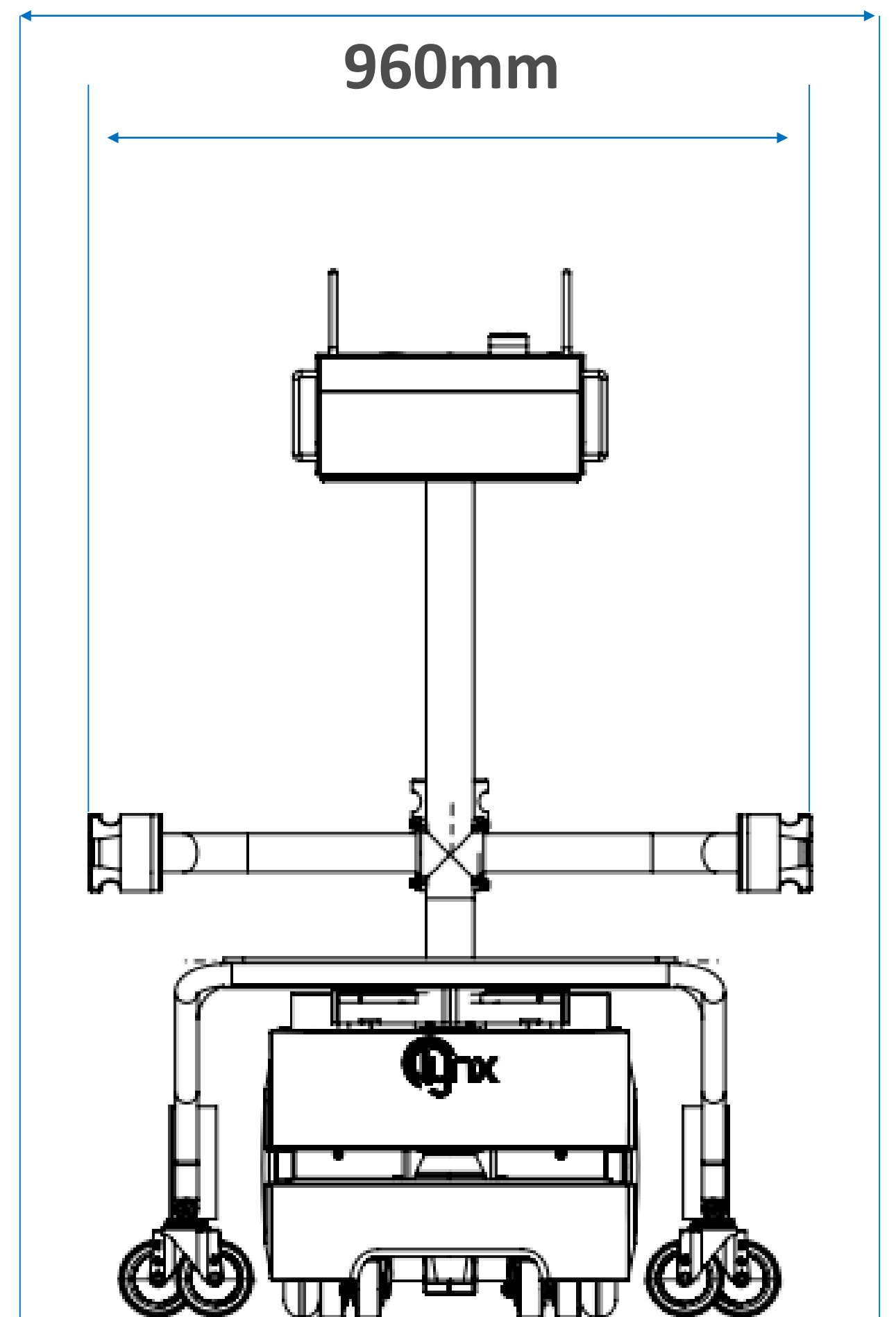
Night staff	Laundry	Kitchen	Morning Staff	Evening Shift	Maintenance
6am to 7am	Maleny & Daintree send waste to stations 1 & 2 back of house. Daintree, Tamborine & Maleny send dirty linen to dirty laundry stations 1,2,3				Daintree, Tamborine and Maleny
	Springbrook to check all laundry and waste trolleys have been processed in back of house, clear iPad's and send trolleys back to the wings they came from.				Springbrook
7am to 7.30am	Clear blue icons from iPad and move three dirty linen trolleys to washing machine area. Send first 2 clean linen trolleys order below, as the empty is returned refill with linen, place new wing tag on and send back to next wing				Laundry
7:45am to 9am	Food delivery run – robots are not to be used for anything except food delivery. Kitchen send to wings in order as per below Meal trolleys returned to kitchen before 9am				Kitchen
9am to 11:30am	All wings to send back partially empty linen trolleys ASAP				All care staff
	Laundry team continue sending full flat linen trolleys to each wing as per order below. Plus send Daintree 1 & 2 clothing trolleys to wings. During build-up of laundry hours, send other trolleys from below during this time slot				Laundry
11:45am to 1pm	Food delivery – robots are not to be used for anything except food during this time slot. Send as per order below.				Kitchen
1pm to 2pm	Laundry send remaining personal clothing in the order below. Laundry to send uniforms to level 1 staff foyer.				Laundry
	Daintree 1 & 2 to return personal clothing trolleys from early deliveries, ? in resident care +++ toileting times				Daintree care staff
2pm to 3pm	Tamborine 1 & 2, plus Maleny 1 & 2 return all personal clothing trolleys to laundry				Tamborine and Maleny care staff
	Laundry clear personal clothing stations before going home				Laundry
3pm to 4pm	Send all waste trolleys to stations 1 & 2 on ground floor back of house				All care staff
	Maintenance monitor area as they arrive, clear iPad, empty waste and send trolleys back to those wings				Maintenance

