

Project Title

Developing a Digital-Ready Workforce through Process Improvement and Innovation

Project Lead and Members

Project Lead: Gary Ong Boon Kiat

Project Members: Nur Suhaila Binte Ishak, Ang Yi Lin, Sia Chang Han, Siti Nurkiah Binte Mohd Amin, Siti Munirah Binte Noraini, Clasandra Hum Jia Yi, Colin Foo Cejian, Suganyah K, Cai Guorong

Organisation(s) Involved

Singapore General Hospital

Healthcare Family Group Involved in this Project

Healthcare Administration, Medical, Nursing, Pharmacy

Applicable Specialty or Discipline

Healthcare Administrators

Project Period

Start date: Not Provided

Completed date: Not Provided

Aims

- Better productivity through staff empowerment
- Improved staff morale and well being at work
- Better technology literacy and receptiveness
- Continuous learning and doing, facilitates development and raises employability
- Supportive structures and resources available for staff
- Implemented projects and Initiatives and achieve sustainability

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

See poster appended/ below

Conclusion

See poster appended/ below

Additional Information

NHIP 2023 – Best Practice Medal (Workforce Transformation)

Project Category

Workforce Transformation

Upskilling, Workforce Performance, Workforce Productivity, Job Redesign, Digital Workforce

Technology

Digitalization, Automation

Training & Education

Learning Approach, Self-directed Learning

Keywords

Upskilling, Digital Twin, Automation, Competency, Digital Workforce

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Developing a Digital-Ready Workforce through Improvement and Innovation in Division of Medicine

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A. Introduction & Problem Statement

SGH Division of Medicine (DOM) has 17 Departments with about 600 doctors and an administrative team of about 75 staff to support various DOM functions such as clinical services, innovation, quality improvement, undergraduate education, residency education, faculty development, academic appointment & medical humanities.

COVID-19 disrupted normal work patterns of the admin staff and they were forced to pivot to be familiar with new systems, ways of working and data processing skills. Many had to adapt to new processes and acquire technology know-how quickly, to address work demands.

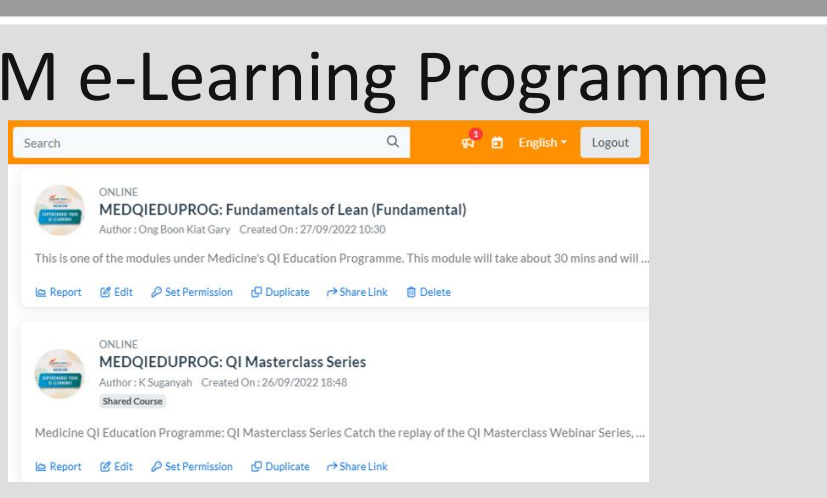
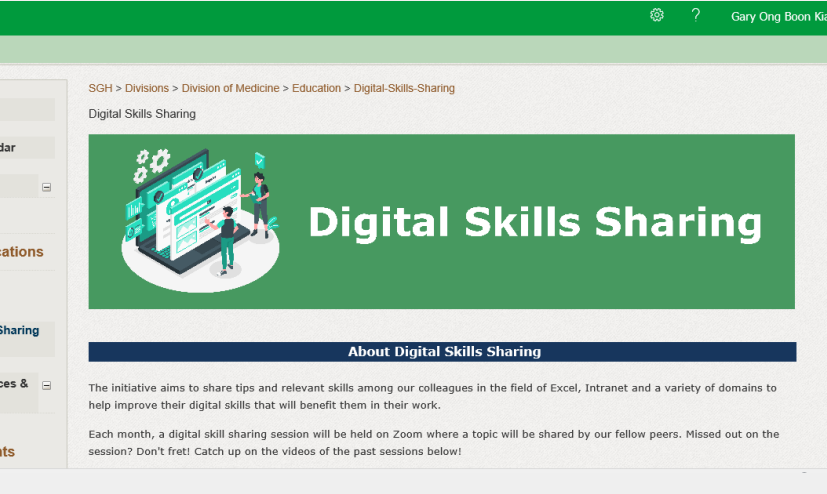



B. Solution Planning & Scope

The planning team scanned the landscape of these new work demands and assessed relevant skills to address current work needs. The team then decided to plan a programme to:

- Raise awareness and develop urgency to learn and apply;
- Provide an avenue to seek consult;
- Offer resources to solve skills gap;
- Design a continuous education plan to encourage self-directed learning of digital skills; and
- Introduce Quality Improvement thinking to cultivate the right mindset among staff and adopt technology as work enablers.

