

## **Project Title**

[FR-VMS] Facial Recognition Visitor Management System

## **Project Lead and Members**

Project Lead: James Lim Gao Yi, Senior Manager, Operations, NTUC Health (Jurong West)

Project Members:

- Kwek Mei Chen Manager, Operations, NTUC Health (Jurong Spring)
- Chanel Siew Yin Rong Manager, Operations, NTUC Health (Geylang East)
- Sim Tan Rui Senior Manager, Operations, NTUC Health (Chai Chee)
- Chung Bei Yan Assistant Manager, Operations, NTUC Health (Chai Chee)
- Lim Zhi Yuan Assistant Manager, Operations, NTUC Health (Tampines)
- Zamil bin Osman Assistant Manager, Operations, NTUC Health (Pasir Ris)
- Criss Ang Cai Qiang Manager, Strategic Operations, NTUC Health Co-operative Ltd
- Esther Yeo Seok Hoon Manager, Service Quality, NTUC Health Co-operative Ltd
- Arthur Chan Manager, Digital & Technology, NTUC Health Co-operative Ltd

## **Organisation(s) Involved**

NTUC Health Co-operative Limited

## **Healthcare Family Group(s) Involved in this Project**

Healthcare Administration

## **Applicable Specialty or Discipline**

Operations, Service Quality, Digital & Technology