ABOUT THE ROBOT

Being future Ready

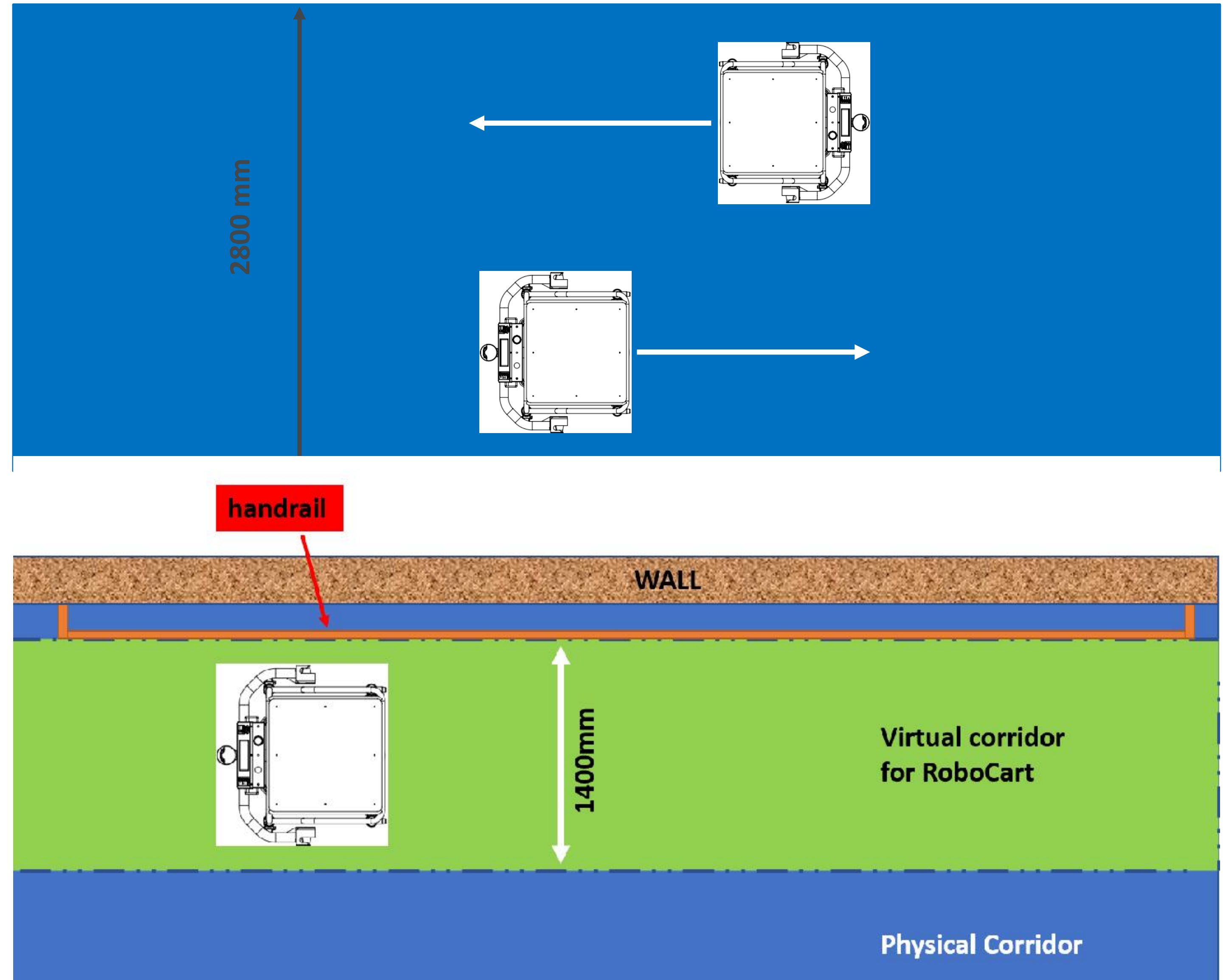
- Architect and designer recommendations cover corridor and door widths, station sizes to be kept clear
- Specifications cover Wi-Fi, lift, door controllers, charging station, trolley suggested styles, iPad and brackets

