

### **Project Title**

Streamline Work Processes within Main Building Operating Theatre Sterile Supply Unit RIE

### **Project Lead and Members**

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### **Organisation(s) Involved**

National University Hospital

### **Project Category**

Process Improvement, Productivity

### **Keywords**

Process Improvement, Productivity, Workflow Streamlining, Role Redesign, Technology, Robotics & Automation, Operating Theatre, Sterile Supply Unit, Surgical Instruments, Sterilisation, Decontamination, Lean Management Methodology, Manhour Savings, Time Savings, Cost Savings, Resource Allocation, National University Hospital, Rapid Improvement Event, Value Stream Mapping, Waste Elimination, Ideal State, Breaking Paradigm, PICK Chart

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# Streamline Work Processes within Main Building Operating Theatre Sterile Supply Unit RIE

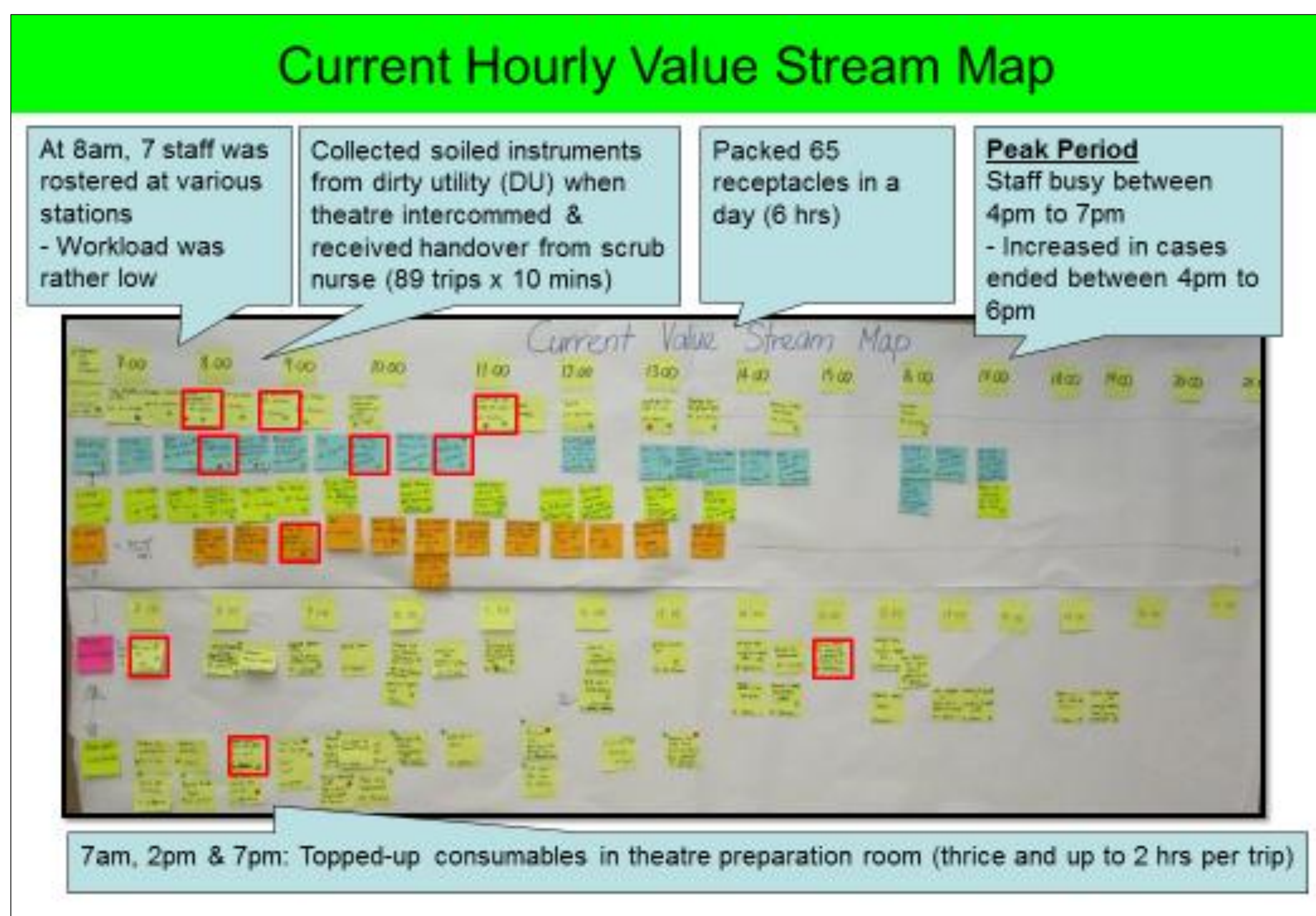
## 1. Background

Main Building Operating Theatre Sterile Supply Unit (MBOT TSSU) sterilizes about 1390 sets of instruments per month. They perform the vital task of cleaning and sterilizing soiled surgical instruments in the operating theatre. A team of experienced staff were involved in the process from collection of the soiled instruments to entry to sterile machine and finally released to the end users in the theatres

