

**Sustainability for road transportation/delivery services in a developing city**

**Case MP Logistics**

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Description  <p>The thesis was done with the support of MP Logistics to find out the necessity of sustainability for road transportation/delivery service in a developing city. The thesis also shows how to apply the sustainable system and how applicable the system is. The thesis is based on concepts, theory as well as surveys to answer the research questions, in which Ho Chi Minh city situation was mentioned multiple times as a base for theory.</p> <p>Both the quantitative and qualitative methods were conducted using questionnaires/surveys. The surveys were conducted online using Google forms with the help of relatives, friends, MP Logistics employees for answers. Customers' surveys were made in an objective and general manner to gain insight into the city's transportation service situation while employees' surveys were done in a subjective manner that expects ideas about the technology, system.</p> <p>The results of the thesis include the necessity of a sustainable system for both company and the city, the customers' point of view in applying the new system, the application of a new system through technology, the difficulties and applicability of the technology, and suggestion for application of technology.</p>		
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# 1 Introduction

## 1.1 Sustainability for road transportation/delivery services in developing city.

“Change will not come if we wait for some other person, or if we wait for some other time. We are the ones we've been waiting for. We are the change that we seek.” - (Obama 2008)

For centuries, humans have always been striving forward and achieving so many wonders. Cars, planes, smartphones, skyscrapers,... are some of wonderful inventions that are born from humans imagination. However, in the progress of moving forward, humankind also forgot to look back and realize the cost. Climate changes, overpopulation crises, famine,... are all happening at an increasingly alarming rate and they are all not coincidences. The changes humans made for a better life were also the changes that harmed the environment, burned out the resources, and increased problems in society and the economy. Now, humans need a change, and its the change in lifestyle, in operation that can keep humans moving forward but at the same time lessening the burden on the surroundings. For that reason, the birth of sustainability was a turning point where humans did recognize the threat and were willing to change. Sustainability has then quickly become an essential factor for a company, government as well as utilized widely around the world.

Sustainability becomes a trendy word because of its influence and value provided to the people. According to Murawski (2020), in 2050, 68% of the world's population will be living in cities which making sustainable cities become a win-win situation. He also stated that sustainable cities is also the 11th goal that United Nations proposed in Sustainable Development Goals. When taking a look at big-cities in developing countries, a wide area but compact with a huge population, the math of applying sustainability is very challenging. As Kotkin (2014, 7) stated urbanism as a phenomenon: “No phenomenon more reflects the sheer power and appeal of urbanism than the rise of megacities, which we define as an urban area with more than 10 million residents”. The city always started small, grew over time as it gained prosperity and

start attracting people. With the population growth, the city then gained even more advancement and grew bigger, faster. However, the city must also face difficulties in burning out resources to grow. Sustainability if applied to these cities will reduce harms upon the city and leave the city with healthy growth.

Sustainability is also about financial, especially for developing cities that lacking in many aspects. In a hard time, business and services providers had to find a way to sustain, to survive in a game of "outlasting" other competitors. The idea of transportation business in urban cities had also changed from normal trips between point A to B to micromanagement. Every cost, every loss was counted as losing. Customers did not care about the progress, they only cared about the results and the company must find a way to improve without sacrificing too much. The ability to adapt, overcome, and improvise is the key factor especially in the city where the resource is limited. It is sustainability that transportation/delivery service needs for a long marathon run but surely victorious. According to Enel Group (2019), sustainability has the power to create long-term value that is beneficial for many types of business models. It is implied that sustainability investment can return a much better result while producing less risk for the business. For road transportation companies which have to deal with climate change issue and city jumbles, sustainability sound like a sweet dream that company must have and the reality seem to be very true.

## 1.2 MP Logistics

### 1.2.1 Introduction

MP Logistics (MP Logistics Logistics) corporation was established in 1995 as a family transporting company. After twenty years of continuous effort and commitment, it has established itself as one of the biggest and most well-known logistics company in Vietnam. With four offices spread out from northern to southern Vietnam in strategic spots and an astounding 1200 members, MP Logistics provides a wide range of services both domestically and internationally: Freight transportation, logistics management, customs brokerage, project shipment.

MP Logistics has its own ideal and value, keeping the company moving straight through hardship. Its missions focus on delivering quality logistics solutions, exceeding customer expectations, which leads to deepen the relationship with customers, and finally, always strive for success with righteousness. MP Logistics also has an up-standing view of values, whether it is customers, the balance between quality-trust-respect, professionalism and, integrity, honesty. With a solid base of understand and beliefs, the organization has a clear view of the formula for success and has achieved phenomenal growth.

Vietnam in recent years has seen rapid growth with its opening to trade that allows investment and appearance of foreign brands in Vietnam. Knowing the opportunity, the company first step was expanding influence with the owning of SaigonAir, which business focus on transportation with many types of cars, trucks. Riding on the wave, the organization next goal was international connections. MP Logistics managed to sign a contract with Samsung, building a relationship with companies from Korean which opening up opportunities to work with other foreign brands. Nowadays, MP Logistics' main customers are : Ajinomoto, Sojitz, Itochu, Suzuki, Lotte. Finally, to battle with the mass change in customers and expand the company, the company has been developing its system similarly to ERP.

### 1.2.2 Difficulties

Despite many success and achievements, MP Logistics still has many difficulties to face. Acknowledge the problems and willing to change is the key to success. In recent years, after joining trade through associations Vietnam has witnessed tremendous growth. It started with WTO ten years ago according to VOV economy (2017), which boost Vietnam development strongly then followed by the establishment of AEC in 2015 (Kenan 2018) and Vietnam-EU trade in 2020 (Shira 2020) that open up a new era of trading in culture, business, the market for Vietnam. These events bring many opportunities but also challenges and competitors both inside and outside the country. One of the events is the adaptation of a new concept. Logistics and sustainability were not common words in Ho Chi Minh city, the most developed city in Vietnam. These concepts have just arrived, been misused, or overused in many companies as they do not have a clear concept. As a result, understanding



what is sustainability or how to apply it will contribute greatly to the company growth.

It is time for Vietnam or Ho Chi Minh city to transform into a new focal point of the world. Vietnamese people are blessed with geography, culture, resources that can be comparable to any country. Despite those advantages, the country is still lacking in many areas, and technology is one of those. According to Thanh (2018), Vietnam has a high potential in establishing the 4<sup>th</sup> industrial revolution with the high population of young people and the usage of technology such as smartphone. The 4<sup>th</sup> industrial revolution or technology 4.0 is a concept of using connecting between devices to create a more comfortable lifestyle, management. Adapt the change of technology, MP Logistics has also been developing its system, yet the system is still new and not complete. Technology is indeed a great tool and can help the company achieve better management, better operation yet the problem lies in how practical can the company applying the technology.

## 2 Research

### 2.1 Research definition

”a detailed study of subject, especially in order to discover (new) information or reach a (new) understanding” – Cambridge Dictionary (n.d.)

Knowledge sometimes gains by experience, by watching, adopting information through a period. On other cases, knowledge is gained from conducting experiment, theory and prove it that lead to a discovery. For that reason, research has a definition than leaning toward the latter concept, the act of studying and finding new ideas.

According to Communications Staff (2016), research provides students the opportunity to experience a higher level of study by conduct new knowledge and theory. The practical application of research has always been regarded as highly valuable. Same with books, written information, research can be passed down and adopted by the next generation to develop new ideas. Research has different forms and requirements in different countries but they all follow the same structure. An introduction to give a general idea of the research, methodology to show how the research is conducted, theory part explaining concepts, analysis and discussion in which finding out the value of research and explain the data collected, and finally, a conclusion to share ideas, decisions to the research topic. For that very reason, the thesis is formal and highly regarded. Whether it is student research to show their understanding of the subject or scientist research in pursuit of new knowledge, they are all welcome and thus, helping in human development.

### 2.2 Research methods

#### 2.2.1 Quantitative research vs. qualitative research

A research methodology is what allows research to be conduct and provides a proper answer to the research. According to FlexMR (2019), research methodology has always been evolving to be more effective and whether you are frequent to research or a first-timer, understanding the methodologies is the key point of every research.

Research methods are divided into two types: quantitative and qualitative research. These two have the same basic idea of collecting ideas and can be both used in the same research that supports each other. However, they have a very clear difference in their characteristics as well as their purpose.

#### 2.2.1.1 Quantitative research

Quantitative research is a type of study using data collected as numbers. The data can be collected by compiling, ranking the data, or measuring. According to FlexMR (2019), the concept of quantitative research is to draw out a general idea or explanation on the subject, in which, a theory is tested and finally rejected or supported. Implementation of quantitative research is usually based on numbers so scaling methods, ranking from 1-10 is normally seen. Multiple choice questions with a rating such as never-always are also counted.

The simple idea and application of quantitative research provide itself many benefits. First of all, by compiling data as numbers, the research can then be further analyzed with statistics and graphs, making the information more clearly, thus having a scientific value. Secondly, As quantitative research using scaling or rating, the research is conducted more rapidly and easier to approach. This allows the research to have a higher amount of data while maintaining a fast response. Thirdly, the research is carried out in the same manner for anybody so the data received is usually more objective and open to study. Though all the advantages, quantitative research also has its drawback. The number of answers is limited to the ideas of the researcher, thus making the answers inflexible. The knowledge and understanding of the researcher can affect the research result. It can lead the data collected in a different direction and ideas, thus making the research invalid. Finally, such research requires a high amount of people to make the data credibility so depends on the scale of research, it may take more effort and cost than qualitative research.

#### 2.2.1.2 Qualitative research

In contrast to quantitative research, qualitative focus on the opinion, ideas of research conductor to decide the answer for the research. The research is performed by allowing the participants to think and given their understanding, ideas on the subject, thus the data is subjective, natural, and flexible. The concept of the research is to gain information, knowledge from a group of people with the same cultures,

standards,... to understand the basis of the problem or phenomenon. Qualitative research is carried out by open questions asking for opinions, ideas about a subject. The answer can be long or short based on the questions.

Qualitative research also has a definite strength. FlexMR (2019) stated that as the answer is varied and based on people's opinions, feelings, the researcher can gain new insight and ideas. This can help the research redefine or add more value to the thesis. As qualitative answers based on people's opinions, it can be long and tedious. The time to conduct research may either last too short to be effective or too long that it becomes wasteful. Thus finding the middle ground of gaining an adequate amount of information and cost-effective is difficult. As the concept of the research is based on people's ideas, the expected result may not be what the researcher has hoped for. As subjective as the answers are, data collected may not provide enough credibility if not from the experts or people with enough understanding of the subject. Such answers can cause harm to research or lead the research to a different approach.

### 2.2.2 Data collection methods

Finally, to conduct research, one must find a suitable method to collect data to analyze and give results. According to Jovancic (2019), data collection is important because it helps researchers to study customer behavior, discover ongoing trends or changes over time, differentiate customers, answers research questions, and support in giving final results. Jovancic (2019) also pointed out some of the most traditional and popular collection methods to conduct research:

An interview is a useful way to collect data. An Interview is conducted by having a conversation between two people about a certain topic. The conversation is usually one-on-one to create an amicable environment, thus making the interviewee more open to sharing his/her ideas. The interview often occurs face-to-face for direct answers and explanations. However, it is not restricted to meeting personally, it can be done through voice, online through an application, as long as both people can converse with each other. The conversation takes turns so that the conversation is thorough and understandable for both sides. Some interviews can happen at quick-paced, some at a comfortable pace depends on the types of interviews. As a result,

information flow control is important. The interview continues until the interviewer can draw out key ideas or key concepts from the meeting. As a result, conducting interview usually will take a long amount of time, however, the data collection is more credible than any other method.

Questionnaires or surveys are another typical methods to conduct research. While the interview method focuses on the quality of the answer, questionnaires or surveys only interest in the numbers, the amount of data collected. Unlike the interview method, the questionnaire does not require one-on-one conversation which could take time and effort but rather collect data from multi-sources simultaneously. A questionnaire or survey is a series of questions, which answers can be in multiple-choice or tick-boxes. The amount of time spent on the a questionnaire is shorter than an interview as the answers are simplified as much as possible. The limit of the questionnaire is that the answer given may not fit their desire answers thus the answers may become invalid. Also, research with too many questions can make the survey tedious, frustrating the participants and the answers are given may not be true.

Documents and records are other useful tools to conduct research. They are written files contain data, analysis of past research, or observation. Although they might not be as authentic and original as the two mentioned methods, documents and records can act as a support method in reaching conclusion. They might also give insight and understanding of the topic that can help develop the topic. The usage of documents or records should be written down in the thesis so followers can understand the context and information.

