BRINGING SMART MOBILITY INTO SMART COMMUNITIES

2018 Churchill Fellowship to accelerate the integration of Smart Mobility to enable more liveable Australian communities

Report by Zoe Eather, Churchill Fellow
THE WINSTON CHURCHILL MEMORIAL TRUST

Bringing Smart Mobility into Smart Communities

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2018 Churchill Fellowship to accelerate the integration of Smart Mobility to enable more liveable Australian communities

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Executive Summary

This report provides a snapshot of the current realities, conversations and observations from around the world as well as to provide a different lens on the current narrative of Smart Mobility from the experiences of Zoe Eather as she undertook her Winston Churchill Fellowship in 2019.

It is written from Zoe’s view and in her words and is aimed to support Government Officials in this time of increasing uncertainty and pressure to make decisions about Smart Mobility, Cities and Communities. Although written for an audience of Government, everybody working in or with an interest in the future of transport and communities will learn something from this report.

It is intended to be a catalyst for more detailed investigation, discussion, research and analysis in targeted topics under the complex umbrella of Smart Mobility.

Zoe hopes this report will shift thinking about Smart Mobility to a conversation that does not lead with technology but rather a change in narrative to an integrated network that makes our communities, the places we work, live and play, more accessible, liveable and sustainable for all.

This report will provide the readers with a framework and a better understanding of:

- what the global issues are;
- what we aren’t talking about enough;
- the conversations and observations around the world;
- what is needed to Future Proof;
- the Way to Go to Smart Mobility; and
- what questions need to be asked along the journey

This report is aimed to support Government Officials start wherever they are and continue to ask questions and stimulate the right conversations because it’s both humbling and frightening to know that the world is united on this and we are all suffering with the complex issue of mobility.
Where in the world?
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<td>Unidad Diseño SC</td>
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Thank you

A heartfelt thank you goes out to my #smartcommunity friends that helped me with connections, conversations, ideas and introductions, I really couldn’t have done it without you.

Thank you to everyone who made time for me along the way and those who I missed for catching up with me virtually after returning to Australia. I feel very lucky to have been able to have so many amazing and interesting conversations and the friends I have made.

To my two referees on my Churchill application, Kellie Charlesworth and Brook Dixon, a massive thank you for backing me!

Thanks to my team at Arup for supporting me before, during and after my travels and making connections for me along the way. Particular mention of Russell Whale, Kylie Nixon, Steve Jones, Cathie Norton and Terry Lee-Williams for supporting me from day one and continuing to challenge and encourage me.

Thank you to my team at My Smart Community – Ellen Ronalds Keene, Shai Eather and Andrea Madden for keeping things ticking along the whole time.

Thanks to my kick-ass business coach Jacqueline Nagle who gives me the strength I need to keep going.

My family and most importantly, my partner Jayden Belford who continues to support, love and believe in me even when I come up with the craziest of ideas.

Finally, thank you to the Winston Churchill Memorial Trust for giving me this opportunity to build my knowledge, continue to learn and bring this back for the benefit of our Smart Communities.
# Table of Contents

EXECUTIVE SUMMARY ........................................................................................................ II
WHERE IN THE WORLD? ....................................................................................................... III
WHO DID I MEET? ................................................................................................................ IV
THANK YOU ........................................................................................................................ VII
PREFACE .............................................................................................................................. 1
A BIT ABOUT ME ................................................................................................................ 2
WHAT I WANT TO ADD TO THE CONVERSATION ............................................................. 3
HERE ARE SOME OF THE NUMBERS .................................................................................... 4
WHAT ARE THE GLOBAL ISSUES? ....................................................................................... 7
  CONGESTION ....................................................................................................................... 7
  POLLUTION ........................................................................................................................ 7
  POPULATION GROWTH ...................................................................................................... 7
  CONNECTIVITY FOR ALL ..................................................................................................... 8
  INEFFICIENCIES OF PUBLIC TRANSPORT ...................................................................... 8
  WTF - WHAT’S THE FUTURE? ........................................................................................... 9
WHAT AREN’T WE TALKING ABOUT ENOUGH? ................................................................... 10
  MOBILITY AS A SYSTEM ................................................................................................... 10
  THE STATUS OF MOBILITY .............................................................................................. 11
  INCREASING CONVENIENT MOBILITY ........................................................................... 13
  REGIONAL MOBILITY ......................................................................................................... 14
  MOBILITY FOR WHOM? ..................................................................................................... 16
  HOLISTIC MOBILITY .......................................................................................................... 17
  SUSTAINABLE MOBILITY ................................................................................................. 19
WHAT CAME UP IN CONVERSATION AND OBSERVATION? ............................................. 20
THE FUTURE PROOF .......................................................................................................... 22
ARE WE THERE YET? ........................................................................................................... 22
THE FINISH LINE ............................................................................................................... 25
BIBLIOGRAPHY .................................................................................................................... 27
APPENDICES ........................................................................................................................ 1
  APPENDIX 1 - #SMART EXAMPLES AND #SMART OPPORTUNITIES ................................. 2
  APPENDIX 2: THE AMAZING PEOPLE I MET .................................................................. 24
Preface
This report is written from my experiences travelling to 10 countries in 9 weeks researching Smart Mobility as part of a Churchill Fellowship awarded by the Winston Churchill Trust. I travelled to San Francisco, Mexico City, Toronto, Orlando, Denver, London, Dublin, Amsterdam, Copenhagen, Barcelona, Cape Town, Johannesburg, Jeju Island (off the coast of South Korea) and Seoul. This research was undertaken with the aim to accelerate the integration of Smart Mobility to enable more liveable communities both in Australia and worldwide. I travelled between March and May 2019 on my own and undertook an itinerary that I planned in collaboration with a number of connections from differing backgrounds. As part of this fellowship, I looked at the current state of the transport network, the pain-points experienced by each of the places and what they were thinking about for the future. I met with government officials, consultants, academics, start-ups, NGOs, not-for-profits and experts from a wide variety of fields and different experiences.

This report is intended to be a snapshot of the current realities, conversations and observations from around the world as well as to provide a different lens on the current narrative of Smart Mobility. This report is by no means an exclusive or comprehensive list or analysis of everything that is happening worldwide but instead be a catalyst for more detailed investigation, discussion, research and analysis in targeted topics under the complex umbrella of Smart Mobility.
A bit about me...

I am an engineer and a millennial with a passion for Smart Communities, Smart Cities and Smart Regions, so not just in the big cities, but using technology and Smart ways of thinking as enablers to make the places we live more accessible, liveable and sustainable for all. I keep up-to-date with the latest trends and share the message through hosting The Smart Community Podcast and speaking on stage in cities and regional areas in Australia and internationally.

In 2016, I had the opportunity to live in South Korea for 3 months as part of the Queensland State Government engineering exchange program and this is where I learnt about the Smart City concept. Since then I’ve been obsessed with making this way of thinking a reality but also shaping the conversation away from technology and towards making life better for people, particularly those who are doing it tough right now. I made the leap from permanent employment in 2018 to start The Smart City Podcast, which in November 2018 shifted to be The Smart Community Podcast to align with my values of bringing everyone along the journey, particularly those in regional areas. At the same time as starting the podcast, I started my own boutique consulting firm, now called My Smart Community and currently consult through Arup focusing on Smart Mobility, Smart project management, Smart technology in regional communities, dealing with disruption and facilitating genuine collaboration. Also around the same time I applied for this Winston Churchill Fellowship. The fellowship was a way to continue to try and quench my thirst for knowledge in this area and really focus on mobility being at the heart of our Smart Communities, both in the cities and regions they belong to.

I currently live in Toowoomba and look forward to helping all levels of government, industry and businesses demystify some of the buzz and hype in this space and really work towards what is best for their communities.
What I want to add to the conversation

There is a lot of talk about technology solving our problems. In fact, I don’t think you ‘solve’ mobility because mobility is like life. It’s complex, it changes, it looks different for everyone, people have different needs. You don’t solve life, you live it and every day you try to make it better for you, your family and your community. It’s both humbling and frightening to know that around the world we are all suffering with the complex issue of mobility. Some are definitely closer to Smarter Mobility than others however it depends on so many different factors.

What I think is missing from the Smart Mobility conversation is the messy bit in the middle between the technology and the business as usual of the community, the city, town or region, the places we work, live and play. This is the space I want to play in, yes, it’s challenging and complex but it’s where the true Smart Community movement really sits.

One of the things I realised on this fellowship is that my lens is an important one and that there are a lot of other lenses that aren’t yet a part of this conversation. Being a woman travelling alone researching mobility actually affected my ability to research mobility. There were a lot of things that I had to put in place to keep myself safe and comfortable. I changed modes, planned differently depending on the time of day and had to put safety plans in place when I was meeting people one-on-one that I had never met before. I know I’m not the first woman or person to experience this – I heard similar stories from some of the women I met while I was on the road. These are some of the milder issues that we discussed and sometimes we don’t even realise we are changing our behaviour because it’s so ingrained that we go on autopilot. I came to the realisation that these issues definitely don’t get talked about enough and that the lens of a woman travelling alone is an important one to add to the conversation.

Finally, it really was a privilege to be able to have to time to step back and think about this. Think about what it means, what’s important, what’s idealistic, what’s reality and then how I feel about it. Then to be able to ask people all around the world those same questions, find out what people are thinking about and discover what is happening around the world. It was such an insightful experience and I am truly grateful to have been given this opportunity.
Here are some of the numbers

How do people travel daily?

**ACTIVE TRANSPORT**

- Toronto
- Cape Town
- Johannesburg
- San Francisco*
- Seoul
- Orlando*
- Mexico City
- London
- Dublin
- Denver*
- Copenhagen
- Barcelona
- Amsterdam

**CAR**

- Orlando, 87%
- Denver, 78%
- Cape Town, 60%
- San Francisco, 41%
- London, 37%
- Seoul, 29%
- Barcelona, 29%
- Mexico City, 22%
- Amsterdam, 20%

Sources: (Deloitte, 2019), (U.S. Department of Commerce, 2010), (Dublin City Council; National Transport Authority, 2015),
Active Transport based on walking and cycling
Car based on private car, car-pool and taxi travel
*Incomplete data
What’s the quality of the air that we breathe?

Sources: (Deloitte, 2019), (U.S. Department of Commerce, 2010), (The World Air Quality Project, 2019)

Public transport based on regulated, licensed, subsidized transit monitored by transport authorities

Air Quality index based on data March – May 2019
How many people are living per square kilometre?

