



Introduction

With the rapid development of e-commerce in Malaysia in recent years, the transaction scale of online shopping has been increasing year by year. In 2021, Malaysian express delivery service providers delivered approximately 737.36 million domestic express items (As shown Figure 1). In the same year, the estimated value of the e-commerce market reached Malaysian Ringgit 28.5 billion (As shown Figure 2).

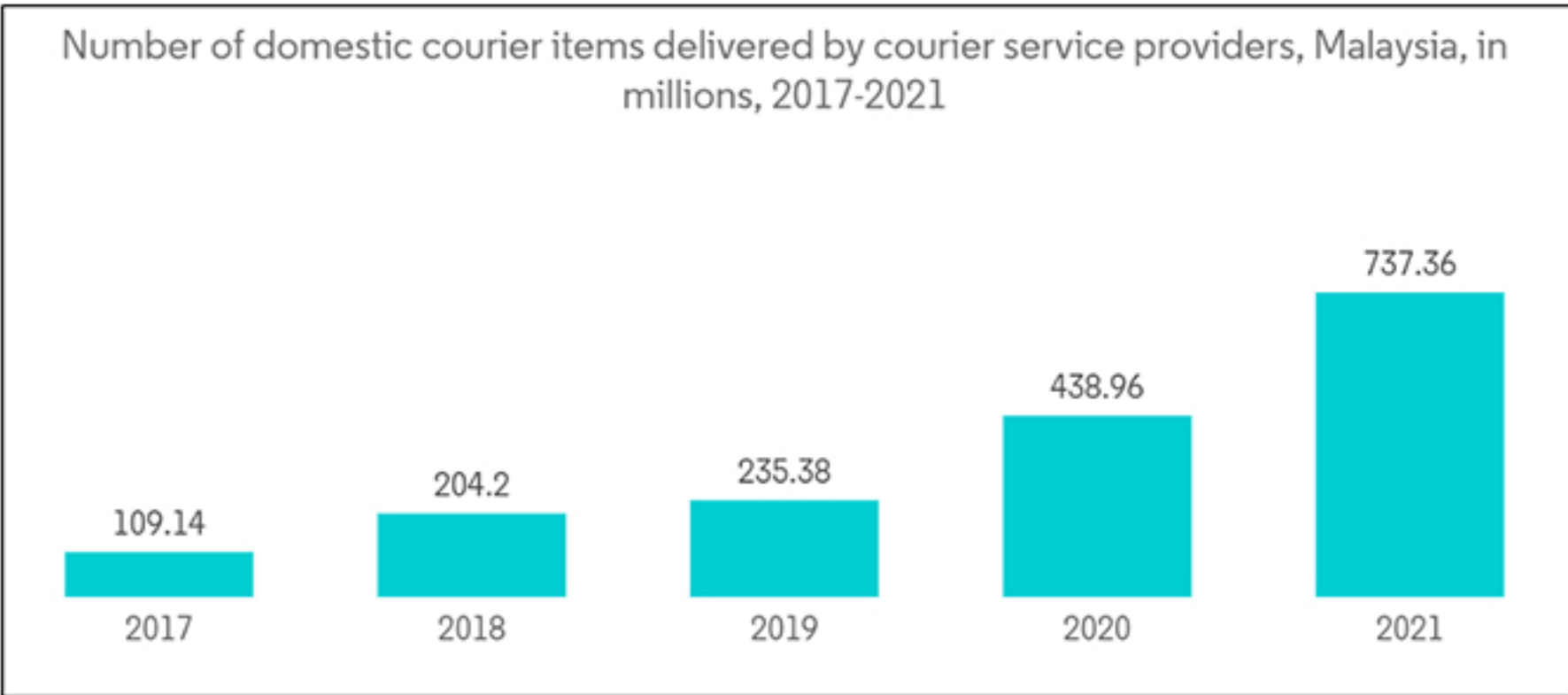


Figure 1: Number of domestic courier items delivered by courier service providers in Malaysia from 2017 to 2021.
Source: <https://www.statista.com/>