Finally, observation is also an alternative method that many researchers use. It is a unique method that requires no help from others and can be done alone. The repeated action of observing, following, noting the change, and finally understanding what causes the change to conduct research is peculiar. The return result is noted with full detail and information on the research topic, thus concluding topic more easily. Nevertheless, the observation method comes with a few drawbacks. First of all, it requires a high amount of time and effort to continue observing the research, which could be taxing and tedious. It requires the researcher with knowledge and specialization in what to follow and how the research should be conducted. Thus, such a method may fit most for experimental or lab research.

## 2.3 Research aim

MP Logistics has difficulties in facing the rapid growth of the country and the need to develop a new system that can help with the management. A sustainable system might be a way for them to achieve it. As a result, the first research question is:

**- Is Sustainable necessary and important for transportation system in Ho Chi Minh city?**

The second question is raised for companies like MP Logistics in adopting the new system:

**- How possible is it for company to apply the sustainable system through the use of advanced technology?**

This thesis aims to give a new concept of sustainability awareness to the current transportation companies in developing cities such as Ho Chi Minh city. The application may change the way customers think and attract the customer in the process of learning the benefit. Finally, the application of the system needs technology to provide support as sustainability requires precise management and optimization. Companies can follow the thesis to decide on the usage of technology through the experience of MP Logistics employees.

## 2.4 Research conduct

To answer the first question, a general idea of Ho Chi Minh city and road transportation situation in it will be brought up. Sustainability will then be tested whether it fits to the situation. Finally, the customer survey, which finds out what is the customer preference on the delivery service, acts as a support factor in applying a sustainable system for transportation companies.

To answer the second question, the team questionnaire is made for a team of MP Logistics corporation which helps to deploy the company system. The questionnaire is conducted in a type of short answers that express the thought of the employee in developing the system and technology. Companies then can deduct whether the establishment of new technology is worthy or developable.

## 2.5 Research limits

The thesis is a case study type research in establishing a sustainable system in a developing country for MP Logistics organization. As a result, information and application may need to be looking at different angles in research usage. Further analysis and own judgment is essential in developing companies' final results.

The concept of sustainability or logistics is still new to the locals thus prior knowledge or experience is limited. People may not aware of the importance or the basis of sustainability thus research will focus more on what benefit a sustainable system brings in a general way. The analysis of the current system versus the sustainable system will not be mentioned in the research.

Although the research is about applying sustainability to transportation in big cities, the difference between each city may lead to separate results. For instance, Ho Chi Minh city is under grand development or change in recent years such as the Metro line, which can change road transportation or public transportation in a different way. For that instance, the thesis applies to only current Ho Chi Minh city and Vietnam which has a challenging situation. City or country such as Bangkok in Thailand or Kuala Lumpur in Malaysia may view the research from different angles.

Technology usage is also limited in the current situation. The applying of a new system comes with new technology that may become a pioneer in the business. As a result, the follower companies can find simpler methods in building one. The technology thus is still theoretical and may require much longer time or manpower in creating one.

### 3 Sustainability for road transportation/delivery services

#### 3.1 Sustainability definition

According to Grant (2020), sustainability is a concept of maintaining the functionality or situation to a certain degree for a required period. It is a general idea of keeping the system running on track, cut any waste, time slack, cost that can cause inefficiency, keeping the number constant and positive. The main purpose of the ideal is to self sustain without sacrificing more resources than needed. As the state of the company becomes more stable, it is then more flexible to open the business. However, the drawback pointed out by Grant (2020) is that using sustainability requires a high-performance system that investments that could return in modest profit. As a result, utilizing a sustainable system may require a long time for system to function normally and grant visible benefits to the company.

Business sustainability is another term that Mar (2013) mentioned as “the capacity of a business to endure”. Sustainability’s grand goal is to harmonize the usage of resources to gain an advantage in the economic, save the environment, and improve society. In which, Mar (2013) also mentioned that business has a connection with ecology and society system, in which if the harmony is broken, the business will fail. However, if applied right, sustainability provides better optimization, efficiency that reduces cost, allows a company to be more flexible, and survive longer in the market. A better outcome means the company has better appeal and power in the same market, attract more investors and opportunities. Economics is not the only part company concerns about, it is also the environment, the society. With the upcoming trend like the green economy, neglecting environmental impact can affect the company brand which may isolate them in the market and become the downfall reason for the company. Similarly, sustainability provides a better life quality for society. Each company using the concept for their business is lessening the burden of the environment, which affects society’s overall situation. It boils down to Triple Bottom Line (TBL) as the writer mentioned as “an accounting standard accepted by the United Nations”, also known as “people, planet, profit”.



### 3.2 History of sustainability

The concept of sustainability might have appeared a long time ago. Since humans walked the earth, they had been thinking of replacement hunting and foraging with farming and raising animals for more sustainable living. However, at that time, it was just merely a concept or belief. Worldenergy (2014) stated that not until 1713 that it has its own word which is *Nachhaltigkeit* in a German published book which means “sustained yield”, which is later translated to English in the middle of the 19<sup>th</sup> century.

According to Worldenergy (2014), the terms then later had a broader usage, in the ecosystem as a measure to control the destruction of nature and the environment. However, not until in the late 20<sup>th</sup> century, where people recognize the limited amount of resources, and the current situation of overusing resources, sustainability now has its meaning in a business way. In the 2005 World Summit on Social Development, sustainability has meanings in economic development, social development, environmental protection.

Nowadays, sustainability is a trendy word that many companies use in their business. Companies tend to change their way of doing business that helps them survive rather than compete, which reduce the stress of limited resources.

### 3.3 Sustainability for road transportation/delivery services

Megan (2016) gave a detailed understanding about sustainability : “the philosophy behind permaculture is one which seeks to ‘comprehend and orchestrate the evolution of a climax ecosystem’ in a manner that ‘interfaces with both existing natural systems and natural culture.’” Sustainability is important is because as living beings of nature, human must be responsible for what they are doing. Which mean finding balance in their action with the environment, society. For every tree a person cut down, he must plant a new one to keep the cycle going without slowly killing it. It is for the long run of humans and to coexist with nature. The same idea was also stated in her conclusion: “Sustainability is important for a very simple, very straightforward reason: we cannot maintain our quality of life as human beings, the diversity of life on Earth, or Earth’s ecosystems unless we embrace it”

### 3.3.1 Sustainability for economy

First of all, the company must manage to survive or sustain itself in the economy. Efficiency and minimizing cost are the keywords to the success of operating the company. Of course, the actions must be carried out without sacrificing the performance or functioning. For transportation/delivery services companies, fuel or energy is the biggest issue to tackle. A more controllable, efficient method may cut down the time for each process, meaning less energy waste but more profits are generated.

For instance, a normal process includes receiving orders, scheduling orders, carrying out orders, and returning to take new orders. However, in a more desirable situation, combining orders with the same or near destination may save time, or receiving order while returning and vice versa could be more profitable.

A sustainable business is a business that revolves around environmental principles and social responsibility that ensure the functionality of its business as well as the general business (Mar 2013). Such business will also attract, draw in investors, partners who understand, or see the ideal behind the process. As a result, it may require high-level services to keep up, however in the long run, the reward will pay off.

### 3.3.2 Sustainability for environment/society

Next come the responsibility for its impact in environment/society. Fossil oil and gas is a huge problem to the environment. Green gas effect is worsened with the growth of city which is putting stress on the future generation. An efficient work would reduce the effect in the long run without sacrificing working capability. So by aiming for a economic goal, company may actually achieve a second one which is favorable for society.

Take an example of Schipol Amsterdam airport, recognizing the alarming rate of climate change around the world, programme manager corporate responsibility Denise Pork shared his idea about a sustainable airport. In which interview conducted by Airportbusiness (2018), he stated: "We truly believe that sustainable business is key for our license to operate". As a matter of fact, Schipol has set out to be a pioneer in the green industry. They managed to reduce the carbon emission, change every

transport service to electricity as well as protecting the well being of neighborhood. The phenomenal work earns them the 2018 Eco-Innovation Award.

For transportation business in cities, which has always depend on fuel, the transition to renewable energy is slow. However, the future is bright as company like Tesla is developing electric motors which can someday change the way people use energy in the world. In the meantime, small steps can be taken beforehand such as packaging using recyclable materials, using smart system for the warehouse, using renewable energy,...

## **4 Developing city into megacity**

### **4.1 Development of cities**

Cities are a human-made ecology that fits for the human condition and provides essential needs for human well being. It is a place for people to live, work, develop,... with protection and security. Internal management and systemization is the key to the survivability of such cities.

According to EMBARQ (n.d.), ideas of cities came from a long time ago, at the time of Ancient Greece. The ideas form by architects, writers, and philosophers to gather many families to create a tribe where people helped each other and each fulfilled their own duty: guard, hunting, raising cattle, farming, raising the next generation, leadership,... The very first city planner was Hippodamus of Miletus, also regarded as the "Father" of urban planning. His deep knowledge in various fields together with the rise of reconstruction after wars had led him to build up a place for a large population that can harbor transportations, entertainment, government,... areas in a compact place. The very first city was formed and the concept was passed through generation. With each improvement after each generation, the city becomes larger, grander, and more modern. The challenges for the current city is harmonized the development with nature, minimize the harm for the city, and discover new infrastructure that could improve quality of life.

## 4.2 City characteristics

Modern cities is well known for being a fast, exciting lifestyle that draw people in, which contrast with country lifestyle where it is more calming and peaceful lifestyle. Such difference is because cities have many unique characteristics that rural areas do not have. According to National Graphic (n.d.), urban areas are advanced, highly dense areas of houses, structures and people. This was thank to the urbanization and immigration process in modern world. As a result, knowing the traits of city will company to operate more fluently and be able to establishing themselves easier.

### 4.2.1 Population

Cities are usually gathering of the mass population in a tight area. The number can be between a hundred thousand to millions of people in each city. A capital city or economic city usually has a higher amount of people due to importance in culture, appeal, or amount of work opportunities. Ho Chi Minh city is the latter type, which is an economic city. As a result, operating in such city means companies have to compete for every small share of customers to be on top of their opponents. Nevertheless, having a huge population is an overwhelming chance as it is a large number of potential customers. Understanding of the customer preference, trend, is the key point to attract customers is the key point to expand influence and growth for the company. The challenge of having a huge pool of customers is responses. An overwhelming amount of orders, constant feedback can exhaust the company workforce and time to resolve. The pressure from a mass of people can affect the function of the company, causing delay and disruption. Bad responses can also lead to brand damage, which spread fast in cities and cause losses to the company. A huge population can also cause issues with direction or moving between locations. Therefore it is needed for the company to have a proper layout and understanding of the city to operate in big cities.

### 4.2.2 Infrastructure and technology

To cope with a huge amount of population gathers in a small amount of area, technology and infrastructure are needed in filling the gap. As a result, city facilities are usually constructed with aim of convenience, compact, and fluency. Streets are built

in every corner of the city, bridge and junctions exist to support the flow of movements. Such idea easily leads people to misunderstand that transporting in cities is a simple task of moving from point A to point B. Humans are not perfect, incidents can happen here and there that cause the system to spin out of control. For example, a huge amount of people coming to work at the same time can cause congestion as well as road maintenance that could cause commuters to change their usual route or create blockage. Those situations can happen in very developed cities with heavily invested facility. Companies in developing countries or new megacities, which have not been able to keep up with change and growth speed, will suffer from a lack of sufficient infrastructure.

#### 4.2.3 Compactness

The main explanation of the city's compactness is to maximize the number of people living and at the same time minimize the area of living for other facilities: hospitals, recreation centers, schools... As a result, cities are usually separated into different areas for better management. This is an advantage for people living in cities so that they could choose an appropriate location. For transportation companies, huge cities with high amount of districts or areas are a nightmare. Finding the best routing or algorithm to work with the flexible amount of location, destination and have to make do with the time given is troublesome, not to mention all the accidents or problems could come up anytime with cities with this scale.

#### 4.2.4 Convenience

Finally, big cities' best feature is their comfort and convenient lifestyle. There are plenty of entertainment spots around the city, advanced tech appliances to cope with every need, electronic equipment that can be connected everywhere. People can just stay home and get everything they need through the internet while relaxing. For that very instance, the requirement for the quality of goods or services is high as well. Quality-cost-value is three requirements that need to achieve at a high level and without sacrificing any of the core values. On the bright side, the better company manage to present their operation, the better chance customers will be loyal and re-use the service or recommend to other people.

