DISRUPTIVE TRANSPORT TECHNOLOGIES: COMING, READY OR NOT!

P BROWNING

TransForum Business Development cc, P O Box 50149, Moreleta Village, 0097
Tel: 012 997 3461; Email: paul@transforum.co.za

ABSTRACT

The theme for the 2019 Conference is 'Disruptive Transport Technologies – is South and Southern Africa Ready?'. For public transport in South Africa, the challenges are not so much those of transport technology, but rather of Information Technology as a whole – and we are far from ready.

Very few, if any, academic or scientific papers have yet analysed the effect on the demand for travel of the changes in the world of work implied by the Fourth Industrial Revolution (4IR). This paper offers a comment from the viewpoint of a public transport professional.

Our public transport policy is still based on the 1996 White Paper on National Transport Policy. This envisaged government at local levels planning all public transport and contracting out the operations. Two decades later little has been achieved. The Competition Commission Market Inquiry into Public Transport has demonstrated a number of reasons for this, including lack of capacity for implementation and enforcement.

In 1996 the internet was in its infancy, and social media had not yet been born. Today it is possible for transport operators to provide bespoke services to individuals. The threat to the established order has led to official resistance – for example, the grudging acceptance of 'e-hailing'. This paper argues that we need to develop a new Public Transport Strategy which recognises (a) the limited capacity of government to achieve the objectives of the 1996 White Paper and (b) the impact of the Third Industrial Revolution (the IT age) – and to prepare for the Fourth, with its huge changes in the world of work.

1. INTRODUCTION

Here is a timeline:

- in 2013 Uber began to operate in South Africa
- in the same year, the National Land Transport Amendment Bill began its Parliamentary progress (National Land Transport Amendment Bill, 2013)
- in 2016, the Bill was amended to include a definition of 'e-hailing' – Uber-type services (National Land Transport Amendment Bill, 2016)
- at the start of 2019, the Bill had still not been adopted by Parliament.

So, some six years after Uber had started to operate, there was still no legal definition to enable it to operate. This had not stopped thousands of South Africans – from all sections of the population – using it as an indispensable means of transport.

This little vignette illustrates why South Africa (or at least, South African officialdom) is not ready for new and disruptive transport technologies which are emerging as part of the Internet Age. It also suggests that we will be even less ready for the dramatic changes in public transport which will be a consequence of the changes in work patterns as the Age of Automation approaches.

The World Wide Web (the Internet) was launched in a primitive form in 1989. Today – just 30 years later – it is impossible to consider our lives without using the Internet. From booking air tickets to on-line banking, from lap-tops to smartphones – our day-to-day lives have been transformed. In public transport, innovative forms of service (such as Uber) have appeared, and information technology is making it possible for users of all forms of public transport to more easily make enquiries, including real-time information.

The Automation Age is just beginning to make its impact, but the pace of change will accelerate rapidly in the coming decade. Changes in the world of work will mean that many of today's manual jobs will be replaced by robots. There will be consequences for public transport policies.

The difference between the two is that whereas we can today readily see the existing internet-based disruptive technologies and to a degree anticipate where the next might be coming from, we cannot in 2019 as easily anticipate the nature and extent of changes stemming from automation.

This paper accordingly comments firstly and briefly on the Fourth Industrial Revolution : the Age of Automation, but then considers in some detail the present Third Industrial Revolution: the Internet Age, since it is that with which we are currently faced.

2. THE AGE OF AUTOMATION

Writing in the Sunday Times in June 2017, Peter Bruce recounted a discussion he had had with a friend: "He reminded me that a mutual acquaintance had just opened a R500m factory in Gauteng that is so automated it will employ just five people." (Sunday Times, 2017)

Since the start of the (first) Industrial Revolution and the emergence of factories, the practice has been for employees to go to a place of work where there would be equipment for them to use, and supervisors to make sure that work was carried out.

In the coming years, much of this work will be automated. There are already supply depots which are fully automated; robot 'searchers' identify and extract products.

The social and economic challenges, though profound, are not the concern of this paper. There are, however, significant implications for the public transport of the future. We cannot predict what the needs will be, only that they will inevitably be significantly different from that to which we have been accustomed, and that therefore very careful consideration must be given to the advisability of investment in large-scale transit systems designed to meet existing and projected needs.

This does not appear to have been accepted by government. In February 2018 the Department of Transport published for public consultation a Revised White Paper on National Transport Policy (Department of Transport, 2017 [1]). This is intended to replace the White Paper published in 1996 (Department of Transport, 1996).

The proposals in respect of Public Transport make little change to those in the 1996 White Paper. Integrated public transport networks, planned by metropolitan and district municipalities, will continue to be the basis for planning.

The Revised White Paper takes into account the Public Transport Strategy (Department of Transport, 2007) approved by Cabinet on 27 March 2007 (Statement on Cabinet Meeting, 2007). What were in 1996 described as Integrated Public Transport Networks now incorporate the word 'Rapid", to accommodate the emphasis on Bus Rapid Transit in the 2007 Strategy.