## 2. Objectives

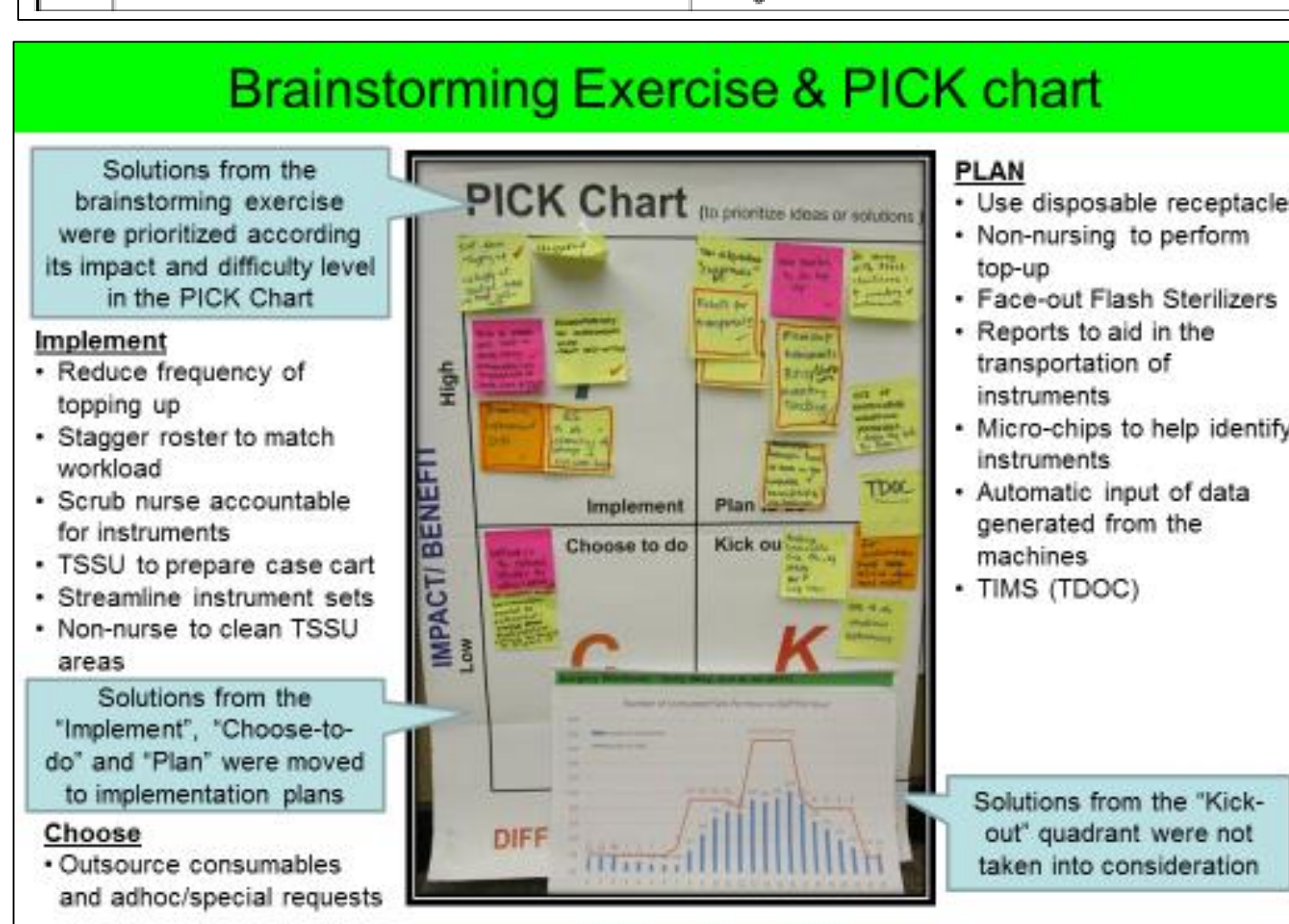
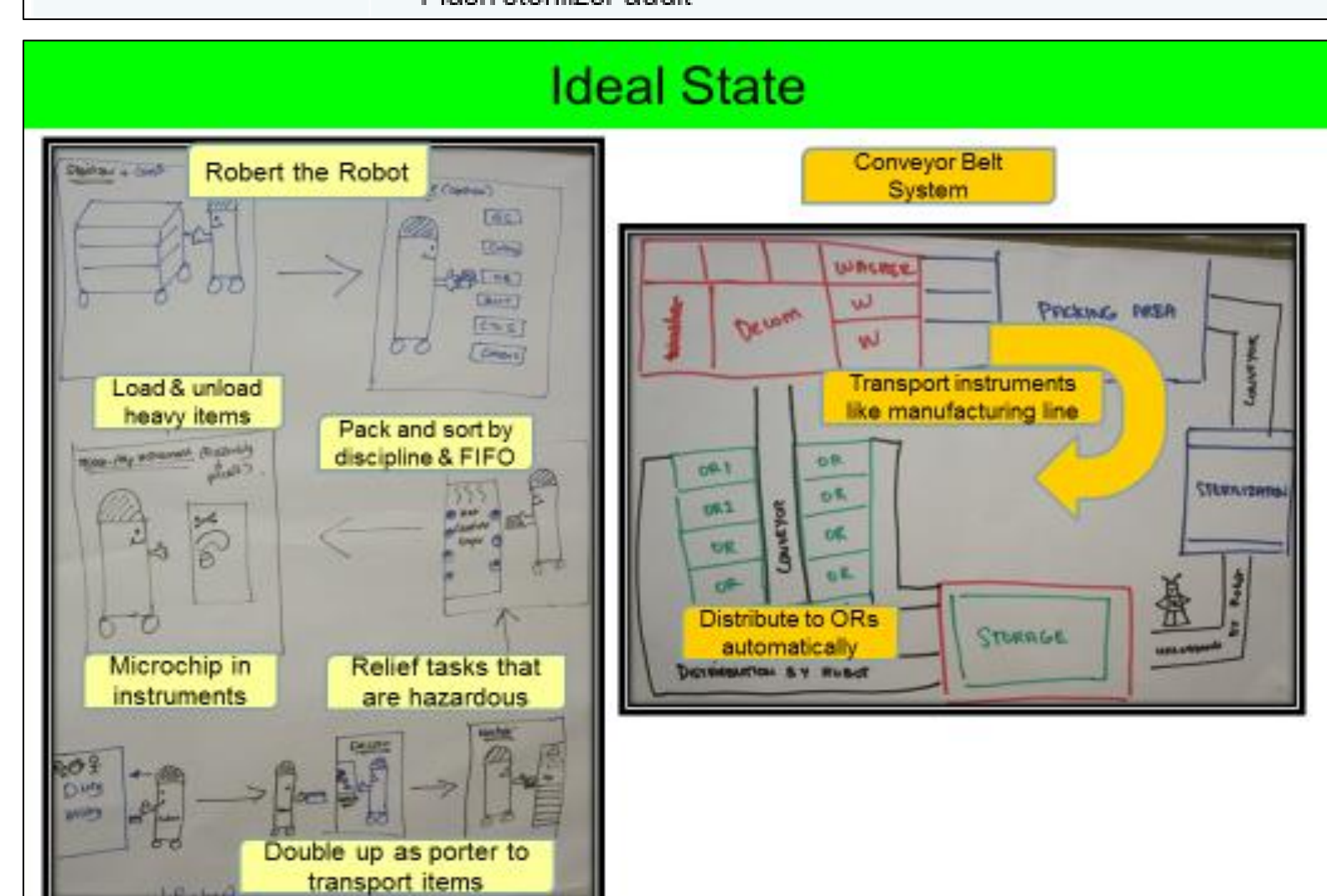
1. Identify MBOT TSSU work processes that can be streamlined and or automated
2. Augment the utilization of resources involved in the process (which include efficient use of human resources)
3. Explore role redesign