### 4.3 Megacities

Megacities were not something that existed in the past. As society grows, quality of life is more better, towns, cities, big cities, and megacities were born. According to Statista (2019), megacities are cities that have more than 10 million people. For comparison, a normal stadium can have approximately 100 thousand people, 10 million is one hundred times that number which means 100 stadium lines up next to each other can create a megacity. However, cities also need spacing, facilities, and necessities thus making megacity much bigger.

The sudden rise of mega cities was a trend throughout the world. According to research from Kotkin (2014, 7), there were only three megacities in 1975, which were Tokyo, New York, Mexico City. In just nearly three decades, the number has grown astonishingly to 29 megacities spread out on every continent. Such change was the result of developed technology, knowledge, and culture that attracts people to come to cities for a better life and better opportunity.

Megacities are currently the biggest settlements that exist in the world. As a result, they are regarded as one of the goals or a final stage of the modern city that every city is currently heading to. Although there are only dozens of megacities that exist around the world, they each held their own value and became the focal point of the country.

### 4.4 Ho chi minh City

#### 4.4.1 Introduction

Ho Chi Minh city is the largest and most developed city in Vietnam. According to HCM city history (2005), the city dated back to the 17th century where it was first established and called Gia Dinh city, which then changed to Saigon in French colonization and later Ho Chi Minh city after independence. Ho Chi Minh city is located in the center part of southern Vietnam, with many favorable geographical conditions such as vast flat area, little to none disaster occurrence, centered by supporting agricultural or industrial areas and having Saigon river flown through. Such reasons attract investors and foreign culture to gather and create a very diverse and dynamic city.

Ho Chi Minh easily becomes the most important economical and cultural city that pioneer the direction for the growth of Vietnam.

In a recent report, Ho Chi Minh city is nearly reaching 9 million population. According to Tran (2019): “At least 200,000 to 400,000 people migrate from rural areas to the city every year”, the city is expected to grow to 10 million people or become a megacity at latest in 2025. As close as a megacity is, Ho Chi Minh city, although lacking in many departments, is still finding solutions and planning to prepare for the transition. Ho Chi Minh has already had many characteristics with a megacity that allow it to be able to step up in the future.

#### 4.4.2 Life in Ho Chi Minh City

As a fast-growing and the largest city in Vietnam, Ho Chi Minh is the center and leading topic in every aspect of a city in Vietnam. The city is always busy and excited whether night or day. The diverse amount of people coming from different areas makes Ho Chi Minh a culture hot pot where new things are born every day, whether it is food, attraction, living style,...

Being the largest city in Vietnam, Ho Chi Minh city also has the highest amount of population and population growth. According to Ceic statistics, in more than two decades, from 4,5 million people in 1993, it rocketed to 8,6 million people in 2017, almost double the previously registered number. The population of Ho Chi Minh city consist mostly of western Vietnam where agriculture is the most developed and the people who have been living there since feudatory days. There are also northern and central Vietnamese comes to make a living or for business but settle due to love for the establishment. Despite how harsh and competitive living in the city is, it always rewards the most hardworking people with fortune, excitement, or entertainment that cannot be found anywhere else in the country.

In Ho Chi Minh city, people will usually hear the word district or “Quận” that comes from number 1 up to 12 and some other named districts. This is the answer of the government to cope up with the administration of a huge population by divided the city into smaller areas. In that regard, district 1 is perceived as the central, the most developed district with many services, which is also usually the place for tourist or

entertainment. Then there are surrounding districts in number, where most of the citizens lived in. The named districts are usually newly joined cities located at the edge of cities. In Ho Chi Minh city, due to cultural preference, residents usually favor houses over apartments because of the sense of belonging and owning. As a result, this causes huge stress on the city population which does not have many spaces. In a recent trend, the city is developing new living areas and also facilities for the living area such as metro trains, new roads, malls,... to attract any newcomers or redistribute the current population.

According to vietnamnet (2010), Ho Chi Minh city is the leading city in Vietnam in economy and development. The city itself contributes more than a fifth of the national GDP, provides millions of jobs and careers for people. As an economic center, the city mainly focuses on industrial business and provides a wide range of services. Ho Chi Minh city does not necessarily produce goods or grow crops but act as a central market for trading and purchase from its huge population or to different province, country. In recent years, the industrial zone is slowly pushed into the outer edge of the city. It was to create a new industrial zone or satellite cities that support the upcoming mega cities itself. The supporting area is named Southern Focal Economic Zone (SFEZ) that consists of Dong Nai, Ba Ria-Vung Tau, Binh Duong, Long An, Tay Ninh, and Binh Phuoc provinces. Binh Duong and Dong Nai city are the first two satellites city which are hoped to nurture, support Ho Chi Minh city and grow from it. The government is also preparing to make a named district, Thu Duc, into a new satellite city in a near future. As a result, Ho Chi Minh city can focus on developing education, healthcare, technology,...

A modern lifestyle in a city with high technology that brings convenience and comfort is the aim of any big city. 4.0 technology has become a common word and trend in recent years as a way to realize the modern future lifestyle ideal. Ho Chi Minh city quickly adopted the new concept and develop many new services in recent years. Uber or grab booking service through phone app has career exploded in 2018 and replace the traditional taxi service. The streaming industry sudden rise also became a hot topic. Smart technology also arrived with smart TV, touch screen laptop,... which change the perspective of people in Ho Chi Minh city about modern city.



#### 4.4.3 Transforming into Megacity

Ho Chi Minh city is near to its historical moment of becoming a megacity after 300 years of establishment. Tran (2019), upon the topic of Ho Chi Minh city becomes a megacity has claimed that: "Ho Chi Minh City is not a megacity yet. But it's very close". As a leading city, the city has to carry people's dreams and expectations. For which, Tran pointed out the city's strong factors as well as ongoing problems that need to solve for the city to truly change.

First of all, Ho Chi Minh city faces obvious drawback that it is still a city of a developing country. According to Kuepper (2020), developing countries are defined as: "Developing countries are countries with economies that have a low gross domestic product (GDP) per capita and rely heavily on agriculture as the primary industry. When it comes to regions of the world, developing countries have not quite reached economic maturity, although there's a wide array of different definitions.". The definition matches Vietnam's current situation, where the country economy is slowly changing from agricultural to industrial, and to services economy in big cities like Hanoi, Da Nang, Ho Chi Minh city,... A developing country also means that the average level of education, healthcare, technology is quite not on the same level with the world, thus could end up hindering the growth of the city. A low GDP is also problem to be considered as megacity tends to have a bigger budget or spending than a normal city. More facilities and infrastructures mean more maintenance needs to be taken care of.

Second of all, Ho Chi Minh city lacks a history of development. It only established 300 years ago, which most of the time is in war. Although the colony time of France or the USA contributed to the growth of city development in infrastructure and construction, the city development itself barely move post-colony period. Slowly, Ho Chi Minh city was left behind when compared with Seoul which has a similar history. The limits of infrastructure lacking after war days were seen as truth and people were neglecting in developing until recent days, where there is a need of integration, equality with other countries. Nevertheless, efforts are still being made by the people. Send-

ing children to study, signing contracts for multi-national projects such as metropolitan subway, tunnel through Truong Son mountain range to approach new knowledge is a late, but necessary step.

Finally, the population math puzzle is proved to be the hardest of them all. Aside problem with the budget, facilities, or underdevelopment, the arrangement between the living area and the business area is not distinguishable. In Ho Chi Minh city, it is simply house after house, building next to building without a clear meaning of distribution. The thing is, people have been living around for a long time and bought, owned their place, and shared the place for many generations. When the time came, moving people around in a cramped city without proper compensation is not an easy task. The lack of distinction between the living area or business area, entertainment area meaning the city easily become chaos at busy hours. Congestion can be seen on a daily basis when commuting. Not to mention, due to the city's budget, the city also lacks public transport such as metro or subway. People living at different locations, moving to different parts of the city create contrasts that require infrastructure yet the city can not provide as unexpected growth cause hindrance in many ways.

It is a make-or-break point for not only Ho Chi Minh city but also for Vietnam. With the change of the city, the country is also expected to grow tremendously. In conclusion, Tran (2019) believed that Ho Chi Minh city deserves to be mentioned and regarded in global community as the upcoming megacity. If people living and doing business in the city manage to find a certain solution to solve the problems, the city will transform in a most wonderful way.

## 5 Transportation and technology

### 5.1 Development of transportation

According to Robertson (n.d.), the history of transportation first started from long ago in between 4000BC to 3000BC. It was the time humans used horses and camels to move around. With the appearance of wheels made from wood in 3500 BC in Iraq, transportation became more diverse and could transport a larger amount of people. Roads were also developed as a more efficient way to travel. At a later time, water transportation also developed as wooden ships and boats are used for moving in river and lake. This marked the very first generation of transporting with simple craft-ing and usage. When cultures and handcraft ability were more developed, transpor-tation also grew. Carts made from materials such as bronze, iron were more durable and faster, able to handle more weight. At that time, cities around the world are formed, roads and tracks were indicated better using compass and map. Transporta-tion had become an essential part for human daily life. In the 17<sup>th</sup> century came the glorious time for creation and industry. Steam engines brought forth many new in-ventions such as boat, ferry, train a new transportation mode. Carts drawn by horses were then replaced by cars with engines. Balloon ship was also developed at this stage as a hope to conquer the sky, which later developed into airplanes. Finally, the modern era marked the era of mega vehicles. Big ships and boats that could carry thousand people, airplanes for economical usages which could travel fast or bullet train were all wonders that inherited from a thousand years of development.

### 5.2 Sustainability technology for transportation

#### 5.2.1 Transportation technology

Technology for transportation has come a long way, from using horses, wooden carts to steam engines, and finally electric, fuel engines. The process and transition of technology through time has not been easy and straight forward. However the re-sult, humans still manage to find ideas, bring out creations after creations to enhance the ability of transportation.

For recent years, according to King (2014), car companies have been focusing on

smart driving technology or Intelligent transportation systems (ITS), which brings value to both safety and convenience for consumers. In which article, he firmly believed that ITS will shape the future of transportation. For example, BMW, Toyota, and Ford are all developing their own self-driving system as well as sensor systems to track road signs and surroundings. Self-driving has many benefits: save fuel, cost as more efficient drive-stop, more stable speed, lengthen the lifespan of products. On a higher level, technology for transportation in the modern era does not just stop with smart cars, it is an ideal safe city. A fast-moving lifestyle means busy streets with a huge amount of vehicles. King (2014) believed a system to coordinate from car to car, car to traffic systems is necessary to ensure safety. There is some recent technology in that regard: Mobility as a service (MaaS), which covers schedule for moving from point A to point B from bookings, calculating cost; Advanced Traffic Management System (ATMS), in which a team will manage the traffic rate, traffic signal and adjusting on real-time. All of the transportation technology can contribute to a better society or become a part of a sustainable system.

### 5.2.2 Sustainability technology

The understanding of transportation technology is a great boost to efficiency which cut a significant cost for the company. However, running a delivery service does not rely solely on moving between location, it is also the math, the system that running behind the scene. Sustainability technology is a tool in which helping company control, manage the overall function, tasks more smoothly, and at a moderate level. The higher level of application, the higher precision, and the less manual work employees need to do to focus on increasing efficiency.

#### 5.2.2.1 ERP system

According to Labarre (2020), Enterprise Resource Planning or ERP is a system that manages the information and the operation of the whole company. ERP can cover every department of a company: accounting, procurement, production planning, supply chain, transporting,... The technology exists as a tool to access, input information as well as predict, plan, provide the information to improve the efficiency of the whole company. Some of the most famous ERP system providers are Oracle Corp, SAP, or Microsoft.

However, though self-made or using a service provider ERP system, Labarre stated that if not implemented thoroughly, the cost could be higher than expected. Each ERP system from each company will have distinguished traits that require employees to learn. As a result, the installation of the new system and training and the transition could take years for the operation to reach its maximum potential. Also, the ERP system needs its own house and caretaker as the amount of data and data transmitting speed is enormous which could easily cause the server to overheat. The result of having to process massive amounts of data at high speed will require maintenance periodically.

#### 5.2.2.2 Real-time application

According to Rehman (2014), a real-time operating system (RTOS) works as a tracking system that records actions, operations in real-time. For a delivery company, this allows them to follow the movement of goods and trucks. Broader information flows allow the company to control the change, make the flow more flexible, which increases efficiency and high precision.