What percentage of people are living below the poverty line?

Sources: (Deloitte, 2019), (U.S. Department of Commerce, 2010), (Gemeente Amsterdam, 2018), (Ajuntament de Barcelona, 2017), (Instituto Nacional De Estadística Y Geografía, 2013), (Central Statistics Office, 2017), (Greater London Authority, 2017), (Africa Check, 2018), (Korea Herald, 2012), (City of Toronto, 2016)
What are the global issues?

We are facing a common set of challenges when it comes to mobility throughout the world. Each has their own nuances, varying degrees and different approaches to tackling said challenges. What we (mostly) all share is a common desire to continue to improve.

The following issues were the main topics of discussion.

**Congestion**

This is the number one thing people are talking about, that there are too many people going to the same place at the same time. It’s not the same type of congestion in each place, but the single occupancy vehicle always has a part to play. Even though this seems obvious, it’s both humbling and frightening to know that nowhere has fully “solved” the issue of congestion in 2019. Congestion is a symptom of an age where we focused the planning and expansion of our cities and towns to *accommodate* the use of the private car, even where cities were built pre-motor vehicle. People’s concern for congestion varies a great deal, ranging from accepting congestion as a “universal urban truth” to near outrage at the negative impacts it is having on cities and regions.

**Pollution**

Closely linked to congestion as the number one issue is pollution - a massive pain-point throughout the world and increasing in importance globally. In the case of pollution, no-one is willing to accept the increasing levels and current state of the system. Everyone around the world is grappling with this issue, moving to cleaner, greener and more sustainable options, however the urgency, action and the solutions differ quite significantly.

**Population Growth**

As the population of the world continues to grow the impacts and pressure on our current infrastructure also grows. Population growth is not an exclusive club, most places around the world are feeling this. With the physical capacity set in most cities, the movements in these confines increase exponentially, compounding the issues of congestion and pollution. On the other side of this, where there is space and room to grow, the
need to still provide adequate, sustainable and safe connection that meets the needs of the community is a challenge. Furthermore, affordable housing, sufficient employment, government services, entertainment and community culture all need to be considered as we move into (or are already in) this hyper-connected, global society.

**Connectivity for All**

The challenge of creating and maintaining an equitable and sustainable network within the existing and emerging constraints - physical, digital and societal, is being discussed worldwide. Most of the current infrastructure was built in a time that does not match the current demand, ideologies and community expectations that exist today and have struggled to keep up with the changing nature of the demographics that are using the network. A more inclusive and accessible network to meet the needs of all current, and arguably more importantly, *potential* users is something that, although the variables differ, is a global issue to be addressed.

**Inefficiencies of Public Transport**

Another key topic of choice was the current inefficiencies of the public transport network, both regionally and in the city centre, this included, but was not limited to:

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<td>Regional extensions</td>
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<td>Under-utilisation</td>
<td>Lack of information</td>
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<td>Legacy system limitations</td>
<td>Capacity of roads &amp; corridors</td>
<td>The role of Mobility as a Service &amp; On-demand Mobility</td>
<td>New technology opportunities &amp; challenges</td>
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Although the public transport network looks different in each city and region, these are the common threads of realities, challenges and opportunities that are regularly the topic of discussion and debate.

WTF - What’s the Future?

Government, planners, industry, technology companies, academics and citizens alike are all thinking about what the future of mobility and their communities will be. They are hyper-aware of not wanting to create or “let happen” a world that is worse off than our current situation. No matter what the current situation is, we are all thinking about how we can improve the network and/or the state of play for us individually and as a collective. This includes talking about autonomous vehicles and connected infrastructure, zero emission vehicles and Mobility as a Service. To a lesser but still significant effect, this also includes road-user charging, walkability, integrating Sustainable Development Goals, on-demand transit, new modes such as hyperloop and using data to improve the way we plan, operate and maintain the system. Where governments are thinking regionally, have a vision for the future and if not leading, are actively involved in the change, real benefits for the community can be realised. This vision for the future will not be set in stone but flexible enough to adapt with the wave of change heading our way.
What aren’t we talking about enough?

Now that we know what the global issues are, what are the conversations that need to be had? What are the gaps in the current narrative of Smart Mobility? The concepts below are topics that in certain countries and places are front of mind but are currently only whispers on a global scale.

What needs to be amplified in the general global conversation?

**Mobility as a System**

Before we can have Mobility as a Service (MaaS), we need to start treating mobility and transport more holistically, as a system if you will. Transport services cannot run in isolation to current and planned land uses and cannot be separated from accessibility to things such as employment and services. Further still, human behaviour based on regional characteristics and demographics must form part of this system. Around the world, the system of transport is becoming insufficient and the symptoms are congestion, pollution, inequity and safety. A system that is not integrated, not focussed on the needs of the people that want and need to use it.

What is the problem that MaaS actually solves? It is said that MaaS strives to diminish the reliance on the private vehicle but the end product of having a subscription-based model does not solve this. A more viable solution is having an integrated transport network that is joined-up, accessible, safe, sustainable and affordable for all. This would need to most importantly include the people with the most at stake who are relying on the service. Therefore, for there to be MaaS, there must first be MaaSystem and this relies on both the public and private sector to be actively involved and having a multi-modal network that already works. Why would anyone take the bus if it’s going to take you 3 times longer than a cheap, convenient ride-share service waiting at your front door?

MaaSys will better distribute the government services that are currently already available. Services such as government subsidised shuttle buses or community vehicles that pick up and drop off eligible people to services such as medical appointments. The first step is to understand the data - what services are
available, what are the rates of utilisation, who are they currently available for, what are the gaps and then how could they be better utilised? To do this we need government departments and agencies to work together, share data and then involve the right parties to analyse the data and open it up in such a way that it can be easily consumed while protecting privacy securely.

![Image](15. Seniors Bus Foster City, California (Zoe Eather April 2019))

This can’t happen by accident, there should be a structure to ensure the appropriate time, budget and resources are allocated. This could be in the form of a Smart Mobility/Community Office or something similar to apply the appropriate mechanisms. The government has a key role in ensuring we create the mobility network that we want as a collective, with consultation of key stakeholders. In order to do this the government must keep up-to-date and be active in this space. The private sector may fill the gaps or arguably must fill the gaps but the government sets how the game should be played for the benefit of public good and ensure that the socio-economic divide doesn’t augment further.

**The Status of Mobility**

We need to start with a base-line to understand what the current network looks like and what the gaps are, both perceived and real. Base-line data is the key to making any real difference. It is from this data that the negative and positive impacts can be measured. In order to understand the current situation an analyse and assessment of the data currently available is needed. Data will need to be both quantitative and qualitative in order to assess the gaps appropriately and understand why people are travelling. Both the numbers and the stories are important. By doing this exercise you will also find out what other data sources you need and plan accordingly to start collecting this. Not forgetting to put mechanisms in place to continue to measure and monitor, for both “business as usual” and once initiatives and projects go ahead.

![Image](16. Intersection in Barcelona (Zoe Eather April 2019))

![Image](17. Transit Priority Pilot, Toronto (Zoe Eather March 2019))
There is really no need to compare where you are at with another place, only if it’s to share learnings and stories of success because it doesn’t matter where you are at now, you can always further work towards a “smarter” mobility network. The reason I say this is because anecdotally people say that governments don’t want to measure and monitor the data because they don’t want to show where they are “failing” but in our Smart Communities, transparency is paramount and in order to improve we need to understand the current gaps. The fear of failure is hindering our ability to move forward.

Once we understand the current situation, we can start strategically focusing on areas in need, in order of priority, based on a set of criteria that favours community objectives and balances investment and impacts. The public sector can then effectively assess what problems that they need help with from the private sector, researchers and academics, start-ups and entrepreneurs and the general community.

Using this approach, the public sector can “reverse pitch” their problems rather than the set description and prescription of the solution that is thought to be needed, normally based on inaccurate, out-of-date and subjective data. To be able to do this successfully, “Smart Governance” as described above is needed, as is the ability to measure the impacts, results and also a focus on the scalability and/or continuation of these initiatives once proved to be successful.

The last, but not least, component of this is to put the information in the hands of the people, the customers of the network. You can be data rich and information poor. Terabytes of data mean nothing if isn’t turned into real information. For people to make different decisions about their mobility choices, they need easily accessible, real information at their fingertips.
Increasing Convenient Mobility

A key element of Smart Mobility is reducing the unnecessary trips that people are making now, that is, reducing the need to travel. To do this there are a number of elements to consider, the first of which is improvements in remote working. This is more of a culture challenge than it is a technical one and will look different in different fields and industries. But as the workforces change and the ability to “work from anywhere” increases, traditional organisations will struggle to attract the talent required to survive, let alone thrive. This theory also extends to cities and regions having the ability to offer their communities interesting employment and opportunities while not killing the lifestyle that attracts people to them in the first place.

It doesn’t make sense that the commute hasn’t changed in the past 60-70 years given the advancements in all the other areas that make it easier to “work in place”.

Is that to say that we never see people again? No.

Is that to say that we will only ever interact through a computer screen? No.

But is that to say that we build trust in different ways? Yes.

Being able to build trust digitally is an absolute must in any current or future organisation. It is imperative to have systems and processes that support and nurture this environment.

Can everybody do this? No.

Ideally people that have jobs where they must be present in a certain place should be prioritised in our network. Professions such as a shop assistant or a nurse or a factory worker, should have their needs planned for first. Alongside this, the needs for people attending necessary services, particularly if they are off-peak need to be considered.
With urban migration currently at odds with housing affordability, people with lower incomes aren’t able to live in the heart of the city with access to all services and therefore move to the outer edges of a city. How do we ensure we are creating places that aren’t sprawling and just increasing the divide once again?

Another element of this is the idea of bringing what we want and need closer to where we live. That is, rather than cities and regions being places that you move through, being places for living. Changing the traffic movements to reclaim back the streets to the people is not really enough, however, it’s about sensibly decentralising services to make them within walking and cycling distance from where people live. These include hospitals, universities, power supply, green space, restaurants and entertainment venues.

To counteract the limited diversity of only being where you live, integrated public transport could offer a range of options. These systems have the ability to connect these hubs to other districts and larger spaces. Mixed-use development combined with digital and physical connectivity with a focus on the human experience is what is needed.