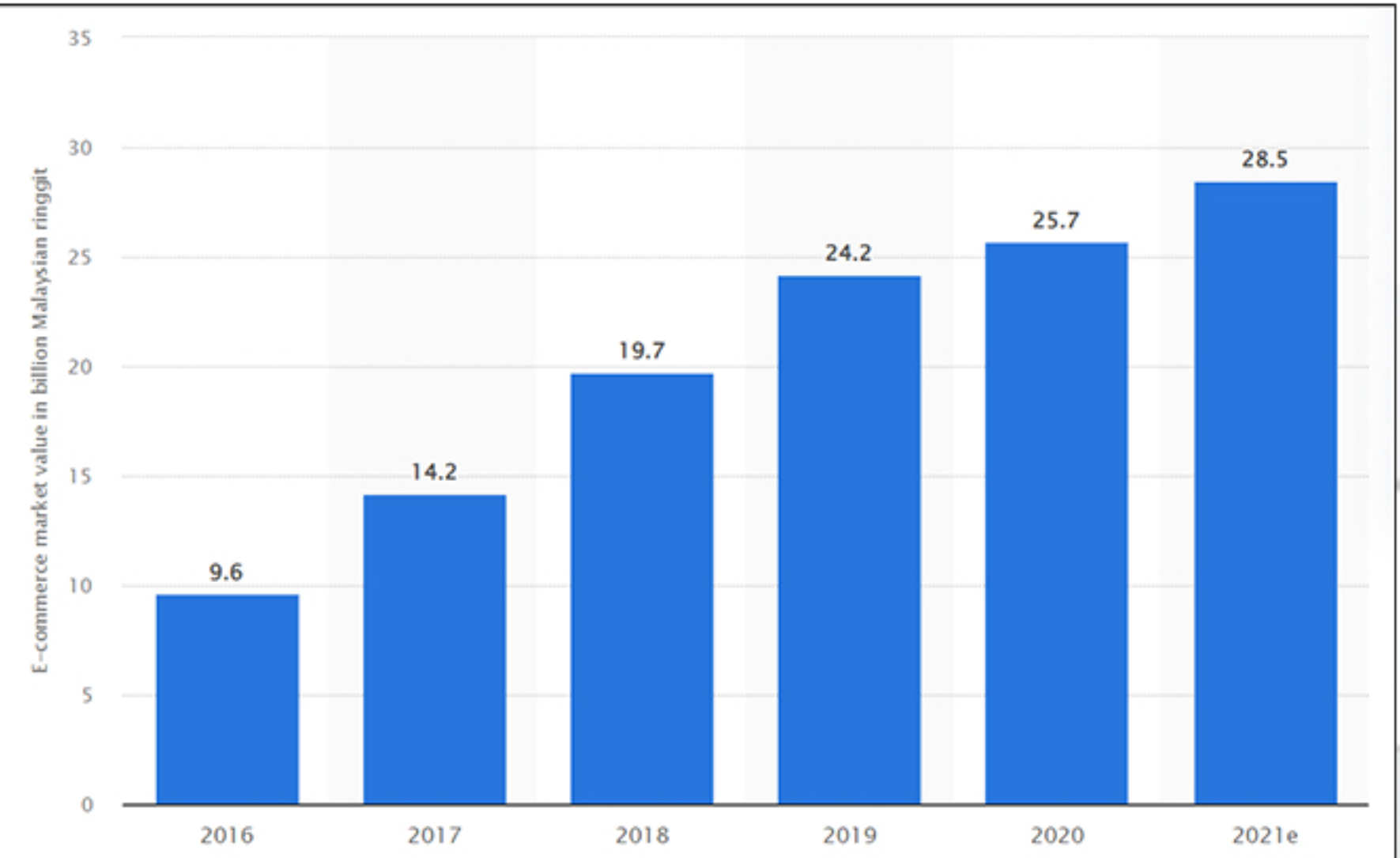
