Project Title

Enhancing Workforce Productivity through Digital Workers – SGH's RPA Journey

Project Lead and Members

Project lead: Geoffrey Gui, Director, Future Health System

Project members:

- Matthew Han, Assistant Director
- Chia Kuok Wei, Senior Manager
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Organisation(s) Involved

Singapore General Hospital

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Operations

Project Period

Start date: 2022

Completed date: On-going

Aims

To automate manual & repetitive tasks, allowing staff to focus on more complex tasks such as patient care

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

1. The Need for a Proper Governance Framework

A proper governance framework covers the processes, practices and policies surrounding the use of the digital workers. It reduces risk, prevents inappropriate use of the technology and is even more vital as we scale automation projects and use RPA more widely. Developing a framework that establishes the standards and best practices for the use of RPA and details the recommended guidelines that users should follow when adopting RPA into their work processes is hence crucial.

2. The Need to Streamline Workflows before Automation

The hospital has many processes that are legacy-driven and involve multiple stakeholders. To ensure an effective RPA implementation, RPA developers have to gather inputs from the process owners, analyse the workflow and take steps to redesign the process, before automating it. Streamlining the process simplifies it, and makes the automation more efficient. Under no circumstances should we automate a cluttered/ messy workflow.

Conclusion

As of July 2022, SGH has embarked on 34 RPA projects and successfully implemented 22 of them, impacting 14 different teams from 7 divisions, including Allied Health Division, Division of Pathology, Human Resource, Organisation Planning and Performance, Patient Support, Patient Experience, Communications and Development and Pre-operative & Admitting Services. SGH is also exploring using RPA to augment clinical workflows in the near future.

Remember the 4 'S'es:

1. Select wisely – Identify the key people to lead and drive the digital transformation. They play an important role as to whether the implementation will be successful
2. Start small (or micro!) – Automate the small, easy processes that are done frequently first. You will gain experience and be more competent before you start the next project
3. Study and streamline the process before automating – Do not dive straight into automation without first analysing and streamlining it first. Automating an inefficient process is worse than not automating it at all
4. Spread the word – Promote the technology, get buy-in and support from management and get other employees excited about the possibilities

Additional Information

2022 National HIP Best Practice Medal – Workforce Transformation

Project Category

Workforce Transformation

Job Redesign, Digital Workforce, Workforce Performance, Workforce Productivity

Technology

Medtech, Robotics, Digital Health, Data Analytics

Keywords

Robotic Process Automation, Productivity

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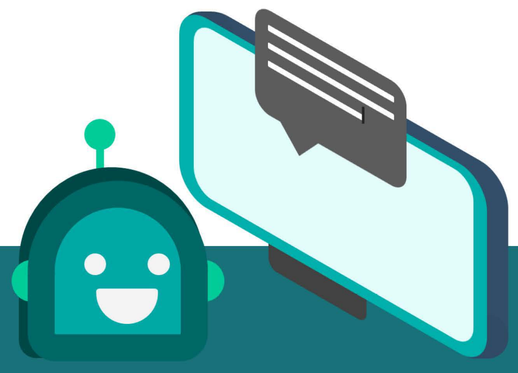
A PROJECT INITIATED BY THE DEPARTMENT OF FUTURE HEALTH SYSTEM, SINGAPORE GENERAL HOSPITAL

Singapore General Hospital
SingHealth

Enhancing Workforce Productivity through Digital Workers

SGH'S RPA JOURNEY



What is RPA?

Robotic Process Automation are software bots that automate repetitive tasks, churning out outputs at a much faster speed with no human error.

Why the need for RPA?

Rising healthcare costs & global talent shortage are just some reasons why we find alternate ways to continue delivering high quality, value-based care to more patients, with less resources.

In Nov 2020, SGH started an automation journey to automate manual & repetitive tasks, allowing our staff to **FOCUS ON MORE COMPLEX TASKS**, such as patient care.

Applications of RPA

DATA ENTRY | OPERATIONAL WORKFLOWS | CLINICAL WORKFLOWS

22 business process across **14** teams are performed by RPA today. While most of them are operational & administrative in nature, SGH is also looking into using RPA to augment clinical workflows in the near future.

How are RPA bots designed, tested and deployed?

Ideation

Feasibility & Risk Assessments

Process Mapping
The RPA developer works with the process owner to gather requirements, map out the workflow, analyse exceptions and streamline the workflow.

