Singapore Healthcare Management 2024

Automate the Pain Away

Automating ED Doctor's Meal Ordering with Robotic Process Automation (RPA)

Main Authors:
Tian Zhi Hao, Jenny Ng, Stephen Wong, Chan Shi Ming
(Pre-Operative & Admitting Services)

Special Thanks:
1. Tang Ling Hui (Dept of Emergency Medicine)
2. Joleen Khoo, Chia Pei Ling (Food Services)

Sengkang General Hospital
SingHealth

Problem

Current workflow of ordering meals for ED doctor drags on staff productivity and morale.

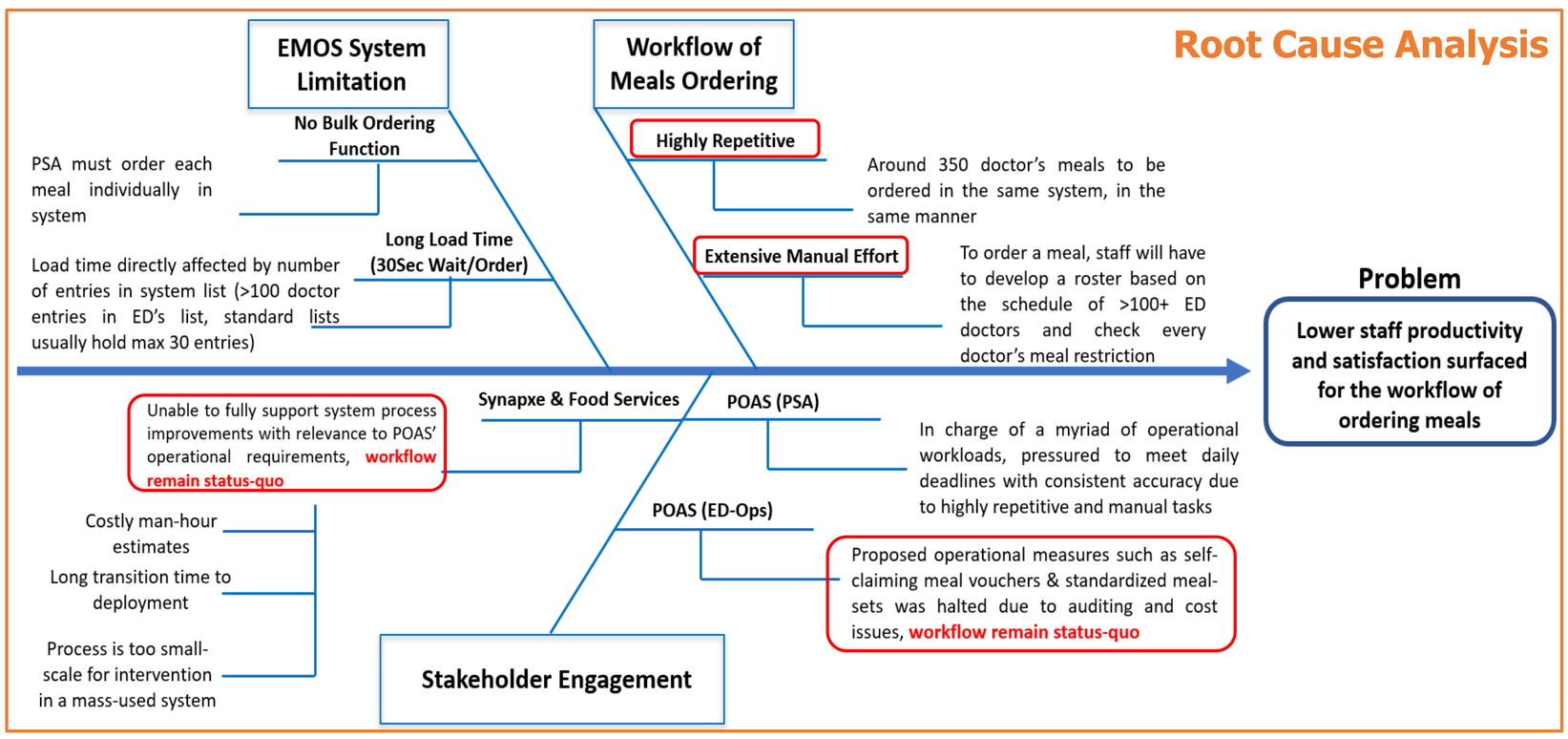
Aims

1.Mitigate unnecessary manual efforts.
2.Free up staff availability for patient centric workloads.

Background

- Every week since 2018, a Patient Service Associate (PSA) will transcribe a daily excel roster based on shift data from ED admin team to determine the deployment and meal schedule for **>100** doctors in Emergency Department (ED) for the following week.
- Post transcription, the PSA staff will proceed to order meals based on food restrictions (if any) for each on-shift ED doctor. The process occurs in the Electronic Meals Ordering System (EMOS), with **~350** meals to be ordered weekly.
- This workflow will take up to **14 hours (0.3FTE)** of a PSA's weekly working hours.

Methodology



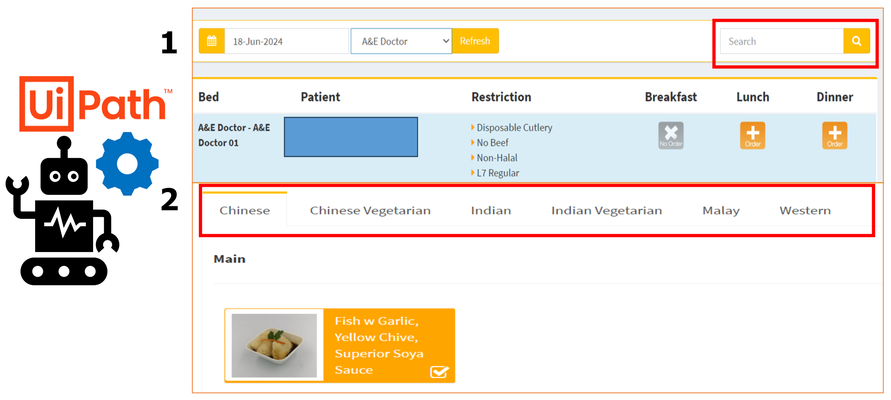
- Using Ishikawa diagram, the team identified the following 2 key reasons behind low staff productivity and morale:
  - Nature of process is **highly repetitive** and **extensively manual.**
  - Limited operational & system enhancement solutions based on past stakeholder engagements; **workflow had to remain status-quo.**
- Unsatisfied with status-quo and wanting to streamline the work given to our PSAs, the team gravitated towards existing technological solution in the market: **UiPath (RPA)**
  - Solution is a software robot that handles data transfer between multiple applications. (In POAS's use case, RPA can facilitate data input from Excel to EMOS system)

[PDSA1] RPA Requirement Gathering (Mar-23 to May-23)

- **RPA Citizen Developer Selection** → A POAS staff is elected to assess feasibility of RPA automation in EMOS system using UiPath.
- **RPA Criteria Satisfaction** → Ensure process is highly repetitive **(350 meals per week)** and rule-based **(Order from a fixed menu in EMOS).**
- **Inter-Department Engagement**
  1. Reach out to ED admin team to standardize doctor's data (E.g. Precise Naming for RPA robot to input into system) sent out to POAS.
  2. Reach out to Food Services to understand EMOS's system and tailor RPA script to the system behaviour accordingly.