The existing White Paper was published in 1996, at the very start of the Internet Age. For the drafters of the public transport section of the 2017 Revised White Paper, it is as though our world has not changed, and that the needs are, and will continue to be, much as they were some 20 years ago.

There is, for example, not a single mention of the emergence and potential significance of e-hailing, or of the broader concept of Mobility as a Service (MaaS) which is being widely discussed as an alternative to private car usage.

Circumstances, not least financial constraints, may force a re-think.

The Revised White Paper comments on "the slow or inadequate implementation of transport plans". That is certainly the case. The 2007 Public Transport Strategy offered this prediction:

> "The longer-term vision until 2020 is to develop a system that places over 85 percent of a metropolitan city's population within 1km of an Integrated Rapid Public Transport Network trunk (road and rail) or feeder (road) corridor."

We are only a year away from 2020, and it can be said with absolute certainty that the Vision will not be brought to reality.

There are also concerns about the costs. In her presentation at the opening session of the 2016 SA Transport Conference, the National Treasury Deputy Director-General for Intergovernmental Relations said this:

> "By and large our public transport provision is very costly and not efficient. In our current constrained fiscal environment, there must be a better way. Bus Rapid Transit has heralded a shift in thinking with attention to spatial transformation, has relatively good user satisfaction where it operates – but has however resulted in very **high deficits** (*speaker's emphasis*)"
> (Ngqaleni, 2016)

There is, however, just a hint of recognition that things must change. In its list of public transport Planning and Regulation Issues, the Revised White Paper comments:

> "Transport plans are often idealistic and impracticable. Transport plans should rather focus on solving immediate transport problems." (Department of Transport, 2017 [1])

If this advice is heeded by the transport planners, far more attention will be given to how the Internet Age can offer solutions to 'immediate transport problems'.

3. THE INTERNET AGE

As mentioned above, our world has changed beyond recognition in the past 30 years, as internet-based services are used by all sections of the population. We can order our shopping on-line and have it delivered, have the whole world of information available to us via search engines such as Google, use social media to communicate with the world at large, and in many other ways achieve what would have been, quite simply, impossible just a few short years ago.

There are social consequences. The growth of on-line shopping threatens retail outlets, and the jobs that go with them. Social media can be used to disseminate 'fake news', and regrettably also to issue threats and 'troll' others. These challenges, and others like them, are unable to stop the inexorable growth of internet-based services.

This poses a threat to two groups in particular:

- existing service providers
- policy-makers and planners

3.1 Existing service providers

The first group to notice and react to a new and disruptive service is that of those currently providing similar services but using old-style methods. They very often operate under licence from government, and have had to demonstrate (in principle at least) their ability to provide a safe service – the licensing system being used by government as a means of 'protecting' the public at large.

In the case of Uber, the first group to be affected was the existing metered-taxi operators. In South Africa, as throughout the world, the metered taxi has been traditionally closely regulated. Government has taken the view that if it is going to authorise metered taxi operators to pick up individual travellers on the street or at a rank, it must ensure that those travellers will not be exploited in any way. The requirements for drivers usually include the need to demonstrate a good knowledge of the area in which they are licensed to operate.

This has led, as in many other countries, to a feeling amongst metered taxi operators that they are a special group. Numbers are restricted, so the licence itself has become a significant saleable asset.

The arrival of e-hailing services clearly represents a severe threat to these established operators. Their response, worldwide, has been that these newcomers are not required to accept the same responsibilities that the traditional service providers must bear, and that the competition is thus unfair.

This is the traditional response when a market is threatened. It is sometimes assisted by what might be called 'a close relationship' between those who administer or oversee the licensing system and those seeking licences. It is not unknown for the administrators themselves to own businesses operating in the very fields which they are charged with overseeing.

3.2 Policy makers and planners

The rapid and fluctuating changes brought about by the Internet Age pose a threat to those who are charged with the responsibility of developing public transport policies (such as Integrated Rapid Public Transport Networks) and those who are required to implement those policies.

Since 1994, an aim of government policy has been to improve public transport for those who are dependent on it and, at the same time, facilitate spatial transformation to overcome the distortions resulting from the previous system, where poorer people were required to stay in locations far from work opportunities. People and jobs will be close to one another.

The world of the transport planner has been driven by these concepts. The changes will take time, and so it is important that there should be stability.

The Internet Age is disrupting this essential stability. If those seeking transport can arrange their requirements directly with the service provider, then the planner's control of the system is weakened – and, it has to be said, so is his/her justification for the funding on which the system (and the planner's job) relies.

One example may be the recent debate on the need, in the Internet Age, for so many thousands of office workers to daily travel long distances to and from work.

