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Rapid Project Scaling using Robotic Process Automation

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Introduction

After a successful pilot, the demand for Acute on Demand TeleHealth (AoDTH) service at SingHealth Polyclinic (SHP) increased significantly. This required a quick and sustainable scaling of the service to meet the higher demand. The project aims to **automate processes to improve efficiency and manage the increased workload from scaling AoDTH@SHP**.

Methodology

A **time motion study showed that SHP staff spent around 100 seconds per patient visit** on manual AoDTH appointment registrations. To streamline this, Robotic Process Automation (RPA) was used to automate the process. The RPA was **designed as modular "lego blocks,"** allowing simpler RPAs to independently complete smaller steps in the process and **developed using Agile methodology** to adapt to changing requirements.

Results

The RPA went through three iterations due to the implementation of Video Consultation Platform (VCP) and system enhancements. It **successfully automated AoDTH appointments and additional processes** such as managing the appointments for unsuitable patients, **receiving positive feedback from staff as the first successful use of RPA at SHP**.

1st Iteration

RPA Functions	Time Savings
Processing New AODTH Appointment 1. Extract patient and appointment details 2. Check and update patients details if different 3. Actualise appointment 4. Send Zoom details SMS 5. Create an audit trail report of processed appointments	**106 seconds per patient**
Managing Patients with Outstanding Payments 1. Check if patient has any outstanding bills 2. If yes, cancel the appointment and send out cancellation SMS 3. Create an audit trail report of cancelled appointments	**49 seconds per patient**
Managing Patients below 18 years old 1. Check if patient is below 18 years old 2. If yes, cancel the appointment and send out cancellation SMS 3. Create an audit trail report of cancelled appointments	**75 seconds per patient**

2nd Iteration (After implementation of VCP)

RPA Functions	Time Savings
Processing New AODTH Appointment 1. Extract patient and appointment details 2. Check and update patients details if different ~~3. Actualise appointment~~ (Taken over by VCP) ~~4. Send Zoom details SMS~~ (Taken over by VCP) 5. Create an audit trail report of processed appointments	~~106 seconds per patient~~ 90 seconds per patient
Managing Patients with Outstanding Payments 1. Check if patient has any outstanding bills 2. If yes, cancel the appointment and send out cancellation SMS 3. Create an audit trail report of cancelled appointments	**49 seconds per patient**
Managing Patients under 18 years old 1. Check if patient is below 18 years old 2. If yes, cancel the appointment and send out cancellation SMS 3. Create an audit trail report of cancelled appointments	**75 seconds per patient**

3rd Iteration (After system enhancements)

RPA Functions	Time Savings
Processing New AODTH Appointment 1. Extract patient and appointment details 2. Retrieve full NRIC using masked NRIC 3. Check and update patients details if different 4. Create an audit trail report of processed appointments	~~90 seconds per patient~~ 99 seconds per patient
Managing Patients with Outstanding Payments 1. Check if patient has any outstanding bills 2. If yes, cancel the appointment and send out cancellation SMS 3. Create an audit trail report of cancelled appointments	**49 seconds per patient**
Managing Patients under 18 years old 1. Check if patient is below 18 years old 2. If yes, cancel the appointment and send out cancellation SMS 3. Create an audit trail report of cancelled appointments	**75 seconds per patient**

Key Takeaway 1

RPA can **speed up project scaling in institutions by boosting efficiency and capacity**. Currently, SHP handles about 1,500 monthly visits, resulting in:

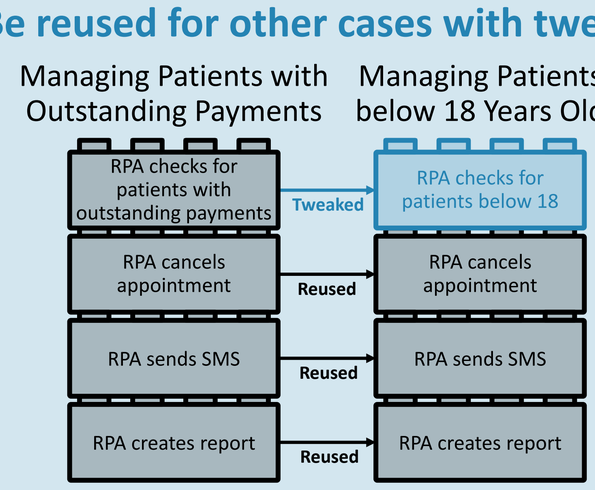
582 man-hours saved annually

The annual man-hour savings could be further enhanced by automating additional manual processes with RPA and expanding the scaling of AoDTH@SHP.

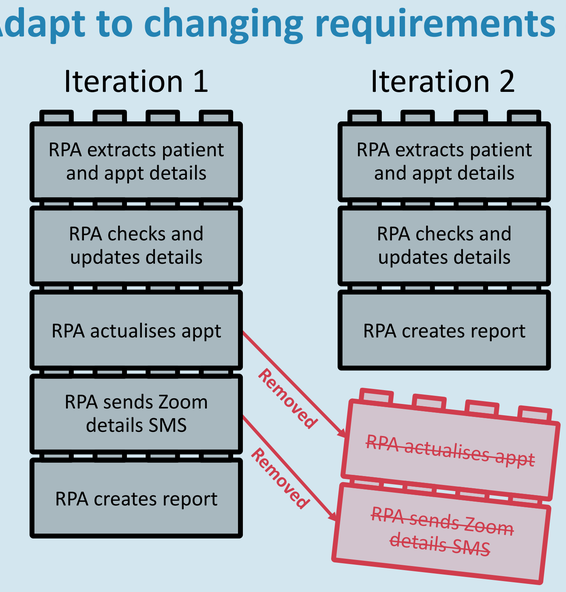
Key Takeaway 2

RPA can **rapidly scale projects by designing them for flexibility and adaptability**. This can be done by designing the RPA as "lego blocks", so that they can:

Be reused for other cases with tweaks



Adapt to changing requirements quickly



Making changes to both examples required minimal effort, with both RPAs operational within a day.

Conclusion

RPA is valuable for rapidly scaling projects as it enhances efficiency and capacity, especially when designed for flexibility and adaptability. Its value in scaling projects extends beyond individual institutions, as the **"lego blocks" can be shared across institutions when scaling projects across the cluster**. For example, some "lego blocks" from the AoDTH@SHP are being reused to accelerate the scaling of AoDTH to KKH Children's Emergency, reducing the development time and manpower needed for the pilot service.