## 3. Problem Solving Tools



8 Wastes	
DOWNTIME	Description
Defects Rework	• Changed colour code stickers on instruments
Overproduction	• Topped up consumables thrice a day
Waiting	• Waited for scrub nurse to call
Not Using Staff Talent	• Sterilized sanitary pad • Packed receptacles
Transportation	• Transported sterile gowns from MMD
Inventory	• Topped up gowns for each OT
Motion	• Decontamination staff walked to DU to collect soiled instrument
Excessive Processing	• Hand-over of instruments by scrub nurse to decontamination staff • Process on special consumables such as Harrington gauze, Cardio Red Rubber, Tubing with silk and Pledgets • Flash sterilizer audit

Breaking Paradigms		
S/N	Paradigms	Shift?
1	Why can't scrub nurse complete the checking of soiled instruments independently so that handover over to Decontamination staff is not required?	Yes Establish guidelines for scrub nurses and Decontamination staff to track compliance
2	Why can't we outsource special consumables such as Harrington swabs, green background, rubber (red), silicon tubing, sanitary pad, ear pad, pledget, plastic bag, etc?	Yes Explore with vendors on these special consumables
3	Why can't we streamline instrument sets?	Yes Start to streamline sets for some disciplines and roll out in phases
4	Why can't we remove colour coding of instruments?	Yes The removal of colour coding is already work-in-progress
5	Why can't we cut down on manual documentation?	Yes The development of Theatre Instrument Tracking System (TIMS) is already in the pipeline and estimated to start in 2019
6	Why can't we have robots to top up consumables?	Yes Explore using robot in future In the short run, convert nursing staff to non-nursing staff to perform the topping up of consumables
7	Why can't we use disposable receptacles?	Yes Evaluate on the use of disposable receptacles and change it in 2018



## 4. Key Changes & Benefits

Current	Future	Benefits
<ul style="list-style-type: none"> <li>• Decontamination staff counted instruments with scrub nurse at DU and performed handover of instrument sets</li> <li>• 89 Trips/ day (10 min per trip)</li> </ul>	<ul style="list-style-type: none"> <li>• Scrub nurse to prepare completed soiled instrument sets and leave it in DU.</li> <li>• They will no longer have to wait for TSSU staff to arrive</li> <li>• Automated collection process</li> </ul>	<ul style="list-style-type: none"> <li>• Potential man-hour saved is 10 mins per trip (about 15 hrs)</li> </ul>
<ul style="list-style-type: none"> <li>• Nurses had to top up consumables thrice a day at 7am, 2pm &amp; 7pm</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce top up frequency from thrice to twice</li> </ul>	<ul style="list-style-type: none"> <li>• Potential man-hour saved is 4 hrs daily</li> </ul>
<ul style="list-style-type: none"> <li>• OR nurse prepare surgery case cart</li> </ul>	<ul style="list-style-type: none"> <li>• TSSU staff prepare case cart</li> </ul>	<ul style="list-style-type: none"> <li>• More direct patient care time for scrub nurses</li> </ul>
<ul style="list-style-type: none"> <li>• Minimum 16 staff to fulfill the workload in a 14 hours shift (7am to 9pm)</li> <li>• Staff roster unsystematic</li> </ul>	<ul style="list-style-type: none"> <li>• Match staff roster to workload</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced from 16 staff to 14 staff</li> <li>• Convert nursing staff to technicians</li> </ul>

## 5. Results

The sterilisation process was streamlined from collection of soiled instruments to distribution of sterile instruments

Initial State (per day)	Post 6 months	Percentage Reduction
92 hours	87 hours	▼ 5%, 5 hours (0.56 headcount)

TSSU department relieved their nursing staff to clinical areas and injected non-nursing staff to run the operations in TSSU through roles redesign. There was a significant reduction in the manpower cost

Initial State (Annual FY 16)	Post 6 months	Percentage Reduction
\$1,362,230	\$1,105,374	▼ 19%, \$256,856 (5 headcounts)

## 6. Conclusion

The streamlined and standardized tasks in TSSU augmented the utilization of resources, allowing the team to explore more efficient use of human resources through roles redesign.