

LAST MILE FULFILMENT USING AUTOMATED PARCEL LOCKER SYSTEM: SERVICE EXPECTATIONS OF E-MERCHANTS

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Introduction

Reports have stated that Singapore consumers spent \$1.1 billion on online shopping in 2010, and grew 30% to \$1.4 billion in 2011. By 2015, e-shoppers will be spending an estimated \$4.4 billion (Lim *et al.*, 2015). The trend in the increasing amount spent and transactions numbers of online shopping is expected to continue in the coming years, and thus it translates to more and more parcels that will be required to be delivered to these consumers (Soon, 2016). As such, this evolution has led to an increasing focus on how to fulfil this final leg of the supply chain, which is to deliver the parcels to the consumers, which is also known as the “last mile” (Morganti *et al.*, 2014).

The last mile is usually considered the one of the most expensive and yet least efficient aspect of the entire supply chain from the supplier to the end consumer (Gevaers 2011). One of the greatest challenges about this final delivery to the home consumer is the possibility of failed delivery. If the recipient is not around and there is no one else at home to receive the parcel, the delivery company might have to bring the parcel back and make another delivery trip after contacting the recipient, or they can deliver it to the nearest post office if it is a registered post. These processes are considered very inefficient and time-consuming, and it can incur unnecessary costs to either the supplier of the purchased item, the delivery company and/ or the consumer. As such, the Deputy Prime Minister of Singapore, Tharman Shanmugaratnam has mentioned that there will be a nationwide parcel locker system in Singapore to solve this problem (The Straits Times, 2016).

There have been increasing reports and articles about the use of such parcel lockers in different countries and by different companies (Colliers International, 2015), that focuses on the trends, advantages, economics and suitability of such lockers for different goods and in different communities. Most of these reports are presented from the perspective of the consumer, or the service provider, or the authority that is building the infrastructure. There is very little literature that focus on the perspective of the e-merchants or the suppliers of the items sold, on how they view such parcel lockers as a method of fulfilling their consumers’ demand, and what other considerations or obstacles that they have when it comes to using such lockers.

This paper is thus written to ensure that the provider of such parcel locker systems can address the concerns of the e-merchants, and their expectations, in order to roll out a successful automated parcel locker system.

To accomplish this aim, we reached out to these e-merchants, or any of these suppliers that sell their items online, who has engaged a service provider to complete the last mile delivery of their items to the consumer, through an online survey. This service provider must also be a provider of the parcel locker systems, so that we will be able to understand why their clients choose to or not to use their lockers. Through the survey findings and interviews with the service provider, we gained insight into the issues faced by these e-merchants and made recommendations that will be valuable to any service provider of automated parcel locker systems.

Related Literature on Automated Parcel Locker system

Automated Parcel Lockers are an alternative to the traditional door-to-door parcel deliveries from the businesses to their customers. These lockers can be used by businesses to reduce costs on the last mile delivery as the traditional service providers can reduce the number of delivery trips, including failed delivery and re-delivery trips, as well as through consolidation of different delivery destinations

into fewer locker locations. For the customers, it allows them to receive their parcels without having to wait for the delivery personnel and avoid any other problems due to human factors.

Such parcel lockers are becoming increasingly popular (Colliers International, 2015) in Europe, US and Asia. Some of the examples of parcel lockers installed worldwide include InPost in Poland, Packstation by DHL in Germany, and Amazon in the US. In Asia, startups such as PopBox from Indonesia and established companies such as PCCW in Hong Kong, have also rolled out these parcel lockers to meet the increasing demand of online consumers.

In Singapore, there are currently 3 main companies offering automated parcel lockers for the last mile delivery, namely SingPost, Ninja Van and Yamato Asia (The Business Times 2016). Each of these companies operates these lockers for their own clients, and if they were to have their own set of lockers in all of the neighbourhoods throughout Singapore, there would be a huge duplication of efforts and resources.

Thus, the Singapore government will unveil their plans for a nationwide “large scale deployment of common parcel lockers” soon, in order to optimize the usage of such lockers. (Channel NewsAsia, 2016).