Regional Mobility

Things can’t be smart if we aren’t connecting our regional areas – both physically and digitally. A re-think of public transport, policy and what we want our cities and regions to look like is needed. Connecting the regions doesn’t mean allowing for sprawl, it means making hubs where people can affordably work, live and play, it means not building out but bringing the things we need closer together physically and digitally and not just in the centre of a city.
Although an increasingly large number of people will be city dwellers, there will still be communities living in regional areas and we can’t forget about them. If trends continue, people will find it harder and harder to find affordable housing close to the city and will continue to be pushed further and further out of the city with limited connections. Mobility as a System thinking should have a regional focus as to fill the gaps that traditional public transport currently does not and open up opportunities for people that currently don’t have access to the network.

Balancing the focus on making the city centre better connected through micro-mobility with more emphasis on the whole-of-journey for the people living in the outer regions is necessary. If we have better connectivity regionally, people can continue to live close to hubs and still sustainably travel as they need to. This is connecting regions to cities, to other regions and inter-connecting the places within a region. It also decreases the use of the private car and even though people may still own a car, reducing the use of these is key for reducing congestion and pollution. When there is a focus not just on improving “city life” we create a more diverse and inclusive community.

The introduction of fibre networks helps to connect the “black spots” in our regions. This will help to ensure there is reliable connectivity for everyone. Connectivity as a human right, some might argue. When we can connect digitally, a world of opportunity for people living in these areas can emerge and flourish. This could mean the local farmer can start an e-commerce business or an entrepreneur can run their start-up from their hometown rather than moving to the city. This in turn fosters a culture of innovation and attracts other talented people. This is a conversation not just about speed but about coverage.
Mobility for Whom?

Smart Mobility is seen to be all about new high-tech solutions that will solve all of our problems but without bringing people along for the journey, we can’t call it Smart. Mobility impacts everyone and we owe it to the future generations to shape it rather than allowing it to just happen.

We have to start changing how we plan and whom we plan for. Traditionally the transport network has been planned for businessmen travelling to and from the work place from their home, in their motor vehicle, with no children, bits and pieces and no other stops on the way. Now we are doing things differently but still using the same network, both men, women, children and people of all abilities are participating in society and rightfully so. Therefore, there are some fundamental differences in how we planned in the past, for right now and how we must into the future. Women must be involved in mobility and the planning of our cities, in both a professional capacity and as members of the community. Other needs that are to be considered are increasing non-peak trips, and catering for our aging population as well as for prams, wheelchairs and other accessibility issues.

As mobility is a foundational piece in our communities, people in the community must be able to access it and not just physically. People need to have the tech and data literacy to understand what is it, how to use it, how their data is used and what services are available? It is one thing to work on opening up the data and yet another thing entirely to put the information in the hands of the people. Further to this, ensuring that the people can understand the given information and to be able to make informed decisions about it. Just like government provides public schooling, it’s now time to build tech and data literacy within the community to ensure the digital divide doesn’t increase and in fact, closes that gap.

We need a diverse range of people involved in decision-making because different things are affecting these once “traditional” decisions. These variables need to be considered and without digital diversity in decision-making, the way it was always done isn’t enough anymore. Collective groups of people of diverse backgrounds must be involved, acknowledged and considered in this space.
The unheard voices of the elderly, people with disabilities and people living in poverty are needed as are the voices of caring professionals, creatives and people that don’t normally fit in the transport planning profession. Everyone at the table must be honoured and respected as we all offer important and different experiences, points-of-view and expertise. This doesn’t mean that we will all agree or that everyone will be able to get everything they want. Budget limitations and what is considered the best for the public good will need to be taken into account, however, the result will be an empowered community that feels that their voice is being heard. If Smart Mobility isn’t used to address the challenges faced by the marginalised communities, then it’s not good enough.

**Holistic Mobility**

Mobility is a basic need of all people, it affects everyone. A more holistic approach towards mobility is necessary if we are to improve mobility standards for all. By bringing together real data and sharing across disciplines we can not only better understand the places we are dealing with but also make it easier for the community to access the services they need.

Although it is necessary to have separate departments to look after and make decisions on different aspects of policy, planning and city services, it is of increasing importance to share information, consider the impacts and bring resources together. Joined-up government services are an important aspect of the future of our communities and using technology to decrease the complexity in doing this.

Using collaborative thinking allows for significant potential savings in money, time, effort and resources because we can leverage the information, projects and resources of one sector and realise the impacts in another. It also makes for better planning for the citizen trying to use and access services, as we know how complex our lives are and how much mobility impacts other aspects of our lives such as health, education, employment and overall well-being. What if the community could access services seamlessly, no matter what department delivered that particular service?
The messy bit in the middle of technology and the citizens, this is where we can have some massive impacts and transformative change. Things like rethinking and questioning how we do modelling by having a more collaborative approach - what data would we love to have but currently can’t access? What impacts beyond just transport could we be measuring and then sharing the learnings to other agencies? What other departments and projects could we leverage to multiply the impacts and make better use of resources?

What if we could make our mobility, our commute and travel more enjoyable and actually increase our well-being rather than crushing our souls? Reliable, accessible and efficient mobility enhances people’s ability to connect with each other and the world around them. We can participate in the economy and not spend so much of our time and effort on just getting to and from the places that we’d rather be. With less energy spent on commuting there would be more energy to become more involved in the community and to connect with family and friends.

The idea of having purpose-built modes based on the needs of the people using them is one worth exploring, and one that people argue comes with autonomous vehicles such as having mobile offices, cinemas or gyms. What’s missing from that conversation is that we could potentially have this right now. An extension of the “quiet carriage” on a train could be the yoga carriage or the “learn to code” bus, there are many possibilities. By having purpose-built transit, we could use our travel time “more productively” including buying back our leisure time. If we start thinking of our commute as a way to increase our health and wellbeing and if it were planned in such a way as well, the prioritisation of modes and concepts would look a bit different.

Incorporating green space into our daily trips is a must and real investment in infrastructure and behaviour/culture change is critical to increasing walkability. Walking should be considered as an integral part of our travel journeys and is a metric in mobility.

We need to stop thinking just about the mode or the station where we enter and exit but rather about the whole journey and consider how this affects people’s choices based on their circumstances. Is the first and final leg of my journey walkable, meaning is it pleasant, easy and safe? What if the conditions change, can I easily make another choice? Or do I really only have one option and if it fails could put me in a potentially uncomfortable or dangerous situation? Thinking about the whole of journey and the whole of life of someone’s mobility allows for these conversations to be had impactfully.
Sustainable Mobility

It would be remiss of me if I didn’t mention the Sustainable Development Goals. Particularly Goal 1: No Poverty; Goal 3: Good Health and Well-Being; Goal 8: Decent Work and Economic Growth; Goal 9: Industry, Innovation and Infrastructure; Goal 10: Reduced Inequalities; Goal 11: Sustainable Cities and Communities and Goal 13: Climate Action (United Nations, 2019). Smart Mobility should be a means to addressing these global goals and should be considered in both developed and developing countries.

There are currently a lot of projects and ideas being tested, trialled and piloted in this space. These are a necessary step to make sure they are safe, useful and impactful. However, it is important that we can share learnings across government levels so that we don’t keep piloting the same things over and over again. We also need to have mechanisms in place to be able to appropriately scale these pilots if proved successful. This comes from setting up governance and having an understanding of where, who and how decisions about mobility are currently being made and how to influence these to get the best outcomes. It must also be said, that small positive changes on an individual level should not be underestimated and are sometimes the most powerful. Incremental steps for positive change can cause a ripple effect of impacts in our communities but that might not be felt for a long time. This is where starting where you are with your community to influence small positive changes is a step in the right direction.

The whole-of-life of our actions, thinking more circular even in the transport space is another conversation that we must have more of. What is the full life-cycle of my transport options and choice? As well as the what is the full life-cycle of the things I’m consuming? The real cost of how our cities, towns and regions have been planned and built is something we continue to deal with today. We must start thinking more about the true cost of our choices. What does it cost the planet to drive our car today? What will it cost in community space for that new parking lot? What is the well-being cost of this road expansion? The only way to prioritise people over motorised vehicles is to start making decisions right now in policy, planning and shifting our language.
What came up in conversation and observation?

San Francisco

Technology, data, rideshare, culture, wealth, tourism, cars, affordability, smart, tech, urban, valleymicro-mobility, public, automation, valley, apple,
twitter, everyone, trap, uber, linkedin, shortage, david.

Mexico City

Safety, congestion, data, cars, culture, pollution, parking, social, innovation, responsibility, transport, walking, base-line, low, metrometrobus, want, poverty, difference, entrepreneurs, start-ups, growth.

Toronto

Community, smart, big, trust, data, license, city, public, government, companies, vulnerable, education, social, diversity, progress, tech, activists, sidewalklabs, google, cold, regulation, trust, licence, security, culture, transport, rail, future, innovation, imagination, sunrail, greenworks.

Orlando

Tourism, car, big, change, smart, tourist, theme, council, park, harry, buses, rental, council, private, roads, activation, rail, city, fun, safety, car, high, lack, electric, cars, transportation, future, city, bike, cycling.

Denver

Culture, art, social, diversity, smart, fun, city, enterprise, purpose, stories, growth, access, transportation, culture, share, social, events, diversity, purpose, food, stories, small, link, community, public, access, purpose, growth, safety, health, transport, connectivity, inclusion, socio-economic, food, purpose, stories, growth, access, transportation, culture, share, small, link, community, public, access, purpose, growth, safety, health, transport, connectivity, inclusion, socio-economic, food, purpose.
The Future Proof

Based on the common threads in the global challenges, approaches and what needs our attention, I developed the following diagram – The Future Proof: This is what is needed to future proof our communities as we move or build towards Smart Mobility.

<table>
<thead>
<tr>
<th>Smart Mobility</th>
<th>Joined-up approach with the right people, resources budget and time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Governance</td>
<td>Network that is integrated, easy to use, safe, affordable and sustainable</td>
</tr>
<tr>
<td>Accessible &amp; Sustainable Network</td>
<td>Planning, operation and maintenance that is driven by real-time data</td>
</tr>
<tr>
<td>Data-Driven Decisions</td>
<td>Community that feels empowered to be involved in decision making</td>
</tr>
<tr>
<td>Community Co-creation</td>
<td>A system that connects the regions as a whole both physically and digitally</td>
</tr>
<tr>
<td>Regional Approach &amp; Connectivity</td>
<td>Working towards a real vision for the future with transparent decision making</td>
</tr>
<tr>
<td></td>
<td>Mobility for All</td>
</tr>
</tbody>
</table>
Are we there yet?