## **Aims**

To redesign the work for visitor management, while exploring technological solutions that could help resolving existing challenges in the visitor management process

## **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**

The innovation has been implemented and adopted for 17 months to date since Feb 2021 at 3 of our Nursing Homes. (Jurong West, Geylang East, Chai Chee)

Subsequent scaling and replication of operational workflow to our 3 nursing home has been carried out post opening:

Jurong Spring: Aug 2021

Pasir Ris: Apr 2022 (Partial implementation)

Tampines: May 2022 (Partial implementation)

Facial recognition panels have since been installed and are in use, but registration kiosks for our Nursing Homes at Pasir Ris and Tampines are still pending installation due to severe supply chain disruptions due to the COVID-19 pandemic. Visitors can be pre-registered to use the system currently, instead of performing self-registration after kiosks are ready.

**Project Category**

Technology

Digital Health, Data Analytics

**Keywords**

Facial Recognition, Visitor Management System

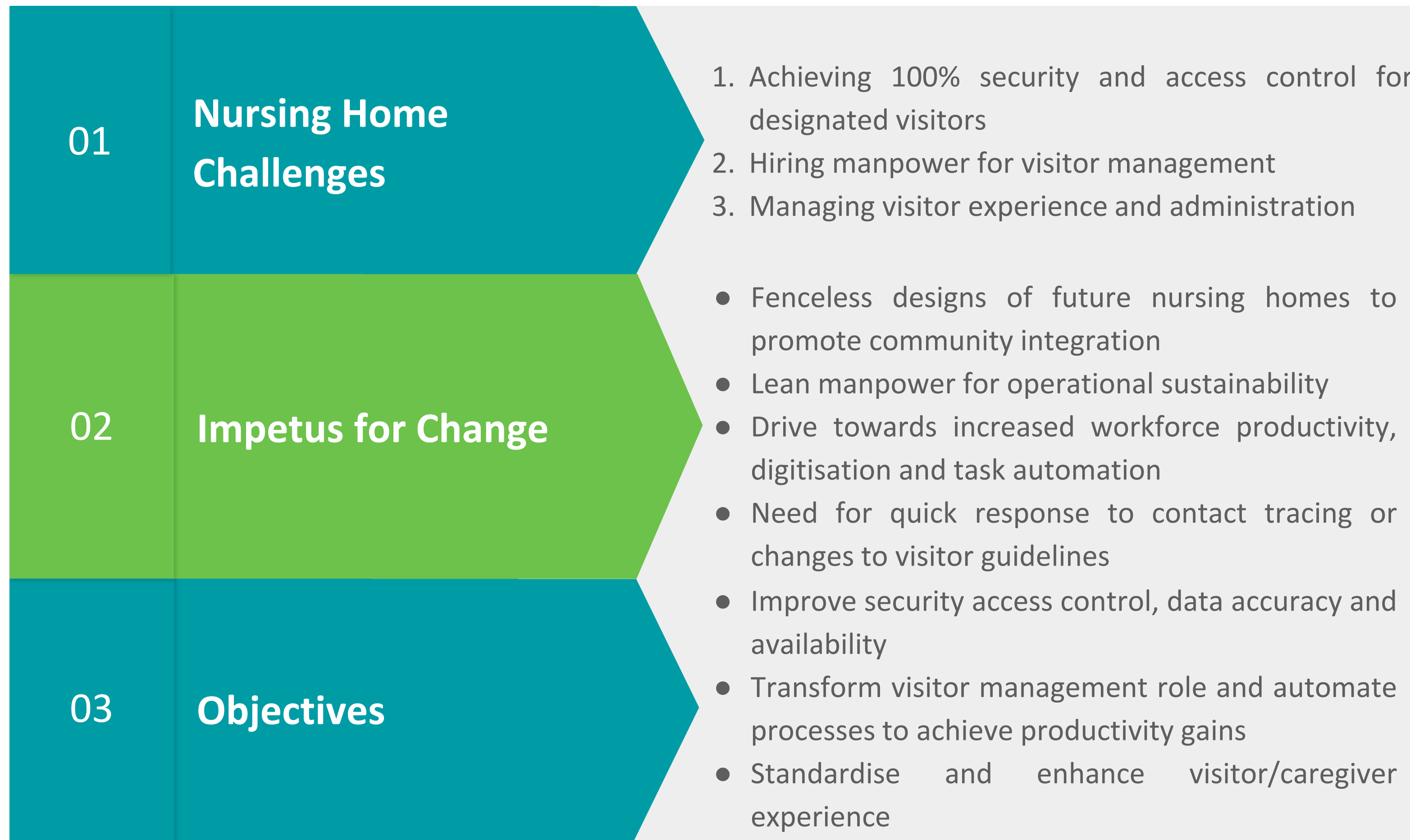
**Name and Email of Project Contact Person(s)**