	SingPost	Ninja Van	Yamato Asia
Number of lockers	136	21	29
Location of lockers	Shopping Malls, Community Centres, Post Offices, Educational Institutions, Sports Complexes, etc.	Shopping Malls, Educational Institutions and campuses, etc.	At selected 7-Eleven stores island-wide
Services provided at the lockers	Collection of parcels Returns of parcels Posting of parcels Renting of lockers	Collection of parcels	Collection of parcels

Table 1: Comparison of parcel lockers in Singapore

Source: <https://www.mypopstation.com/>, <https://collect.ninjavan.co/en-sg>, <http://www.yamatosingapore.com/courier/7-connect-locker/> (accessed 28 Jun 2016)

Methodology

The survey was developed together with a logistics service provider, which provides both door-to-door courier delivery services as well as parcel locker systems, to understand the concerns of e-merchants from various industries, and their views on using these lockers. The survey was then sent out to the clients of the service provider electronically for them to respond, where 59 responses were captured. This ensures that the respondents come from a pool of e-merchants who have had an opportunity to use the parcel lockers, as we are interested to understand their concerns and resistance, if any.

Subsequently, interviews with experts in the logistics industry were conducted based on the results from the survey as part of this qualitative research, in order to capture and record the insights and perspectives of the e-merchants.

Findings

Awareness of parcel lockers:

Among the 59 respondents, 61% reported that they have heard of the parcel lockers, but merely 30.6% of them have used these lockers. The main reason cited was that there was a lack of

awareness (62.5%) on the usage of these lockers, and thus the e-merchants typically chose the traditional method of engaging the service provider to do a door-to-door delivery service. More has to be done to educate these e-merchants on the usage of these lockers, including the business model and user interfaces, in order to convince them to move away from the traditional method.

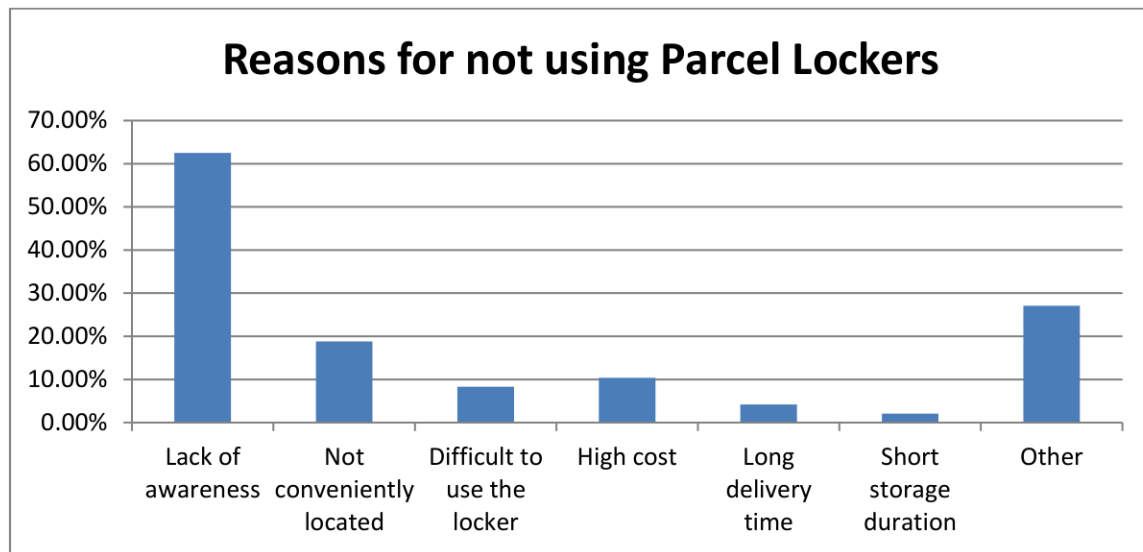


Figure 1: Reasons why e-merchants are not using parcel lockers

Cost of usage:

The cost of using the lockers remains an important factor to the successful rollout of the parcel lockers. As shown in Figure 2, having a reasonable cost (64.4%) is the greatest incentive in influencing the decision of the e-merchants as to whether they will use the lockers as the last mile delivery method.