How do we get to The Future Proof? We need to start by asking the right questions and making, sometimes small and sometimes large, incremental changes. It doesn’t matter what position we are starting from; we just need to start. It’s a continuous process that keeps evolving, keeps shifting and progressing and for it to be Smart we must update our understanding. However, it doesn’t mean that we need to continue to jump on and adopt the latest technology for the sake of it. Smart Mobility must be built upon the backbone of an integrated transport network that is not just about moving people but about creating liveable communities. It doesn’t all happen at once and it will be difficult at times, however, it is imperative that we get this right for the sake of our communities and to enable real Smart Mobility.

In order to prepare for this future, we can’t take a back seat, we must be the driver, be it with our own two hands or by an algorithm of our design. So how do we get there?

To get to The Future Proof, I have devised a practical framework that government agencies and industry players alike could use to build the supports and mechanisms required for Smart Mobility. This framework is applicable globally.

By taking where we need to get to: And understanding what to focus on:

I developed the Way to Go Framework

Below is the overarching Way to Go Framework – to use it we start in the middle with the vision, this can be as big or small as we like. We move around the inner circle to solving the problem, looking at the data and then taking action, and back around to re-visit our vision. The outer circle is the supporting mechanisms required for success and each of them is explained further around the outside.
Vision

Problem

Data

Action

Different Heads

Head Space

Stop, data time

As a whole
Not alone In the driver’s seat

For whom?

Data

Smart Mobility

Strong partnerships
Active community participation
Accessible Procurement
Tap into the ecosystem
Adaptive Policy and Regulation
Government to set the rules of play
Public funds for public good

Decision-making power

Governance Structure that allows focus
Separate Innovation Arm

Strong leadership with required delegations

Empowered Community

Access & Safety for those with the most at stake
Meaningful Engagement

Focus on closing the divide

Start Here

Think greener
Thinking as a system
Whole of life cycle
Resources available to scale

Over-arching baseline data
Data driven decision making
Open for innovation but closed to manipulation

Data literacy

Start Here

Thinking as a system
Whole of life cycle
Resources available to scale

Over-arching baseline data
Data driven decision making
Open for innovation but closed to manipulation

Data literacy
To use the **Way to Go** framework we have to be prepared to ask a lot of questions. Below is the **Conversational Journey Plan**, it is a prompt for some of the questions we should be asking as we move along in our process.

- Have we set up our Smart Governance?
- Do we have a vision?
- Do we have diversity in decision making?
- Do we understand the data?
- Have we set up strong partnerships?
- Is government setting the rules of play?
- Are we using public money for public good?
- Who are we planning for?
- Are we monitoring and measuring accurately?
- Are our processes open and transparent?
- Are we sharing our stories and learnings?
- Are we engaging meaningfully with the community?
- Have we set up joined-up government services?
- Are we using responsive policy and regulation?
- Are we using mobility as a system?
- Are we increasing data and tech literacy?
- Is the network physically and digitally integrated?
- Can our procurement process be accessed by start-ups and SME?
- Are we monitoring and measuring accurately?
- Are we increasing data and tech literacy?
- Do we have a vision?
- Is government setting the rules of play?
- Have we set up strong partnerships?
- Are we using public money for public good?
- Who are we planning for?
- Are we monitoring and measuring accurately?
- Are our processes open and transparent?
- Are we sharing our stories and learnings?
- Are we engaging meaningfully with the community?
- Have we set up joined-up government services?
- Are we using responsive policy and regulation?
- Are we using mobility as a system?
- Are we increasing data and tech literacy?
- Is the network physically and digitally integrated?
- Can our procurement process be accessed by start-ups and SME?
The Finish Line

To start thinking and talking about Smart Mobility requires a change in narrative rather than leading with a discussion about technology. This change will bring about an integrated network that makes our communities, the places we work, live and play, more accessible, liveable and sustainable for all.

Questions to start your #smartmobility conversations with:
- How will we get mobility as a system?
- Do you know what the status of mobility is in your region?
- Do we need to travel so much or can we do this remotely?
- Have you considered how this connects with regional areas?
- Who are we actually planning for?
- Will this affect any other areas like health or education?
- What is the whole life-cycle of this decision?

Now that you’ve started having the #smart conversations, what are the things that need to be considered in supporting this? As per the framework:
- Different Heads
- Head Space
- For whom?
- In the driver’s seat
- Not alone
- As a whole
- Stop, data time

Start wherever you are and continue to ask questions because it’s both humbling and frightening to know that the world is united on this and we are all suffering with the complex issue of mobility.
Bibliography


Appendices
Appendix 1 - #smart examples and #smart opportunities

Here I will talk about some #smart examples and some #smart opportunities from each place. These #smart examples are not endorsements of the company or program content but rather to highlight the initial thinking or concepts and the shift that is needed as we move forward. As for the #smart opportunities, these are ideas for addressing challenges being faced that either came up in conversation while I was in each place or from research before and after my travels. Similarly, to the entire report, these are intended to be catalysts for further thinking only as all the possible variables cannot be taken into account in this short study.

<table>
<thead>
<tr>
<th>Place</th>
<th>#smart examples</th>
<th>#smart opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA – San Francisco</td>
<td>Accessible education</td>
<td>Labour shortage</td>
</tr>
<tr>
<td>Mexico - Mexico City</td>
<td>Parking reform</td>
<td>Regional public transport</td>
</tr>
<tr>
<td>Canada, Ontario - Toronto</td>
<td>Transit priority corridor</td>
<td>Side Walk Labs development</td>
</tr>
<tr>
<td>USA, Florida - Orlando</td>
<td>Government focus</td>
<td>No. 1 - Dangerous by Design</td>
</tr>
<tr>
<td>USA, Colorado - Denver</td>
<td>Addressing real problems</td>
<td>Fast population growth</td>
</tr>
<tr>
<td>UK - London</td>
<td>Innovation Arm</td>
<td>Moving out of legacy</td>
</tr>
<tr>
<td>Ireland - Dublin</td>
<td>Smart Governance</td>
<td>Increasing demands on PT</td>
</tr>
<tr>
<td>The Netherlands - Amsterdam</td>
<td>Smart Mobility leadership</td>
<td>New micro-mobility options</td>
</tr>
<tr>
<td>Spain - Barcelona</td>
<td>Superblock</td>
<td>Increasing density</td>
</tr>
<tr>
<td>South Africa – Cape Town, Johannesburg</td>
<td>Higher quality public transport</td>
<td>First and last leg of trips</td>
</tr>
<tr>
<td>South Korea – Jeju Island, Seoul</td>
<td>Jeju Island as a Test Bed</td>
<td>Air pollution</td>
</tr>
</tbody>
</table>
### San Francisco Bay Area #smart example

<table>
<thead>
<tr>
<th><strong>What is it?</strong></th>
<th>Accessible education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What type?</strong></td>
<td>Approach</td>
</tr>
<tr>
<td><strong>The Problem</strong></td>
<td>Changing skillsets required for the future workforce</td>
</tr>
<tr>
<td><strong>Multiplier Effect</strong></td>
<td>Accessible education, congestion</td>
</tr>
<tr>
<td><strong>For whom?</strong></td>
<td>Businesses, job seekers, government</td>
</tr>
<tr>
<td><strong>Who</strong></td>
<td>Udacity</td>
</tr>
<tr>
<td><strong>The example</strong></td>
<td>Udacity’s mission is to “democratise education”. Udacity offers nano-degrees and courses online in skills that will be required for the future, such as coding for autonomous vehicles, that can be accessed world-wide by virtually anyone with an internet connection.</td>
</tr>
<tr>
<td><strong>Some of Zoe’s thoughts</strong></td>
<td>What I like about this approach is that it is making education accessible and up-skilling people now for the jobs of the future. Although autonomous vehicles and flying cars are not the be all and end all, it’s important to realise that skills in this area will definitely be required and jobs / skillsets are changing rapidly. I also like that they have several free courses to get you started and the nano-degree structure reduces commitment anxiety. Also, because their courses are accessible from wherever you are it eliminates the need to physically attend a class, thus reducing unnecessary congestion as we don’t have to rush to class every day. I think it is important to decentralise these skillsets so that the conversations become more diverse and people bring their own backgrounds, environmental contexts and experiences into it. Further to this, this approach will hopefully get more people thinking about the impacts, challenges and enablers of such technology for the public good in different countries around the world.</td>
</tr>
</tbody>
</table>

### San Francisco Bay Area #smart opportunity

<table>
<thead>
<tr>
<th><strong>The Challenge</strong></th>
<th>Labour shortage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Issues</strong></td>
<td>It seems there is a mismatch in where the jobs are, the right skillsets being available and where people can afford to live. Combine this with “having” to go to a particular place to work every day and you have a lot of people commuting, in peak hour, to a centralised location. This also adds to the divide in the affluent areas and where the workers can afford to live.</td>
</tr>
<tr>
<td><strong>For whom?</strong></td>
<td>Businesses, job seekers, government</td>
</tr>
</tbody>
</table>
| **Making it better** | • Make education more accessible, not just in a centralised location  
• Strong focus on matching education with opportunities  
• Reduce the need to travel by improving remote working technology and culture  
• Mixed-use developments planning including affordable housing  
• Improved public transport connections  
• Public, private, community partnerships  
• Prioritise workers that must go to a place of work at a set time every day as well as people accessing necessary services |
Some of Zoe’s thoughts

San Francisco is an interesting place obviously the home of Silicon Valley, there’s no shortage of jobs per say but there’s a shortage of the right skills and linking with mobility, the affordability of housing close to where the action is, forces people to live further and further out with then limited public transport options so then driving and causing congestion at peak hour every day.

Further questions need to be asked as to why we all have to be at a certain place at a certain time every day and what things need to happen to change this. Is it because we are still essentially the generation steeped in the Industrialised Age that developed the 9-5 workday? Or is it the exact opposite of that and we really do need the face-to-face every day to collaborate and develop interpersonal skills? These are the tech companies of Silicon Valley, the ones the world looks to for their innovations as a window into the future, yet there still seems to be a lot of work needed in the space of telecommuting and working remotely.

So this really makes me think, what is it that will change this, and how big does the change need to be? More importantly however is even after we reduce our need to travel unnecessarily, we need the right skillsets ready when and where we need them to be. And if mixed-use development with elements of affordable housing aren’t carefully planned and executed, this will continue to be a problem and mobility both social and physical will remain stuck.

The bit that is missing is the messy bit in the middle between standalone technology and it actually making a positive difference to the public good when implemented or enabled in context of urban and regional environments.

