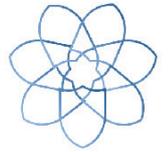




Proceedings Report
Session No. 9
January, 2018

مجلس السياسات
POLICY COUNCIL



Future Transport Scenarios for Dubai: Potential for Service Innovation through Public Private Partnership



مبادرات محمد بن راشد آل مكتوم العالمية
Mohammed Bin Rashid
Al Maktoum Global Initiatives

كلية محمد بن راشد
للإدارة الحكومية
MOHAMMED BIN RASHID
SCHOOL OF GOVERNMENT



Introduction

In a growing global city such as Dubai the existing road transport infrastructure has been struggling to accommodate a steadily growing population over many years. In spite of Dubai's heavy investment of AED 60 billion over the past decade in building roads, a metro network and expanding other modes of public transportation like public buses, marine transit and taxi services (Gulf News, 7 February 2015), traffic congestion on its roads remains a pressing reality. Even fiscal measures, such as the introduction of Salik (a selective road toll) in July 2007 and the lifting of fuel price subsidies in August of 2015, have not had a significant impact on traffic flow or congestion. The growing population, sustained economic growth, a continued inflow of expatriates and the upcoming Expo 2020 combine to pose a significant and ongoing challenge for policy makers. Indeed, new approaches need to be explored in order to achieve and sustain efficient transport policy outcomes in Dubai, particularly with regard to traffic congestion and environmental protection. This Policy Council is intended to address existing challenges in the transport sector, future scenarios, government initiatives and the role of public private partnerships (PPPs) in addressing these challenges.

Aims of this Policy Council

The purpose of this Policy Council is to gather together relevant stakeholders (i.e. policymakers and service partners) from the public and private sector to conduct an exploratory discussion on ideas related to future transport scenarios for Dubai. We aim to:

- To explore the views of the participants on the current challenges, strategic options and future landscape of the transport sector in Dubai; and
- To investigate the potential for public-private partnerships to address such challenges and deliver efficient and innovative transport services for Dubai

Background Briefing

PPP IN THE TRANSPORT SECTOR

MBRSG recently conducted research exploring different future mobility scenarios in terms of their impact on the environment, economy and sustainable development and investigated the role PPPs can play in the success of these scenarios. The background study involved examining relevant international best practices in PPP-led investments in transport infrastructure and to draw appropriate policy lessons for Dubai. Key findings from this study were presented in an earlier session at the UAE Public Policy Forum on January 15 2018 and shared with Council members later in the day.

There is no universally accepted definition of the public private partnership (PPP) concept and it is often used to cover any form of co-operation involving the public and private sectors in the pursuit of a common goal. The OECD (2012: 18) provides a broad definition of PPP as long-term contractual agreement between the government and one or more private partners (which may include the operators and the financiers) whereby the latter delivers and funds public services using a capital asset, sharing the associated risks. However, the definition will vary depending on the nature of the partnership, the role of the private sector partner and the relevant sector; to date most PPPs are in the procurement and delivery of public infrastructure and services.

The advantages and disadvantages of PPPs have been well documented and are briefly summarized in table 1; other key findings from the MBRSG research are then summarized below.

Table 1: Advantages and Disadvantages of PPPs

Advantages	Disadvantages
Addresses funding & capacity constraints (paid for over the life of the project making projects more affordable).	Can lead to a protracted tendering and negotiation process (often due to mismatched perceptions of risk).
Introduces new technologies and innovations (skill transfer helps build public sector capacity).	Lack of flexibility (due to incomplete contracts, inability to identify all contingencies, etc.).
Provides efficiency incentives & imposing budgetary certainty (early delivery, cost control - it can also incentivise user efficiency).	Higher relative cost due to higher cost of capital & private sector profit focus (this needs to borne by the customer or through government subsidy).
Extracts long-term value through appropriate risk sharing and competitive forces.	Political or social resistance to loss of [regulatory] control, user-pays, job transfers, change of land use, etc.
In some cases assets designed under PPP agreements can be classified off the public sector balance sheet.	Government responsibility / accountability continues (no absolute risk transfer to the private sector).

There is a need for institution building.

