IS SOUTH AFRICA READY FOR "DISRUPTIVE TRANSPORT TECHNOLOGY"?

N TSOLO

University of Fort Hare
Email: 201711951@ufh.ac.za

ABSTRACT

Emerging technologies have the potential to reshape our world. These innovations, also called disruptive technologies, have started to seep into the area of finding solutions for mobility. This essay will investigate if South African infrastructure is ready to accommodate this type of new transport system. Findings are that the South African economy is not sufficient enough to fund this scale of a project.

1. INTRODUCTION

In different platforms of media there has been much discussion recently about the impact of emerging and disruptive technology on transport. What tends to receive a less discussion is whether all the countries advised to adopt disruptive technology in transport are financial stable to be committed in this type of project. In this essay the author will firstly explain what is meant by disruptive transport technology and also mention the countries which tested and officially implemented this type of transport system including their economy status. It will further weigh up the benefits against costs that South Africa may accumulate from adapting this particular transport system. Lastly, the author will conclude to answer the question whether South Africa is ready for disruptive transport technologies.

2. DISRUPTIVE TRANSPORT TECHNOLOGIES DEFINITION

According to First there was the horse then there was the wheel and the cart, following this is the combustion engine and the automobile. Now, through advancement in technology smart transportation is implemented that will operate efficiently meeting the consumers' needs. Disruption occurs when technology and business models are combined to create new product that will create a new market and existing products will become obsolete (Stone, 2017). With reference to the transportation sector, various car systems are or about to be officially implemented among countries serving the different purpose that will contribute positively to the economy. The prime example of disruptive transport technologies is e-hail, such as Uber.

2.1 The countries that have been testing or officially implementing the disruptive transport technologies

The transport system of tomorrow will be connected, data-driven, shared, on-demand, electric and highly automated. World Bank has announced that autonomous cars are expected to comprise 25% of the global market by 2040. The process of introducing this type of transport has been started in other countries, thus flying taxis are been tested in

Dubai. Furthermore, Maglev trains are already operating in Japan, South Korea, and China, and being constructed or planned in Europe, Asia, Australia, and the United State of America. According to the projection, the pace of innovation is only going to accelerate (Adam, 2017).

The transport sector is the centrepiece to every production in a country that is why its effectiveness is important. With reference to the observation of different studies conducted, the countries that have adopted this new transport system are mostly developed countries and there are only a few emerging and developing countries. This simply indicates that this type of innovation requires countries with high level of economic growth and security, but that does not serve as a restriction to the developing countries especially if they have resources to fund this type of project (Baker, 2016).

3. SOUTH AFRICA'S BENEFITS FROM ADAPTING DISRUPTIVE TRANSPORT TECHNOLOGIES

3.1 Reduce car accidents

In South Africa there is a high rate of car accidents due to human error because some are driving under the influence of alcohol and drugs. In 2014, the Arrive Alive campaign was formed with an objective to bring safety in the road but that did not bring any change because the rates of accidents are rising year to year. The Minister of Transport in 2018, gave an update to South Africans on the mid festive season road accident statistics which stated that there has been 16% increase (Barken, 2017). Disruptive technology in transport will help to minimise the high rate of car accidents, because transport implemented will be driverless which means that the alcohol or drugs consumed by an individual will not influence or cause road accidents. Furthermore, the driverless car will have speed limits that will enable the Department of Transport to monitor car speed easily (Baker, 2016).

3.2 Disabled people benefit

According to the statistics acquired from Statistics South Africa (2017), people living with disability constitute about 4.3% of the South African population. Disabled people are discriminated against multiple things. What is more surprising public transport is one of the factors but the government tend to turn a blind eye. Disruptive transport technologies is the solution to this type of problem, because it will have facilities that will accommodate people living disability and this will enable disabled people to enjoy the freedom of individual car travel. In addition, these innovative transport solutions will represent a new opportunity to people living with disability because it will provide transport access to education, work, healthcare, cultural and leisure services without any additional costs imposed to them that differs from able people.

3.3 Reduction of carbon emissions from transportation

Transport with disruptive technologies will be designed to optimize efficiency in acceleration and braking. Thus, it will be beneficial in improving fuel efficiency and reducing carbon emission produced by cars. The question that may arise from this statement is how it will be beneficiary to South Africa, it is simply due to the fact that South Africa is ranked among the dirtiest energy producer because of the reliance on coal and other factors such as congested cars that produces the carbon dioxide. Hence, the South African average of 8.9 tonnes per capita is among the highest per capita emissions in the

developing world as a results government of has committed into reduction of emission by 34% in 2020. In addition, disruptive transport technology is one of the solutions needed to make sure that the government reaches the decreasing target rate in 2020 (Stone, 2018).

