

## **Do I need to use it? Factors influencing the intention to adopt automated parcel lockers as last-mile delivery services**

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**Abstract:** Researchers have been intrigued by parcel lockers for last-mile delivery services, prompting them to investigate the matter more. This study examines factors affecting consumers' intention to use parcel lockers through the Unified Theory of Acceptance and the Use of Technology (UTAUT). This study proposed the mediating role of performance expectancy in the relationship between social influence and effort expectancy with the intention of adopting parcel locker services. An online structured questionnaire was employed and managed to collect data from 444 respondents. The non-probability purposive sampling technique was chosen as the sampling technique, while the SmartPLS version 4.0 analysed research data. The data found that performance expectancy and compatibility over consumers' intention strongly exerted the intention to use parcel lockers. For the mediator factor, the analysis uncovered evidence that performance expectancy can effectively mediate the relationship between social influence, effort expectancy, and intention to adopt parcel lockers. The research demonstrated the significance of the UTAUT model in pinpointing the reason for the parcel locker's adoption intention in Malaysia. The research findings could provide meaningful information to logistics businesses, courier companies, and relevant government bodies to design and implement strategies to enhance the acceptance and usage of parcel lockers as the last delivery option compared to home delivery.

### **1 Introduction**

The sales from global e-commerce achieved an all-time high of 5.2 trillion US dollars in 2021, and it is anticipated that this figure will continue to rise in the years ahead [1]. As a result of the growing popularity of online shopping, last-mile delivery (LMD) has gained prominence and become an integral aspect of the supply chain. One of the potential options to improve the efficiency of LMD and logistics flow is automated parcel lockers [2]. In LMD, automated parcel lockers are a self-service technology (SST) that is a substitute for the more common home delivery practice, allowing onsite and offsite users to conveniently retrieve parcels, consolidate freight, enhancing the use of delivery transport, and shortening delivery routes [3]. As an SST, parcel lockers allow consumers to receive and send their parcels without third-party assistance and might solve the problems posed by home delivery. These benefits have positively increased the use of parcel lockers worldwide. In modern logistics systems, parcel lockers are essential, as they can enhance

the efficiency, convenience, and security of the parcel delivery process.

In Malaysia, Pos Malaysia created a parcel locker service in 2016 known as the "EziBox". Meanwhile, a partnership was initiated between Ninja Van and Prasarana Malaysia Berhad, fitted with 86 parcel lockers along Rapid KL Light Rail Transit (LRT) stations from Puchong to Gombak and Ampang. These lockers offer a convenient option for those not at home to receive deliveries and those who prefer to pick up their parcels at the station during their daily commute. In 2021, the Malaysian Communications and Multimedia Commission (MCMC) launched the National Courier Accelerator Package (PAKEJ) to boost postal and courier delivery services. PAKEJ concentrates on introducing more independent pick-up and drop-off (PUDO) activities for local distribution stations. Thus, consumers would be offered more PUDO services, such as a collecting point or parcel storage.

Even though shipping companies are interested in offering parcel locker services, the utilisation rate of parcel lockers is not encouraging. For example, a mere 5.8% of