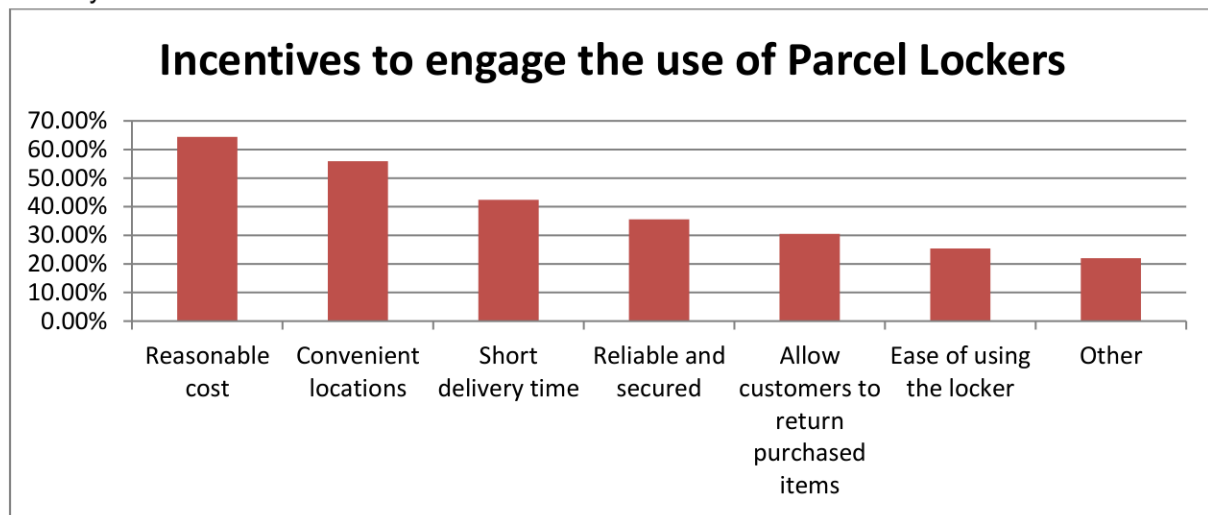


Figure 2: Incentives to use parcel lockers

Assuming that the service provider charges \$5 for a parcel door-to-door delivery, most of the e-merchants (67.8%) agreed that the cost of delivery to a parcel locker should be between \$1 and \$3, which is less than the current traditional delivery charge.

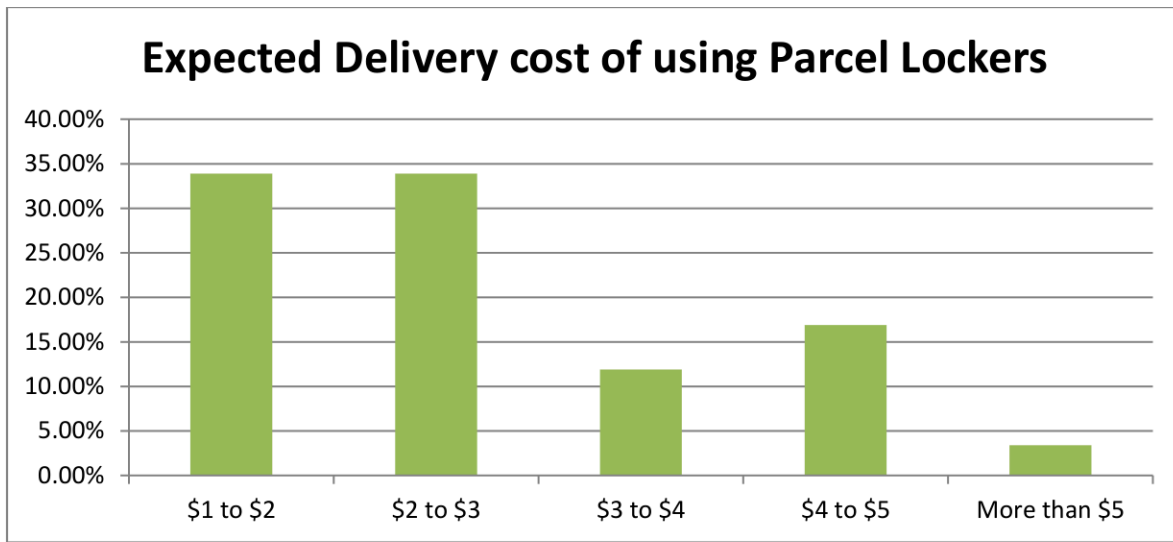


Figure 3: Expected delivery cost of parcel lockers

Convenience of lockers:

As shown in Figure 2, more than half of the respondents agreed that the convenience of where the lockers are located is an important factor to encourage usage as well.

Currently, most of these lockers can be found in shopping malls, community centres, sports complexes, educational institutions, and near to MRT stations and bus interchanges. Typically, the e-merchants are not complaining about the current locations of these lockers, as shown in Figure 1, as less than 20% of them gave the reason that they do not use the lockers due to inconvenient locations.