The World Bank, OECD and other agencies promote the formation of a dedicated PPP unit tasked with implementing, facilitating, negotiation, monitoring, promoting and advising on PPPs (World Bank, 2007; OECD, 2013). Good examples of PPP units that undertake control, oversight and monitoring of PPP projects include PPP Canada and Infrastructure UK.

Such a unit may make effective use of expert individuals with specialist knowledge/ experience to promote PPPs in transport and other sectors (e.g. health, education) and save on shared capital investment. In Canada, through its P3 fund, the PPP Canada unit estimates savings of \$1.7B from an expenditure of \$6.6B when compared to traditional

procurement approaches (Infrastructure Canada, 2017).

A PPP unit may also be instrumental in the project identification and act as an approving body, as in a number of European countries such as France and Croatia (World Bank, 2007).

Measuring Success: The need for multiple perspectives.

Research emphasises that whether PPPs will perform or not depends on a set of legal, institutional, financial support as well as monitoring and the relationship amongst the different stakeholders. To safeguard public investment and ensure budgetary constraint it is critical to ensure adequate monitoring and evaluation. That said, research suggests that no single methodology can adequately measure overall PPP success (Liyanage & Villalba-Romero, 2015).

For Dubai transport policymakers, it is therefore useful to consider multiple contextual perspectives and criteria such as project management (i.e. time, cost and quality), stakeholders (public, private and user) and contract management (contract, process and results) in both planning future PPP projects and evaluating their success.

PPP Project Selection.

A review of PPPs undertaken by Roumboutsos (2016) highlights the importance of situation and context when selecting PPP projects. The research found that many PPP agreements need to be renegotiated only part way through the project life (concession period). It is important to methodically review the sustainability of PPP projects in the transport sector, including the adoption of appropriate tests and accounting rules. For example, the Madrid-Barajas International Airport subway access project shows the merit for open bidding and risk planning; Dubai's PPP projects can benefit from the Spanish approach.

PPP Success Factors.

In the transport sector, World Bank researchers (Estache & Serebrisky, 2004) observed that many early private sector PPP initiatives worked for a while but they were not resilient over the longer run. Consequently, the public sector often returns as regulator, owner or financier; this has led to the development of hybrid models we see in operation today which range from service or concession contracts through to build own and operate schemes.

Research verifies that many transport sector PPPs have a proven track record; however it also finds that success factors rely heavily on:

- The clarity of government objectives and commitments (sufficient to counteract potential resistance from vested-interests).
- A sound financial basis and identified economic worth (especially if the project requires public subsidies or sovereign debt guarantees).
- Early involvement of the private sector, coherent transparent regulation and consistent management of the PPP process.

Critically, in terms of financial / economic robustness, PPP initiatives cannot transform a weak project into a strong one, in other words, the project needs to be financially feasible and adapt the structure of incentives and risk-sharing to the features of the project and to the economic and institutional environment (Galilea & Medda, 2010).

After having reviewed a few independent research in Sub-Saharan Africa (i.e. Nigeria and Mozambique), Spain and Portugal, Roumboutsos advocated for monitoring needs to make sure the institutional and legal framework are in place, subsidies by government when it is necessary and regular monitoring of projects (Roumboutsos, 2016).

PPP AS A POLICY OPTION

Dubai has launched a series of initiatives in efforts to revolutionize its transportation sector. The major aim being to boost the economy through enhanced mobility, efficient travel and the tackling of traffic congestion. Moreover, a parallel objective is to build a better quality of life through the reduction of the Emirate's carbon footprint. The 'Green Economy for Sustainable Development Initiative' aims to raise the quality of life in the city by promoting environmentally friendly products. The 'Dubai Green Mobility Initiative' aims to establish a market for electric and hybrid vehicles in the Emirate, and contribute to a 19 per cent reduction in carbon emissions by 2021. The 'Dubai Smart Autonomous Mobility Strategy' speaks of the government's effort to become a leader in the field of driverless commuting. The strategy aims to have 25 per cent of all journeys in Dubai to be driverless by 2030. The movement towards efficient mobility does not stop there as the city plans to operationalize the first 'flying taxi' and is participating in the ambitious 'Hyperloop One' project. Initiatives such as the 'Dubai Future Accelerator Program also' has the scope to explore transport sector innovations.