The drawback of a real-time application is it may need a trained team and a high budget for operation. Rehman mentioned several disadvantages of the system such as real-time application using raw data transmitted in real-time and need an immediate response, the information sometimes is shortened and need experienced user to work on the data. The information is also more complex can only handle several tasks at the same time. As the system using real-time as a unit of measurement, the technology needs to be advanced to keep up. Good connection, good signal wave, no error on the system is the utmost importance and altogether, it is costly, typically in big cities where the error of margin is required to be as small as possible for the system to work perfectly

#### 5.2.2.3 AI application

Artificial intelligence or AI is a concept based on the famous question by Alan Turing "Can a machine think?". If a machine can think, we would be able to teach them and have them done the job with mechanical precision. According to Frankenfield (2020), AI is an advanced add-on tool to support company operations. The ability to calculate data, analyze, and return data make AI a specialized worker and the result is trustworthy. AI machine will be able to replace work that is tedious, repetitive that could

cause human errors if working for long hours.

Frankenfield divided AI into two types: Weak AI and Strong AI. Most company use Weak AI to handle only one task at a time. In which case, AI understanding is based on numerical data and they could only understand the job if they can thoroughly process all of the surroundings into numerical data for every situation. As a result, AI machines require a closed and unchanging environment to process the work. While on the other hand, strong AI requires a sophisticated usage and understanding to fully implement the system, which could cost time and money in research and building a system that does not need human intervention. Overall, the more advanced Artificial intelligence is, the more expensive it is to purchase and maintain the usage, so the total cost of ownership may not be positive in short-term usage.

#### 5.2.2.4 Example of sustainability system

Around the world, sustainability has been a hot topic that it pops up in many locations. Green project, green car, green system has been in trendy in recent years as a part of sustainable system. From a mere concept in 1713, sustainability has come as far as being used in reality, with a little help of human technology. According to byteant (2020), Walmart, in hope of pursuing a clean system, has been using the help of AI and built-in IoT technology help to reduce the energy used in warehouse and at the same time boosting their performance. They even go as far as using Phone app or QR code in providing online service for customers. Microsoft also believes sustainability is a way for protecting the environment and encouraging other companies to go "green". As a result, an AI technology in controlling energy for the company has been applied and saved a great deal amount of energy. Sustainability can bring upon good change for the modern world with the help of technology.

### 5.3 Transportation in cities

#### 5.3.1 Ideas of road transport/delivery services in cities

A city is a narrowed area with limited space to move around. To travel in a city, a means of transportation is required, whether public or personal vehicles. As technology developed, alternative means of transport were born to filled the need of traveling around the city. It could be a cheap, enjoyable ride in a bus, fast and easy to

reach subway, or open space relaxing atmosphere on a boat. Nevertheless the choice, road transportation is always the most popular one of them.

According to Stainton (2020), road transport is popular is because it is the most used mode of transport in the world. Whether it is shipping goods, daily usage, or traveling, road transport overwhelm other modes in availability or convenience. Historically, road transportation is the oldest mode of transport that supports the growth of humans in economic and social development. Moreover, Stainton also stated the importance of road transport in connecting between modes of transport, acting at the final delivery between two ends of a shipment. Ability to travel to a rough environment, landscape freely is the huge advantage that road transportation have over other modes. For big cities, which have integrated systems and infrastructures built solely for road transport, the importance of road transportation is even highlighted higher.

Road transporting fits the lifestyle of big cities that requires convenient and fast movement. As the city growth depends on trading through road route in the early time, road transportation slowly became the most important and most harmonized with the city. Vehicles using road transport have the benefit of easy to travel around, have proper space for parking, and have their specific law, privilege. Parking lot, roads with clear separation of lane, streetlight, highway,... are all built to support the usage of road transport. As a result, neat but fast is what people expected when driving a car, with which you can drop off anywhere, travel to any point in the city without much difficulties of availability or schedule like other means of transport.

### 5.3.2 Road transportation and delivery services companies

The service industry is all about reducing time waste, bringing convenience for people so they can focus on their work. Delivery service is a necessity in modern life that can help in shipping long distances, shipping bulky items or large amounts of goods, saving time for the customer. As a result, transportation companies in recent years have been growing non-stop and achieve some success. Delivery service can operate in many routes: air, water, road, train,... depends on the scale, international or domestic service. However, for city delivery service, road transportation is the absolute most important one.

First of all, road transportation is the main type of transportation in the city. Delivery companies use trucks/ containers as main vehicles to pick up or transport the goods. Trucks and containers can hold a large number of goods and can move quickly between locations make it's the ultimate choice in a city. Second of all, road transportation has its advantage over other means of transport at cost. Usually, a delivery company only operates in a small area around it. There are cases of long-distance transporting but those are rare cases or only in an international expertise company. As a result, road transportation the ultimate choice in saving fuel and time for short-distance shipment. Finally, road transportation opens up many opportunities for delivery service. As cities usually stay deep inside the land, in order to transport to different continents, road transport is usually used as a connecting trip at two ends of a shipment. Thus the connection can lead to cooperation which is beneficial for the company to expand influence and earn more work.

According to needitnowcourier (2018), there are currently two types of delivery that can be seen in a city. One type is common usage which usually offers small delivery like mail, present, or online delivery, called courier shipping. This service aims to help and reduce the time for workers and mostly is for personal usage. The second type is shipping bulky items, shipment in big quantities using trailers, containers, called freight courier. This type mainly works for other companies and in charge of most of the business-to-business orders. Although the difference, they both share the difficulties of moving in the streets and are connected. The freight courier delivers all the items to the distribution center while the courier shipping helps in deliver the distributed goods to the respective customers. For instance, Tiki company, which is a famous online market in Vietnam, must have its own warehouse. They will regularly use the freight courier delivery service to supply goods so that when customers book an item, they can ship it using their own courier shipping delivery service. The support relationship helps both types of service grow without competing with each other, which is a healthy relationship.



## 6 Research findings

### 6.1 Ho Chi Minh city's road transportation situation

Ho Chi Minh city is situated right in the center of southern Vietnam and acts as a transshipment point for trading, traveling in the area. Being the biggest city also contributes to the fact that, Ho Chi Minh city has the most amount of roads and routes compare to anywhere in the country. Nevertheless, the city road transportation situation is still chaotic and unable to satisfy the need of people, which people hope for more change coming from the government in the future.

Ho Chi Minh city has a variety of vehicles for road transportation. The most notable and popular ones in the city are motorcycles. According to Nguyen D. (2019), the motorcycles market still continues to witness growth from 2014-2019 despite the upcoming subway construction. Nguyen D. also stated that Vietnam has the highest percentage usage of motorbikes with 79% of Vietnamese using the mode of transport. This can be explained as the environmental condition in Ho Chi Minh city is usually is hot, dry. To avoid the annoyance of such weather, most citizens choose to use motorcycles over any other vehicle. Cars are the next most popular vehicle in the city which has limited usage as the street is normally crowded which affects the speed of moving. Finally, there are also bikes or electrical bikes which are much cheaper, suitable for students or close distance traveling.

For public vehicles, the city offers a huge network of bus routes that can move to every part of the city. For the time being, the bus system is the only public means of transport in the city. In the near future, it will be able to share a great number of customers with the metro lines. The city currently has 136 bus routes, more than 2500 buses that have more than 300 million customers yearly. The bus system offers a cheap price of traveling for the same amount of moving distance and add a discount for students/ impaired people so it is quite popular for tourist/commuters. To meet the needs of a huge population, the city has to release a large number of bus routes and buses for each route, which in the end, causing congestion or competition between buses for customers. The situation is even more chaotic as the logistics for buses situation has not been solved for years and the bus routes are still being kept the same way until today. The harsh condition of work plus narrowed street makes

bus the most hated and notorious vehicles in the city. For an alternative choice of public vehicle, taxi service is an excellent option as it provides a much faster, comfortable ride. With many taxi brands operate in the city, the price is heavily competitive and usually fair for customers. There are around 12000 taxis in the city with more than 10 brands competing in the area. Taxis is one of the most popular when it comes to parties or gathering events and have been a part of the modern city for decades.

The most notable limitation of the transport situation was the lack of viable mass and fast transport. According to Department of Transport (7-10, 2010), the street is always crowded while the available spot for parking is only 1% of required for the city. There are no real connections between areas in the city and the lack of viable transport mode in the city prevent flexibility and put stress on road transport. If the street is busy, vehicles can only move with a speed of a maximum 10 km/h according to the report and the congestion can last for a few hours. The slow urbanization process and adoption put the city behind in control of the housing area as well as industrial areas as they mixed up together in the city. The popular usage of motorcycles in the city prevents the movement of big, multi people vehicles in the city. Meanwhile, the lack of public transport contributes to the favoritism of personal vehicles making the street flooded with vehicles. Not many solutions were made by the government, in which the only feasible current method is expanding roads with could still take up years. For now, the only hope for the city is the upcoming urban railway metro that opened up new opportunities and variety.

## 6.2 Ho chi minh city's infrastructures

While Ho Chi Minh city has gone through changes and development, the city is still lacking in overall structure, especially in the inner city area. In the later date after the wars, Ho Chi Minh city focus on stabilizing and reforming the city system that the main part of the city become slowly underdeveloped. However, as time passes, more people coming in and settle down and solidify the inner city area. The city steadily becomes inflexible and hard to adapt to change. Finally, when the time comes for development, the government faces difficulty in applying new technology or construction as the environment has become rigid.

The city can be separated into two areas. Based on the following Figure 1 (Ho Chi Minh city Wikipedia), the city is divided into: Inner city which contains district 1, 2, 3, 4, 5, 7, 10, 11, 13 (Bình Thạnh), 15 (Gò Vấp), 16 (Phú Nhuận), 17 (Tân Bình), 18 (Tân Phú), and Outer city which contains district 6, 8, 9, 12, 14 (Bình Tân), 19 (Thủ Đức). The difference is that the inner city districts are more developed and have a high population which is more expensive. Meanwhile, the outer city districts are less populated, less developed, have more opening houses which are far cheaper but harder and longer to travel to inner city.

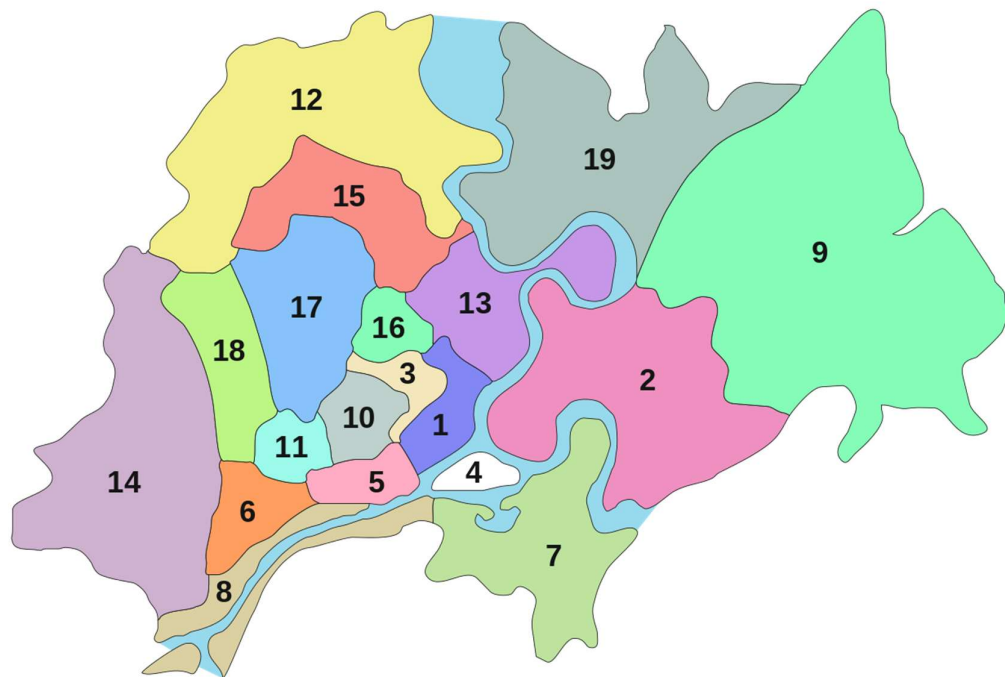


Figure 1. Administrative divisions of HCMC's urban districts – Ho Chi Minh city Wikipedia

1–12. Districts 1 to 12

13. Bình Thạnh

14. Bình Tân

15. Gò Vấp

16. Phú Nhuận

17. Tân Bình

18. Tân Phú

19. Thủ Đức

In recent years, the government has been trying to improvise the situation with some change in the inner city districts. Renovation of road, opening up new space, applying

new construction such as overpass bridge, parallel street, more connecting pass between districts are some of the notable changes. The problem is the changes have always been slow with how packed the cities are, and they do not even seem enough. Every construction in the city will cause stagnant, congestion at the place cause disturbance in the city's life, lengthen the finish time of the project while causing burdens on the traffic situation. Yet, changes are still needed to be made to improve the current situation.