Ideal door clearance = 1300mm



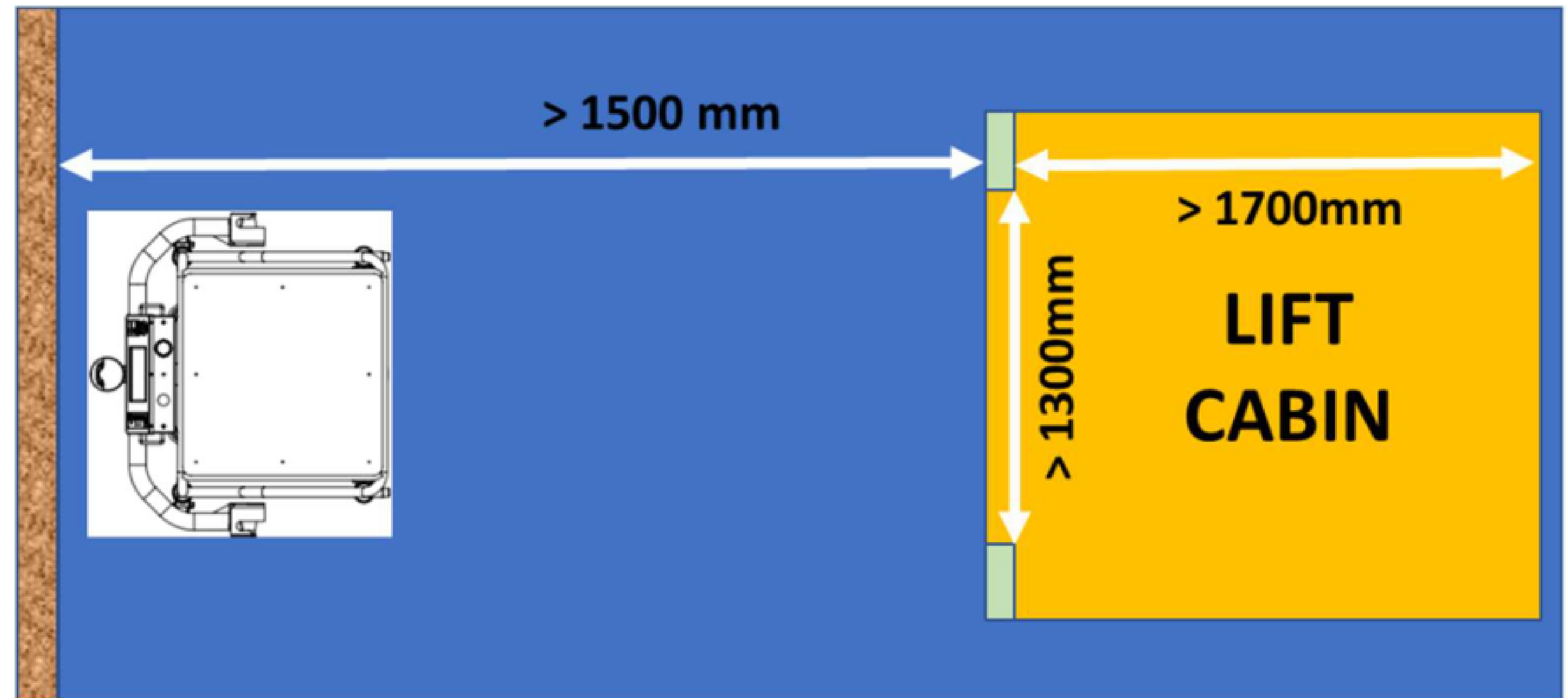
ABOUT THE ROBOT

**Min. corridor
width & min.
2 lanes or
bypass**