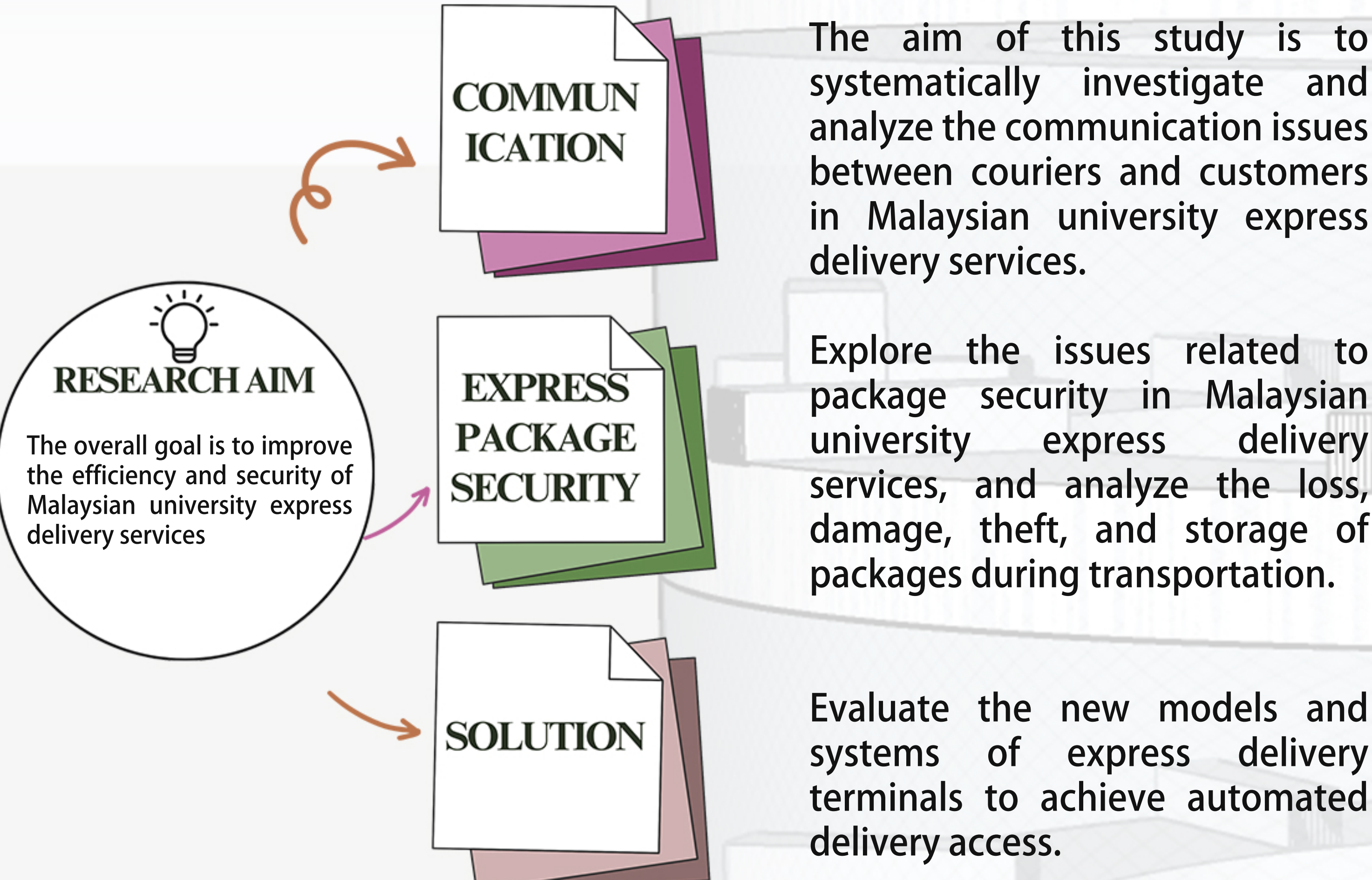