<table>
<thead>
<tr>
<th>Mexico City</th>
<th>#smartexample</th>
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</thead>
<tbody>
<tr>
<td>What is it?</td>
<td>Parking reform</td>
</tr>
<tr>
<td>What type?</td>
<td>Project - Study</td>
</tr>
<tr>
<td>Project / Program / Approach / Operation</td>
<td></td>
</tr>
<tr>
<td>The Problem</td>
<td>Congestion</td>
</tr>
<tr>
<td>What’s the main problem?</td>
<td></td>
</tr>
<tr>
<td>Multiplier Effect</td>
<td>Housing affordability, accessibility, safety, air and noise pollution and reduced public space</td>
</tr>
<tr>
<td>What else could it contribute to?</td>
<td></td>
</tr>
<tr>
<td>For whom?</td>
<td>Mexico City residents including regional</td>
</tr>
<tr>
<td>Who’s it a problem for?</td>
<td></td>
</tr>
<tr>
<td>Who</td>
<td>Institute for Transportation &amp; Development Policies (ITDP), Ministry of Urban Development and Housing (SEDUVI) the Ministry of Mobility, and the Real Estate Association (ADI)</td>
</tr>
<tr>
<td>Who’s involved in doing it?</td>
<td></td>
</tr>
<tr>
<td>The example</td>
<td>In July 2017, the Mexico City Mayor announced changes in the construction code that would limit the development of further off-street parking. The policy, called “limitation of parking spaces in the city construction code”, changed the law from requiring a minimum number of parking spaces in a development to setting a maximum for how many can be built.</td>
</tr>
<tr>
<td>What’s involved?</td>
<td>According to Bernardo Baranda, ITDP Mexico “this positions Mexico City, the largest city in North America, as the leader in rethinking land use policies</td>
</tr>
</tbody>
</table>
that favour the car and prioritizing spaces for people in this rapidly growing city”

This major policy change is a result of ITDP Mexico’s advocacy work over the past decade when the team began working with the government agencies to develop alternatives and reduce the use of the private car.

The study “Less Parking, More City” undertaken by ITDP Mexico with the support of the Minister of Urban Development and Housing, Ministry of Mobility, the Real Estate Association and others was a data-driven, participatory approach with a strong communication campaign and funding and transparency mechanisms. The study revealed that more area was being built for parking spaces than for housing as well as that more than 40% of Mexico City is parking spaces and is above any other land use including housing.

The study provided enough evidence to show unsustainable trends of constructing building for cars rather than people and the people were forced to live hours away on the outskirts of the city, with few options but to travel and commute by car.

Some of Zoe’s thoughts

It was excellent to meet with Bernardo from ITDP Mexico and we discussed a lot of interesting work that they are doing. I chose this example as parking is a hot topic around the world, but mostly people are talking about adding technology to park “smarter”. This example shows the component that policy has to play in shaping the future we want and how the prioritisation of people over car doesn’t just include the road infrastructure. It also tries to address the cause of the issue not just the symptoms and uses data to provide evidence which can then be actioned. This is applicable in many places around the world. It’s not the entire solution but should be considered as part of the approach.

Links and further information

https://www.itdp.org/where-we-work/north-america/mexico/
http://mexico.itdp.org

<table>
<thead>
<tr>
<th>Mexico City</th>
<th>#smartopportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Challenge</strong></td>
<td>Lack of safe regional public transport options</td>
</tr>
<tr>
<td><em>What’s the challenge?</em></td>
<td></td>
</tr>
<tr>
<td><strong>The Issues</strong></td>
<td>Due to the lack of connectivity in regional areas and the fact that most services are concentrated in the city, residents are forced to either purchase and drive a car or jump in a “pesero” or microbus. According to Michael K Bess of T2M, the peseros are an unregulated service which operate as a type of “collective taxi” that has evolved into an informal network of more than a thousand different routes, carrying up to 14 million passengers a day across a decentralized fleet of 29,000 vehicles. The pesero in theory are a “good example of true ride-share”, however are not an efficient way of moving people around and as they are unregulated, they remain unsafe and polluting, due to old under-maintained vehicles, erratic driving, overcrowding and women are being harassed and assaulted.</td>
</tr>
<tr>
<td><em>What issues does it cause?</em></td>
<td></td>
</tr>
</tbody>
</table>
**For whom?**
Who’s it a problem for?

Residents in regional areas commuting / travelling to the city particular women and marginalised populations.

**Making it better**
What are some things we can do?

- Understand the current situation (base-line data)
- Engagement with community, drivers and users
- Improved quality public transport connections
- Metro and BRT expansions
- Responsive regulation
- Public, private, community partnerships

**Some of Zoe’s thoughts**

Currently, people are travelling into the city every day for work which causes huge amounts of congestion and pollution, not to mention crashes. The public transport network needs expansion to capture the current catchment of people travelling in every day. To fill this need, there are a fleet of unregulated mini bus taxis that serve the regional areas either travelling all the way in or dropping off at transit nodes. The problem is however that these are not safe particularly for women, with numerous cases of harassment and sexual assault, but we can’t properly solve this problem without understanding the full extent, that is, having the data that tells us the base-line.

With this data comes an understanding and with understanding comes some ideas for solutions to solve this problem. Once we have a base line we can then try out some changes and then measure the results. We need the base line data to ensure we don’t completely destroy the network and people’s employment, current income and people’s current travel options, but then strong leadership to take action with engagement, local knowledge and small iterations. Regional connectivity has to be key along with thinking about the needs of women and designing for those. And although this is seemingly only a transport issue, it’s not, it’s a mobility issue which is not just about getting from A to B but how do we move around the places we live safely and with ease.

I met with two start-ups who are trying to address some of these issues with a higher quality service offering – Urbvan and Bussi.

**Links and further information**

https://howwegettonext.com/how-to-make-public-transportation-safer-for-women-b68678a2ed82

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**Toronto**

<table>
<thead>
<tr>
<th>What is it?</th>
<th>Transit priority corridor</th>
</tr>
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<tbody>
<tr>
<td>What type?</td>
<td>Project to Operation</td>
</tr>
<tr>
<td>The Problem</td>
<td>Unreliable transit times</td>
</tr>
<tr>
<td>Multiplier Effect</td>
<td>Accessibility, safety, air and noise pollution, increase business</td>
</tr>
<tr>
<td>For whom?</td>
<td>Toronto City Commuters</td>
</tr>
<tr>
<td>Who</td>
<td>City of Toronto</td>
</tr>
<tr>
<td>The example</td>
<td>The King Street Transit Pilot ran from November 2017 – December 2018 and was about moving people more efficiently on transit, improving public space</td>
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</table>
and supporting business. The pilot aimed to improve transit reliability, speed, and capacity on the busiest surface transit route in the city by giving transit priority on King Street from Bathurst Street to Jarvis Street.

This corridor design gives priority to streetcars by prohibiting through movements for private vehicles at most intersections, expands areas for streetcar stops, and allows for a mix of curb lane uses including public space, cafes, loading zones and taxi bays.

The monitoring and evaluation plan involved the collection of data before and during the pilot in order to assess the impacts and benefits. Data was collected through methods such as the tracking of streetcars using GPS, the monitoring of car travel times using Bluetooth sensors, and the collection of pedestrian, cycling and car volumes using video analytics. Updates were provided to the City reflecting the latest data and information available and are available on the City’s open data platform, this includes detailed and summarised car travel times and car, pedestrian and bicycle volumes.

Once launched, the pilot was able to demonstrate, relatively quickly and cost-effectively, its ability to move people more efficiently on transit without compromising the broader transportation road network.

Due to the success of the pilot, on April 16, 2019, City Council made King Street a permanent Transit Priority Corridor.

**Some of Zoe’s thoughts**

I was able to meet with the Chief Information Officer of City of Toronto to discuss this and many other projects and initiatives that are happening in Toronto and the surrounding regions. What I like about this approach is it shows a clear pilot to scaled operation approach using data-driven decision making. The data was collected before and during the pilot to show the real benefits and impacts which is essential especially when dealing with multiple stakeholders. Anecdotally there was opposition from the business owners along King Street with the thinking it would negatively affect their business, the data was able to show the opposite but without the initial pilot phase, that is, if this doesn’t work we revert, this wouldn’t have been possible.

**Links and further information**


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### Toronto #smartopportunity

<table>
<thead>
<tr>
<th>The Challenge</th>
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<tbody>
<tr>
<td>What’s the challenge?</td>
</tr>
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<table>
<thead>
<tr>
<th>The Issues</th>
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<tbody>
<tr>
<td>What issues does it cause?</td>
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<table>
<thead>
<tr>
<th>For whom?</th>
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<tbody>
<tr>
<td>Who’s it a problem for?</td>
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<table>
<thead>
<tr>
<th>Making it better</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are some things we can do?</td>
</tr>
<tr>
<td>• Increase engagement with community</td>
</tr>
<tr>
<td>• Prioritise increasing data and tech literacy</td>
</tr>
<tr>
<td>• Make the process transparent</td>
</tr>
<tr>
<td>• Privacy and data regulation modernised immediately</td>
</tr>
<tr>
<td>• Learn from the current process</td>
</tr>
<tr>
<td>• Continue active government involvement.</td>
</tr>
</tbody>
</table>
Some of Zoe’s thoughts

Community trust and concern for privacy of data, both real and perceived, are two key areas that Side Walk Labs have thrown into the spotlight.

Receiving a social license to operate means the project has approval or acceptance from the community, both locally and globally - it becomes pretty clear when you don’t have it and people start speaking out about the project.

The community needs to be able to trust that the company or the project has their best intentions at heart. A community needs to understand how a project is going to benefit them, and be able to coordinate and collaborate with it. From trust comes feedback, which feeds a loop that must strengthen not falter the process. Asking for feedback doesn’t necessarily mean that you’re going to automatically be trusted with that feedback, those that give it need to be assured that it will be given due consideration and that their voices will be listened to.

The public expects the government to protect them and keep them safe. Just like the fire and the police departments have their role in society, the community expects Governments to protect us from bad actors in the data, privacy and security space. We need to trust that they can do this. Or is there another model? Can we rely on an independent body that secures data? Who has the responsibility to say yes, you can use this data, and no you can’t use this data, and you can only use this type of data for specific purposes. Is it adhered to by both government and private agencies?

We need to redefine what these things mean, because it doesn’t mean the same as what it did when the legislation and planning policies were written. We need to rethink what transparency means in today’s environment. For a lot of tech and big companies it happens behind closed doors and the community is becoming increasingly concerned and distrustful of this. Further to that, people simply have different levels of understanding about what they are looking at and hearing from organisations. It’s one thing to collect and produce data yet another thing to produce digestible information. Following on from this is the need to educate the community in data literacy so people can understand the data being presented to them.