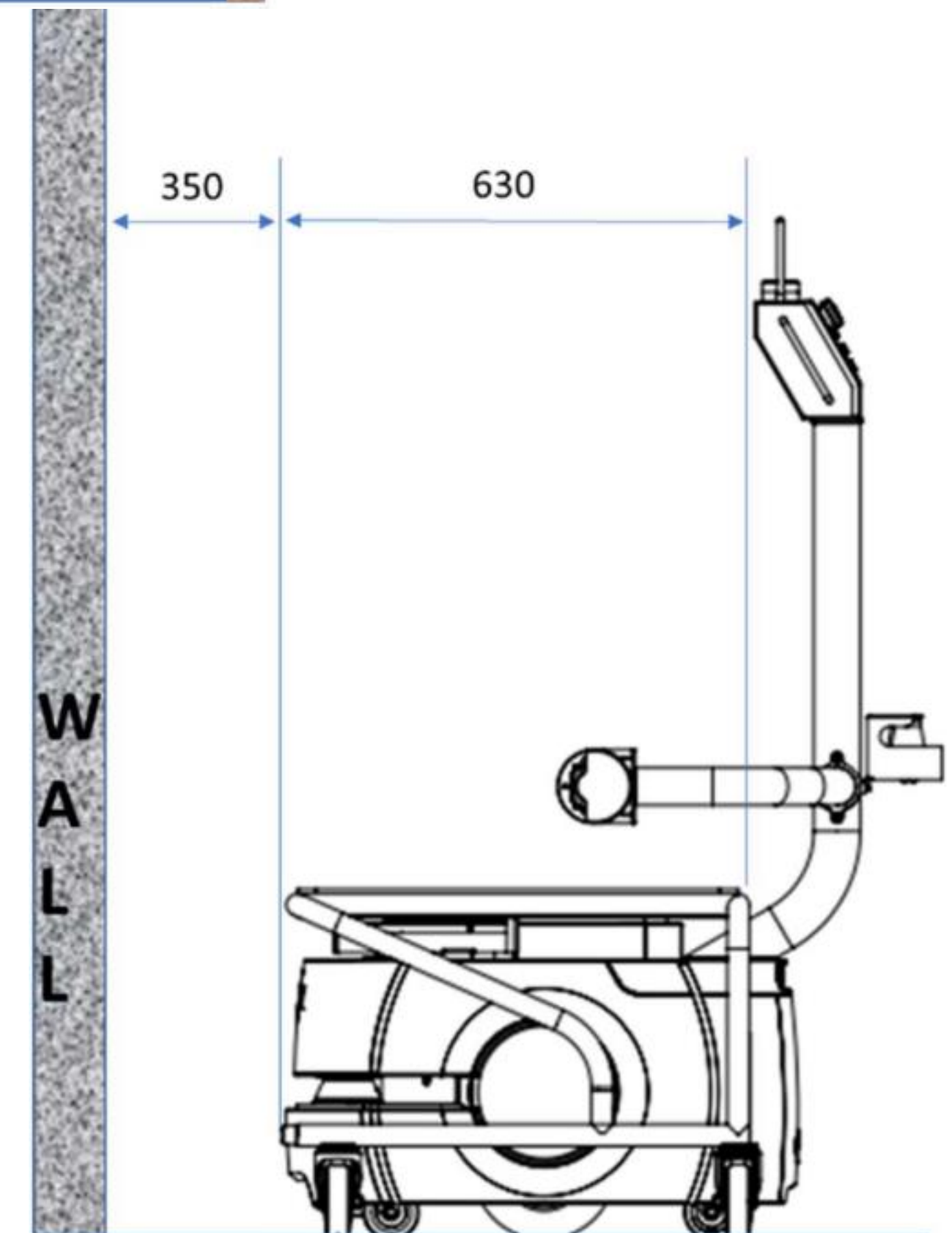
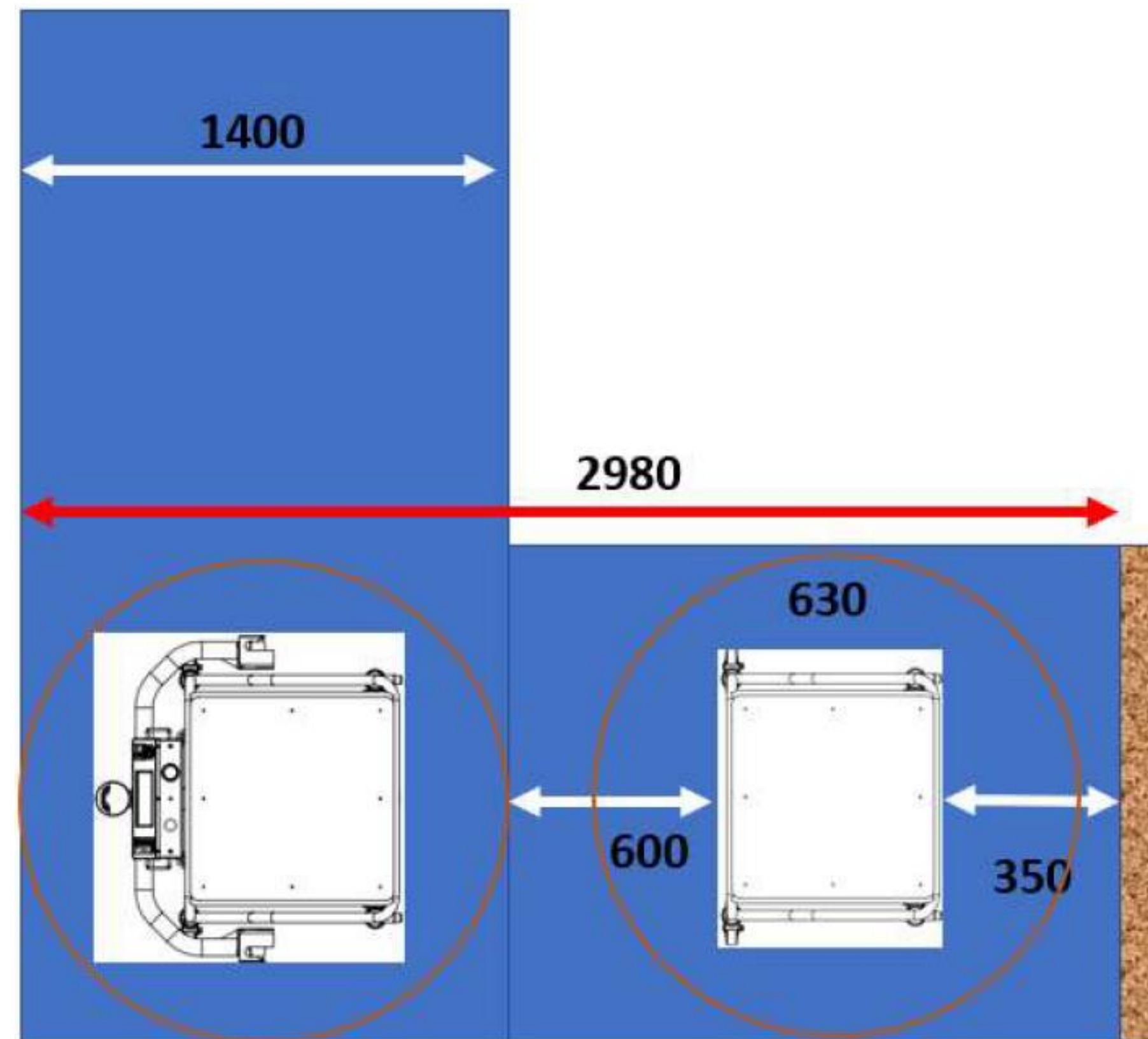
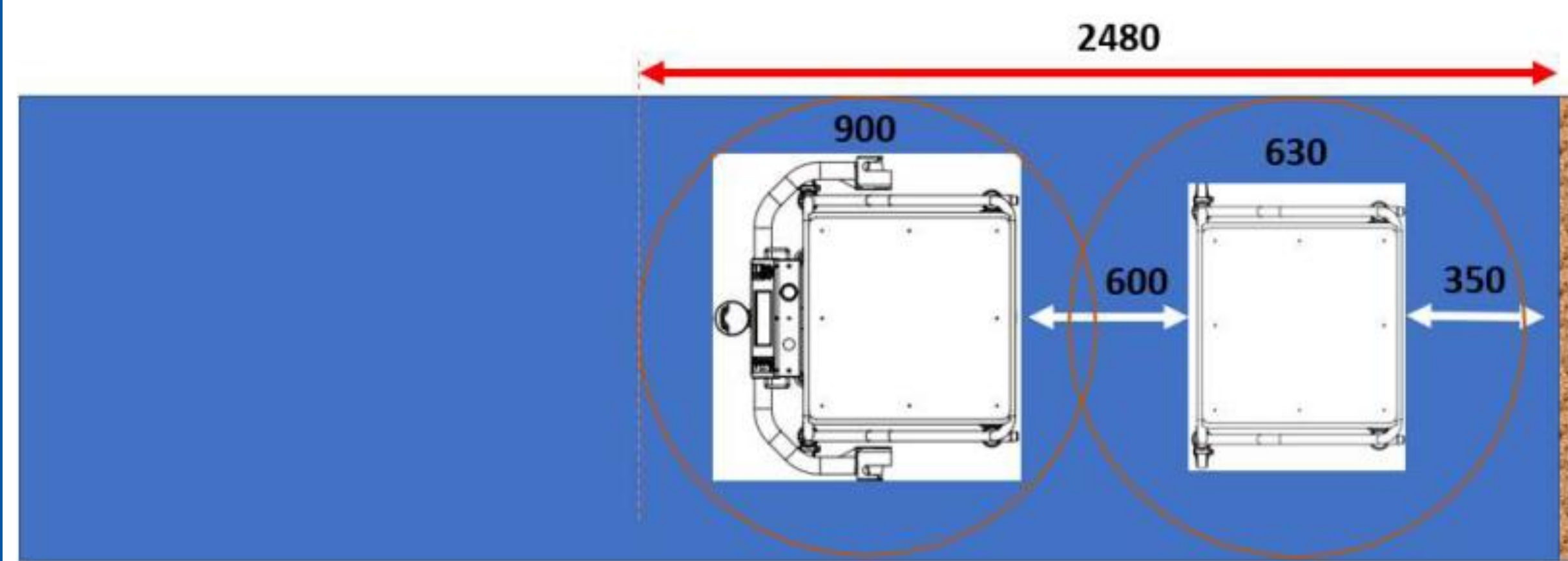
ABOUT THE ROBOT