Certainty of delivery:

Choosing between the certainty of delivery to the consumer and the convenience of the delivery to the consumer, 66.1% of the e-merchants surveyed chose the certainty of delivery. 22% of them felt that the convenience of the delivery is more important, while 11.9% of them felt that other reasons such as the timeliness and quality of the delivered product is more important.

This resonates with the findings that out of those who had used parcel lockers before, 63.6% of them “Somewhat Agree” that these lockers help to solve the problem of failed delivery to their customers.

Accessibility to boxes:

One of the questions that e-merchants have is the possibility of them accessing these parcel lockers to open up and drop off their customers’ parcels. Currently, some of the lockers can only be opened up by the service providers to deposit the parcels, and for the customers to open up and retrieve via a mobile app or entering certain codes.

If the e-merchants are able to deposit the parcels by themselves, it might help to reduce their order fulfilment cost.

Integration of systems:

One of the main concerns that these e-merchants has is the integration of the systems between their own backend system, and that of the parcel locker service provider, as well as any other marketplace that they might be using, such as Groupon and Zalora. The e-merchants would want to ensure that they have the ability to track when the parcels have been delivered to the lockers, when the customers have been informed to pick up the parcels, and when they actually do pick them up. But they would not want to spend too much resource to implement this part of the integration of systems.

There is still scepticism from the e-merchants about the system status updates from such delivery methods, which eventually will affect the payments and verifications between all the parties involved.

Service level:

There are concerns about the service levels in the case of using parcel lockers. Although most of the e-merchants feel that the parcels would be collected by the customers within 3 days, one of the questions raised is what if the customers are really not able to collect the parcel by then? Is there an option to increase the storage duration, would the e-merchant or the customer have to pay extra charges, could the customer say that he had not been informed that his parcel had arrived – these are some other doubts that e-merchants feel that should be addressed before they feel confident in adopting the use of the lockers.

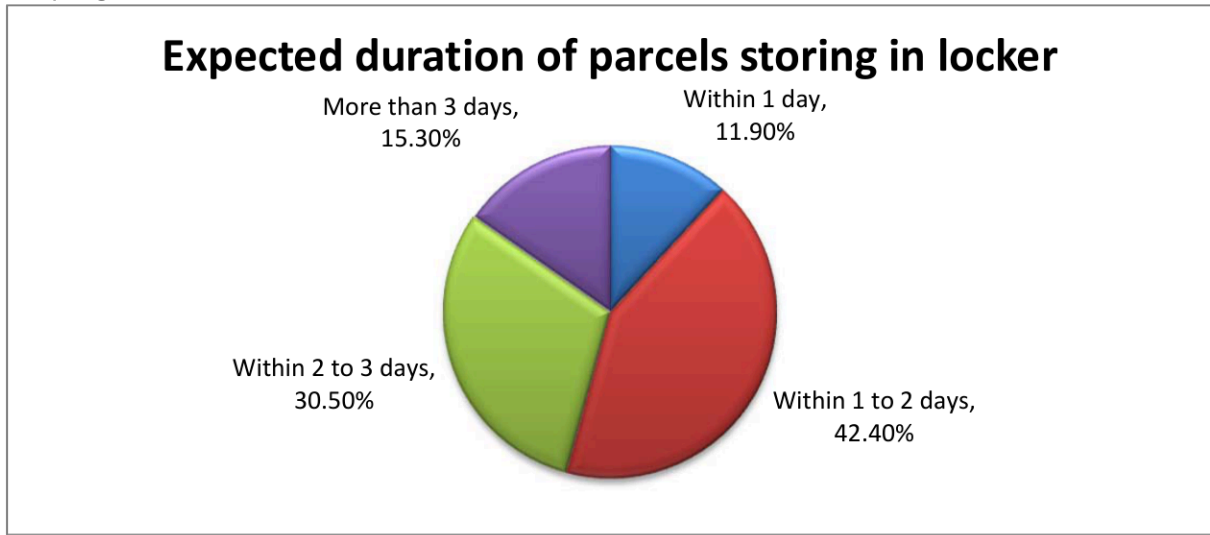


Figure 4: Expected duration of usage of lockers

Reliability and security:

Among those who had used the parcel lockers before, generally most of them would agree that these lockers are reliable and secured. What the e-merchants would be concerned with is how fast the service provider can drop off the parcels at the lockers upon confirmation by the customer, and how fast the customer will be informed that his parcel has arrived.