With all parties at the table we can ensure that people are tech and data literate, they know what data can and can’t be used for and they know what they’re signing up for when they hit yes to the terms and conditions.

An acceptance and acknowledgement of the fact that we might not be ready for a development in the current format is also imperative. Further consultation with the community and stakeholders needs to be taken into account.

Links and further information

https://www.linkedin.com/pulse/community-trust-must-bust-zoe-eather/

Orlando

#smartexample

What is it?

Government focus - GreenWorks

What type?

Program / Operation
<table>
<thead>
<tr>
<th>Project / Program / Approach / Operation</th>
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<tbody>
<tr>
<td>The Problem</td>
</tr>
<tr>
<td>What’s the main problem?</td>
</tr>
<tr>
<td>Multiplier Effect</td>
</tr>
<tr>
<td>What else could it contribute to?</td>
</tr>
<tr>
<td>For whom? Who’s it a problem for?</td>
</tr>
<tr>
<td>Who Who’s involved in doing it?</td>
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</tbody>
</table>
| The example What’s involved? | Mayor Dyer launched Green Works Orlando in 2007 with the aim for Orlando to be one of “the most environmentally-friendly, economically and socially vibrant communities in the nation”. The purpose of Green Works Orlando is to promote environmental stewardship, provide education for people about “environmentally conscious lifestyles” and encourage bringing environmental concern into the everyday workings of government and private business. Green Works uses the City’s regional leadership positions to build partnerships and share resources that foster positive environmental changes and has a program of works related to this. With regards to Mobility, some of Green Works Orlando projects include:  
• Expanding the Downtown LYMMO bus circulator and completed SunRail  
• Launching car-sharing and bike-sharing  
• Converting hundreds of fleet vehicles to electric, hybrid, or compressed natural gas  
• Developing large-scale urban tree canopy through the One Person, One Tree program  
• Expanding green space and parks  
• Orlando Walks sidewalk project interconnecting sidewalks to increase public safety and active lifestyles  
• Increasing electric vehicle charging stations  
• Urban bike and pedestrian trails |
| Some of Zoe’s thoughts | Chris Castro, who is the Director of Sustainability at City of Orlando, was one of my first interviews for The Smart Community Podcast, which was the reason I chose to add Orlando to my itinerary. There are a lot of things happening in Orlando. It’s a proofing ground for CAVs, there are initiatives towards improving pedestrian safety and general liveability overall. What I like about Greenworks is that it ingrains sustainability factors into all aspects of the city council rather than a stand-alone “environmental” program. It also has a strong community component with the government working together with the community to achieve the goals set. It also sets ambitious, tangible targets and sets out projects to get there. This approach promotes more joined-up government services and fosters strong partnerships. I picked up a share bike and cruised along the urban trails as well as rode the free Lynx bus and caught the SunRail. The downtown area itself is not very appealing to be honest but with some advice I took the SunRail out to Winter Park, which has complete activation around the SunRail station, is walkable and has a vibrant streetscape. |
There is still a long way to go to make Orlando safe and walkable but this approach is helping them get there.

Links and further information
http://www.cityoforlando.net/greenworks/about/

<table>
<thead>
<tr>
<th>Orlando</th>
<th>#smartopportunity</th>
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<tbody>
<tr>
<td><strong>The Challenge</strong></td>
<td>Number 1 on the Dangerous by Design List</td>
</tr>
<tr>
<td><strong>What’s the challenge?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>The Issues</strong></td>
<td>Pedestrian safety due to the design roads being for cars rather than people. According to the 2019 Dangerous by Design Report, Orlando is ranked number one on this list with over 650 deaths between 2008-2017, with 2.82 deaths per 100,000 people annually.</td>
</tr>
<tr>
<td><strong>What issues does it cause?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>For whom?</strong></td>
<td>Orlando residents and tourists and government</td>
</tr>
<tr>
<td><strong>Who’s it a problem for?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Making it better</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **What are some things we can do?** | - Continue to implement Orlando’s Complete Streets policy
- Change design standards to prioritise pedestrians and cyclists
- Use data to better understand pedestrian movements
- Significantly improve public transport connections and surrounding areas
- Increase infrastructure for walking and cycling
- Increase focus on active transport
- Connecting the down town areas with the theme parks via public transport to stimulate the downtown area
- Public, private, community partnerships |
| **Some of Zoe’s thoughts** | I met with the transport area of Orlando City Council and really enjoyed our conversation. They shared with me their challenges, learnings from the past and how they are committed to address them and really change the future for Orlando, using technology and systems thinking to do this. I can attest to Orlando not being walkable and was quite surprised to find that there's no real public transport to and from the airport. This probably shouldn't have surprised me given most people go there for the theme parks and the Disney Magical Express will happily shuttle you to Disneyworld (if you've bought your ticket!). It also surprised me that there was no connection from the theme parks to the downtown area which again is probably no accident but doesn't help Orlando improve their downtown viability and walkability. There is a pretty good public transport network otherwise, with a free service in the heart of the city and it continues to be expanded. Any further connections would need to link into that as an integrated system. It became quite clear during my time here that we're suffering from a “car hangover” and unfortunately, Orlando is currently number one on the 2019 Dangerous by Design Report by Smart Growth America; Florida as a whole is the number one state noted. As the report states, people are not walking more and they're only driving slightly more than they were back in 2008, yet as driving has gotten safer significantly more pedestrians have been struck and killed.
Pedestrian and cycle safety are front of mind for Orlando and they are a vision zero city, which means they have a vision of zero deaths on the road. |
Being a region driven by the tourism industry, the safety of the tourists is also a focus. This will require strong partnerships between the government, the big theme parks, small to medium enterprise, the start-up eco-system and the community.

| Links and further information | https://smartgrowthamerica.org/dangerous-by-design/  

<table>
<thead>
<tr>
<th>Denver</th>
<th>#smartexample</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is it?</td>
<td>Addressing real problems holistically</td>
</tr>
<tr>
<td>What type?</td>
<td>Program</td>
</tr>
<tr>
<td>The Problem</td>
<td>The complexity of “wicked” urban problems</td>
</tr>
<tr>
<td>Multiplier Effect</td>
<td>Joined-up government services, access to employment and services, safety, pre-mature mortality, address marginalised communities</td>
</tr>
<tr>
<td>For whom?</td>
<td>Denver Residents</td>
</tr>
<tr>
<td>Who</td>
<td>10.10.10 + government partners</td>
</tr>
<tr>
<td>The example</td>
<td>10.10.10 is a project of Colorado Non-profit Development Centre and hosted its first program in 2015. Since then it has hosted six programs and identified and explored wicked problems in key sectors – including health, water and infrastructure. The intended result being that participants develop an understanding of wicked problems we are currently facing and inspiring them to tackle these in new and different ways.</td>
</tr>
<tr>
<td>What’s involved?</td>
<td>10.10.10 hosts programs that gather together 10 successful entrepreneurs from across the US, for 10 days to confront 10 wicked problems, with the aim of encouraging new ventures for new products or services that can solve one or more of these problems. These 10 wicked problems are reverse pitched by selected agencies and each entrepreneur can choose which to tackle based on their values, passion and experience. At the end of the 10 days, the entrepreneurs present about what they learned, what they did and what they plan to do in the next 12 months.</td>
</tr>
<tr>
<td>Some of Zoe’s thoughts</td>
<td>I was able to attend the “reverse pitch” night of this 10.10.10 program and really loved the concept and could see the real potential to apply this to Smart Mobility. This particular event was themed around the multi-faceted issue of health and how it contributes to the wicked problems we are facing today as a population. Even in the way the challenges were pitched, it was clear that they weren’t looking for a siloed solution but rather a way to join-up services, concepts or solutions to address the particular problem at hand. There was also an acknowledgement of the multiplier effect of issues that people are facing, an inability to access transport services leading to unemployment leading to homelessness leading to health issues, resulting in a seemingly endless cycle.</td>
</tr>
<tr>
<td>Links and further information</td>
<td><a href="https://101010.net/about/">https://101010.net/about/</a></td>
</tr>
</tbody>
</table>

<p>| Denver | #smartopportunity |</p>
<table>
<thead>
<tr>
<th>The Challenge</th>
<th>Impacts of fast population growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>What’s the challenge?</td>
<td>Denver is one of the USA’s fastest-growing cities, which is causing issues in affordable housing for low-income families. Housing costs have increased significantly in recent years, making it harder for low-income families to remain or relocate there and all but impossible for low-wage workers to live close to where they work. The number of homeless students in Denver continues to increase and about 10,000 Denver residents between the ages of 16 and 24 were not attending school or working full time in 2016. As part of their Smart City grant application, the Denver City Council sited that “reliable transportation is one of the biggest barriers to accessing school and jobs, putting the opportunity to succeed just out of reach” The Council also notes that up to 40 percent of Denver’s residents live in underserved neighbourhoods, primarily in the western, northern and north-eastern portions of the city and nearly one of every four Denver children lives in an area of concentrated poverty.</td>
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<table>
<thead>
<tr>
<th>The Issues</th>
<th>What issues does it cause?</th>
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<tbody>
<tr>
<td>What issues does it cause?</td>
<td>Residents in underserved areas</td>
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<table>
<thead>
<tr>
<th>Making it better</th>
<th>What are some things we can do?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are some things we can do?</td>
<td>• Joined-up government services • Understand the current situation (base-line data). • Improved public transport connections to lower socio-economic communities • Implement initiatives from the Smart City application • Public, private, community partnerships</td>
</tr>
</tbody>
</table>

| Some of Zoe’s thoughts | Drawing on the 10.10.10 approach, we can’t treat any of these issues in isolation as they directly and indirectly affect each-other. Between late 2015 and mid 2016 Denver participated in the Smart City Challenge Grant competition offered by the US Department of Transportation. A longstanding goal for Denver is “increased mobility freedom through improved, accessible choices” and while Denver did not receive the funding, this work allowed Denver to have a roadmap to work towards their vision. Reading the plan, I felt it focused on some of the issues Denver faces, like better connecting lower-income neighbourhoods and because of this is would have been able promote collaboration between public, private and community stakeholders. With these partnerships and the plan, Denver should be able to prioritise their budgets and identify alternative funding opportunities to address some of their current and future challenges as it continues to grow. |