C. Innovation and Strategy for Change

Programme innovation was apparent since it was possibly one of the leading digital workforce development initiatives in SGH and focused heavily on process innovation to transform work processes. Strategies for change to support the programme objectives include the following:

Strategies	Purpose
1. DOM e-Learning Programme 	Launched in October 2020 using SingHealth e-Learning System, targeted mostly at new hires, and general DOM staff too. This programme was designed as an entry point for all staff on the need to digitalise work content, which is accessible anywhere and at any time.
2. DOM Digital Skills Sharing Programme 	Launched in June 2020 and targeted at all DOM admin staff who were interested to learn digital skills and productivity hacks, delivered over Zoom. These sharing sessions were recorded and listed in our intranet for staff to be able to access the resources to learn or refresh the contents again. Furthermore, these resources were shared to other Divisions like SingHealth Graduate Medical Education Office.
3. QI Education Programme 	The QI Education Programme was launched with both synchronous and asynchronous modalities for all faculty, junior doctors and admin staff to be engaged in continuous learning of QI. In addition, the DOM Education (EDU) admin team incorporated QI into team learning where teams would present on QI topics and gamified to spur learning and participation.
4. DOM RPA Community Programme 	3 RPA Champions attended training and received mentorship. 3 main steps were taken to actualise plan: <ol style="list-style-type: none"> Work redesigning and ringfencing time for staff. Seeking opportunities to improve, communicate and engage staff on work transformation. Building capacity by developing customised training programme and identifying potential staff.
5. University Partnership Innovation Programme 	Staff were encouraged to think out-of-the-box and explore ideas with the University students (NUS & SMU) to develop digital prototypes or solutions that could change and transform the way we work for the better.

D. Measurement of Improvement

1. Digital Skills Sharing Programme

	Y2020 – 5 runs Jul to Nov	Y2021 – 6 runs Jan to Oct	Y2022 – 6 runs Jan to Nov
Attendances	136	192	193
Average Satisfaction Score	4.32 / 5	4.20 / 5	4.53 / 5

Encouraging attendances and **Positive** staff feedback were received, mainly on relevance, applicability, gaining new skills and better productivity at work.



2. Quality Improvement (QI) Projects

S/N	Projects	Tech Used	Time Savings
1	Improving Faculty Development Dashboard Processing Time	R	148h / year
2	Improving Residency Protected Teaching Time Computation	Python, Zoom	53h / year
3	Improving Bedside Tutor Allocation	Python	5h / year
4	Residency 360 Evaluation	FormSG	352h / year
5	Improving Attendance Processing Time per Doctor	FormSG, Zoom	6.4s / Dr
6	Improving Residency Clinical Competency Committee (CCC) Admin Workflow	RPA	Ongoing

~58% Reduction in Turnaround Time



3. Robotic Process Automation (RPA) Projects

S/N	Projects	Tech Used	Time Savings
1	Improving Internal Medicine Residency Programme Admissions Turnaround Time	FormSG, RPA	78.2h / year
2	Improving Posting Announcement Process	RPA	28.4h / run
3	Improving Semi-Annual Form Process for Internal Medicine Residency Programme	RPA	19.6h / run
4	Improving End User Portal Application Time for Newly Posted Medical Officers	RPA	1.9h / run
5	Improving Checking Process for MOHH Posting Announcement	RPA	141h / run

~96% Reduction in Turnaround Time



4. University Partnership Innovation Projects

S/N	Projects	IHL Partner & Year
1	Clinical Competency & Skillset Database	NUS, 2022
2	Clinical Faculty Management System	SMU, 2022
3	Centralised Administrative Residency Database	SMU, 2023
4	Internal Medicine Residency Programme Rotation Planning System	NUS, 2023

9 Staff Involved in just Two Years



E. Outcomes and Experiences

 **Better productivity through staff empowerment**

 **Improved staff morale and well-being at work**

 **Better technology literacy and receptiveness**

 **Continuous learning and doing, facilitates development and raises employability**

 **Supportive structures and resources available for staff**

 **Implemented projects and initiatives achieved sustainability**

F. Conclusion

Developing a digital workforce requires several essential conditions in place, namely strong leadership, passionate team members, relevant curated content, communications, supportive structures, necessary resources and opportunities to learn and apply. Cadence can be achieved through regular evaluation and improvement implementation to programme planning and delivery.

As demonstrated, the programme impact is apparent and beneficial for work and staff outcomes.