In terms of the focus of this Policy Council, one of most significant developments in relation to PPPs in the UAE was the passage of Dubai's Public Private Partnerships Law (Law No. 22 of 2015), enacted in November 2015. Its introduction was a signal that the Emirate was open to greater private sector involvement in infrastructure construction and development (Smith 2017, cited in Burton, 2017).

Discussion Themes

The key findings that emerged during the Policy Council centered on the themes posited to frame the debate:

THEME 1: CHALLENGES IN THE TRANSPORT SECTOR

After a brief discussion on generic transport challenges due to urbanization and population growth, such as congestion, competition for land usage and the negative impact on the environment, participants then focused on more specific issues as follows:

Increasing demand for energy.

In the UAE, similar to other developed economies, there is a Government mandated push to encourage the increased uptake of electric vehicles (EV) options. This is justified on environmental grounds as it will reduce the Emirate's carbon footprint, and on economic grounds as greater uptake will help reduce the cost. In turn this increases the viability of EV options as the payback time is reduced. However, the demand for energy will be exacerbated with the increased uptake of EV; this can be partially offset by the parallel increase in the use of renewable energy generation - the UAE has set a target to meet 25% of its energy needs through renewable energy generation by 2030. Increased energy demand can also be managed through public-private sector collaboration to smooth load demand through investment in technology and infrastructure, for example new battery storage and renewable energy options.

Changes in consumer demand.

Consumer demand is constantly changing; individual car ownership continues to be a priority for many but there is also an increase in the demand for public transport, a heightened awareness of environmental costs (hence an appetite for low or zero emission cars options such as EVs) and a growing acceptance of ride sharing.

Ironically, increased adoption of EVs will not address congestion which will remain a key challenge for policy makers. However, congestion may be better managed in part by autonomous vehicles which could also allow more efficient time usage ('time-overlap') by facilitating work while commuting.

This highlights the need for transport policy to be adaptable, especially as technological platforms and design elements evolve to accommodate changing demand including changes in transport modes. In fact, it is possible to visualise future car ownership decreasing at the same time as trip demand is increasing; this will put further pressure on public transport or other modes of ride sharing.

THEME 2: POSSIBLE INITIATIVES TO ADDRESS THESE CHALLENGES

After more than 100 years of relative continuity, the transport sector is on the cusp of digital and technological change that has the potential to disrupt traditional commercial and private vehicle usage.

New modes of transport.

The UAE has been among the first countries to embrace new and emerging modes of mobility. These include the hyperloop, vertical take-off and landing and autonomous vehicles. However, there are also new approaches to mobility particularly popular with younger commuters including ride sharing (e.g. Careem) and shared ownership. Shared ownership is also increasing in popularity because the existing model is relatively inefficient given private cars spend most of their time parked. These behavioural and use changes will impact on congestion and the way we commute. Remote working and e-commerce also have the potential to transform transport demand.

Public transport Investment.

As noted above public transport options remain a critical component in addressing challenges in the transport sector. The increase in demand is reflected in the share of journeys taken by public transport which has increased from 6% to 16% in the last 10 years. The Roads and Transport Authority (RTA) has set a target to further increase this share to 20% by 2020 and 30% by 2030. Initiatives include ongoing investment such as the metro extension of the red line to the Expo 2020 site, marine transport, and the bus network. It was noted that investment in public transport may be enhanced through reducing investment in roads; as is the case in Singapore.

Multi-modal journeys.

The rapid uptake of new technologies in the transport sector generates further innovative solutions such as multi-modal journeys. This is where different modes of transport, for example Hyperloop and Careem, interact with each other to reduce waiting time and improving linkages and accelerating end to end journeys. The idea of seamless transition within transport can be readily extended and integrated with other sectors, such as hospitality, through common mobile platforms. This improved functionality of information would greatly improve efficiency of transport, enable ‘time overlap’ and reduce the latencies of mobility.

THEME 3: WHAT ROLE CAN PPP PLAY IN ADDRESSING TRANSPORT SECTOR CHALLENGES?

Given the changing demands in mobility and the availability of new technologies, the public transport sector operates in a very fluid environment that adds to the uncertainty (or risk) associated with long-term traditional PPP initiatives. Critical success factors of PPP projects include: value for money; robust regulatory, legislative and institutional framework; clear allocation of risk; efficient financial framework and; an effective appraisal system. However, this fits better with established modes of transport, technologies and well-defined measures.