<table>
<thead>
<tr>
<th>London</th>
<th>#smartexample</th>
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<tbody>
<tr>
<td>What is it?</td>
<td>Innovation Arm</td>
</tr>
<tr>
<td>What type?</td>
<td>Program</td>
</tr>
<tr>
<td>Project / Program / Approach / Operation</td>
<td></td>
</tr>
<tr>
<td>The Problem</td>
<td>Not “keeping up” with the pace of technology</td>
</tr>
<tr>
<td>What’s the main problem?</td>
<td></td>
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</tbody>
</table>
## Multiplier Effect
### What else could it contribute to?
Disjointed government services, collaboration, multi-disciplinary approach, economy prosperity

### For whom?
**Who’s it a problem for?**
Government, private industry, built environment and technology professionals, start-ups and academics

### Who
**Who's involved in doing it?**
Innovate UK (part of UK Research and Innovation, the national funding agency) + Catapults + partners

### The example
**What’s involved?**
The Connected Places Catapults is part of a network of Catapults centres established by Innovate UK which are designed to improve the UK’s capability for innovation and drive future economic growth across a number of areas. The aim of the Catapults is to bridge the gap between ambitious businesses and the expertise of the UK’s research community. And exist to:
- Reduce the risks associated with innovation
- Accelerate the pace of business development
- Create sustainable jobs and growth
- Develop the UK’s skills, knowledge base and global competitiveness

They collaborate with and match up:
- Small and large businesses
- Cities and local governments
- Research and academia
- Local communities and citizen-group

The Connected Places Catapult’s objective is “accelerating smarter living and travelling in and between the places of tomorrow.” It focuses on growing businesses in the spaces of mobility services and built environment innovations. It draws upon both the public and private sectors and between local government and transport authorities. The Catapult works with “people and places to definite, create, test and deploy products and services that help secure wellbeing for us all.”

### Some of Zoe’s thoughts
I met with the Connected Places Catapult when I was in London and thought it was a great initiative to create “head space” for people to work on Smart Mobility and Community concepts and ideas and access resources and collaborate with researchers, industry and government. It has 4 different locations around the UK, including in regional areas and connects back in with the other Catapults where there is cross-over.

What I particularly liked was the fact that the previous Future Cities Catapult and the Transport Systems Catapult had merged just before I arrived to form the new Connected Places Catapult. This amalgamation really symbolises the shift in thinking that Smart Mobility is not just about the transport but rather about connecting places.

### Links and further information
https://cp.catapult.org.uk/about-us/

<table>
<thead>
<tr>
<th>London</th>
<th>#smartopportunity</th>
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<tbody>
<tr>
<td><strong>The Challenge</strong></td>
<td>Moving out of legacy</td>
</tr>
<tr>
<td><strong>What’s the challenge?</strong></td>
<td>The city of London was a powerhouse in the past. Although we can learn valuable lessons from the past, legacy thinking and systems can leave us a bit stuck. For London and the UK to continue to thrive in the 4th Industrial Revolution, different ways of thinking are needed. Legacy systems seem to be causing mobility issues in London. These include: expansion of the tube,</td>
</tr>
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</table>
increasing accessibility, road user charging systems, regional connectivity, dealing with growth and the changing ways of working.

### For whom?
**Who’s it a problem for?**
- London Residents

### Making it better
**What are some things we can do?**
- Understanding the current state by looking at the data
- Continuing to innovate with Catapults and other programs
- Considering other modes of public transport such as hyperloop
- Strong investment in active transport
- Re-investing Ultra Low Emissions Zone funding in sustainable transport options
- Public, private, community partnerships

### Some of Zoe’s thoughts
Is there an opportunity to jump over the legacy and straight to new modes of transport such as hyperloop? From discussion with Londoners it seems their biggest issues result from the current systems being out-dated and there being no room for redundancy. Take for example the expansion of the tube. This is not able to occur because of size and system constraints and the demand being so high with no alternatives to shift people onto other modes. The roads also highly congested with buses, taxis and private cars is causing pollution and decreasing liveability. It’s a busy place with a lot of activity still concentrated in the centre and increasing to grow. The uncertainty and ongoing nature of Brexit is also playing a part in these issues.

Not to say that it’s not happening already, but reducing the need to travel unnecessarily, if executed appropriately, could ease some of the strain on the current infrastructure. The transient population of tourists also adds a further element into the equation.

Using technology to make transport more accessible, effective and efficient is key to London’s ongoing success.

### Dublin
**#smartexample**

**What is it?**
Smart Governance

**What type?**
Approach

**The Problem**
Collaboration across government and industry

**Multiplier Effect**
Disjointed government services, access to employment and services, safety, transportation improvement, fostering innovation

**For whom?**
Greater Dublin Region residents

**Who**
Smart Dublin (initiative of Dublin City, South Dublin County, Dún Laoghaire-Rathdown County and Fingal County) + partners

**Who’s involved in doing it?**
Small Business Innovation Research (SBIR) Ireland

**The example**
Smart Dublin is an initiative of the four local authorities in Dublin to engage with citizens, researchers and smart technology to provide options to solve challenges and improve the quality of life. The aim is to position Dublin as a leader in the development of urban solutions, using open data and offering the city region as a test bed.
The objectives are:

- Provide better public services
- Promote innovative solutions
- Improve economic activity
- Increase collaboration and engagement

Smart Dublin has identified mobility, environment, energy, waste and emergency management as priority challenges and is delivering a program that has an emphasis on using emerging technology and public data to address the city’s needs.

Small Business Innovation Research (SBIR) Ireland is a global pre-commercial procurement initiative which helps the public sector address challenges and ‘unmet needs’

Smart Dublin and SBIR have partnered on a number of projects including:

- Smart Solutions to Engage Unheard Voices
- Sustainable Transport: Improving Mobility in the City
- Sustainable Deliveries: Redesigning the Delivery of Goods in Cities
- Facilitating Connections over Internet of Things
- Design wayfinding solutions in the Dublin region

Some of Zoe’s thoughts

I was able to meet with Smart Dublin when I was in Dublin to discuss some of the projects they are currently working on. While I was travelling, I also came across SBIR and looked into them further. I think that Smart Dublin and the SBIR combined offer a good governance model in working towards Smart Mobility. This approach allows smaller businesses and start-ups to provide the public sector with innovative services and products by making the procurement process more accessible while still ensuring public funds are spent responsibly. It also allows for not just testing and trialling but makes resources available to be able to scale-up if successful. In most cases, scalability is of key importance for the public sector to see real benefits for the community and their operations. Again, this approach gives the head space that is needed to innovate as well as be able to attract in the different heads for real collaboration and inclusive solutions.

Links and further information

https://smartdublin.ie/challenges/
https://www.enterprise-ireland.com/en/About-Us/Services/Procurement/SBIR-Ireland/

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<table>
<thead>
<tr>
<th>Dublin</th>
<th>#smartopportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Challenge</strong></td>
<td>Increasing demands on public transport</td>
</tr>
<tr>
<td><strong>What’s the challenge?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>The Issues</strong></td>
<td>Dublin boasts an increasing number of people using public transport and in 2015 the modal split for public transport sat around 50%. Due to the size of the population and a capacity of the network there is still a lot of congestion on the roads. To keep up with the demand, significant investment in sustainable infrastructure both digital and physical as well new ways of thinking and operating will be needed.</td>
</tr>
<tr>
<td><strong>What issues does it cause?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>For whom?</strong></td>
<td>Dublin and surrounding regional residents and tourists</td>
</tr>
<tr>
<td><strong>Who’s it a problem for?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Making it better</strong></td>
<td></td>
</tr>
<tr>
<td><strong>What are some things we can do?</strong></td>
<td>Understanding the current state by looking at the data</td>
</tr>
</tbody>
</table>
Some of Zoe’s thoughts

As I travelled briefly in Dublin, I noticed that the public transport was not as integrated as it could be. For instance, when my train stop was closed and there was no bus service to replace it, it was impossible to get to the station on public transport without it taking three times as long. I was surprised that over 50% of Dubliners took public transport and the network will need careful planning, significant investment and technology to continue to keep up (arguably it’s not now). I think Dublin has all of the right ingredients to make this work, as long as the priority remains on sustainable transport options and includes significant investment in active transport and regional connectivity.

Amsterdam

#smartexample

What is it?
Smart Mobility leadership and networks

What type?
Approach

Project / Program / Approach / Operation

The Problem
Letting the technology shape the city

Multiplier Effect
People prioritisation, pollution, congestion, access to employment and services, safety,

For whom?
Amsterdam residents and tourists

Who?
Amsterdam City + partners

The example
Amsterdam has strong leadership and a network of smart mobility companies and agencies which has been successfully making Amsterdam a leading location for mobility application and research, these include:

- City of Amsterdam
  The City of Amsterdam are a forward-thinking council and have been and continue to be actively involved in Smart Mobility (and many other) initiatives and projects. In addition to business-as-usual cycle-based planning and infrastructure some other examples are: shared, zero-emission and on-demand mobility.

- Amsterdam Smart City
  Amsterdam Smart City is a platform that brings together citizens, companies, knowledge institutions and the public sector to work on city shaping initiative. It is a public-private partnership partly funded by the municipality of Amsterdam, with an aim to ensure Amsterdam remains a liveable place to live, now and in the future. They do this by sharing knowledge and collaborating in order to tackle the social, economic and ecological issues the community are facing.

- Smart Mobility Embassy
The Smart Mobility Embassy is a public-private network that connects international parties with Dutch expertise to make their knowledge, experience and testing capabilities accessible and available.

- **Amsterdam Institute for Advanced Metropolitan Solutions (AMS Institute)**

The AMS Institute is a public-private institute founded in 2014 by Wageningen University & Research, Delft University of Technology and Massachusetts Institute of Technology. AMS Institute is taking on urban challenges by engaging with data and developing technology to undertake research, experiments and projects in Amsterdam. It does this by collaborating with industry and government as well as academia.

### Some of Zoe’s thoughts

In Amsterdam, I met with a number of different organisations and what I loved was that there was a serious focus and effort on improvement for the citizens. Also, the regional approach always came up in conversation, as such Amsterdam wasn’t talked about as a city on its own but part of a regional area including but not limited to Delft, The Hague, Rotterdam and Utrecht. These regions are all connected via the Regional Sprinter and the Intercity Direct then into the public transit ‘city’ network, and of course with a ‘last mile’ connection possible by cycling.

I was impressed by the governance approach including Amsterdam Smart City, Smart Mobility Embassy, City of Amsterdam and AMS, as well as the small and large businesses involved in shaping this. There are real public, private and community partnerships at play here.

