Reducing Unscheduled and Unavoidable Delays on the TTC Subway System

Executive Summary

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Background & Scope

The TTC Subway system serves almost 1.8 million riders every weekday, the third highest in North America. With this high volume of riders, there are often unforeseen delays. These delays can be very inconvenient, especially during rush hour, which is also where a lot of the delays happen. From the TTC's own reports, delays on all four lines are currently above target levels; consequently, customer satisfaction. Our goal is to reduce delays to the target level by looking at process inefficiencies, increasing response time, and removing non-value work.

However, the scope of the project is that we will not be radically redesigning the current structure, or making any major investments such as purchasing trains. We are not looking at scheduled delays like maintenance or unavoidable delays such as medical emergencies where a certain procedure has to be followed.

Process Analysis

Our process improvement team used direct and indirect data gathering methods to see which issues had the biggest impact on delay times. From observations, uses cases, TTC reports, and customer surveys, we found that the processes that have the biggest impact on delay times include:

- Time spent during fare payment process
- Time spent trying to board trains (especially during rush hour)
- Difficulties faced when unexpected service stoppages occur (rerouting, advanced warning)

We found that in general, the system was not very well suited to handle unexpected issues, especially when there was a high volume of riders. The fare payment lines worked fine until

there was a delay or broken machine, then the lines became very long and slow. Same issues arose during boarding or a train went out of service unexpectedly and riders had to find alternative options.

We also found that TTC either had too few employees at the station (resulting in slower lines and less people to provide directions) or too many employees (overcompensating by having many people at the station, leading to inefficient use of resources).

Design Solution

After identifying these major issues, the PIT came up with several improvement to the operations of the TTC. These are all solutions that can be implemented fairly quickly and would not require a drastic change to the current scheduling or operating system.

Our first solution is to have screens or announcements for unforeseen service closures or delays be put before the fare paying process. If a customer has already lined up and paid, then finds out they have to take an alternative form of transportation, they will not be satisfied of the service provided. By placing these announcements before the pay at the gate, it gives customers more flexibility.

Another suggestion is to paint queue lines on the station floor to mark where the train doors will be. The queue line will serve as a guideline for riders on where to stand and wait for the train. This will greatly ease congestion when getting on or off, especially at larger stations such as Bloor-Yonge and during rush hours.

The final solution we have is reschedule employees so there are more gates open during peak hours and less during slower shifts. Ensure that there is always at someone at the station who is not operating a gate to answer questions and respond quickly to an unexpected situation. This also means that when an emergency happens, there is already an extra person to help give directions.

Conclusion

By examining the processes and efficiencies, we have come up with several quick to implement solutions to reduce delay time on the subway and raise customer satisfaction. All of our solutions do not require a drastic budgetary commitment or operations overhaul. Successful implementation should help alleviate frustration at the TTC and make the transit experience less frustrating.