Name: James Lim

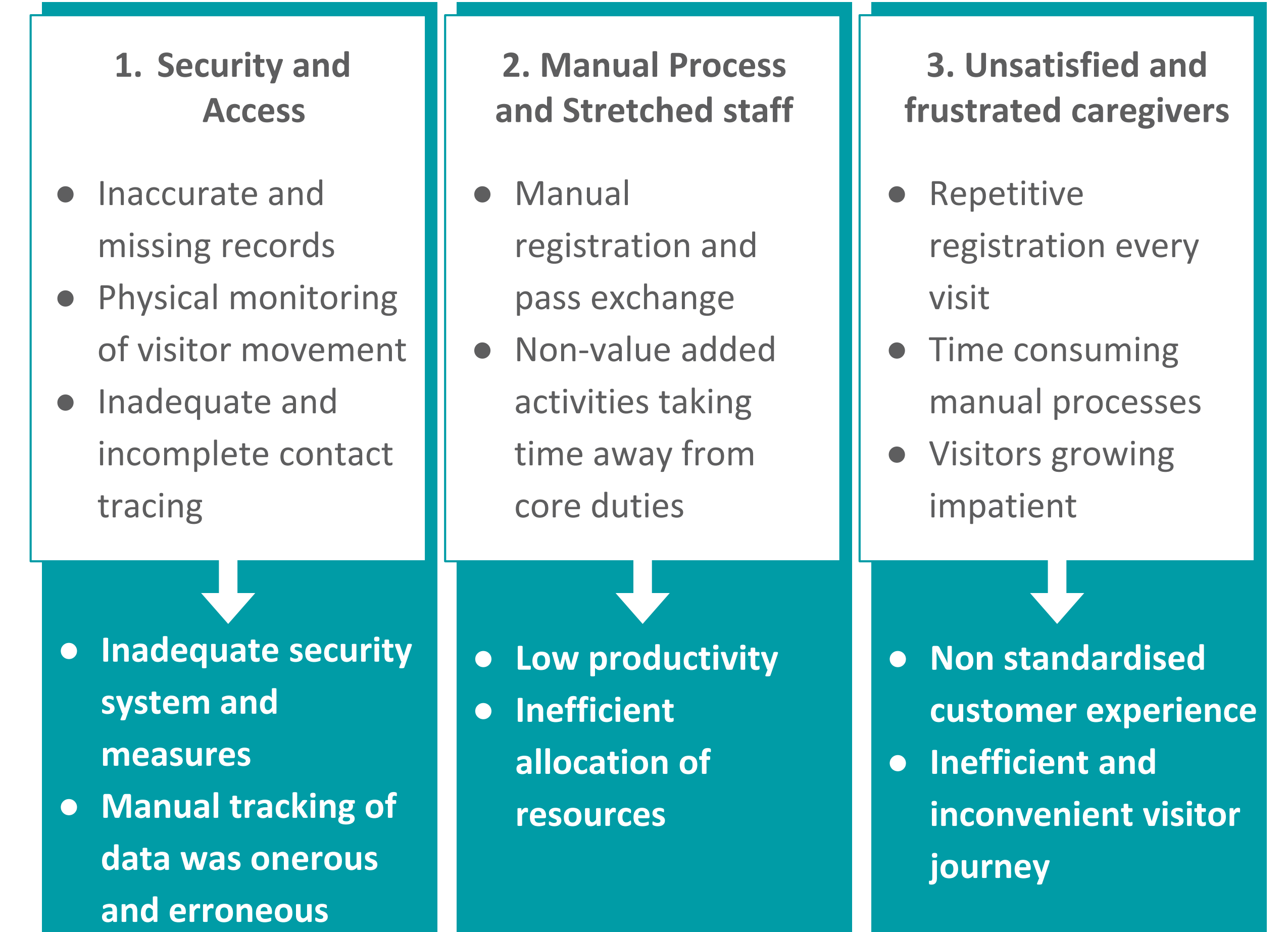
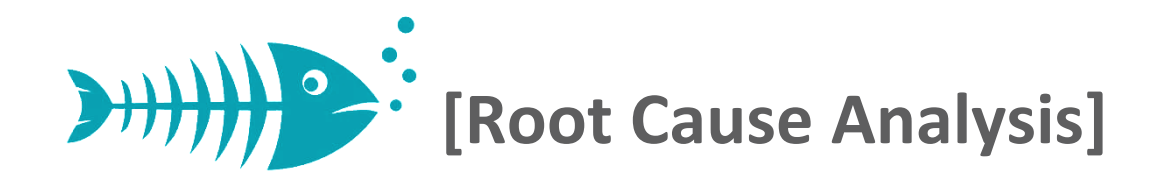
Email: [james.lim@ntuhealth.sg](mailto:james.lim@ntuhealth.sg)



