

## International Economics Olympiad – China Selective Exam 2019

### Business Case

#### Introduction

China has stayed one of the fastest growing economy of the world for the past 40 years. Zhao, a truck driver in China, together with his millions of peers, had enjoyed the growth. Today, trucks are responsible for 78.6% of all logistics in China. Zhao's younger sister, little Zhao, has been very keen about the internet and the belief of how the internet could improve efficiency and change life. She thought if she could come up with a phone application, it would help her brother and other truck drivers in the truck shipping business.

One day, little Zhao and Zhao held a conversation such as follows:

- Brother, I think I could invent this application for you, so you can get to business easier and drive more miles every month.
- Little Zhao, I appreciate your thinking, but how could this be possible? I am used to finding information from the blackboards in the truck camps. Adaptation to the new technology may not be as easy as you may assume.
- Brother, please do not be so pessimistic. Aren't you tired of going to the truck camps and waiting for days before you get a new order? This driving business is not protected at all; you only get paid when you deliver the cargo. And sometimes, you get paid late. There are all sort of problems going on here.
- I know you are out of good will, but internet may not solve the real problems. When I am on the road, I worry about how can I receive my payments on time and how can I get my next order quickly. You need to understand -- truck drivers have very little bargaining power against shippers.

Feeling the frustration of her brother, little Zhao is motivated and determined to make either a desktop or mobile application for her elder brother and to ease the life of millions of truck drivers. Even though it may be a small step, little Zhao felt it would be a good idea to start off solving some of the most urgent issues of a truck driver. However, as you may not be aware, little Zhao is only a seven-year-old, she needs help from you, the contestants, to make the project possible.

The main purpose of our case is to develop a mobile application that would help in mitigating one or more problems in the truck shipping industry. You will start with an initial funding of 1 million yuan and fuel your project with consequent financing rounds. The main goal is to target an existing problem within the truck shipping industry and solve it with a desktop or mobile service/application. Construct a logical business plan and support your result with calculation.

**Specific tasks include the following**

- 1. Market landscape: Define the major stakeholders and the key interest of each stakeholder in China's truck shipping industry. Estimate the market size of the truck shipping industry in China, the number of shippers and truck drivers in China. Generalize the key characteristics of the truck driver population.
- 2. Product: Illustrate a key issue of the truck shipping industry, demonstrate how you plan to solve the issue with a desktop or mobile application. Demonstrate the efficiency improvement or economic value of your solution.
- 3. Marketing: Develop marketing concepts based on your identified solution and one or more characteristics of the truck drivers. Identify one promising way of implementation to attract the users to a reasonable extent.
- 4. Financials: Construct a 12-month financial model for the project, including revenue, cost and profit. Show your result for each month.
- 5. Financing: Calculate the cash flow for each month and the total deficit at the end of year 1. Draft a financing plan for the project, determine the valuation of the company at the end of year 1 with reasonable arguments and calculations and estimate probable amount of financing the project might need. You may assume the company is running fine even if the cash flow already shows the company is in deficit during the 1-year time frame.

**You may find the following information useful for this project.**

1. Digitalization and information technology are far from the truck shipping industry.

The traditional truck shipping industry, especially the long-distance truck shipping industry, is centered around the truck camp. A truck camp is usually a remote location away from the city where most truck drivers gather to get rest, bath, food and next business.

One of the most critical missions of a truck camp is to provide new shipping order information to the truck drivers. When arriving at the destination or on the way to the destination, drivers would at times stop at truck camps to locate the next order and try to bridge the travelling gaps between one order and another.

In the truck camps, most orders are displayed on a blackboard, while detailed information are either managed in a computer or a notebook. On average truck drivers pay 50 yuan to view the information details about an order. As the drivers decide on many factors, most of the times truck drivers view multiple information and contact multiple shippers before making a final decision of which order he would take. As observed from history, the deal success rate is about 15% and each deal value is about 13,500 yuan.

The truck camp system is not efficient at all. On several of the key metrics, China's market is far behind the U.S. market. On average, a truck driver in China drives 9,000 km a month. In between two consecutive orders, the driver would spend 2-3 days searching for a suitable new order. 40% of the time the trucks are running empty with no cargo.

The outdated information sharing system not only brings efficiency problem, but also carries credibility issue with it. The validation of true information, true shipper and true driver is difficult with the blackboard and chalk structure. The shipping process is difficult to manage and keep track with as well.

2. Financial risk is at the core of the drivers' concerns.

According to a market study, the China market is highly fragmented. 90% of the trucks are owned and operated by individuals, as a result, each individual truck driver has limited market bargaining power against the shipper and other stakeholders. Thus, the risks are ultimately transferred into the hands of the truck drivers.