Lift cabin and foyer



ABOUT THE ROBOT

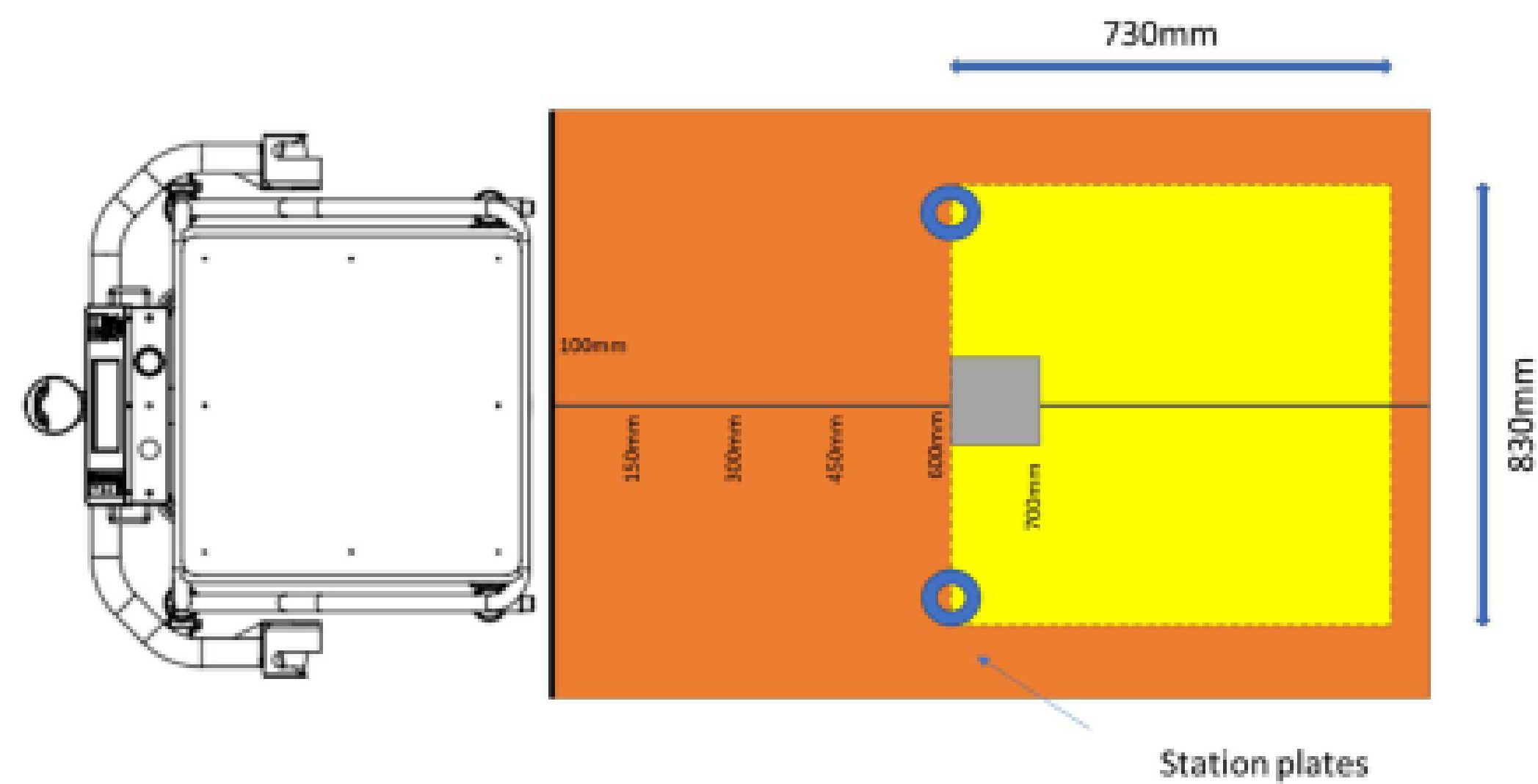
Distances for pick up / drop off



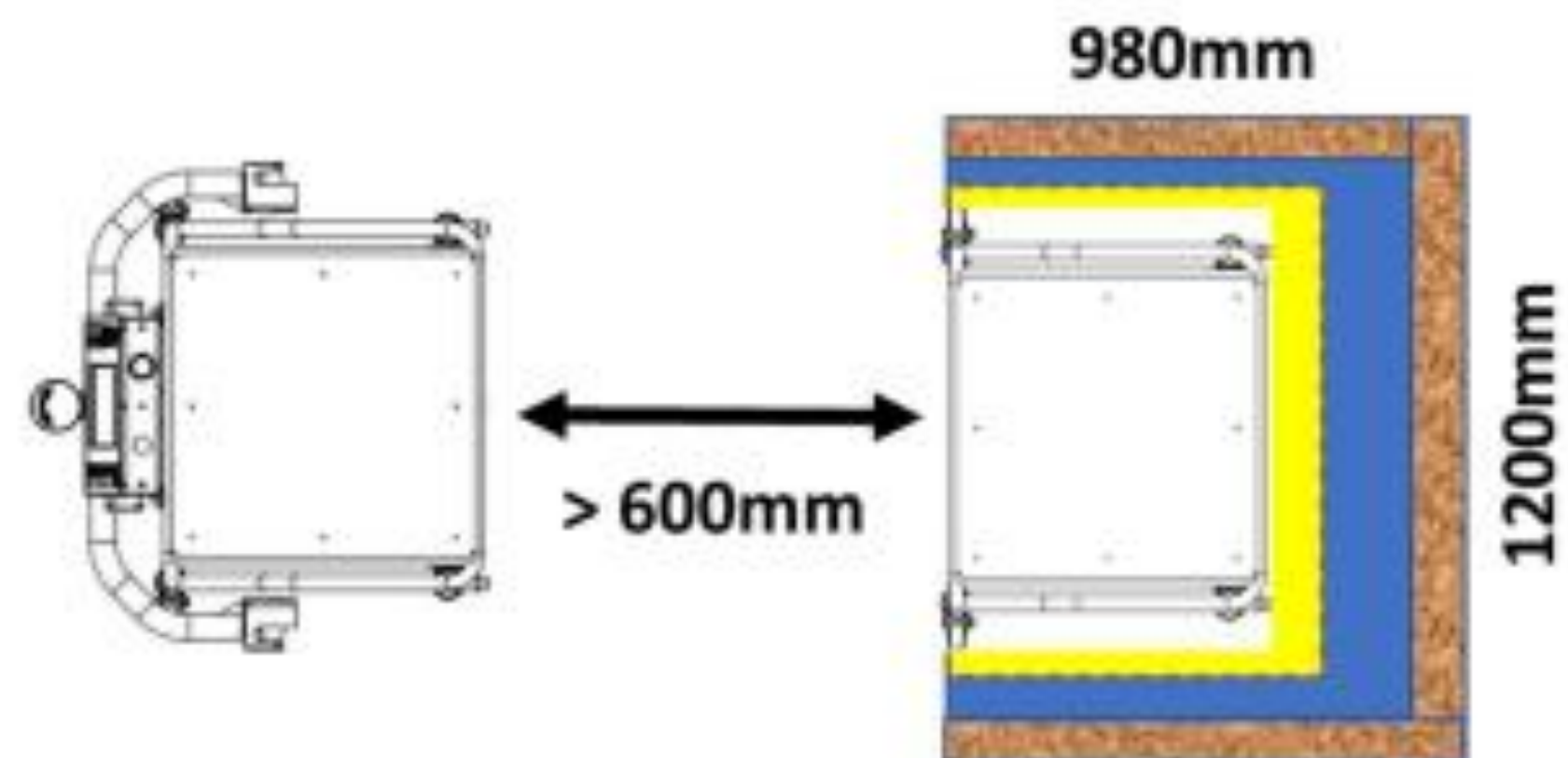
ABOUT THE ROBOT

Station Sizes

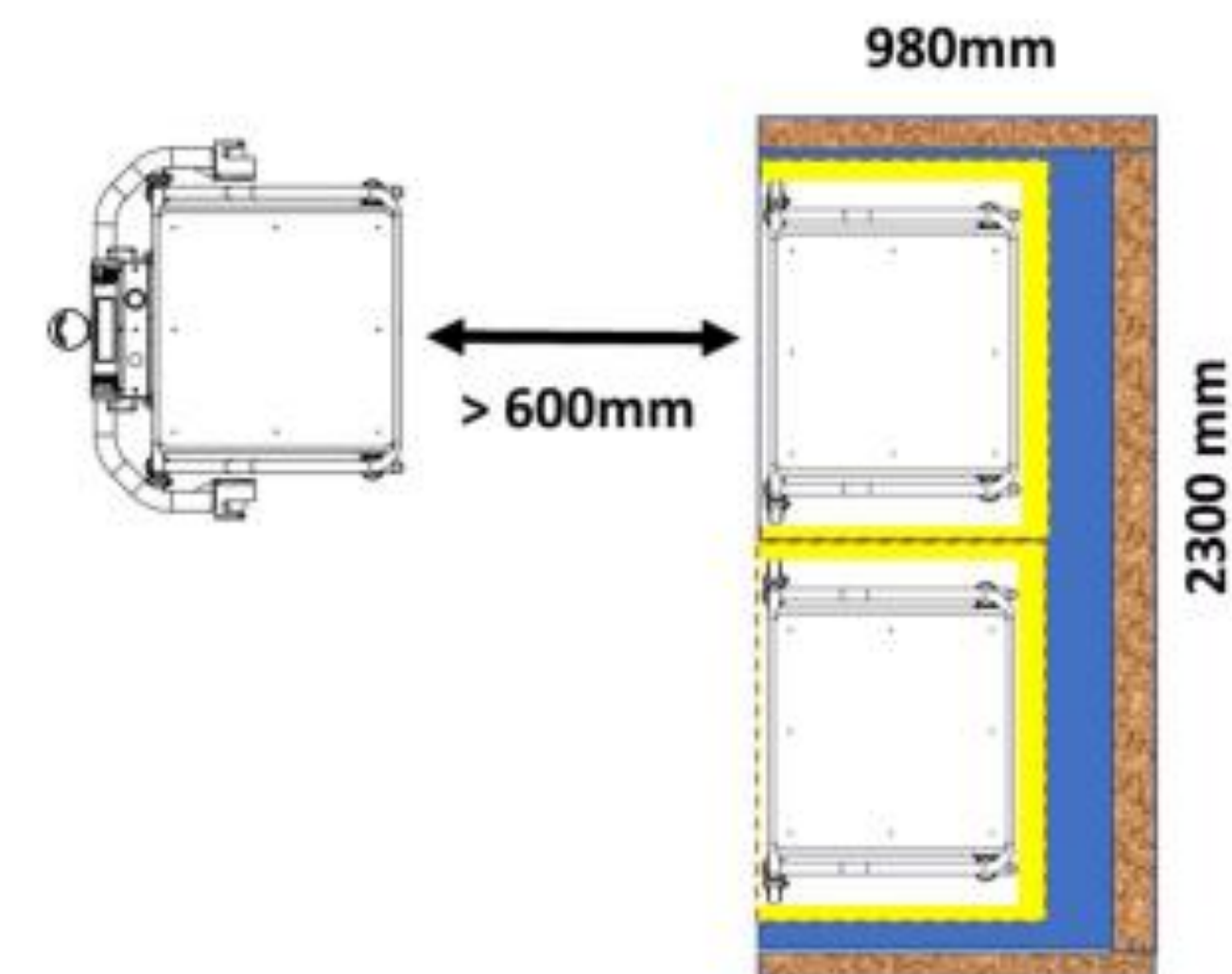
Sending station



Single station in a niche

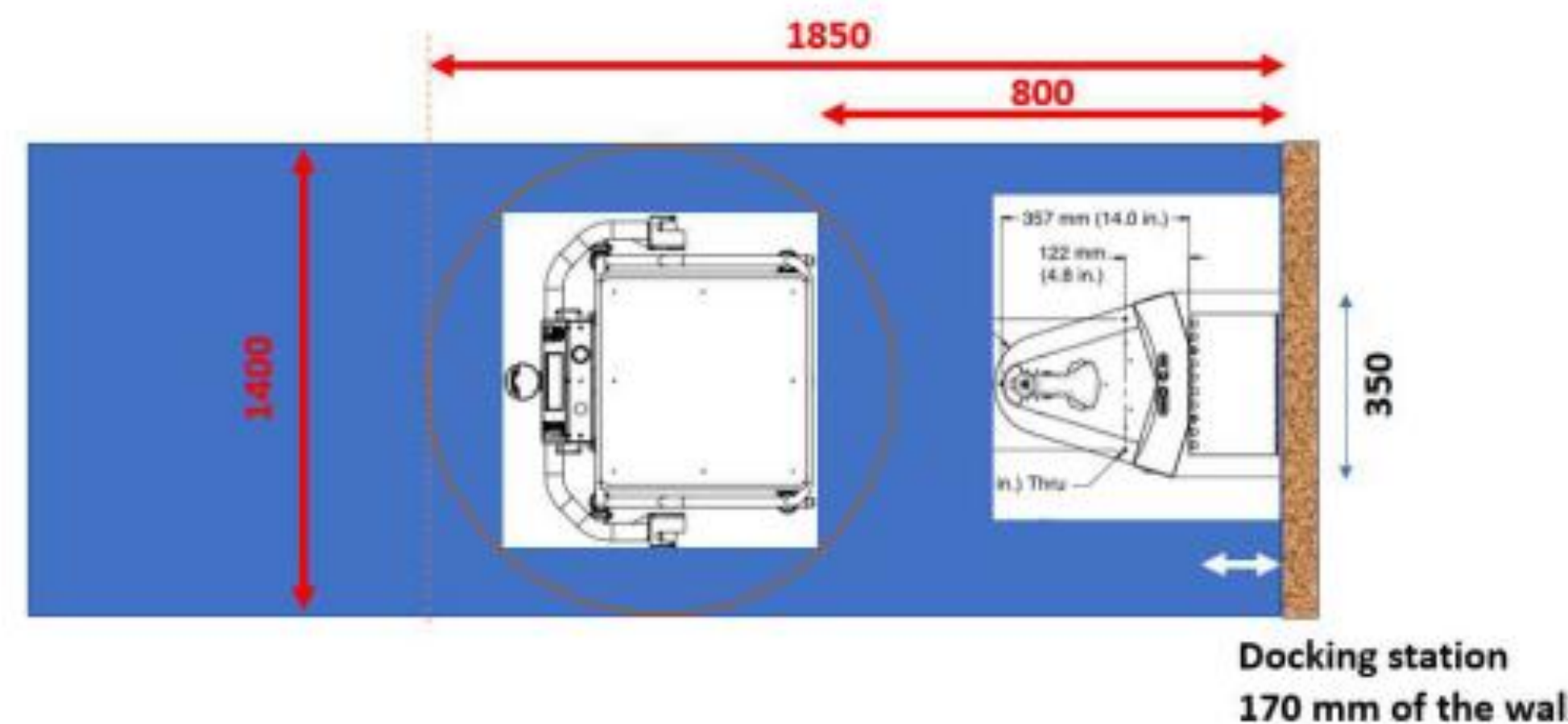


Double station in a niche

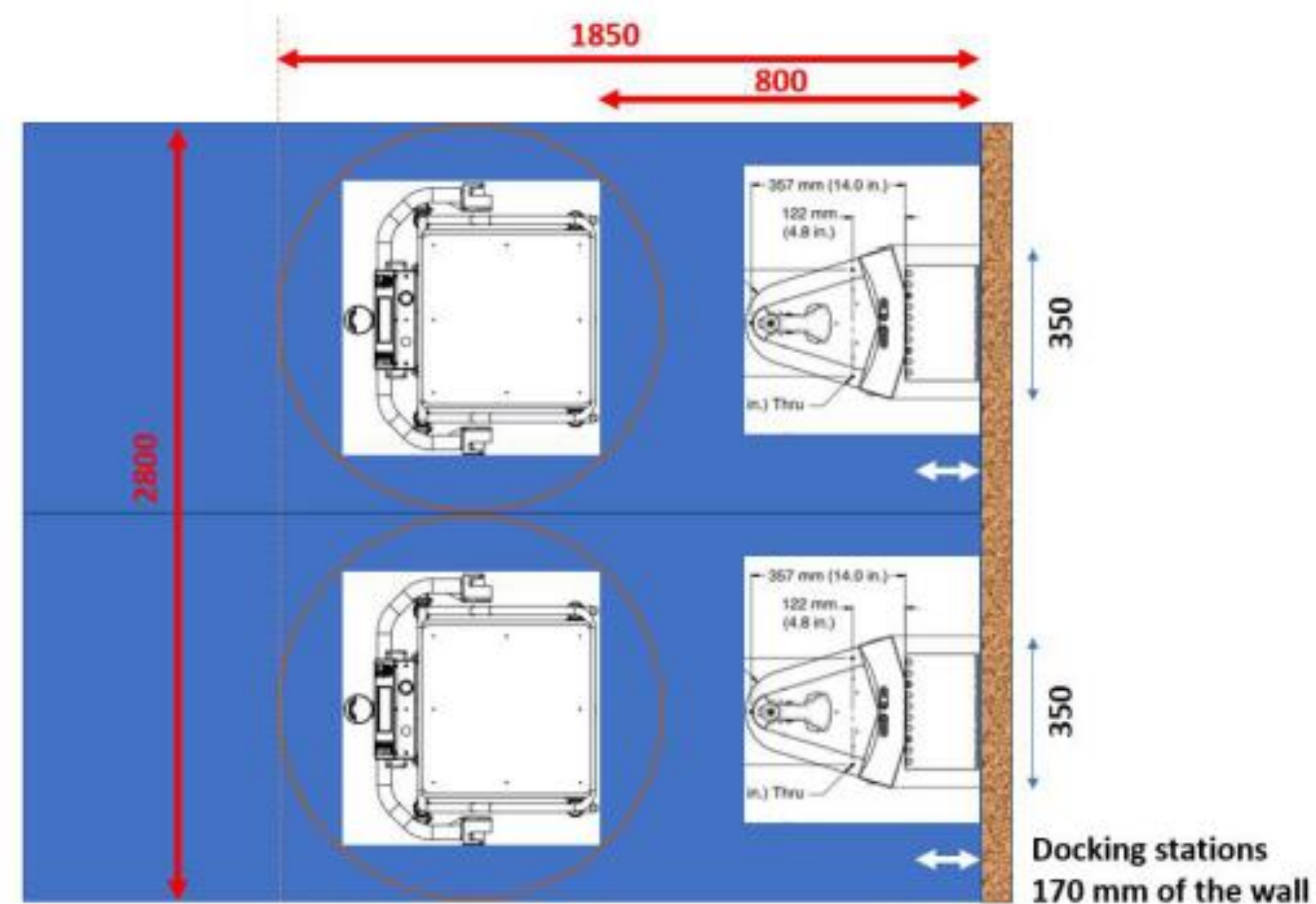


ABOUT THE ROBOT

Docking stations



b. Multiple



6. Robots supporting the standards

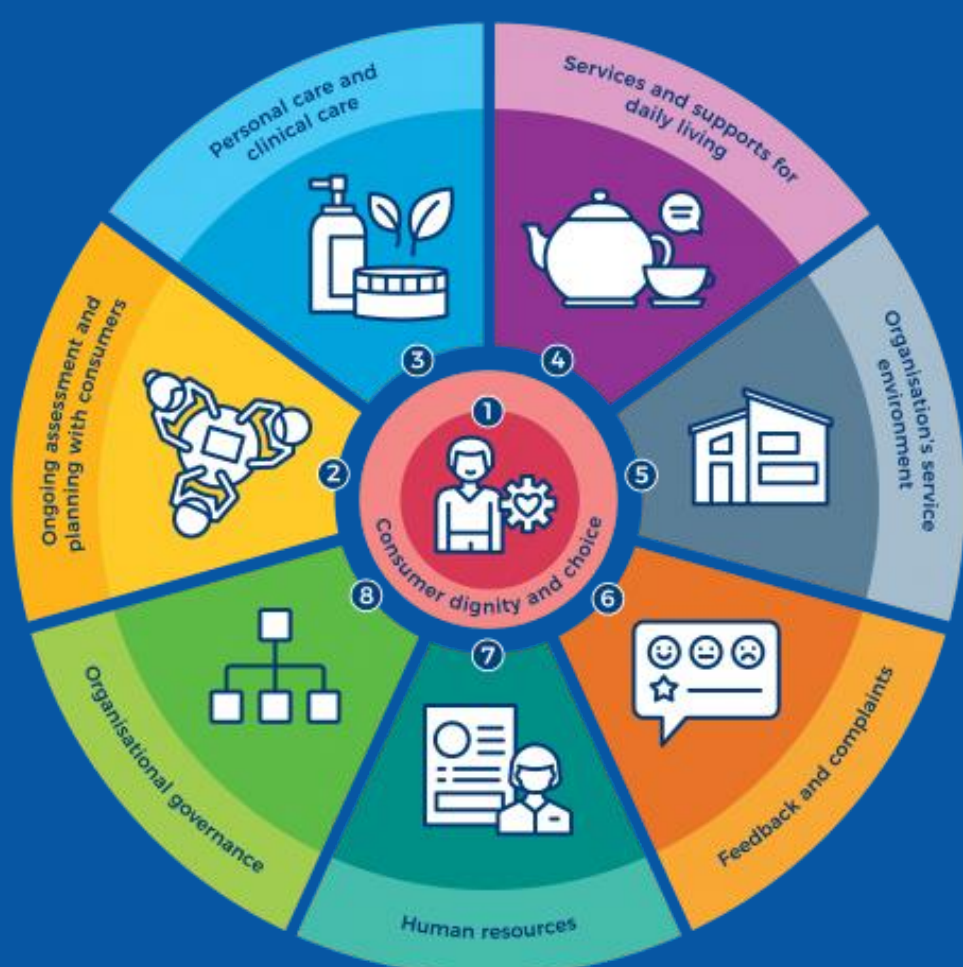
ABOUT THE ROBOT

Impact on resident choice, environment & safety

- Greater resident safety with laser guided transport compared to human manual handling
- Staff no longer leave the wing for supplies
- Staff stay in kitchen / laundry - spending more time preparing quality food, tailored meals or managing laundry
- Allow for daily returns of personal clothing
- Reduced noise in the home with smaller robot compatible trolleys