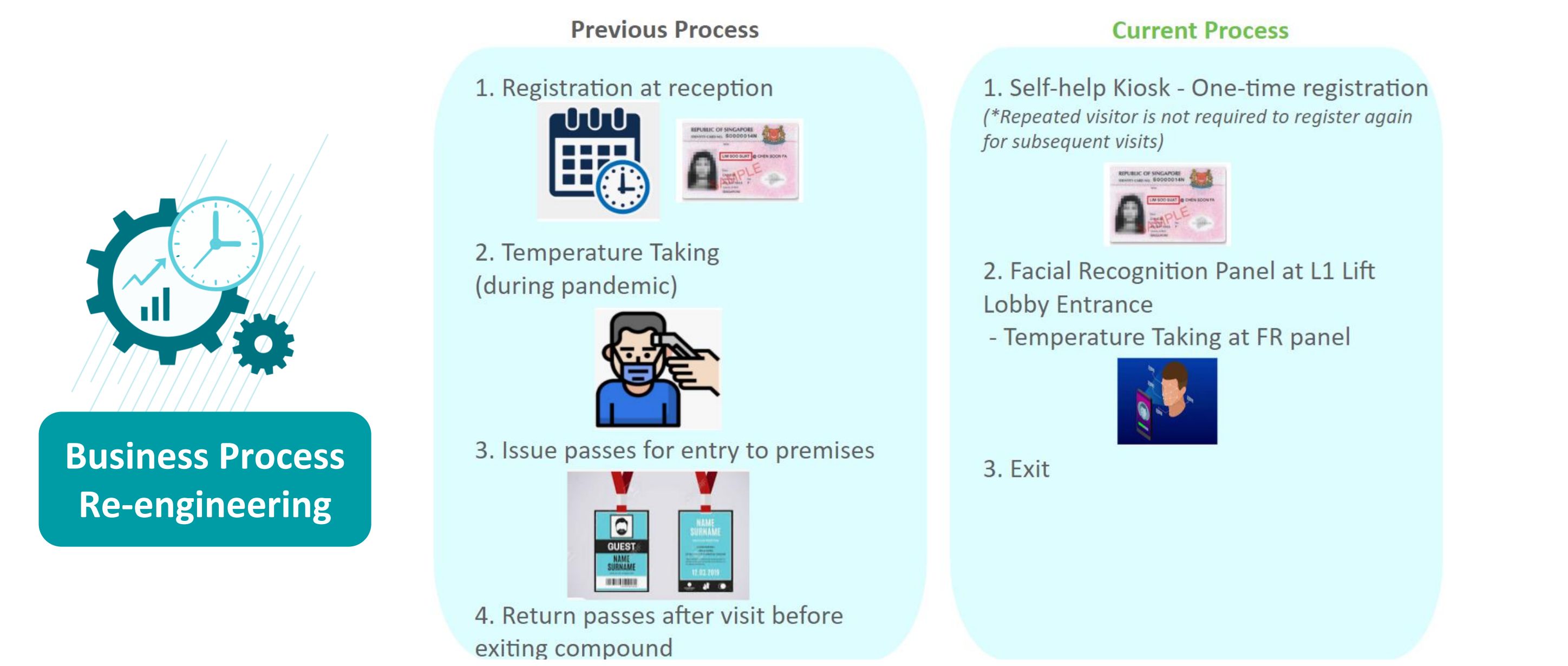
## Background



## Business Case

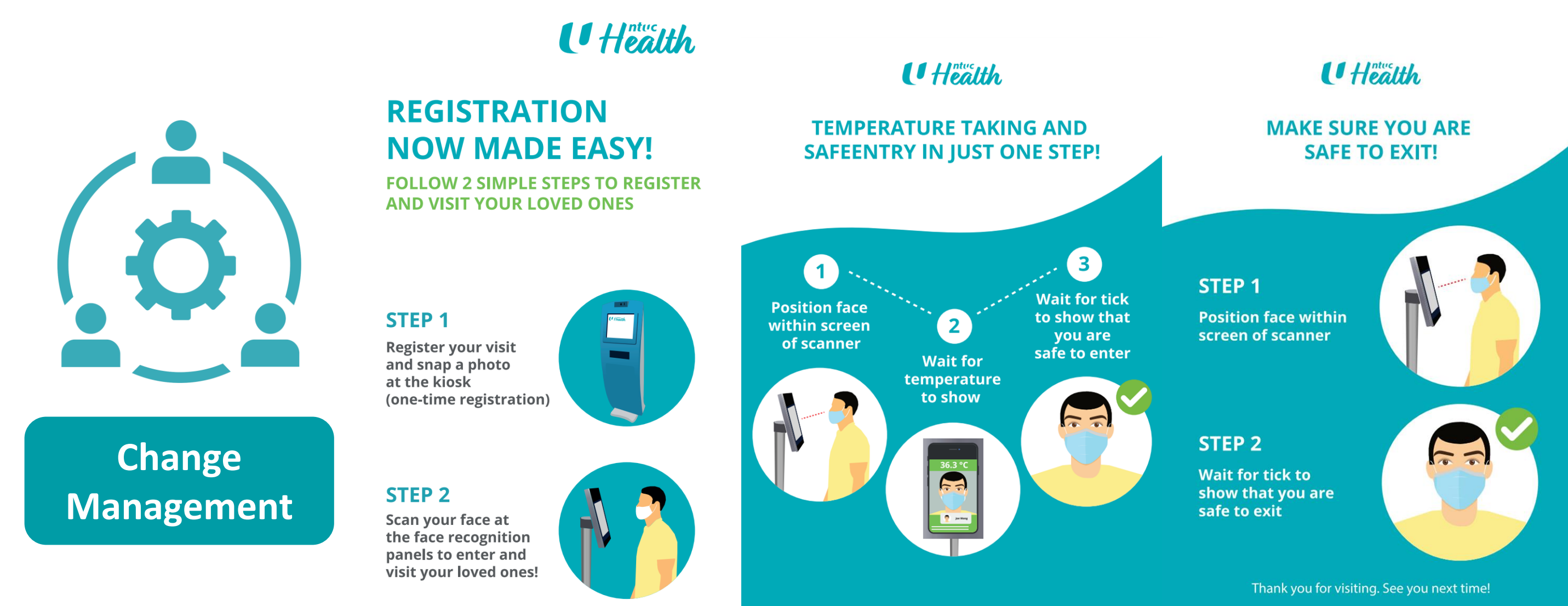
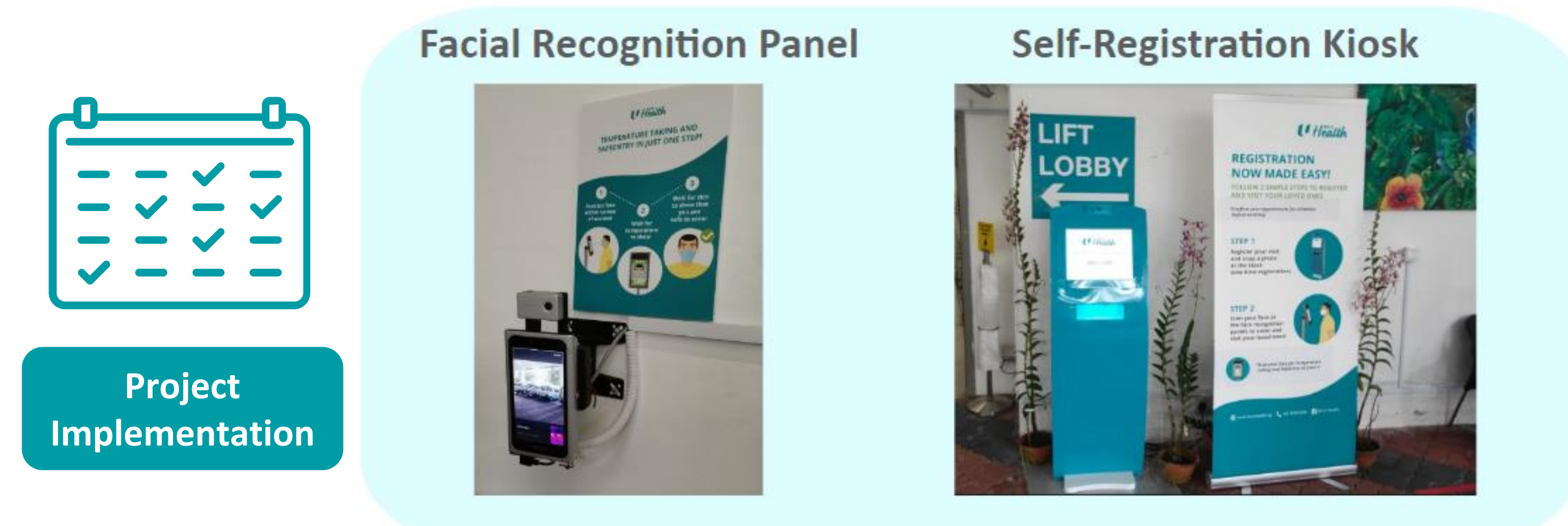


## Change Strategy and Methodology



Through process innovation and workflow transformation, the team was able to eliminate

- Non value-added activities:** Manual administration of visitor records, physical issuance and return of visitor passes, physical temperature taking and records during pandemic
- Bottlenecks:** Manual registration and keying of details at reception



Project details were shared with all stakeholders throughout the project life cycle and feedback was also actively sought out through town halls, existing feedback channels as well as user testing.