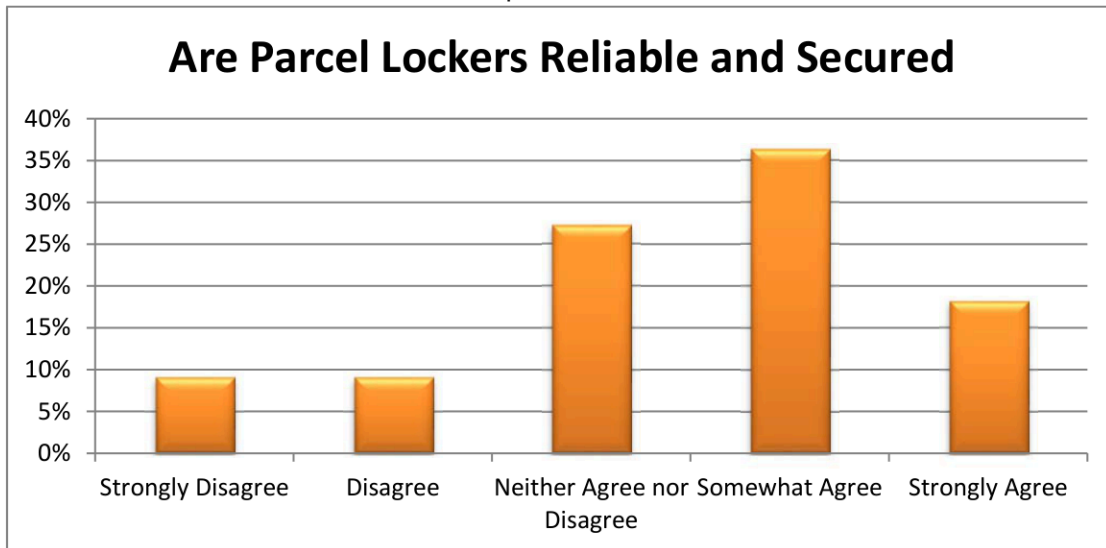


Figure 5: Sentiments about the reliability of the locker

Returns of goods:

68.3% of the e-merchants feel that they will be willing to consider using the parcel lockers for their customers to return goods to them, in the case of wrong sizes, defects of items, etc.

For those e-merchants who do not wish to use the lockers for the returns, one of the reasons they quoted include the fact that if customers are able to do the returns too conveniently, it may lead to abuse of the system. The e-merchants are also unable to access the condition of the returned items and may incur additional costs and inconvenience, either for themselves or for the customers.

Some of the e-merchants are also doubtful of the reliability of the system for tracking purposes and ease of use of the lockers for this additional service.

Conclusion

The overall view of the e-merchants show that they are open towards using automated parcel lockers to fulfil the last mile delivery to their customers in Singapore. This is in line with what the Singapore Government will be rolling out in the near future. They agree that the lockers are reliable and secure, and will help in reducing the number of failed deliveries. However, to make this scheme successful, there are still certain issues to be addressed.

Firstly, there needs to be further educating of the e-merchants on the usage of these lockers, such as how they function, what the lockers can and cannot be used for, how will the transactions be effected, and how will they know when the parcels have been deposited and when the parcels have been collected. They will also need to be assured on the ease of using the lockers by their customers, and the ability to track the status of their deliveries at any time, and without compromising on their service level.

Secondly, the cost of using these lockers should not be higher than the delivery cost of the traditional door-to-door delivery. It is important to note that backend integration of the e-merchants' systems and that of the automated parcel lockers may also serve as a stumbling block, especially if they are not compatible with the API from the lockers and require additional upgrades.

Thirdly, access to the lockers should not be limited to the service providers. E-merchants are also looking for creative ways to make use of the lockers, such as making their own deposits into the lockers and allowing customers to make returns through the lockers. The e-merchants also feel that while the lockers are useful, it may not meet everyone's requirements, especially when some of them sell furniture which is too large for the lockers, or some of them who sell fresh food but the lockers are not equipped with temperature control.

Further research can be conducted to understand the operating costs of the lockers to determine a fair pricing that e-merchants will be willing to pay for their usage. It would also be beneficial to all parties if more feedback can be gathered from customers who had experience in using the parcel lockers, and incorporated into the findings.

All these information will help the provider of the parcel lockers to build a more successful business model, particularly when this system is still considered relatively new in Singapore, and not many customers have had the opportunity to try it out yet.

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