Contrast to the inner city area, surprisingly, the outer area seems more developed. This is because the time for development is set at a later time that hits just in time with the expansion of the city. Government has more time, space, and experience in the management of this area than the inner city where everything is set already. Also, the outer area acted as a connection gate of the city other regions, so the infrastructure is more developed to allow travelling or moving around in the outer area is more comfortable and accessible.

Nevertheless, the city still has some impressive constructions that create more routes, connect areas, or lessen the burden of main roads. Here is one of the most notable projects that the city has built, Sai Gon River Tunnel or Thu Thiem tunnel. According to Nguyen T. (2019), Saigon River tunnel opened to traffic on November 2011 which runs 1.49 kilometers, 27 meters under Saigon River is the longest river tunnel in South East Asian area. It was built as a part of West-East avenue which connects District 1 to new Thu Thiem area. It was created as a new path for trailers, heavy trucks, coaches to run through without having to pass into inner-city. This reduces a lot of time moving as well as lessen the burden of inner-city busy streets. The project was built with the cooperation of Japan to create a first-ever underwater tunnel in Vietnam. As a result, the opening of Thu Thiem tunnel marked a new era of change for Ho Chi Minh city, where modernization was the priority. Upon finishing, the tunnel granted a better connection between the city with the eastern and western regions of the country, which allowed more trading. It was a remarkable project that improves people's quality of life as well as helping transportation in general.

Although the structure in the city is not complete and needs more customization, the city itself did a great job in orientation the connection of city routes. The city is using parallel routes system which has either west-east or north-south roads running

along or paralleling to each other to create alternative routes in moving without putting stress on one road. Realize the potential of the trading market of the city, the government invested firstly in main routes that connect the city with other regions through important streets. Notable ones are Dien Bien Phu street which connect to highways, Truong Chinh, Truong Son which connect from Tan Son Nhat airport to inner-city area. As the biggest city in Vietnam, Ho Chi Minh city is also the start of many main roads in the country such as route 13, route 22, route 50. Even with the reconstruction of inner-city area, the city itself still ensure the availability of trading and connection with different regions to create value and accomplish its responsibility as the main city in Southern Vietnam.

According to Saigoneer (2016), one of the oldest and most used routes that contribute greatly to city growth was Hanoi Highway. It used to be called Bien Hoa highway as it connected Ho Chi Minh city with Bien Hoa city in Dong Nai, a satellite city of Ho Chi Minh city. It later changed to Hanoi Highway in celebration of 30 years of Hanoi liberation. The highway usually takes around two to three hours to travel from inner Ho Chi Minh city to a split road, one branch to Bien Hoa city, and another to the national 1A highway. As Bien Hoa city of Dong Nai province is regarded as Ho Chi Minh's satellite city, the route connects between both city acts as an important bridge. It used to be only 21m in width but with the increasing usage of the route, it was later expanded to 142m in width. This opened up more lanes for vehicles, varying between 6-16 lanes depends on the segment of the route. With the availability of the highway, many companies such as MP Logistics can choose to open up a branch in Bien Hoa city near the factories, customers but at the same time still accessible into the city.

### 6.3 Ho chi minh city's law limitations

To maintain the order of society, law and regulation are needed. For a big city, where there are a high amount of vehicles moving and trips occurring every day, rules are extremely important for safe transporting. The better the laws, the less amount of unfortunate incidents can happen. Ho Chi Minh city had specific regulations for road transport and company that doing delivery business had to figure out the limit and make use of the law.

According to Nguyen (2015), the Ho Chi Minh city's regulation is outdated. Comparing with foreign countries, Ho Chi Minh city road traffic rule is still incomplete and unfavorable for cars. First of all, because of mismanagement and conviction in urban planning, the streets are extremely narrowed and not fitted for cars or heavy trucks. Houses and buildings take most of the space in the city, which shrunken the area for the streets. The city is so crammed to an extent that houses appear in alleys of alleys, which are mostly only accessible by motorbikes. Second of all, the priority for cars/trucks or the lack of public transport put more stress on road traffic. In most western countries or developed countries, cars/trucks are usually given multiple lanes to provide more space or alternate choices in driving which creates a more stable and safe transport. The situation is different in Ho Chi Minh city. The lack of public force people to travel on the streets which causes the dominance of motorbikes which are more popular and cheaper. As a result, cars and trucks are only given a small amount of space or lanes to travel on while the rest is given for motorbikes. Not only that, the clear definition of lanes for heavy vehicles (cars/trucks) versus light vehicles (bike, motorbike) almost does not exist in the city. This is also the main cause of congestion and stagnant as motorbikes usually hustle in the lane for cars, causing disturbances and occasionally accidents. Finally, the law is not updated and unsuitable for big cities like Ho Chi Minh city. Modern cities focus on speed and stability in trafficking, which is ensured by developed infrastructures. Ho Chi Minh city's most important ports such as Tan Son Nhat airport or Coaches station are all located in inner-cities, which force heavy vehicles to move inside the city. As a result, rules are given to prevent accidents for commuters. According to a written law for traffic law (2018), decision number 23/2018/QĐ-UBND made on 19/07/2019, light trucks are limited to move in the city from 6 am – 9 am and 4 pm – 8 pm while heavy trucks are limited to move in the city from 6 am – 10 pm. With some exclusion for routes in the rear of the city, trucks or trailers have to wait until nighttime to operate. This affects the working rate and efficiency of many transportation companies

#### 6.4 MP Logistics resources and situation

MP Logistics operates in most parts of Vietnam however, Ho Chi Minh is the most important area. Ho Chi Minh city's market is the gather of many foreign companies and

is regarded as a trading center so the opportunities, as well as responsibilities, are much higher. Ho Chi Minh city is also the pioneer city of the country, so development in Ho Chi Minh city will be a great start to slowly develop in other regions as well.

MP Logistics has about 500 employees working in Ho Chi Minh city section which is separated into two locations, one headquarter situated in the core of the city while the other sub-branch in Bien Hoa city, Dong Nai. This allows the headquarter to focus on management while the second location act as vehicles parking ground which focuses on transportation service. The sub-branch also has geographical advantages as being close to the industrial zone with many loyal customers' factories as well as near Hanoi highway which can travel to Sai Gon easily. There are currently 3 types of main road vehicles: cars, trucks, and trailers. In total, there are about 100 vehicles currently available. That number allows MP Logistics to carry on multi-task simultaneously and at different levels. On daily basis, the company usually receives and carries out 30-50 trips both in exporting and importing shipment. One trip usually takes a day or two depends on the order receive time or distance of traveling. This is due to the restriction of vehicles in broad daylight or combined trips to reduce cost.

Normally, when receiving an order or trip, the company usually follows a common pattern. First, MP Logistics receives a request from customers to receive or deliver goods. If it is an exporting order, the company then creates a registration number for the container at the port called booking number while also creates a work order on its system. The company will then follows the work order to create a trip for picking up spare containers at a registered port to pick up the goods at the customer's place. The container will then be delivered to the port and reported back to the company when finished to close a work order. If it is an importing order, the task will be a little simpler. Working order will also be made, however, booking number or container has already been made so MP Logistics will only need to assign trucks/trailers to pick up containers and deliver to customers. Receiving container time and delivering time must all be noted to complete a work order. Of course, picking up and deliver containers at ports also require licenses that will be issued by customers combine with MP Logistics work permit. The work order MP Logistics created will also be later used as sales calculating as well as income for workers/drivers and used for collation.

There are two main ports in Ho Chi Minh city, one is Tan Son Nhat airport and one is Saigon New Port which is an area of many water ports. Road transportation activities usually surround these two ports. As these two areas are the main ports for its respective mode of transport, the operation in each port can be described as busy, bustling. While Tan Son Nhat port locates in the middle of the city, Saigon New Port locates at the edge of the city. As a result, both ports have their advantages and disadvantages in receiving orders from customers. Tan Son Nhat airport although situates in the middle of the city, is easier to access than Saigon New Port. As the government realized the importance of the trading potential of the port, they quickly built a route that connected the airport directly to Ha Noi highway that allows trucks/trailers to travel easier and shorten the travel time. The area around the airport is also reconstructed to support the vehicles' flow around the port. Also, as Tan Son Nhat airport is designed to be a business area, it can be regarded as a separate area in which motorcycles or commuters rarely passing by. As a result, trucks/trailers have an easier time operating in that area. The only big disadvantage of the port being in the inner city is the restricted movement and time for heavy vehicles in daylight result in time gating the operation hours. Meanwhile, Saigon New Port is accessible day and night due to being in the rear of the city and near highways. However, the underdeveloped infrastructure around the area making it hard for vehicles to move around. The narrowed street with only one lane, streets that lack maintenance, and congestion in rush hour prevents the operation of delivery services. Nevertheless, Saigon New Port is usually more crowded and active due to having bigger operational areas as well as more advanced technology. In operation, both ports have almost the same travel distance when moving from Bien Hoa city, Dong Nai to Ho Chi Minh city which only slightly differs at the location in the inner or outer of the Ho Chi Minh city. Due to the frequency of moving between two cities, Ha Noi Highway is used most of the time. The heavy dependence on Ha Noi highway usually leads to delay from congestion that further leads to restricted time and trucks/trailers have to wait at the edge of the city. Companies also have to deal with waiting time for processing papers, late arrival of goods, errors at ports that cause time lost. As a result, the operation time might be delayed, prolonged and companies must find ways to deal with the situation.



Joining the development of Saigon, MP Logistics has also been developing its own system. A similar system to ERP called iGLS, which pronounces similar to “eagle” in English, is created to carry the hope of the company to fly high in the market. The system is made as a tool to manage the operation of the company as a whole in many areas: sales, IT, human resources,... which hope to reduce the manual work and focus more on the operation. The current or first phase of establishing the system is familiarizing or adopting the system into the company. With the help of technology, the company wishes to reduce the amount of paperwork, manual inputting. The only backlash with the system is that employees are too accustomed to using documents, papers that it is hard to learn a new system. Also, the system is not user-friendly with complicated steps that require time and dedication in learning which employees may not willing to spend. The transition into the new system also faces difficulties that translating old documents into numbers, result in new tedious manual inputting work. However, if the company manages to pass the first trial, the second phase of the system in the future will be much more promising as the system will change to using real-time application. With the help of technology, the operation team can follow and assign the work instantly to drivers. The second phase opens up more opportunities in reducing cost as well as more being more sustainable.

## 6.5 Customers survey

A survey has been carried out among citizen residents of Ho Chi Minh city to investigate the trend among customers in the preference of delivery company (see appendix A: Questionnaire for the customers). The questions answer the popularity of delivery service and how customers would prefer the service in Ho Chi Minh city in near future. In total, there are 20 answers from customers with age ranging from 16 to over 50 years old.

The first question is a general question in order to find out the frequency of delivery services used by customers. The most popular answer is often at around 50% then rarely at 35% and finally frequently is at 15%. The result shows that the delivery business in the city has great potential as about 65% of customers choose to use the service rather than buying and taking home themselves.

The second question is to find out what service customers usually ask for from the transport company. The result is 70% of customers use the delivery service buy or order online while only 30% choose to deliver goods.

In Q3 customers are asked what the distance they usually book the service for. The result comes with 55% of them to deliver goods in-city, the next highest percentage is to other provinces at 20%. Astoundingly, delivering goods between continents is more popular than through nationals which is at 5% more.

Question 4 was to find out the share of customers for transport companies in Ho Chi Minh city. The following Figure 2 shows the results. There is a variety of the usage of transportation company which amounts to eight in total. At which, the domestic companies has a slight edge over foreign companies which is at 55% and 45% respectively.

