

Background

Currently, DBS Digibank offers more than 150 services. However, there is a **lack of confidence in using online services**, and some prefer to rely on physical branch staff to solve their problems, even when the service is already made digital. DBS would like to implement a **"Digibank Pitstop"** at physical bank branches to provide customers with guidance on how to use the Digibank app for their requested service, so as to optimise queue times and reduce human resources.

Problem Statement

"How might we increase customers' awareness and familiarity with the online Digibank services using the Digibank Pitstop, such that customers do not have to visit the branch?"

Our Target

We aim to **reduce queue times by 30%**, **reduce number of customers by 20-30%** and number of staff visiting DBS branches, by maximising the usage of Digibank.

Design Considerations

Discrete Event Simulation Model

- Quick Processing Time
- Ease of Industry Mentor's Access to Model
- Ease of Model Modification
- Ability to Handle Large Amounts of Data
- Ability to Capture Sufficiently Complex Structures
- Specific to DBS' Queue Problem

Model Inputs

- Interarrival times
- Number of Pitstops & Counters
- Number of customers going to the Pitstop
- Staff Allocation
- Walking Time
- Counter service time
- Pitstop & VTM time
- Recall rate

Model Outputs

- Average queue times for counter & pitstop
- Number of staff at the branch
- Number of customers going to the counter, VTM & Pitstop

Assumptions

- 1) An average of 40% reduction of customers (learning rate) who have been to the pitstop will not return, and the remaining 60% number of customers will still return in the next month
- 2) A fixed probability ratio of 75%, 15%, 10% ratio for Counters, Pitstops and VTMs, regardless of the number of customers going to the branch

Stakeholders

Branch Manager Industry Mentor Customers



Better Customer Service & Increase in Digibank adoption rates



Effective implementation of Digibank Pitstop



Save more time at branches & become more confident in using Digibank

Theoretical Data from DBS

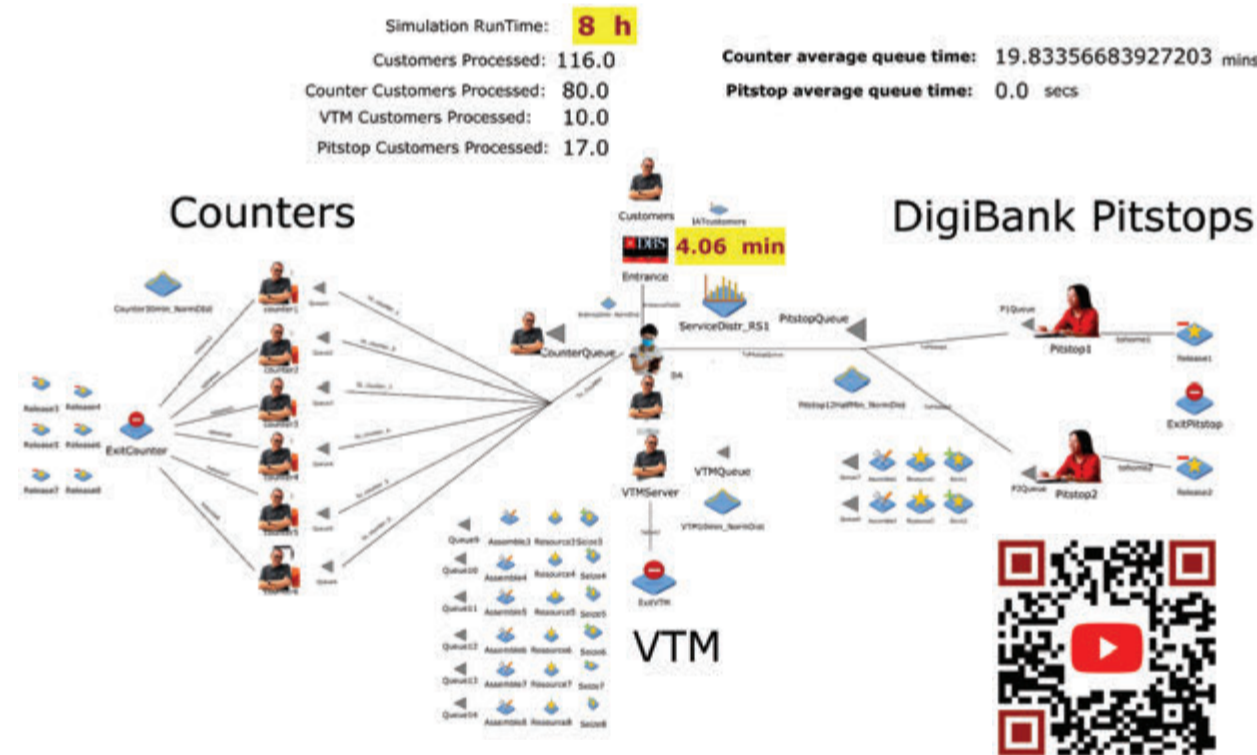
16.25 mins
spent queuing for counter service