## Outcomes and Impact

**Positive feedback from staff on new implementation**

- Security access is now easily and accurately controlled with facial recognition
- Visitor movement monitoring and analytics is now possible and straightforward
- Contact tracing is also easily done by extracting visitor details, when required
- Survey data showed improvement in staff satisfaction and 4.02 average score for ease and convenience in registration and access

Pre-Implementation	Post FR-VMS	Satisfaction Improvement
3.6	4.0	11%

**Productivity gain through man hours saved**

- Pre-implementation process = **137.5 hours**
- 12 months post-implementation = **11.25 hours**

- 126.25 man hours saved per month per NH**
- Estimated \$59,112 cost savings per year for 3 nursing homes**

**Positive feedback from caregivers and visitors experience**

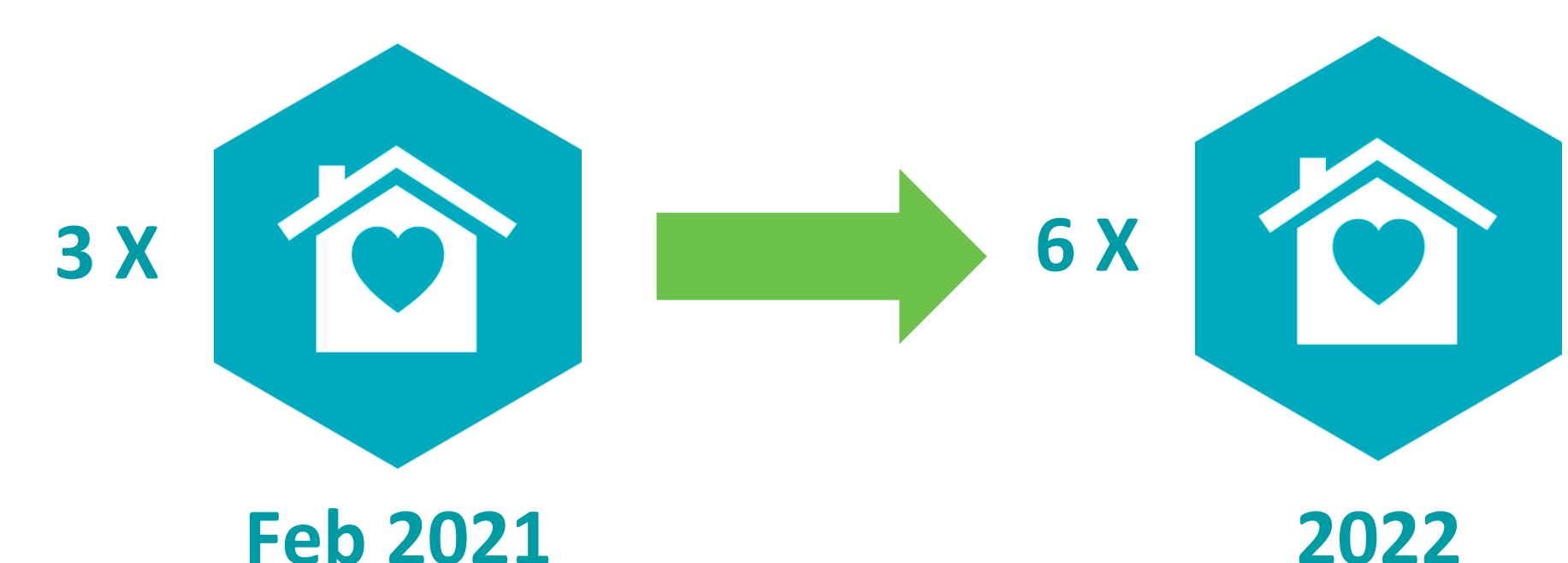
- Visitors are no longer frustrated about having to repeat the manual and time consuming registration process for every visit
- Visitors are impressed with the "advanced" facial recognition technology in place
- Survey data we collected from a small sample of visitors showed 114% increase in satisfaction with visitor experience, increasing from baseline score of 2.3 to post implementation score of 5 on a 5-point likert scale



The team had successfully transformed the role of visitor management and enhanced our customer/visitor journey at our nursing homes. Through IT adoption and automation, we were also able to achieve productivity gains and future-proof ourselves against subsequent pandemics.

## Learnings & Scaling Implementation

- Expect the unexpected**
  - Challenges from the global pandemic introduced many unforeseen variables such as global supply chain disruptions and new requirements for visitor management
- Change management takes time**
  - Sufficient time needs to be invested in understanding ground concerns and transitioning to new initiatives
- Constant reflection and refinement**
  - Plans can change and we must remain flexible to ensure solutions are relevant and applicable to all contexts and site specific constraints



Project team members consisted of operation managers for our 3 new nursing homes, ensuring seamless implementation and application of lessons learnt.