Script Development
Using UiPath software, the RPA developer designs the RPA script based on the workflow.

During this time, it is possible that there will be further adjustments to the workflow.

User Acceptance Test
The process owner performs a User Acceptance Test (UAT), where the RPA bot is vigorously tested whether it could carry out the required tasks, handle exceptions, and respond to all real-life situations adequately.

Deployment
After passing UAT, the automation is ready to go live. In the initial stage, the bot is closely monitored and any bugs picked up are fixed. Only after it reaches a steady state will the savings be measured and recorded.

Overall Gains & Savings

S$ 646,780** Productivity gains p.a.

17,720* h Time savings p.a.

*Nov'20 to Jul'22; #time savings x hourly rate of staff

equivalent to 2,215 full-time work days!

List of RPA Use Cases

Call Centre
- Transcribe information from PDF telco bills to Excel (48h)
- Identify new or missing numbers from telco bills (96h)
- Identify charges that exceed a stipulated amount (48h)

Development Office
- Acknowledge donations by sending thank-you emails to donors (568h)
- Send annual statements of contributions to donors (127h)
- Send e-newsletters to donors (85h)

Human Resource
- Disseminate e-gift card URLs to eligible staff (76h)
- Disseminate transport vouchers to eligible staff (80h)
- Send out Staff Appreciation Month appreciation messages to recipients via emails or SMS (150h)
- Send out Employee Engagement Surveys (2h)
- Send out Long Service Award Appreciation Messages (56h)
- Send out Letters of Advice on COVID-19 Vaccinated Status Requirement (10h)

Human Resource (cont'd)
- Generate Promotion Annex File for management every promotion cycle (2h)
- Perform SAP IT9034 and IT0001 data entry for doctors (1h)
- Perform SAP IT374 data entry (101h)

Pathology
- Download audit logs and mask NRICs (46h)
- Transcribe information from pathology specimen logs to Excel (5,191h)

Pharmacy
- Augment Medication Delivery Service (5,928h)

Physiotherapy
- Collect & calculate PROMS and send to attending physiotherapists (3,758h)

Pre-Op Services
- Bill patients for blood tests (655h)

Strategy Management & Analytics
- Send individualized PDF Tableau value dashboards to clinicians (240h)
- Generate and send out daily COVID dashboards (517h)

Values in brackets refer to man-hours saved p.a.

Example of a Successful RPA Use Case @ Outpatient Pharmacy

Augmenting Medication Delivery Service (MDS)

Background The process of ordering for medication delivery was time-consuming and involved a lot of repeated data entry. Hence, it was ideal for automation.

Methodology The paper-based process was first digitalised by converting existing paper forms to electronic FormSGs. Upon submission, the order will be sent to a designated email inbox where the bot will extract the order information and transcribe them into our pharmacy systems.

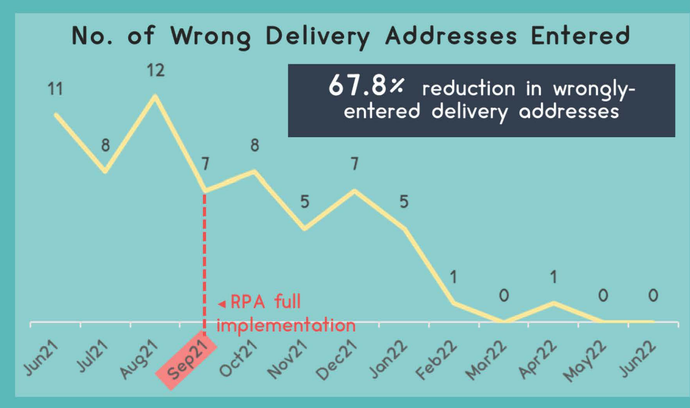
Results

1. Improved Productivity

3.5 FTE*
& 5,928 man-hours saved p.a.

588 orders
processed by RPA per day (~74% of total MDS load)

2. Improved Accuracy



*full-time equivalent

The Future with RPA

RPA bots will be integral to a patient's journey, augmenting services such as appointment booking, care delivery, medication collection, payment & claims processing and post-consultation monitoring.

Behind the scenes, RPA will also be crucial in data analyses, data entry, and in improving the overall efficiency of the administrative and operational functions of the hospital.