13.5 mins
spent at the counter for appointment

3.4 mins
for peak hour interarrival time

4.5 mins
for non-peak hour interarrival time

Our Solution - JaamSim Model



Methodology

Model Process

- 1) Given initial inputs => take average of 10 simulations
- 2) Inputted number of customers next month = (Current customer total) - (Learning probability x no. of pitstop customer of the month)
- 3) Repeat steps 1 & 2 for the next 11 months

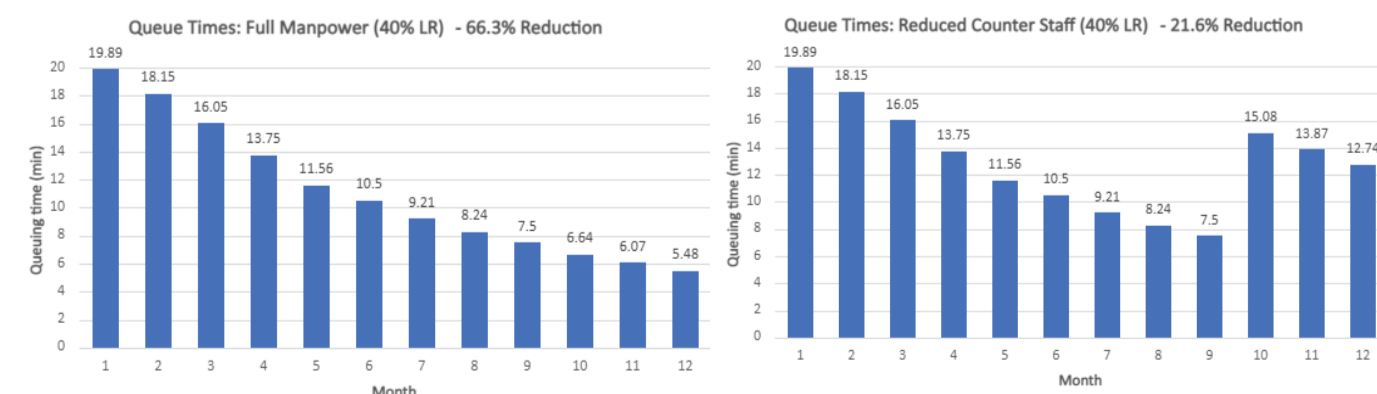
Staff Optimization Process

- 1) Take average of 10 simulations, record average customer queue time (AQCT) for each interarrival time in the below table:

Name	Counter staff	Pitstop staff
6/2	6	2
5/2	5	2
4/2	4	2

- 2) For each month under target queue time (QT), reduce counters
- 3) Check QT outputs for QTs under ACQT
- 4) Select a month below target QT for n counters and ACQT for (n-1) counters
- 5) Repeat steps 3-5 for different counter numbers

Findings



3.5/5

for effectiveness of the solution

Decrease in Average Waiting Times

66.3% without staff reduction **21.6%** with staff reduction

Conclusion

Our model is **successful!**

- Reduced monthly average customer inflow by **27.1%**
- Reduced average waiting times by **21.6%**, with staff reduction

Future improvements

- To study the long-term effects of pitstop implementation, regression model can be used to predict Year 2 onwards
- Setting a minimum number of customers for both VTMs and counters

User Validation - Branch Managers