Almost four years ago, in 2015, Business Day published an Opinion Piece by Shelley Childs under the headline: "Pods the answer to costly daily commute". In it she asked :

> "In a knowledge-based economy, do so many thousands of admin people really need to travel to and from a couple of square kilometres of high-density office blocks each weekday?
>
> "The issue is that of office workers who travel to a centralised office to sit at a desk in front of a computer. Certainly, they also engage with colleagues, but this does not always have to be face to face.
>
> "In Cape Town it is estimated that the office worker who drives from Somerset West to the CBD and back spends 40 days a year just in commuting. Similar figures would apply in Gauteng.
>
> "We need to rethink our approach to work, where we work and the planning of our cities. We need a cohesive approach to the problem, with city and national departments working together to make possible an alternative to the almost endless commute and the accompanying congestion and waste."
> (Business Day, 2015)

Will "city and national departments" be keen to promote and facilitate alternatives to the daily commute? This would imply changing the planning fundamentals which have been in place since at least the 1960s. Change always has two sides to the coin – opportunity and threat. Government tends to see as a threat, those changes which emerge from outside its ranks.

4. A NEW PUBLIC TRANSPORT STRATEGY

The lack of progress in implementation of the 2007 Public Transport Strategy mentioned above must surely mean that, as we reach the 2020 end-state, it is time to develop a new version.

The Strategy, perhaps understandably, took almost no account of the Third Industrial Revolution, the Internet Age. It clearly could not have anticipated the Fourth Industrial Revolution, the Age of Automation.

The fact is that in 2019, transport planners simply cannot predict the form and substance of transport needs – at least commuter movements – in the next decade. Disruptive technology in general, and disruptive transport technology in particular, make predictions well-nigh impossible.

The new Public Transport Strategy for the 2020s must take into account these uncertainties.

It must also address the dichotomy between the laudable wish to improve existing commuter travel and the expressed aim of reducing those travel needs by way of 'spatial transformation'.

One of the effects of improved public transport services is that it makes the long travel journey more acceptable, or at least tolerable. The first Rea Vaya BRT line in Johannesburg resulted in a significant improvement in the commuter travel experience from parts of Soweto into the Johannesburg CBD. Yet the spatial transformation aim is to encourage work opportunities within Soweto.

The broader Johannesburg 'Corridors of Freedom' plan has the same inherent contradiction, as does the strategy of (what was) the Cape Town Transport and Urban Development Authority. Both envisage a number of self-contained nodes offering residential (including school) facilities as well as work opportunities. These, however, will be linked by a high-quality public transport network. The high-quality public transport network will simply encourage workers to continue to seek employment outside the local area.

Given all these uncertainties, the 2020 Public Transport Strategy should be extremely wary of large-scale capital investment in public transport systems, systems which will almost certainly require substantial operating subsidy. The need is for low-cost flexibility whilst the effect of changes becomes apparent.

The Strategy should rather begin from the present-day reality of the predominance of the minibus-taxi. It is a highly flexible and demand-responsive form of both commuter and leisure transport.

One response from sections of the public might be that the widespread traffic violations by taxi drivers must first be addressed. That is a perfectly rational view – though we must remember that in a road space little more than that taken up by the single-occupant private car, the taxi can be carrying (legally) more than 20 people.

A possible approach has been suggested by the Department of Transport in its Draft Green Transport Policy published in August 2017:

> "Infrastructure must be innovatively upgraded to allow the minibus taxi industry…to utilize the BRT-only lanes."
> (Department of Transport, 2017 [2])

That is a possible tactic, and might be expanded to cover a range of dedicated priority measures for the taxi.

A kick-start to this new analysis might be provided by a report of the Competition Commission. This body has been carrying out a Market Inquiry (Government Gazette, 2017) into the public transport market and, as this paper is being prepared, the Commission's report is due in mid-2019.

5. CONCLUSIONS

Whatever its findings and recommendations, the Commission's report should surely offer the opportunity for a thorough review of the way in which public transport in our cities is provided now, and how it might be provided in the next decade.

But, as been argued in this paper, the broader need is for a new Public Transport Strategy to take account of changes in work patterns and therefore travel demand, as we enter the Fourth Industrial Revolution.

6. REFERENCES

Business Day, 2015. "Pods the answer to costly daily commute". Shelley Childs, 17 November 2017.

Department of Transport, 2017 [1]. Revised White Paper on National Transport Policy.

Department of Transport, 2017 [2]. Draft Green Transport Policy.

Department of Transport, 1996. White Paper on National Transport Policy.

Department of Transport, 2007. Public Transport Strategy.

Government Gazette, 2017. Competition Commission: Publication of the Public Passenger Transport Market Inquiry. Gazette 40837, Notice 332 of 2017. 10 May 2017.

National Land Transport Amendment Bill, 2013, Government Gazette 36214, 8 March 2013.

National Land Transport Amendment Bill, 2016, Government Gazette 39798, 3 March 2016.

Ngqaleni, 2016. "The Public Transport Integration Challenge: What Role for the Fiscal System?" Malijeng Ngqaleni, Deputy Director-Generla for Intergovernmental Relations, National Treasury. SA Transport Conference, 4 July 2016.

Statement on Cabinet Meeting, 2007. Statement issued after Cabinet meeting, 20 March 2007.

Sunday Times, 2017. “Can the state save us as jobs run out?”, 4 June 2017