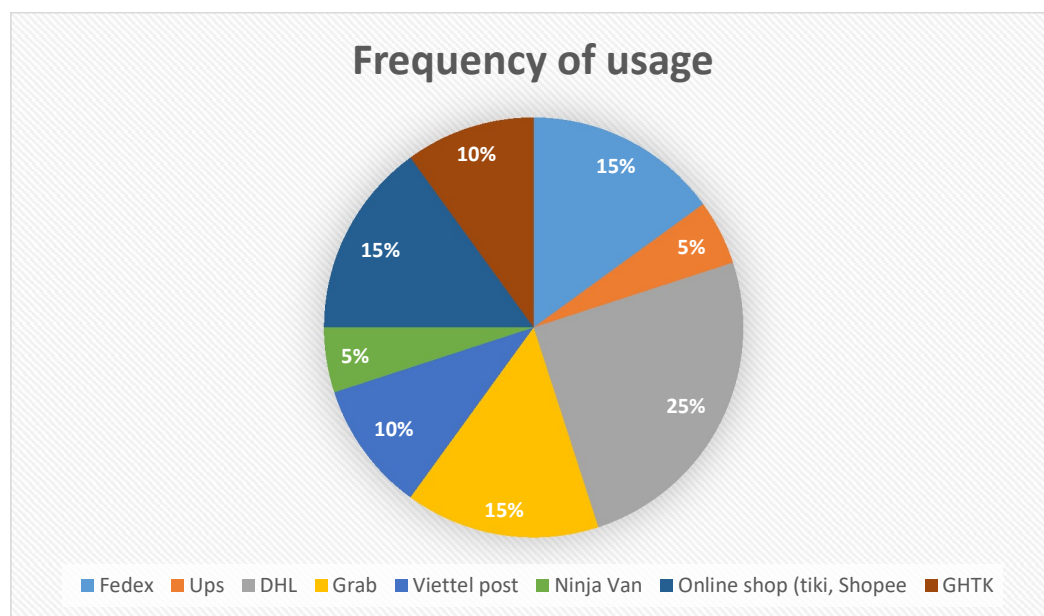


Figure 2. Usage of delivery services in Ho Chi Minh city

Question 5 was supposed to find out the popular source of advertisement that can improve overall sales. As a result, Social network or Facebook, in particular, has the highest percentage at the astounding 45%, 20% higher than the second one which is through recommendations at 25%. Society network is especially a wonderful tool to spread awareness through advertisement. Companies can gain/lose customers depend on how they handling social media. Question 6 also about the brand image of a company, in which can a company further expand their influence if customer is loyal

to the company. The percentage of being recommended can get up to 90% where 30% will definitely recommend and the remain 60% may reluctantly recommend.

Question 7 surveys customer preference for a transportation company. There are several categories that any delivery service can have. The following Figure 3 shows the results. In most of the case, the appearance of performance for transportation company is regarded higher than background supporting service. Customers care more about the results and only pay attention to communication with delivery services afterward. Among many categories, the availability of the service is the most important aspect. It means that there is a high need for service and the ability to answer the need will prove to be the success of the company. On the other hand, the tracking service aspect is less regarded as usually, customers in Ho Chi Minh order short distance delivery so tracking is not necessarily required.

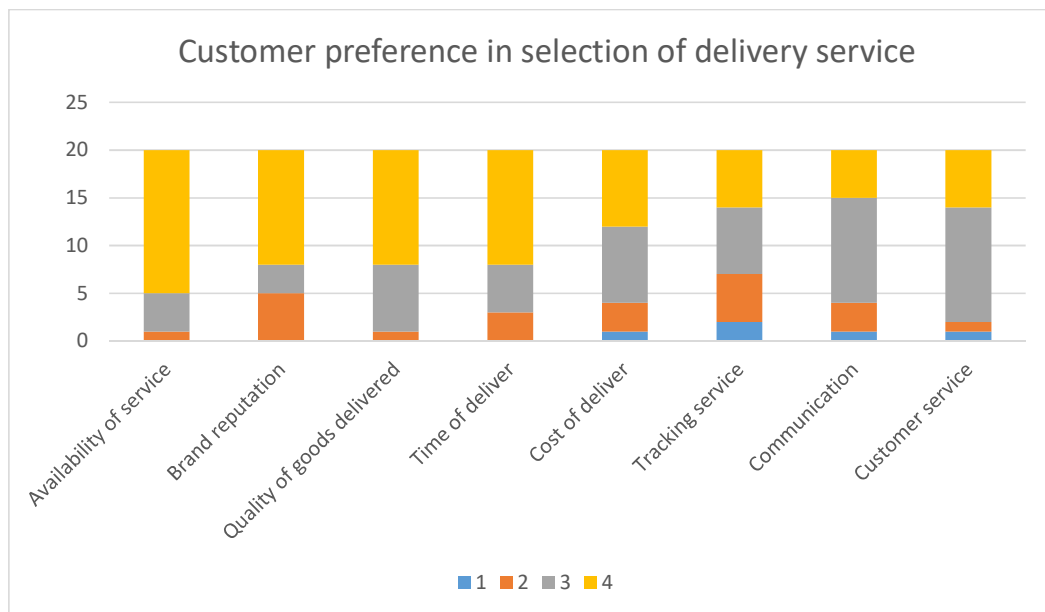


Figure 3. Customer preference in selection of delivery service

The series question of 8 to 10 is to find out how customers feel about the change sustainability may able to bring to their current system. In which, question 8 brings out the question of what is the strength of their current transportation company. 50% of the result is “easy to use” then 25% of them is “good reputation”. “Member endowment” and “Environment-friendly” share the 15% and 10% share respectively.

Then question 9 try to compare the current company with a better company “possibly using” a sustainability system. 75% of the answers reluctantly agrees to change, 15% will definitely change and 10% will not change. Finally, question 10 is how applying technology on top of the new system can draw in customers. 65% of the customers approve of the change while 35% prefer the current one. There are positive signs that customers prefer a new technology. However, they are quite reluctantly in changing their current delivery service in which they do not know how the system works and how it benefits them.

Finally, question 11 is short answers to find out is sustainability fit the characteristics of a choice in customer choice for delivery service. Most of the answers result in a fast and convenient service. Quality and care is also mentioned in the results. A sustainable system has the possibility to go along with what the customers expect of transportation service.

## 6.6 Team survey

A survey has been carried out from the system deployment team for a practical view in applying sustainability as well as technology into a company (see appendix B: Questionnaire for the System Deployers). The survey carried out in a series of short answers with professional insight of the current situation of logistics or transportation in Ho Chi Minh city.

The first two questions are administrative questions for how long have they been working and their job at the company. As a result, most of the team members are quite new to logistics with 5 or fewer years of experience, and none has more than 10 years of experience. This could be explained as logistics term does not appear until recently when Vietnam start globalization and realize the potential of it.

In Q2, team members are asked about the current situation of transportation. Most of the results come with positive answers in the potential of development in the near future. However, there are some concerns about complexity and difficulties while the city shape and structure are not quite clearly defined

Question 3 find out how team members think about a sustainable system in logistics. There are mixed answers about the sustainable system. One member regards it as

the current trend, while some other is uncertain in applying in due to lack of experience or suitability to company situation. The answers can be regarded as expected as sustainable has become a hot topic around the world but quite new to Vietnam. Attracting as it sounds, people are still doubting in applying the system as there has been no similar prior system.

Question 4 is a survey in which finding out what members feel necessary when applying a new sustainable system. The following Figure 4 shows the results. The cost of application is implied as unimportant as long as the technology brings good results. Implement difficulties is also a concern for employees however, efficiency and performance of the new technology can overshadow it.

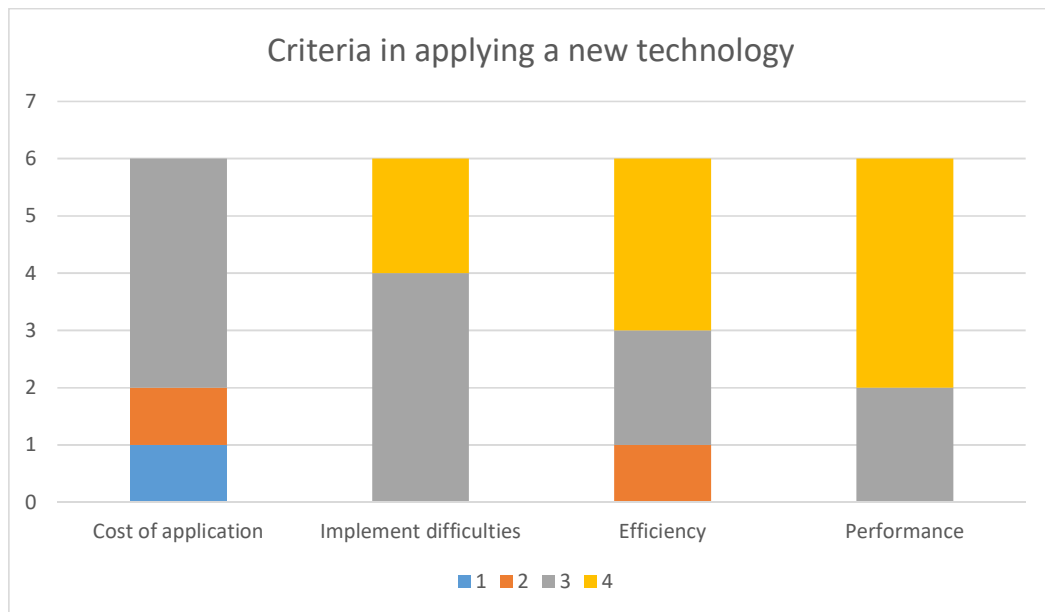


Figure 4. Important criteria in applying a new technology

Q5 was supposed to find out how team members react to new technology applying to their current system. Surprisingly, almost member of the team is willing to accept the change if the new system is by far better and no one prefers the old system, only one deemed it as unimportant.

Question 6 is another evaluation chart in which employees choose their preferred technology to work with. Most of the answers return in Real-time application favors,

followed closely by AI application. ERP system is also a great choice for companies to use to develop a sustainable system.

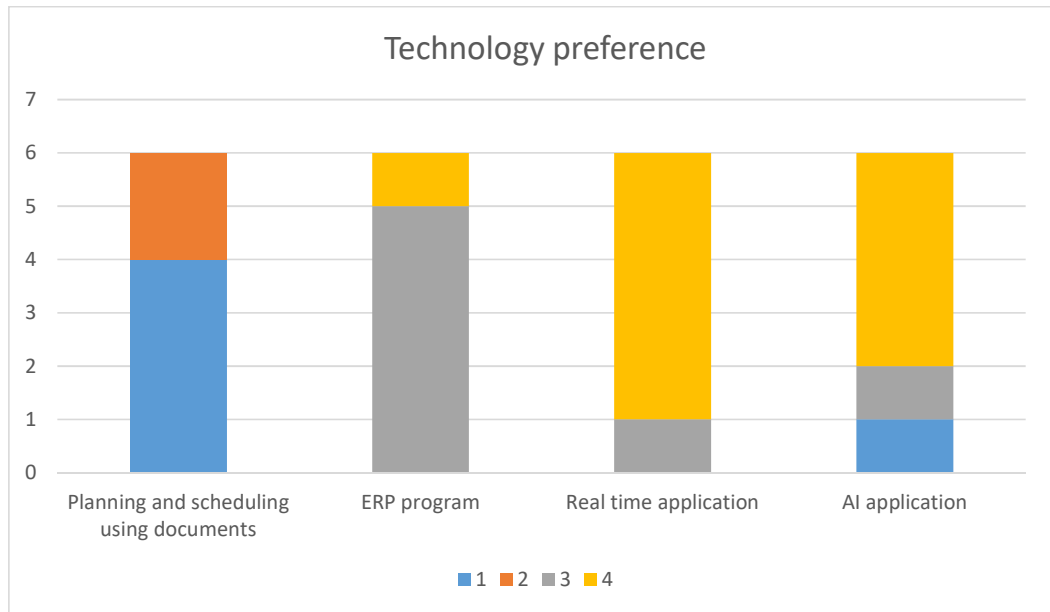


Figure 5. Technology preference chart

Question 7 found out what is the usual difficulties in developing new technology based on member experience. The most frequent answer is unfamiliar with the new system. It could be interaction, different settings, different structures that is frustrating when first using. Employees highly regarded a friendly user application with a formal standard setting to their usage for easier approach to the new technology.

Q8 further investigate what is the usual difficulties in delivery. The question provided more insight into obstacles in establishing a delivery service. Most of the answers resulted in mistakes in work at 66.7%. Congestion and communication shared the remaining percentage at 16.7% each. Management and precision in work are more regarded in a transportation service than communication or driving difficulties.

Question 9 is a short answer in which employees give a thought of excellent delivery service. The most frequent answers are timing and scheduling. If a company manages to perfect every plan ahead, it will save a lot of costs. The cost can be storage cost, late fee, arrange new task for delaying,... As a result, there is a need for technology in supporting to ensure precision and management.

## 7 Research results

### 7.1 The necessity of sustainability in applying to the current situation

The main question is to answer if sustainability is necessary or possible in the current situation for transportation. To answer the question, we must take in both the concept of applying a sustainable system to the system and how customers would view it.