It is norm for a truck driver to collect payment after the delivery of the cargo and pay for highway tolls, petroleum or diesel, and other living or operating expenses for the trip. Upon delivery, as reflected by a report from the China Federation of Logistics and purchasing, 36% of drivers are frequently facing delay in payment, 55% of drivers sometimes face delay in payment. Only 9% of drivers have never been delayed or denied a payment.

Even sometimes the shippers would pay a small portion of the shipping expenses in advance, it is always not in the form of cash but rather top-up cards for petroleum.

3. Other concerns the truck drivers have for the industry.

On top of the financial risk and lack of digitalization, 97% of truck drivers think it is more difficult to do business than 5 years ago according to a report from the China Federation of Logistics and Purchasing.

75% of the drivers think they are working in an increasingly competitive market, 66% think they are constantly lack of reliable shipping source, and 47% reflect they are concerned about delayed payments even after the delivery of the cargo. In general, unstable income is the key concern of the drivers.

Their demands are simple and general. Most of the drivers demand certain amenities such as food, hotel, or bath. 70% of the drivers say they would value clean, fast food, 62% say they would value a safe parking lot, and 53% of the drivers would like a cheap hotel and bath. To support the driving, 42% of the drivers would want reliable truck maintenance.

4. China has an enormously large and highly fragmented truck shipping market.

Aiming at just big companies or organizations may not work in China. Even though truck drivers and shippers could be considered as businesses, they at times assemble the characteristics of consumers.

By estimation from the Ministry of Transportation, logistics is 15% of China's GDP<sup>1</sup>. Measured by weight transported, trucks are responsible for 77.5% of all logistics in 2016.

Even though the transportation market in China is growing rapidly, the market stays highly fragmented.

There is no clear leading player from either the supply or demand side of the industry. According to the China Transportation and Logistics Report by Bain & Company, about 90% of trucks in China is owned and operated by individuals. Top 10 shippers in China only represent 5% of the market and no shipper has more than 2% market share.

Several relevant information about truck drivers from a report issued by the China Federation of Logistics and Purchasing<sup>2</sup> could be abstracted as follows:

1. Information technology is readily available for every person.

In China, most of the truck drivers use smart phone. 97% of the drivers use their smart phone for Wechat, a messaging app in China, and 78% of them use the phone for news, music, or movies. 67% of the drivers

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<sup>1</sup> Transportation industry development communique, Ministry of Transportation of the People's Republic of China

<sup>2</sup> 2016 Truck Driver Living Report, China Federation of Logistics and Purchasing

has experience with some kind of shipping marketplace application, most of them are willing to use their phone to find shippers, the retention rate increases drastically if they could often find reliable shippers from the application, and the retention rate increases even more if they could use the same application to receive payment and keep accounting books.

## 2. A diversified education background and under-paid income level

The education level of the truck driver population is diversified. 11% of them only have primary school education, 59% of them have middle school education, 7% have high school diploma, 22% of them went to technical school, only 1% of them have a college degree or equivalent.

For most truck drivers, their core competitiveness is their ability to drive trucks. In the same report from the China Federation of Logistics and Purchasing, more than half of the drivers say that they are driving trucks because this is their only skill. In the industry, 55% of the drivers have been driving for more than 5 years, 16% of them have worked in the industry for 3-5 years, 21% of them have worked for 1-3 years.

As 74% of the truck drivers are on high leverage to purchase their trucks, their debt interests and payments shall always be factored in to calculate their real income. The trucks they drive are typically Dongfeng Tianlong with 40 tons towing ability, which cost 300,000 to 350,000 yuan on average. According to China Federation of Logistics and Purchasing, the truck drivers' income distribution and expenses distribution on a monthly basis is as follows:

Income Distribution		Expenses Distribution	
Less than 15,000 Yuan	51%	Less than 10,000 Yuan	47%
15,000-30,000 Yuan	34%	10,000 – 22,000 Yuan	30%
30,000-80,000 Yuan	12%	22,000 – 60,000 Yuan	17%
80,000-120,000 Yuan	2%	60,000 – 90,000 Yuan	4%
120,000 Yuan or more	1%	90,000 Yuan or more	2%

Even though not specifically mentioned by the drivers, some points may come worthy to solve as well.

### 1. Electronic Toll Collection Service

Most highways in China are toll roads. In China, highway toll on average charges 0.09 Yuan per km per ton for a truck. As a result, truck drivers carry a lot of cash with them when they are on the road and it is rather inconvenient for safety and other reasons.

