

Project Title

Data Processing Automation to Support Pre-Operations Inpatient and Pharmacy
Corporate Dashboard

Project Lead and Members

Project Lead(s): Mr Chan Kian Ann, Executive

Project Members:

- Ms Angela Lim Peck Hoon, Executive
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Organisation(s) Involved

Woodlands Health

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Operations

Aim(s)

To develop a user friendly automated application or script to reduce time and effort
to update both reports and dashboards

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

- Being able to support the users with an efficient and error-free solution, which would contribute to accuracies of the reporting.
- Being able to understand the processes of the user from data preparation to data processing to reporting.
- Being able to streamline the process more efficiently and effectively.
- Being the first to bring about this change is difficult as there is no precedence to follow. We learnt that much perseverance and commitment were required to bring about change as we did not know if users will accept the solution. The last thing we want is for them to revert to existing report generation methods. During the building phase, we tried to put ourselves in the shoes of users to develop a tool that can indeed benefit them with minimal effort on their part.

Conclusion

See poster appended/ below

Additional Information

The inpatient data processing tool has been deployed since January 2021 and the Pharmacy data processing has been deployed since September 2020. Both applications have cut down mundane processes and error, so that staff can perform other meaningful work, such as preparation for identifying key insights to highlight to management.

The solution can be adapted for other departments that perform data analysis, ranging from inter-department to corporate, external reporting and so forth. Currently, the solution has been implemented for 2 departments reports/dashboards.

Project Category

Technology

Product Development, Commercialisation, Proof of Value

Keywords

Data Processing Automation, Pre-Operations, Corporate Dashboard

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Data Processing Automation to support pre-operations Inpatient and Pharmacy Corporate Dashboard

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INTRODUCTION

On top of juggling with ward and pharmacy operations, operations staff need to also take on administrative tasks such as downloading raw data from SAP and iPharm system to map and track the monthly performance of each unit. In the process, they need to plough through raw data, and compute formulae to derive performance indicators for the updating of monthly reports and dashboards. This process is manual, tedious, repetitive, time-consuming, and susceptible to human errors.

AIM

It is highly beneficial to develop an user friendly automated application or script to reduce time and effort to update both reports and dashboards. With the implementation, not only can productivity improve, human errors are also minimised. Staff are now able to devote more of their time on higher value tasks.

METHODOLOGY

The key process of transiting data preparation method from manual to automation included these steps; Identify, Map, Streamline and Isolate. The solution was deployed in phases using Agile Software Development Life Cycle (SDLC), whereby incremental development and feedback were gathered over the phases. All requirements and changes gathered were documented.

During the requirement gathering phase, SORA performed job shadowing of staff to understand the pain points and to study all the steps in process. By doing so, SORA tried to identify exact steps that could be performed more efficiently. Ideas were shared for discussion and feasibility assessed. During the design phase, the prototype was deployed to the user before actual implementation. This allowed staff to try out and assess tool usability. During the implementation phase, the solution was built modularly and shared with the stakeholders incrementally. During the testing phase, the modular solution was tested using the bottom-up approach. Once all the modules are in place, big bang integration testing was applied.

During the maintenance phase, new requirements can be easily added and changes can be made since the solution was designed in a modular manner.