Figure 2: E-commerce market value in Malaysia from 2016 to 2021.
Source: <https://www.statista.com/>

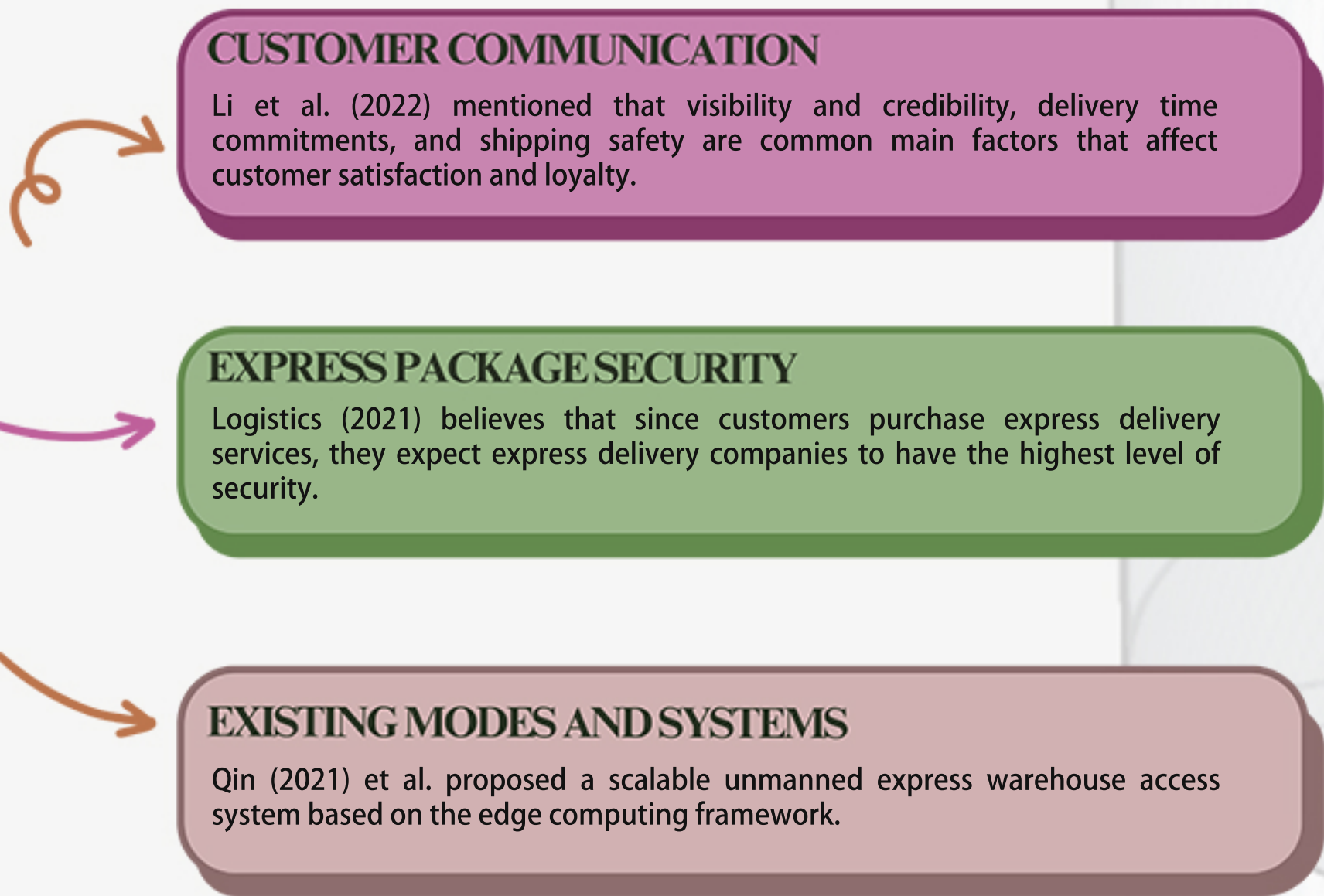
Problem Statement

In the express delivery industry, effective communication between couriers and customers and the safety of package transportation are important factors to ensure service quality; At the same time, studying and exploring the models and systems of existing express delivery terminals can provide theoretical basis for further optimizing express delivery operations.