Cost-sharing, new modes of transport and start-ups.

Public partnerships with the private sector are well established in Dubai at many different levels. For example, the provision of roads has been managed through a cost-sharing arrangement with real-estate developers, based on trips (journeys) per peak hour, to ensure the efficient and timely integration of the development’s road infrastructure with the city’s existing road network. However, with new modes of transport and technologies a different level of partnership is required; particularly when the private sector partner is a start-up. In this case there is the potential to share the cost of research and development including support for feasibility studies. The Dubai Future Accelerators Program is a successful platform for bringing relevant stakeholders together in a collaborative environment aiming to help start-ups move forward much more quickly; initiatives such as Hyperloop have benefited from this platform.

In this context, the progressive leadership provided by Dubai Government is critical; it has demonstrated a willingness to take risk and work with start-ups in sharing the cost of development and testing to help shape the future of transport. MBRSG researchers note that lessons for PPP design may be drawn here from the dynamic biotechnology field (e.g. the Human Genome project), where the public sponsorship of co-operative private research has been shown to improve both the quality and rapidity of advancements - in other words, accelerated concept proving.

New business models.

The existing [public] transport industry is reliant on subsidy. In contrast, hyperloop potentially offers relative efficiency for the transportation of both people and goods. The hyperloop proposal is based on energy efficiency combined with initiatives that utilise complementary technologies. For example, big data analytics offers the opportunity to monetise information collected from commuters. Similarly, high definition screens in place of windows on trains offer a more pleasant commuting experience and advertising opportunities. In other words, new business models can be built through better utilisation of existing technologies as well as the introduction of new modes of transport.

Exploring synergies beyond the mode of transport can also enhance the viability of existing PPPs as demonstrated in the case of ITNL's development of a parking building for Dubai Courts. The parking building incorporates robotic technologies and has the capability to upgrade to accommodate autonomous vehicles. However, demand assessment revealed that the project would not be viable on parking fees alone. Subsequently, additional revenue sources were accommodated through the provision of commercial office space allowing the project to proceed on a financially viable footing. MBRSG researchers note that this approach to PPP is incorporated in the concept of Transit Oriented Developments, where complementary development opportunities, such as land adjacent to the PPP project is made available to the private partner to develop as retail and commercial space (see Cervero, 2006).

Planning for PPP, stakeholder awareness.

One of the biggest challenges facing PPP projects is financing and lenders should be viewed as one of the key stakeholder in any project. In turn this impacts on the structuring

of the investment vehicle that is put in place to manage the project through to completion. In Dubai the limitation on foreign shareholding (51/49) in such investment vehicles is a limitation that is typically perceived as increased risk by lenders; this increases the cost of borrowing. Furthermore, local lenders also have little experience with PPP financing, as PPP projects usually rely on future cash-flow as the only security; this can also be perceived as increased risk further increasing finance costs. Similarly, ownership is typically restricted to a lease or concession type of arrangement which also impacts on risk. Consequently, many potential projects are rendered infeasible. This could be largely addressed by providing a partial sovereign guarantee or establishing PPP-fund to support the early stages of project development, and relaxing foreign shareholding restrictions. Collaboration between Sovereign wealth funds and the private sector offers another funding possibility.

A more open approach could also benefit local companies as it would increase the potential for knowledge transfer and local solutions, i.e. a 'Glocal' approach. Similarly, communication of plans plays an important role as knowledge of what projects are in the 'pipe-line' over the next 5 – 10 years can impact on investment decisions as multiple projects increase the potential for sustained partnerships. Moreover, given there are many stakeholders involved in the transport sector it is critical to develop and promote a positive PPP ecosystem. MBRSG researchers have promoted the establishment of a PPP unit to improve stakeholder awareness; it would also help government institutions to act as a catalyst enabling new disruptive technologies to be introduced to the transport and other sectors through partnership with the private sector.

Testing, certification and legislation.