The passenger vehicles now use Electronic Toll Collection (ETC), which is a paperless payment for the highway toll. Such technology is not widely spread in the truck service yet. Some truck drivers think it

would be very useful to have an ETC. But reality is, in China, ETC is often offered through a bank and even the closest branches of the banks are located in a place where most trucks typically don't driver near. On top of all the inconveniences, trucks are forbidden in most cities.

Economically, ETC is a somewhat sound service. Even though the ETC machines are distributed freely to drivers and the machines cost 300 yuan each, ETC service providers in China usually charges 0.1% of fee per charge.

## 2. Petroleum Top-Up

In the Chinese petroleum market, PetroChina and SinoPec dominate the market. PetroChina and SinoPec combined represents 90% of the refined petroleum market in China and they control about more than 50% of the 90,000 gas stations.

Building on brand and recognition, PetroChina and SinoPec charge a premium on their oil. In comparison, private gas stations often sell their gas at a 6% discount to PetroChina. Even though the prices might be cheaper, not all drivers are willing to go to the private gas stations for quality and credibility reasons.

When truck drivers are in an unfamiliar location, if the driver does not recognize a gas station he or she always goes to, the driver would prefer one of the two big players. With enhanced credibility, information or other services, it might be possible to eat from PetroChina's plate.

## Financial supporting materials

In a real business world, business plans are combined with financials. The following information serves to provide you with a guide to your financial projections. These data may or may not assemble the real world to a certain extent. These simplified data are for the purpose of this project.

### 1. Customers and acquisitions

The initial monthly truck driver retention rate for any given software or application is 65%. The number improves for each valuable service provided.

Acquiring new customers may be very difficult, just to get the drivers install the software would cost 50 yuan per driver. The cost would drastically decrease if existing users wish to promote the software among their community.

If you wish to engage both sides of the truck driver and the shipper, you need to acquire the shippers as well. Pursuing shippers to use the software costs 300 yuan per shipper, and the shipper often churns if the

shippers could not find adequate number of drivers on the platform. The typical initial retention rate for shipper is only 40% as the truck camps would be fighting with you over business.

## 2. Costs necessary to run the business

As an internet company, there are certain information technology expenses mandatory to the operation. You would lease all your IT systems and hardware. To simplify the case, you would assume the monthly cost of IT increase by 150,000 yuan per every 100,000 truck drivers. If maps or navigation is part of your service, the cost of the IT system increases by another 50,000 yuan each month per every 100,000 truck drivers you service.

At the beginning of the project you would start with 10 employees, among which 5 are software engineers, and the rest are customer support and back office employees. Each software engineer you hire would cost 12,900 yuan per month, at minimum one employee shall be employed for each additional 100,000 customers. The customer support representatives cost 5,000 yuan per month and one customer representative may only cover up to 10,000 customers.

If you decide to use the sales team in a marketing campaign, the sales team would be hired as monthly contractors paid on a base wage plus commission basis. Each sales person would receive 2,000 yuan for the month being hired, and would receive 50 yuan for each customer he or she engages to the project. A typical sales person could only engage 50 truck drivers a day.

**Desired outcome of the business case**

The desired outcome of the business case is a coherent business plan that could ideally be readily used by a start-up in the industry to source venture capital funding.

Both on paper solution and presentation skills are important.

The structure of the solution shall at least include:

1. The market overview
  - a. The market overview shall include basic understanding and numbers of the truck logistic industry in China.
  - b. Contestants shall be able to coherently articulate and explain to any new listener what the truck shipping industry is, the size of the market, the stakeholders in the market, what aspects does each stakeholder focus on, the size or market power of each stakeholder, etc.
2. One identified problem in the market
  - a. Contestants shall be able to identify one existing problem in the industry. Several existing problems including the efficiency, matching, ETC, gas top-up issues are provided in the business case question material.
3. A proposed solution to the problem
  - a. For one of the identified problems, contestants shall be able to propose a solution to the problem. The solution shall be feasible and executable.
  - b. Contestants shall be able to fully understand the challenge in his or her proposed solution. Limitations may include regulatory challenges, capital challenges, talent challenges, geographic implementation challenges or challenges from the proposed target customer segment etc.
4. One marketing plan for the solution
  - a. Acquisition of customers in a new market remains the most important and difficult challenge. Creativity is highly valued in this section.
5. A projected financial
  - a. In a 1-year time frame, the contestants shall be able to make estimations on a monthly basis of the revenue, cost and income or loss of the proposed project.
  - b. Contestants shall be able to create a valuation methodology for his or her project at the end of year 1. Typical valuation methodology could include multiples of sales, customers, gross trade values etc.
  - c. The solutions shall be evaluated on the logical side. All raw numbers cited outside of the provided business case material shall trace to a credible original source unless it is common knowledge.