- Reduces damage to décor
- Less smell in the corridors near pan rooms with more frequent removal of waste and soiled linen
- Reduce infection control as staff no longer touch lift buttons, handles, rails etc

BACKING YOUR STAFF

With the tools they need to meet the standards



Quality Improvements

	4	5	6	7	8
Staff have more time with residents to deliver care	✓	✓	✓	✓	✓
Improvement in resident safety and supervision			6d		
Improved meal quality	4.3f		6d		
Enhanced laundry services	4.3f		6d		
Increases frequency of waste/dirty linen removal		5.3b(i)			
Reduces the size / noise of trolleys		5.3c			
Eradicates unsightly damage to walls		5.3b(i)			
Resident choice / positive feedback			6d		
Reduces risk of infection - less touch points (doors, handles, railings and lift controls)		5.3b(ii) 5.3c			
Laser guidance reduces risk of trolleys colliding with residents Reduces the risk of resident injury		5.3b(ii) 5.3c			
Safe equipment - high quality robots & local support		5.3b(ii) 5.3c			
Fun and innovative environment for residents/families		5.3b(ii) 5.3c			
Workforce efficiencies – remove menial jobs				7.2 & 3(d)	
Reduction in staff injuries				7.2 & 3(d)	
Innovative organisation					8.1 & 8.3(c&d)
Effective risk management system					8.1 & 8.3(c&d)

7. Staff and resident feedback

ABOUT

Staff Feedback


- The robots are amazing – people are amazed when they see them”
- “The robots are way safer for the residents. I can’t see in front of the trolleys so it is much safer”
- “I am not so tired when I go home after my shift
- “I have more time to sit with residents, to find out what they really need”



ABOUT

Resident Feedback

- “Feel happy when I see them”
- “People say that robots take jobs, but not really. They give staff more time to do other things and they don’t replace staff.”
- “They create jobs actually, as you need people to make them, program and monitor them, I admire Prins Willem’s initiative to install robots, they are people who are looking into the future and not looking into the past”.
- “I take allot of photos of them and send them onto friends”.



“I really enjoy the robots. They can do everything without any trouble. When I see them spending money on robots I feel like I’m getting my money’s worth.”

– Betty (resident)





What's next

What automation do you need?

1. Review all menial & tasks performed in your facility
2. Review impacts on residents and staff
 - Hours you can free up for more resident care
 - Hours staff are at risk of injury
3. Plan for future automating these tasks in new builds and existing facilities

Think outside the square....so your staff can save time, change residents' lives and provide more care for your residents