Safety is essential in public mobility and it is important that any new modes of transport be tested and certified and it is viewed as a vital role for government. In this context it is important to establish trust and openness to different approaches. Certification would also help facilitate intellectual property protection, which could be further enhanced through legislative support. Culture, behaviour and acceptance are also important 'soft' criteria to be considered when evaluating new transport modes; indeed a change in mind-set may be necessary. Consequently, legislation and regulation needs to be adaptable and take in to account the local context.

SUMMARY

The public private partnership is seen as an opportunity to drive change to help ensure the competitiveness and sustainability of cities by effectively building a new ecosystem that drives technology and innovation. In this system the private sector contributes knowledge transfer and the economy benefits.

Policy integration is needed to be effective and a specialised PPP unit was viewed as the logical vehicle to help facilitate potential projects while providing the right balance between opportunity and risk. Due emphasis should be given to the following:

- Benefits for all stakeholders
- Testing and validation (certification) - safety is viewed as paramount
- Legal framework
- Soft measures – acceptability and trust

The challenges within the transport sector are incredibly complex, it needs to be integrated with other plans and developments; collaboration through partnerships is key to developing efficient and innovative transport services in Dubai. Competitiveness will be enhanced through a globally driven partnership model supported by agile government establishing a PPP ecosystem that encourages innovation and demonstrates a willingness to learn, re-learn, develop and grow.

Council Recommendations

The Council concluded with each participant highlighting the most important ideas or themes that emerged for them during the discussion. In summary these were:

1. **Collaboration** is the key as no single institution has all the answers; **PPPs need to tap in to available and developing knowledge**. The government can play a crucial role as facilitator, collaborator, investing in R & D, providing incentives and monitoring benefits.
2. Traditional PPPs remains viable where **benefits are clearly defined** and where they can be readily 'monetized' such as parking buildings – such initiatives could complement public investment in transport projects such as the Dubai metro by enhancing 'park and ride' opportunities. A variant on the traditional PPP is potentially viable through adoption of **Transit Oriented Development** initiatives where complementary development opportunities, such as land adjacent to the PPP project being made available to the private partner to develop as retail and commercial space.
3. **PPP risk sharing** should be prioritised ahead of risk transfer. Done well, this also provides the opportunity to leverage off the government balance sheet.
4. It is necessary to build **trust in PPPs** through long term commitment and stakeholder engagement. This would include the **testing of private technologies** and **ensuring public safety**.
5. It is necessary to create an **effective regulatory environment** for new technologies focusing on intellectual property creation and protection. This should facilitate the development and building of new technology together with knowledge transfer.
6. It is important to **assess shifts in public mobility / transport demand** through scenario planning so as we are ready. This may be facilitated through adopting the triple helix approach to transport planning.

The Council effectively served as a knowledge sharing platform amongst the relevant government entities and private organizations on the potential role and challenges in public private partnerships (PPP) to improve service innovation in Dubai’s transport sector.

Participants

Deciding how we might shape the future of PPPs in transport demands input from multiple sectors and entities as investment and planning choices made now will impact on future choice sets. To be an effective enabler PPP policy needs to encourage strategically sound choices that involve consideration of evidence, values, and capacity of all stakeholders. In this MBRSG Policy Council, we brought together key influencers surrounding PPPs in transport and infrastructure development from relevant UAE government departments and other key stakeholders to explore some key options.

Name	Title	Entity
Mr. Faisal Ali Rashid	Director-Demand Side Management	Supreme Council of Energy
Mr. Shailendra Kaushik	General Manager	ITNL Infrastructure Developers
Dr. Irfan Al Hasani	Economics Expert	Dubai Competitiveness Office
Dr. Sarah Ishaq	Manager, Sustainability & Future	RTA
Mr. Colin Rhys	Creative Director	Hyperloop One
Ms. Shaima Faisal AlAwadhi	Innovation Accelerator	DEWA
Mr. Bibop Gresta	Co-founder, Chairman	Hyperloop Transportation Technologies
Dr. Scott Fargher	Associate Professor	Mohammed Bin Rashid School of Government
Dr. Mohammad Habibur Rahman	Associate Professor	Mohammed Bin Rashid School of Government
Mohamed Eisa Mohamed Ahmed Alansari (Facilitator)	Research Fellow, Leadership and Strategic Management	Mohammed Bin Rashid School of Government

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