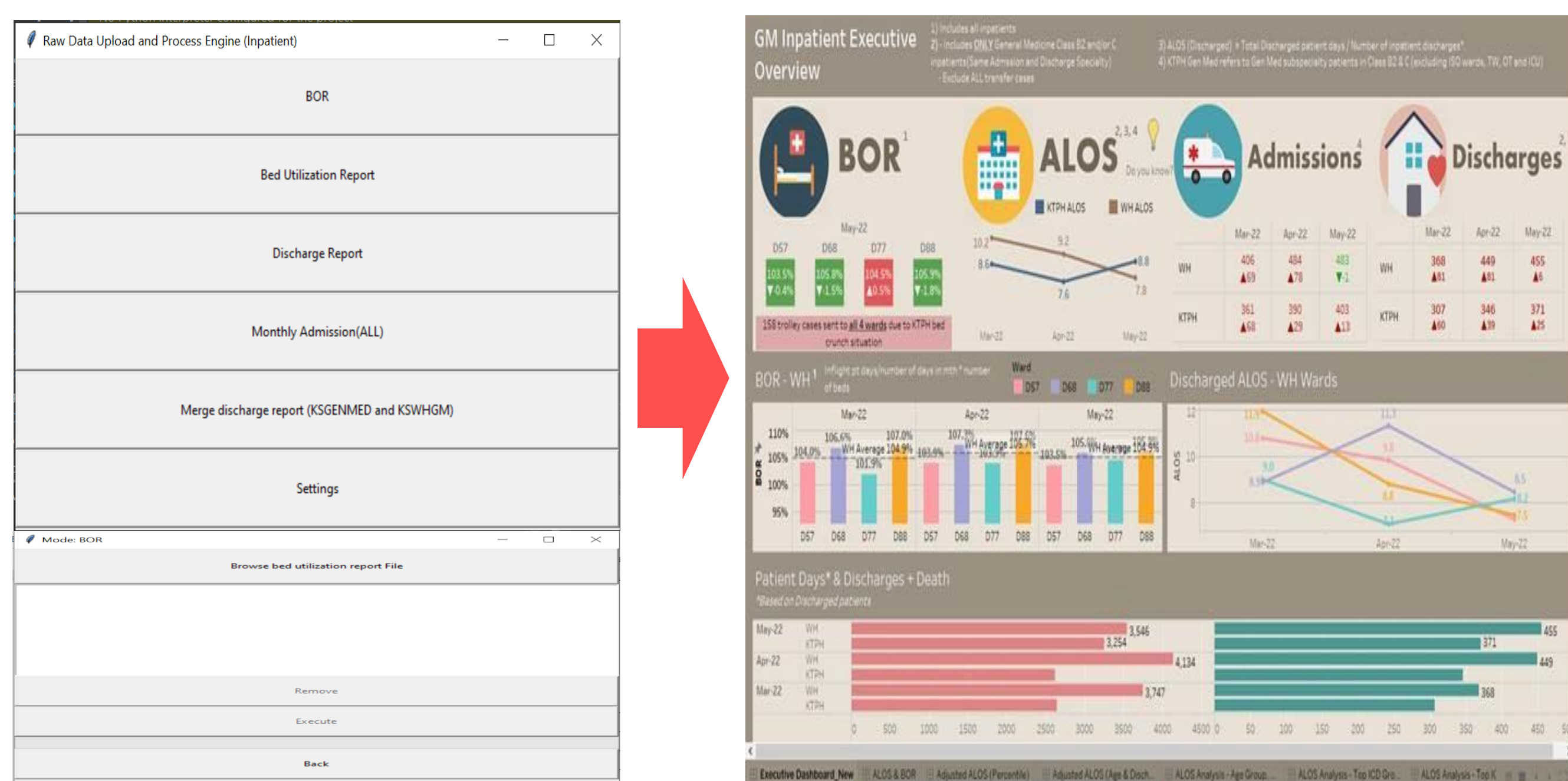
RESULTS

Before automation, inpatient staff and pharmacy staff took approximately 6 hours and 8 hours per month respectively to prepare the monthly reports/dashboards.