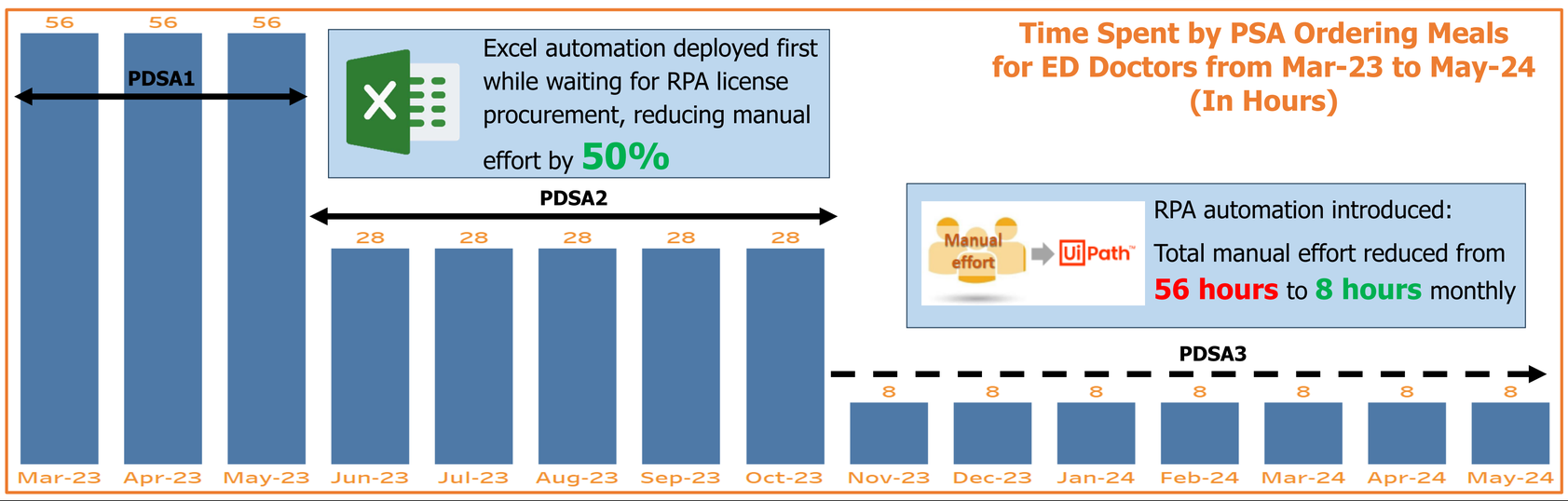
[PDSA2] Proof of Automation (Jun-23 to Oct-23)

- **Excel Automation** → Auto populate each on-shift ED doctor's name into a pre-built Excel roster template with matching meal restrictions, building an excel database for RPA robot to order meals.
- **RPA Automation** → RPA robot will use the excel database to interact with EMOS system, emulating PSA's action & logic of **searching for which doctor to order[1], and deciding what meals to order[2].**



[PDSA3] RPA Result Sustainability (Nov-23 Onwards)

- **Full Meals Ordering Automation Deployment** → RPA automation is deployed alongside the Excel automation for PSA adoption.
- **RPA Process Handover** → Citizen developer will teach workflow owner basic RPA concepts with regards to deployment of meals ordering automation and RPA script troubleshooting.
- **Continuous Improvement** → Not the end but the start of a NEW workflow. The team will recurringly review and update Excel & RPA script logic to ensure **up-to-date relevance** to any future operational considerations of meal ordering for ED doctors.



Result

85%
man-hours reduction in meals ordering

0 Missed Meal Orders
By RPA Robot in EMOS System since Nov-23

~$11K*
Annual Monetary Savings Equivalent

**Savings calculated from the median salary of a PSA with NN07 job grade*

Moving Forward

RPA operational deployment with in-house script development is relatively new in SKH. With the success of this project, we plan to scale up our automation projects in POAS by involving more systems and more complex workflows, bringing forth greater man-hour savings and job satisfaction for our staff. Moreover, we will continue to use our successful RPA use-case as a catalyst to encourage higher uptake of RPA among other departments, with Outpatient Clinic Operations and Call Centre currently joining us in this RPA journey. We hope to reinforce the RPA culture across SKH to reap greater savings together.