Research Objective



Literature review



Methods



Sampling

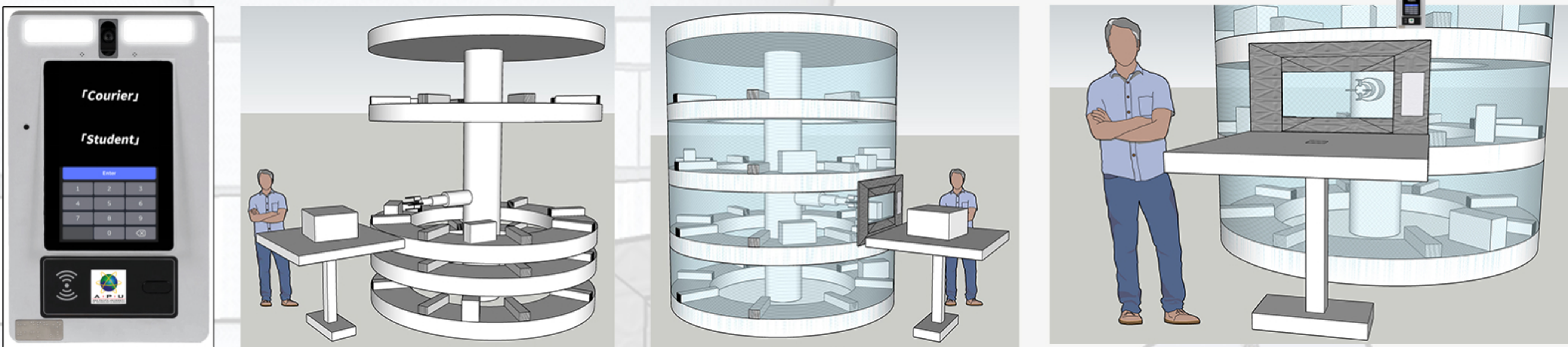
For APU, the main research object is still the student group. In this study, the Questionnaire Star application was used for questionnaires and survey templates. The number of survey questionnaires planned for this study is 50, and 8 individuals were randomly interviewed at Sunway University.

Framework



In terms of customer communication, most people believe that accurate delivery time is more important. Most people believe that unsafe storage locations are the biggest issue regarding the safety of express package transportation. Regarding the selection of automation functions and measures, most people choose intelligent express delivery cabinets.

Solution



When choosing a solution for the delivery terminal, the final choice is intelligent express cabinets and new delivery modes. Firstly, a preliminary sketch is drawn to confirm that the intelligent express cabinet can store packages in a suitable area based on the size of the package. At the same time, it is combined with APspace to ensure that each package is taken in and out in real name, increasing the security of the delivery package. Intelligent robotic arms are used to combine with AI, To achieve the goal of integrated express delivery.

Conclusions

- Intelligent express delivery systems can effectively solve communication problems between couriers and customers, as intelligent express cabinets can solve the biggest storage problem.
- The intelligent express delivery system can eliminate many security issues with express packages. The courier does not need to personally deliver the package to the customer, but can fully entrust it to the intelligent express cabinet, which is responsible for handing over the package to the customer.
- The birth of intelligent express delivery systems is based on the popularization of express delivery cabinets and the development of AI technology, which is a combination of existing and emerging technologies and can effectively solve a series of problems encountered in express delivery integration.

Results