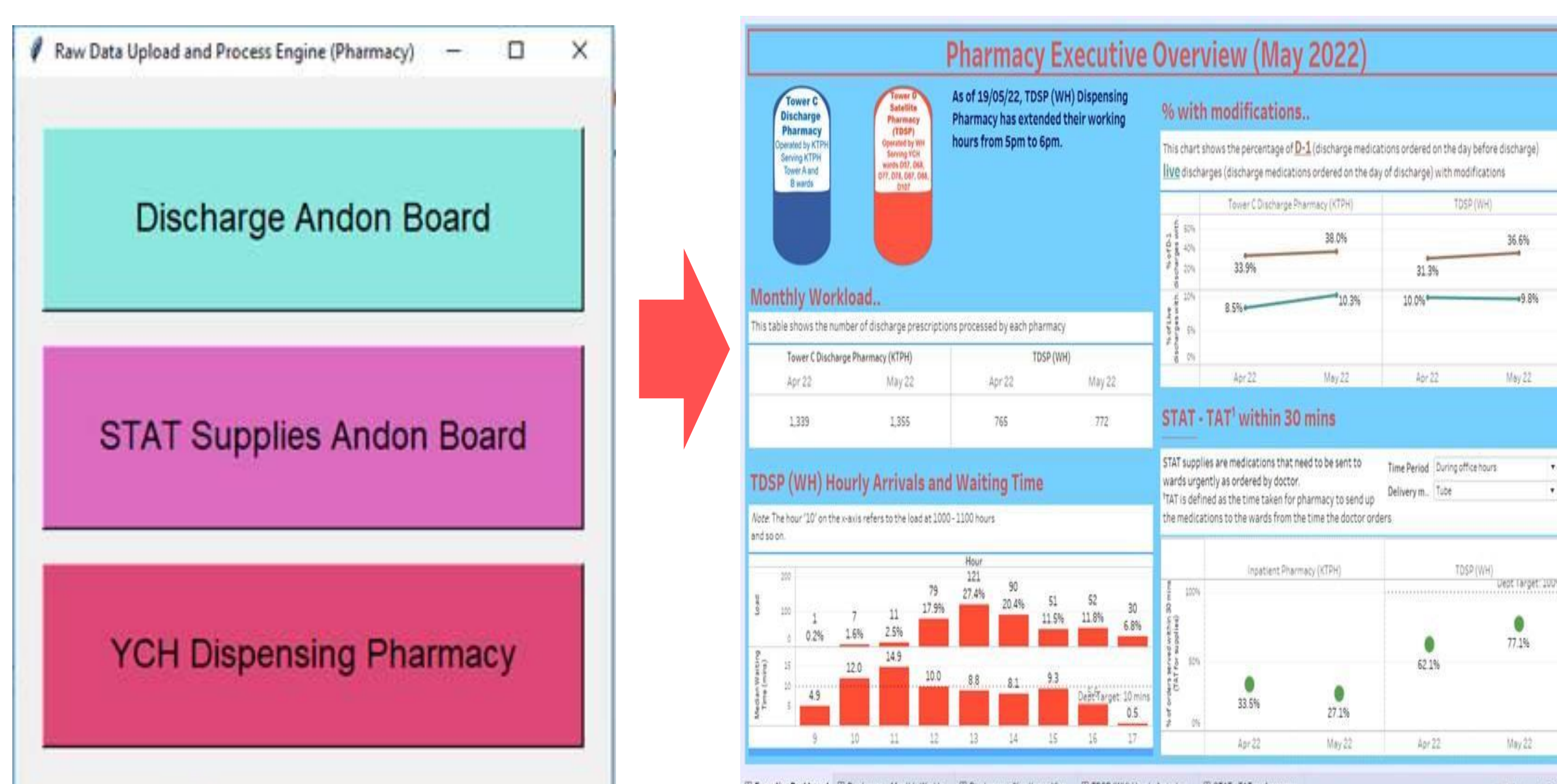
Post automation, inpatient application and pharmacy application only took approximately 9 minutes and 10 minutes respectively to run the monthly reports/dashboards.

Aside from the reduction in human efforts and errors, the inpatient automation achieved 97.5% improvement in productivity while the pharmacy automation achieved 98% improvement in productivity and time savings.

INPATIENT



PHARMACY



DISCUSSION

At the pre-operations stage, SORA identified inpatient and pharmacy departments that required complex data wrangling process for their monthly reports/dashboards. The completed solution is highly scalable and can be applicable to more areas especially when WH go-live.

If the steps are repetitive and mundane, automation potential is usually high. The automation solution has successfully transformed a repetitive, tedious, error-prone reporting process to one that can be self-performed within 10 minutes with just a few clicks of button. Moreover, new performance indicators previously deemed too tedious to be done were also incorporated to give a full representation of performance. The improvement in efficiency and productivity translated to more time available for meaningful tasks.

CONCLUSION

With automation in place, it enables department users to share performance indicators with management in a timely and accurate fashion to inform decision making. Overall efficiency allow staff to better focus on ward and pharmacy operations, which in turn improve patient experience and satisfaction.

REFERENCES

Kumar, Sujit & Dubey, Pushkar. (2013). Software development life cycle (sdlc) analytical comparison and survey on traditional and agile methodology. Abhinav national monthly refereed journal of research in science & technology. 2. 22-30.

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