Sustainability has the potential to bring about a better quality and efficiency system that benefits both the company and its customers. Having the system operate at a stable condition for a set period of time, the company will find it easier to slowly progress. In other words, it helps the company to sustain longer in a race. Then from a fixed stable position, the company can either make a change. Even if the situation goes south because of the change, balance can always bring back from a solid business especially when the company had established one previously. That is the benefit concept of having applied the sustainable system into the company.

For the company, sustainability is important because it brings benefits in cutting costs, increasing efficiency. At the same time, from customers' or society's point of view, sustainability application brings value in reducing waste, reducing overall price, reducing the usage of resources. The importance of sustainability is also not only limited to companies. It is the harmony between environment, social, economic. There is a transparent limit that it is hard to determine. If humans keep burning through resources in the hope of development or shortcut advancement, the Earth running dry is only a matter of time. In conclusion, at the moment, we have to preserve what we have and sustainability fits the scenario.

The bigger the business, the better management is required. It is no stranger that to open a business in a big city such as Ho Chi Minh city, a company needs to utilize a system that can manage company business on a great scale. Ho Chi Minh city is a fast-growing city with many potentials. It is currently under big changes since the country start globalization and accepting more trade. As a result, the city has been bigger, gained more populations, gained more projects, and improved in quality of life. However, as everything is rushing in one at a time, the city seems out of breath.

Problems can be seen occurring everywhere in the cities: congestions, traffic accidents, bad road conditions... that could cause any transportation company headache. To compete with random and diverse types of problems, optimization and efficiency are essential. The sustainability system comes as a solution to ease the issues companies are facing. To compete with the energy problem, the sustainable system can provide better planning, schedule that optimizes the routes and amount of work needed. It reduces a fair amount of effort and trouble for re-planning if things turn wrong. To compete with city problems: congestion, law limit, addresses, the system offers total management that can deal with any situation. Information is provided at a precision and large amount by the system that helps employees support the drivers to deliver goods. And finally, to compete with the shortage of resources and environmental protection, sustainability has always about green business. Applying the system will produce the better image of the company and a healthier environment to work and compete in.

For the city with many ongoing problems with urbanization and mismanagement, sustainability is a solution to harmony. There used to be a saying in Vietnam :”gold river silver wood” to mention the resourcefulness of the nature in Vietnam. However, the sad truth is that the utilization of such resources was not high causing waste. It is the same for Ho Chi Minh city current situation. The city is blessed with the location, people and investment to become a pioneer city of not only South East Asia but also Asia region. The city has the potential but sadly hindered by poor management. If sustainability is applied for the road transportation, many positive things would change. Better maneuver in the street means better flow of goods, people that increase efficiency. The city’s trading scene will be more desirable and appealing for investment creating more opportunities. A green business trend appear in the city will be contagious and force or at least attract companies to invest and become sustainable. It would have huge effect on the society and the environment. Finally, sustainability maybe the preparation for Ho Chi Minh city to become a smart city or at least compete with other megacity. The city has many weak side as well as limits that the city need a huge fund and management to get things in order. The best way



is to save every penny the city could have, even from the business or city management aspect. Sustainability will ensure the city stability while bring in a clean environment that could boost the growth of the society and then the city.

Customers' view of point is also a wonderful tool to collate when applying a new system. Customers are the priority of the company, if the change is good and preferable by the customers, it is the go signal for the project. The customers' survey carried out by people living in Ho Chi Minh city will give further detail. Question 1-5 show that the transportation service is quite popular for the citizen of Ho Chi Minh city. The amount of usage and variety of brands shows that the business is growing well in the city. The mass usage of social media also contributes greatly to the success of the delivery service. In question 7, customers are asked to range some of the typical criteria of a transportation company. The results return with customers preferring the quality of the service and convenience much more than the cost or communication with the brand. It means they are willing to pay a fair price if the system brings them the same price quality of work. This is a good sign for the sustainable system where total management and scheduling which result in better and faster service are the key points of the system. With a sustainable system, customers will surely earn more convenient, faster, better quality of a service, which all end up improving the brand reputation, which works in the company favor. Question 8-9 mentioned the loyalty of the customers to the service and challenge the customers' loyalty with a better service offer. The result shows that customers still hesitate in changing their current transportation company. However, due to Ho Chi Minh city citizens are still quite new to the concept of sustainability or logistics, there are still doubts in how a company with a sustainable system will bring them benefits. Evidently, question 10 proved that if there is indeed a better overall service in quality, speed, and cost which is achievable using new technology, 90% of them may willing to change. The disparity may come from the concept of new technology is more trustworthy than a fresh concept like sustainable. In time, when customers are used to the new concepts and learn how important sustainability is, they will surely prefer the company with a sustainable system. Also, in the last short answers question, most of the answers show that customers like a convenient and fast system. As mentioned, a sustainable system gives better management and planning, which ends up in better

routing, faster transporting , and a more clear, accessible system. As a result, sustainability can make its way into the market and able to follow the trend of customers. It then can change the way how the market running to a more sustainable method, which is profitable for both the company and society in a long run.

In conclusion, sustainability is one of the most suitable change that the city and transportation business can apply for a better future. The appearance of sustainability will change the way people think, the way company function, and the way the city operate. Business-wise, sustainable provide a stable operation that company can continue to produce service and operate for a long time. Companies can expect to work and manage more efficient with the help of sustainability in their work. For the city, sustainable system provide a change that city needs to overcome hardship, lacking in infrastructure and planning. Especially in Ho Chi Minh city where road transportation usage is the highest, sustainability for delivery services will have the most utilization and effective in improve the general situation. The basic concept of green business is also helpful in building and protecting the society and environment. Finally, with the way customers view delivery service and the necessity of such service, investing in a sustainability is something not farfetched but reasonable that create value for the company. Sustainability is the trend on the world and it will flow into Vietnam sooner or later.

## 7.2 The possibility of application sustainability with new technology for a transportation company.

The second question is if using technology can help realize the sustainable system and support the system in functioning. When applying sustainability, proper planning and schedule must be made. As the project is grand and involves every department, preparation and further notice is needed for employees. The transition can be tedious and take quite a long time due to the difficulties in changing the current mindset and understanding of the whole company. It is important to know that following the world trend and applying to the company to make better change is valuable but the change itself can be harmful if not applied correctly or appropriately. For that very reason, technology is needed in establishing a sustainable system.

A Sustainable system is not easy to achieve. As grand as the word system sounds, the company must find a way to synchronize their operation as a whole. Quick, fast and precise responses must be updated regularly and at an acceptable level. Every change and adjustment in the system must be recorded as it could affect the system. As a result, to help maintain the system as well as giving out accurate information, the support of the machine is needed. The usefulness of technology in applying a sustainable system has been proved by many big companies: Walmart, Microsoft, Schipol,... If a company manages to pick the right technology for its system, it will have an easier time applying and using the system.

Back to Ho Chi Minh city, a busy and developing city, companies operate in the city can gain many benefits from the sustainable system. Managing the energy consumed, keep check of scheduling and better documentation are big benefits companies can be expected from the sustainable system. However, sustainability may require a high-performance operation that could end up reducing the overall quality of the company. Technology application comes as a solution to raise the level of the sustainable system while reduce the need for intense labor. In preparation for that, big companies such as MP Logistics have been developing their own ERP technology to manage their tasks. However, not only stopping at ERP technology, companies have also cooperated with other companies or created their own technologies that would work with the sustainable system: energy supplement system, congestion alarming, tracking,... It is undeniable that sustainability has slowly made it way to Ho Chi Minh city through big companies and it is a matter of time that the concept is widely spread.

Surely, sustainable can be achieved without using technology as an intermediary, however, it takes time and effort to manage everything properly. The team survey gives ideas shared by employees who are working for project deployment of MP Logistics about the subject. Question 4 mentioned the possibility of a sustainable system in Ho Chi Minh city and the results return were positive. Most employees believe that sustainability is a trend and applicable at a certain level for the company. Question 5 is an evaluation chart for important criteria in the deployment of a new system. Most answers fell within performance and efficiency. Efficiency and perfor-

mance are the first concerns as workers are used to the old system. Changing or innovating could cause a drop in productivity due to the lack of experience and stagnancies in transition. Question 6 showed positive results of deploying new technology into the current system. Despite the difficulties and backlash in deploying the new system, the project team members still believe that using new technology is essential for the growth of the company. Technology is always welcome if it brings about good outcomes. Question 7 is another evaluation chart that asking employees what is their preference technology. Real-time application as well AI has the edge over ERP system or traditional paperwork. Ho Chi Minh city can be said as the most technology developed city in Vietnam. Being exposed to cultural differences as well as foreign trade make the city easier to adopt new technology from other countries. As a result, companies working in Ho Chi Minh city have all the conditions to make use of advanced technology to create a perfect system. Question 8-9 shows difficulties for employees when working, most results return in human-related problems. New systems or old systems, training employees is the most important factor in running the operation. The application of the new system must also come with thorough preparation and training plans for employees to get used to the system as much as possible. Finally, Q10 shows the most important criteria for a delivery service. Most answers were about speed and planning. Technology is all about speed and accuracy, which fits the description of the members. In conclusion, sustainability is suitable for the current state of Ho Chi Minh city and technology can help realize it.

As dynamic as the city is, the most appropriate appliance of technology for a sustainable system in Ho Chi Minh city is Real-time application. Life in Ho Chi Minh city can be regarded as exciting and bustling that random incidents can happen anytime. The real-time application can come as a savior by quickly analyze any situation and give solution on time. It enables the company to have a backup solution for every situation and can simultaneously control many situations at once. However, a real-time application may require a professional team that could cost time training. AI technology could also prove to be helpful in monitoring but with the constant change of the city and AI is still new in Ho Chi Minh, it is much harder than using the real-time application.

## 8 Discussion

Writing the thesis was quite a challenge but also a meaningful process for me. The process of understanding the subject, conducting research, and finally finding results is a logical series of actions that allow students to study and understand. The process requires me to focus, find connections in information, and research conduct that makes the research explainable. The success of the thesis was also thanks to the cooperation I have from my family, friends, and MP Logistics company. I could never have done the thesis alone without the support and encouragement from them.

Working as a trainee in helping MP Logistics a deploying project was an eye-opening experience from a top company in Vietnam. During the trainee period, I manage to understand the current logistics situation of Vietnam in the globalization process and can see so much potential in it. I was also able to take part in helping, using the system that gives me an understanding of the new technology and system. The time I spent with the company is also the time I spent wondering how the new technology or system could affect Vietnam in the future. Sustainability is a wonderful word for a person from a developing country like me. Lacking in many aspects means we have to find a way to survive and compete with other countries, and sustainability seems to be the most promising concept of all. Thanks to the opportunity given by MP Logistics, I was able to come up with the research questions and finalize my thesis.

The advantage I learned from writing the thesis is independence. Independence draws out many good and bad in you. Laziness, anger, sadness, doubting, happy are all emotions I have during the process. You have to be friend with the thesis but also have to fight with it, a long and tedious relationship. No matter how much help you have, in the end, it is your work and your work alone, so the thesis is very unique and special. Independences give you time but also deadlines. Every information is useful if you manage to find it and apply it, and there are thousands of them that you have to read through.

Vietnam in general and Ho Chi Minh city specifically are still developing. For that reason, the practical appliance of technology and the sustainability system is rare and new. The outcome of the research is quite different from what I had in mind when

began writing, which is a more practical thesis which ends up being a theory thesis. I could only wish that my thesis could help develop later practical theses in the future.

The disadvantage I have in writing the thesis is that I am not good at expressing my ideas. My wording and vocabulary are not exactly good as I struggle to write and re-write my thesis. Sometimes that causes me to lose my motivation in writing the thesis and it takes way longer than I expect to finish. Midway through finishing the thesis was my most struggling time. At that time, I was doubting my research questions and development direction for the thesis. Finding connections between each part also proves to be a challenge. Rereading, rewriting, and finding more information were all I could do to find solutions. Fortunately, that was how I able to slowly untied the knots, one by one. I learned that, to success, the only way is forward as long as I do not give up halfway.

Nevertheless, able to conduct and finish a thesis is an achievement, and I am happy to complete it. I learn how to work independently, finding solutions as well as problems to fix to conduct a good thesis. Writing the thesis, I hope that companies can use it as a guideline to understand the sustainability concept and apply it to their company for a better future.