3.4 Less traffic jam

South Africans are facing a burning issue which is congested traffic. Due to this fact the government expenditure will increase because traffic jam puts pressure on the infrastructure which constantly has to be repaired or extended. This will further have an impact on the business productivity because of time spent on traffic jam by employer or employees. South Africa Department of Transport may eliminate this problem through adopting transport designed with disruptive technologies, because they are safe and fast as a result this will lead in more demand for this type of vehicle. Every passenger objective is to arrive safe and in time to their destination places, as a result due to this fact Department of Transport created a slogan called "Arrive alive". The reason this type of vehicle is fast and safe compared to the normal, it is because they are programmed to communicate well with one another and also to detect road works and detours instantly. Furthermore, it lessens traffic jam which significantly reduces congestion and improves traffic by increasing up the lane capacity (Stone, 2018).

4. SOUTH AFRICA'S COSTS FROM ADOPTING THE DISRUPTIVE TRANSPORT TECHNOLOGIES

4.1 Increases unemployment

Unemployment in South Africa is one of the socio-economic issues that affect the economic growth negatively, because it is related to multiple macro variables such as the consumption, investment and exchange rate. In addition, the unemployment rate is approximately about 27.1% due to many factors such as lack of education, training, experience etc. The switch to disruptive technologies transport will have an adverse effect on the economy of South Africa. Thus, the unemployment rate will increase due to the fact that some people will lose their work as they are not skilled in the new technology. Likewise, due to the decrease in accident rate car mechanics and insurance companies will be affected negatively when it comes to their generated income. In addition, without the need of a driver's license many driver courses and programs will also cease to exist, leaving even more unemployed people (Stone, 2018).

4.2 Expensive

South Africa economic growth is currently emerging from technical recession. This is shown by the small increase in gross domestic product. Each and every year government allocates funds to the different sectors; transport is one of the sectors but funds are not sufficient as is evident from the poor and inadequate road infrastructure. Adapting disruptive technologies in transport will require high costs, starting from testing until official implementation and there will be a huge change that needs to be done to road infrastructure. In addition, the fact that it was very expensive implementing this type of transport it shows that it will be very expensive to access them. The South African low income group will struggle to access transport because this may be seen as if they are discriminated against because of their income (Stone, 2018).

4.3 Poor security

Hacking is one of the leading economic crimes in South Africa. Recently there has been a significant increase in hacking the banking sector and insurance companies. This simply shows that the cyber systems are not secure enough to keep the confidential information of their clients. Likewise, adopting this type of transport, it is more likely that you are adopting a robot because there is different software used to program to ensure they function efficiently but they are not secure enough. These disruptive technologies in transport will disclose information about their passengers' destinations because cyber systems are not secure enough against hackers (Adam, 2017).

4.4 Error in technology

A technology malfunction in transport could cause more serious crashes than anything that human error might bring about. This may also cause an increase in road accidents in South Africa. Since transport is innovated to be driverless, if the car crashes due to technical issues who will be liable the programmer of the car or the owner, that is uncertain. In the event of accidents or crime the South African Police Services will interact with whom, the driverless vehicle (Adam, 2017).

4.5 Is South Africa ready for disruptive transport technology?

From the analysis conducted above it is clear that disruptive transport technology yields benefits as well as costs, and they both have a huge impact on the South African economy. The analysis presented pinpoints that South Africa is not ready, due to the fact that it is currently emerging meaning that the gross domestic product is not sufficient to fund this large scope of project. It was mentioned above that most countries that have adopted this form of transport are mostly the developed, this fact pass through a message that this transport system requires a financially stable country (Baker, 2016).

Furthermore, in South Africa we are facing many factors that affect our economy negatively; these factors include the high unemployment, politics instability and rand being volatile. These factors affects the government expenditure and investment as well, so adding a transport system with a massive cost will generally increase government expenditure which will result in government imposing an increase on taxes. This will affect households' negatives and it may indirectly leads to higher inflation rates (Adam, 2017).

Lastly, South Africa is not ready for this type of innovation, because it requires huge utility of Power. Due to the fact that Eskom was involved in much deeper financial crisis which resulted in load shedding experienced by citizens earlier this year that clearly indicate or send a message stating that South African power utility is not sufficient enough to accommodate this type of project. With reference to the above finding analysis, it was mentioned that this type of innovation needs electricity to operates, so the common question that may arise is what will happen to transport system during load shedding if South Africa decided to adapt this type of innovation system (Stone, 2018).

5. CONCLUSIONS

The South African economy is not ready for disruptive transport technologies now but that does not mean in ten years' time it will not be ready. South Africa must wait for other countries that are emerging to implement this new system of technology, in that way it will be able to monitor the process by identifying risks and costs that may occur. It is quite

surprising that not even one country from Africa continent have tried to implement or adopt this new transport system. Based on the observation in the economic status of southern countries, it is clear that those countries are not ready to adapt this kind of transport system.

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