## References

Administrative divisions of HCMC's urban. N.d. *Wikipedia*. Accessed on 23 September 2020. Retrieved from [https://en.wikipedia.org/wiki/Ho\\_Chi\\_Minh\\_City#/media/File:Sai\\_Gon\\_districts\\_coloured\\_numbered.svg](https://en.wikipedia.org/wiki/Ho_Chi_Minh_City#/media/File:Sai_Gon_districts_coloured_numbered.svg)

Cambridge Dictionary. N.d. *Cambridge Dictionary*. Accessed on 20 August 2020. Retrieved from <https://dictionary.cambridge.org/dictionary/english/research>

Communication Staff. The importance of research to students. *Cleveland University*, 18 April 2016. Accessed on 15 November 2020. Retrieved from <https://www.cleveland.edu/blog-post/~post/the-importance-of-research-to-students-20160418/>

EMBARQ. A Short History of the City. N.d. *Smart Cities Dive*. Accessed on 12 November 2020. Retrieved from <https://www.smartcitiesdive.com/ex/sustainablecitiescollective/short-history-city/176601/>

FlexMR. Understanding Quantitative vs. Qualitative Research. *FlexMR*, 7 January 2019. Accessed on 10 November 2020. Retrieved from <https://flexmr.medium.com/understanding-quantitative-vs-qualitative-research-8f7cbf748765>

Frankenfield, J. Artificial Intelligence (AI). *Investopedia*, 13 Mar 2020. Accessed on 13 November 2020. Retrieved from <https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp>

Grant, M. Sustainability. *Investopedia*, 5 April 2020. Accessed on 11 November 2020. Retrieved from <https://www.investopedia.com/terms/s/sustainability.asp>

HCM City's economy. *Vietnamnet English*, 19 October 2010. Accessed on 12 November 2020. Retrieved from <http://english.vietnamnet.vn/fms/vietnam-reference/provinces-cities/454/hcm-city-s-economy.html>

Ho Chi Minh city History. *HoChiMinh City*, 3 April 2005. Accessed on 12 November 2020. Retrieved from <http://www.eng.hochiminhcity.gov.vn/about-hcmcity/Lists/Posts/AllPosts.aspx?CategoryId=9>

Jovancic, N. 5 Data Collection Methods for Obtaining Quantitative and Qualitative Data. *LeadQuizzes*, 2 April 2019. Accessed on 10 November 2020. Retrieved from <https://www.leadquizzes.com/blog/data-collection-methods/>

King, J. How Transportation Technologies Will Change Everything. *Government Technology*, 4 November 2014. Accessed on 13 November 2020. Retrieved from <https://www.govtech.com/transportation/How-Transportation-Technologies-Will-Change-Everything-.html>

Kotkin, J. THE PROBLEM WITH MEGACITIES. *Chapman University Press*, 2014.

Kuepper, J. What is a Developing Countr? *The balance*, 5 August 2020. Accessed on 15 September 2020. Retrieved from <https://www.thebalance.com/what-is-a-developing-country-1978982>

Labarre, O. Enterprise Resource Planning (ERP). *Investopedia*, 7 July 2020. Accessed on 12 November 2020. Retrieved from <https://www.investopedia.com/terms/e/erp.asp>

Mar, A. What is Business Sustainability? *Simpllicable*, 10 April 2013. Accessed on 11 November 2020. Retrieved from <https://business.simpllicable.com/business/new/what-is-business-sustainability>

McLeod, S. What's the difference between qualitative and quantitative research? *SimplyPsychology*, 2019. Accessed on 30 August 2020. Retrieved from <https://www.simplypsychology.org/qualitative-quantitative.html>

Megan, H. Why is Sustainability Important? *Permaculture Research Institute*, 7 January 2016. Accessed on 25 September 2020. Retrieved from <https://www.permaculturenews.org/2016/01/07/why-is-sustainability-important/>

Murawski, D. The importance of Sustainable Cities. *USF Blogs*, 23 April 2020. Accessed on 9 November 2020. Retrieved from <https://usfblogs.usfca.edu/sustainability/2020/04/23/the-importance-of-sustainable-cities/>



Nguyen, D. Motorbikes still the vehicle of choice in Vietnam. *VNExpress International*, 22 January 2019. Accessed on 14 November 2020. Retrieved from <https://e.vnexpress.net/news/business/data-speaks/motorbikes-still-the-vehicle-of-choice-in-vietnam-3872250.html>

Nguyen, T. Tunnel vision keeps Saigon underground passage primed for heavy traffic. *VNExpress International*, 17 October 2019. Accessed on 14 November 2020. Retrieved from <https://e.vnexpress.net/news/news/tunnel-vision-keeps-saigon-underground-passage-primed-for-heavy-traffic-3994493.html>

Obama, B. Barack Obama's Feb. 5 Speech. *The New York Times*, 5 February 2008. Accessed on 15 August 2020. Retrieved from <https://www.nytimes.com/2008/02/05/us/politics/05text-obama.html>

Oliveria, R. How to improve life lived in the megacity. *World Economic Forum*, 18 January 2015. Accessed on 8 September 2020. Retrieved from <https://www.weforum.org/agenda/2015/01/how-to-improve-life-lived-in-the-megacity/>

Nguyen, K. Outdated regulations obstruct HCMC efforts in traffic improvement. *Saigon Giai Phong Online*, 18 September 2015. Accessed on 15 November 2020. Retrieved from <https://sggpnews.org.vn/hochiminhcity/outdated-regulations-obstruct-hcmc-efforts-in-traffic-improvement-62730.html>

Quy Dinh Gio Cam Tai TPHCM/Illegal service time for Trucks TPHCM. *SEC Saigon Express*. Accessed on 14 November 2020. Retrieved from <https://taxitaisaigon.vn/bai-viet-chi-tiet/quy-dinh-gio-cam-tai-tphcm-764>

Rehman, J. What are advantages and disadvantages of real time operating system. *IT Release*, 29 July 2014. Accessed on 13 November 2020. Retrieved from <https://www.itrelease.com/2014/07/advantages-disadvantages-real-time-operating-systems>

Robertson, M. The History of Transportation. N.d. *LELANDWEST*. Accessed on 17 September 2020. Retrieved from <https://www.lelandwest.com/planes-trains-automobiles-the-history-of-transportation.cfm>

Saigoneer. The Story Behind Saigon's Hanoi Highway. *Saigoneer*, 18 July 2016. Accessed on 14 November 2020. Retrieved from <https://saigoneer.com/vietnam-heritage/7311-the-story-behind-saigon-s-hanoi-highway>

Schiphol's ambition to be the world's most sustainable airport. *Airport business*, 6 October 2018. Accessed on 4 September 2020. Retrieved from <http://www.airport-business.com/2018/10/schiphols-ambition-to-be-the-worlds-most-sustainable-airport/>

Shipping Courier vs Freight: What's the Difference? *Need it now Deliveries*, 13 November 2018. Accessed on 13 Mar 2020. Retrieved from <https://needitnow-courier.com/shipping-courier-vs-freight-whats-the-difference/>

Shira, D. Vietnam-EU Trade: EVFTA Comes Into Effect. *Vietnam Briefing*, 3 August 2020. Accessed on 9 November 2020. Retrieved from <https://www.vietnam-briefing.com/news/vietnam-eu-trade-evfta-comes-into-effect.html/>

Stainton, H. Importance of road transport. *Tourism teacher*, 9 September 2020. Accessed on 15 November 2020. Retrieved from <https://tourismteacher.com/importance-of-road-transport/>

Statista Research Development. Megacities – Statistics & Facts. *Statista*, 18 January 2019. Accessed on 12 September 2020. Retrieved from <https://www-statista.com/topics/4841/megacities/>

Sustainability Technology: The Best Examples of Implementation. *Byteant*, 27 July 2020. Accessed on 25 September 2020. Retrieved from <https://www.byteant.com/blog/5-great-examples-of-sustainable-technology-implementation/>

Thanh, T. Fourth Industrial Revolution: big opportunities to Vietnam and ASEAN. *Vietnam Investment Review*, 21 August 2018. Accessed on 9 November 2020. Retrieved from <https://www.vir.com.vn/fourth-industrial-revolution-big-opportunities-to-vietnam-and-asean-61907.html>

The current situation and development planning for Transportation of Ho Chi Minh city Towards 2020. *The Department of Transport, Ho Chi Minh City*, September 2010. Accessed on 14 November 2020. Retrieved from

[http://sgtvt.hochiminhcity.gov.vn/hinhanhtintuc/2011-12/duan-dautu/THUCTRANGQUYHOACH\\_E%5B1%5D.pdf](http://sgtvt.hochiminhcity.gov.vn/hinhanhtintuc/2011-12/duan-dautu/THUCTRANGQUYHOACH_E%5B1%5D.pdf)

The sustainability journey. *Enel*, 30 October 2019. Accessed on 9 November 2020. Retrieved from <https://www.enel.com/company/stories/articles/2019/10/economic-value-sustainability-companies>

Tran, C. Ho Chi Minh City: How Vietnam's Emerging Megacity Will Develop. *Vietnam Briefing*, 11 March 2019. Accessed on 12 September 2020. Retrieved from <https://www.vietnam-briefing.com/news/ho-chi-minh-city-how-vietnams-emerging-megacity-will-develop.html/>

Vietnam grows strongly after 10 years of joining WTO. *VOV economy*, 23 May 2017. Accessed on 9 November 2020. Retrieved from <http://english.vovplus.vn/economy/vietnam-grows-strongly-after-10-years-of-joining-wto-350057.vov>

Vietnam Population: Ho Chi Minh City (HCMC) 1993 – 2016. *Ceic data*. Accessed on 12 September 2020. Retrieved from <https://www.ceicdata.com/en/vietnam/population-ho-chi-minh-city/population-ho-chi-minh-city-hcmc>

What is the AEC? Why does it matter? And where is it going?. *Kenan Asia*, 5 May 2018. Accessed on 9 November 2020. Retrieved from <https://www.kenan-asia.org/what-is-the-aec-why-does-it-matter-and-where-is-it-going/>

Worldenergy. A Brief History of Sustainability. *The world energy foundation*, 20 August 2014. Accessed on 3 September 2020. Retrieved from <https://theworldenergyfoundation.org/a-brief-history-of-sustainability/>

## Appendices

### Appendix A : Questionnaire for the Customers

1. Are you a frequent user of delivery service?

- Rarely     Often     Frequent users

2. You usually use delivery service for :

- Buying items                       Sending items

3. What is the normal distance for your delivery?

- In city only    From city to city     From countries to countries    From continent to continents

4. How do you know about the current brand you are using?

- Newspaper, television     Social network                       Recommendation  
 Others : \_\_\_\_\_

5. You are currently using which of these delivery service?

- Fedex                               Ups                                       DHL  
 Others : \_\_\_\_\_

6. How would you likely to recommend your current delivery company to others if they are finding a brand?

- Hardly never                       Maybe                                       Of course

7. Please rate the following categories by :

1 – Not important

2 – Somewhat Important

3 – Important

4 – Very important

	1	2	3	4
The availability of services				
The brand reputation				
Quality of goods delivered				
Time of deliver				
Cost of deliver				
Tracking service				
Communication				
Customer service				

8. Why do you continue to use the current delivery service?

Member endowment     Environmental friendly     Good reputation   

Easy to us

9. If there is a new open platform with better quality, faster and cheaper overall, would you change your current platform?

Hardly never     Maybe     Of course

10. What do you think about new technology that make booking and delivery job more comfortable?

I would love it                       The current is fine                       Other idea :

11. Write in your own word, what do you expect for a decent delivery services ?

## Appendix B: Questionnaire for the System Deployers

1. What is your position in the company ?
  
2. How long have you been working in logistics fields ?
  
3. What do you think about the current state of delivery services ?
  
4. What do you think about the future of delivery services ?
  
5. What do you think about the sustainable system?
  
6. Please rate the following categories by :
  - 1 – Not important
  - 2 – Somewhat Important
  - 3 – Important
  - 4 – Very important

For how important of each element in implement a sustainable system

	1	2	3	4
Cost of applying				
Implement difficulties				
Efficiency				
Performance				

7. What do you think about new technology applying to the current system you are working?

- Helpful, willing to learn    It does not matter    Old system is better

8. Please ranking these systems by your preference to work with from 1 to 4

	1	2	3	4
Planning and scheduling using documents				
ERP program				
Real time application				
AI application				

9. What kind of trouble you frequently meet when testing and using new system:

- The application does not respond    The application is buggy    Learning new system is troublesome

10. What do you think causing the most difficult for delivery services ?

- Infrastructure    Congestion    Human error  
 Miscommunication

11. What do you think is the most important factor for delivery services?