Amsterdam uses a data-driven decision approach while still maintaining privacy and they do a number of experiments and pilots before moving into full scale if successful. They have a strong focus on the public transport network but still have research and development in most areas of technology.

### Links and further information

- [https://www.ams-institute.org/about-ams/who-we-are/](https://www.ams-institute.org/about-ams/who-we-are/)

### The Challenge

**What’s the challenge?**

New micro-mobility options

### The Issues

**What issues does it cause?**

Although cyclists are planned for, new modes are popping up such as e-scooters and e-bikes as well as mini electric cars that use the cycle lanes. As the congestion in the bike lanes increases, the push to ‘car-free’ potentially could become less appealing for those who haven’t yet made the switch. As well as tension increasing between cycles, cars and new modes.

### For whom?

**Who’s it a problem for?**

Amsterdam residents and tourists

### Making it better

**What are some things we can do?**

- Amsterdam to become leaders in micro-mobility regulation
- Utilise public-private partnerships for collaboration
- Continue to experience and trial new modes
- Offer different ‘shared’ modes such as e-bikes for longer distances or bike trailers
- Develop open data standards for micro-mobility options
- Collect base-line data before new options are introduced and then measure and monitor the results
Some of Zoe’s thoughts

- Use trials to understand infrastructure requirements

As Amsterdam already has an extensive infrastructure for cycling and mostly has a culture of car-free, multi-modal transport, there is a potential opportunity to pressure-test this micro-mobility promise to get the ‘rest’ out of their cars and onto cleaner, more efficient modes.

According to the people I had discussions with, the bike-sharing idea didn’t work in Amsterdam because everyone already owned a bike and it was seen to be just for tourists.

There is however, an opportunity to offer different modes such as e-bikes and e-scooters to cover longer distances and bikes with trailers for shopping (instead of needing a car), and more accessible options both physically and digitally for different levels of mobility. All this would be likely tied into a network of connected hubs.

By undertaking a pilot study, Amsterdam has the ability to understand the base-line then measure and monitor the results to really dig into the positive and negatives impacts that these micro-mobility options have on a city.

As Amsterdam already has a culture of partnership, collaboration and using data, as well as supporting infrastructure that most countries dream of, it has a real opportunity to be a leader in the regulation of micro-mobility. The Amsterdam government could then use its existing mechanisms such as the Smart Mobility Embassy to market to the world.

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**Barcelona #smartexample**

<table>
<thead>
<tr>
<th>What is it?</th>
<th>Superblock</th>
</tr>
</thead>
<tbody>
<tr>
<td>What type?</td>
<td>Program / Approach</td>
</tr>
<tr>
<td>The Problem</td>
<td>Initially noise pollution from traffic</td>
</tr>
<tr>
<td>What’s the main problem?</td>
<td></td>
</tr>
<tr>
<td>Multiplier Effect</td>
<td>Congestion, access to employment and services, air pollution, social fabric</td>
</tr>
<tr>
<td>What else could it contribute to?</td>
<td></td>
</tr>
<tr>
<td>For whom?</td>
<td>Barcelona Residents</td>
</tr>
<tr>
<td>Who’s it a problem for?</td>
<td></td>
</tr>
<tr>
<td>Who’s involved in doing it?</td>
<td>Barcelona City Council, BCNecologia</td>
</tr>
<tr>
<td>The example</td>
<td>The superblock idea was first outlined in 1987, after noise mapping revealed that levels were too high and the first superblock was tested in 2003 in Gràcia. This model now forms part of Barcelona’s Urban Mobility Plan 2019-2024.</td>
</tr>
<tr>
<td>What’s involved?</td>
<td>Superblocks are made up of a grid, usually about 400 x 400 metres where the inner area of the “block” is closed to motorized vehicles, above ground parking and gives preference to pedestrians and public space. The perimeter of the Superblock is where the motorized traffic circulates and make up the basic road network.</td>
</tr>
<tr>
<td>The Barcelona government lists six aims for superblocks:</td>
<td></td>
</tr>
<tr>
<td>1. More sustainable mobility</td>
<td></td>
</tr>
<tr>
<td>2. Revitalization of public spaces</td>
<td></td>
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</tbody>
</table>
### Some of Zoe's thoughts

Although it’s not a “new” concept in Spain, it’s definitely a #smart example and continues to evolve. Based on my discussion with Barcelona City Council, there are 18 superblocks in the area with 500 planned. What I also like about the superblock is that it has a hub for testing and innovation. It’s a simple but revolutionary idea, phase 1 - take 9 blocks of the city, and stop through traffic and freight from entering. Phase 2, is the idea that everything that the residents of the super block is contained in or very near by their superblock and can easily be accessed by walking or cycling. This includes green space, education, health services and entertainment. The one I went to had transformed intersections into playgrounds for children and was in the process of building a university precinct. The superblock ideally is to be “self-sufficient” in generating and suppling its own power and dealing with its waste and resources.

This superblock is also now a proofing ground for new or (new at heart) technology and concepts such as 5G, pneumatic waste, virtual power plants, mobility hubs and micro distribution centres.

### Links and further information

- [https://ajuntament.barcelona.cat/ecologiaurbana/ca/que-fem-i-per-que/mobilitat-activa-i-sostenible/pla-mobilitat-urbana](https://ajuntament.barcelona.cat/ecologiaurbana/ca/que-fem-i-per-que/mobilitat-activa-i-sostenible/pla-mobilitat-urbana)

### Barcelona

<table>
<thead>
<tr>
<th>The Challenge</th>
<th>Increasing density (including tourists)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What’s the challenge?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Issues</th>
<th>When I asked Barcelona locals what their biggest issues were, the main topics were noise pollution, air pollution and not enough public space for people. The other was the outdated paper-based ticketing system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What issues does it cause?</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>For whom?</th>
<th>Barcelona Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who’s it a problem for?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Making it better</th>
<th>Continue collecting data for decision making</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are some things can we do?</td>
<td>Continue engagement with community</td>
</tr>
<tr>
<td></td>
<td>Continue with superblock rollout</td>
</tr>
<tr>
<td></td>
<td>Upgrade Smart systems</td>
</tr>
<tr>
<td></td>
<td>Increase public spaces</td>
</tr>
<tr>
<td></td>
<td>Increase cycling and walking infrastructure</td>
</tr>
<tr>
<td></td>
<td>Continue to improve crowd-management for tourists</td>
</tr>
<tr>
<td></td>
<td>Reduce private car usage</td>
</tr>
</tbody>
</table>

### Some of Zoe’s thoughts

I chose to write about density as it really encompasses the three main things people spoke about as being issues in Barcelona. Air pollution, noise pollution and the fact that the public transport system still has a paper-based ticketing system. The last one seems obvious to upgrade the system but due to the extensive nature of the physical system and the legacy nature of the operating system it’s taken longer than hoped but is definitely in the process. The change of systems will allow Barcelona to avoid the trial and error stages of systems in the past to move straight to account-based ticketing or whatever best suits the needs of their residents.
What I really enjoyed in Barcelona was the decisions always went back to the people, what do you the people want and need? This is easy enough to say but in practice, particularly when “smart city” programs might be trying to roll out new technology but, the community says they want a new playground close by their house, it can be difficult.

<table>
<thead>
<tr>
<th>Links and further information</th>
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</thead>
</table>

### South Africa – Cape Town

#### What is it?
Possibilities of higher quality public transport

#### What type?
Project / Program / Approach / Operation

#### The Problem
What’s the main problem?
Low quality public transport

#### Multiplier Effect
What else could it contribute to?
Access to employment and services, safety, reducing car ownership, congestion

#### For whom?
Who’s it a problem for?
Residents of Cape Town

#### Who
Who’s involved in doing it?
MiCiti – Transport for Cape Town

#### The example
What’s involved?
According to the Integrate Development Plan, public transport is one of the key strategic focus areas identified by the City of Cape Town. Since 2007 the City has been working on the system of Integrated Rapid Transit (IRT) to significantly improve public transport with an emphasis on integration with other modes, particularly rail.

A limited offering of the MyCiTi service was available in time for the 2010 FIFA World Cup to service the stadium, airport and temporarily the inner city. In 2011, the first real network was launched connecting key locations and continue to expand.

MyCiTi is a Bus Rapid Transit (BRT) system that’s purpose is to provide fast, comfortable, and cost-effective mobility with purpose-built or adapted infrastructure prioritising bus movements. BRT is said to be a lower cost alternative to a rail-based transit system with comparable performance and comfort.

The BRT in Cape Town is able to improve the idea of public transport that is safe and accessible. By setting up this back-end system well, the data collected can be used to provide information to both the users and as inputs into city planning which if done correctly, is very important.

#### Some of Zoe’s thoughts
Unfortunately, I wasn’t able to take the BRT as I didn’t have much time to spend in Cape Town. I had lots of conversations about the BRT not just here but in Mexico City as well. I chose this example because it’s not yet complete but it’s big, bold and ambitious and continues to shift and change. It’s important to talk about and celebrate the thinking and initial implementation of improving mass transit, using data and evaluating the results, even if it’s not the perfect solution.
It’s not perfect and I’m not sure of the operational costs but after speaking to transport thinkers in Cape Town, they said it was a great tool to raise the status of public transport. It promotes the idea that public transport can be high quality and safe, particularly to those who currently see the car as their only option.

It is also an example of where a big event was used to leverage better transportation. Although the general consensus of the people I spoke with thought there was a greater opportunity that was missed and money was wasted on things that were thinking more about the “event customers” rather than the “future customers”.

Another other issues that arose was that the model was not adapted to suit each town’s individual needs. There is also a similar system in Johannesburg.

My suggestion now would be to work on addressing the inequalities that exist. Special consideration will need to be given to include townships on the outer edges of town both in a physical and economic sense. As BRT has taken over the service for a number of minibus taxis an analysis of the baseline data is imperative so the impacts of this can be understood.

Links and further information

https://myciti.org.za

<table>
<thead>
<tr>
<th>South Africa</th>
<th>#smartopportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Challenge</td>
<td>Safety on the first and last leg of trips</td>
</tr>
<tr>
<td>What’s the challenge?</td>
<td></td>
</tr>
<tr>
<td>The Issues</td>
<td>Due to the high rates of crime, there are significant risks taken particularly by women when travelling from their homes to a bus or taxi stop.</td>
</tr>
<tr>
<td>What issues does it cause?</td>
<td></td>
</tr>
<tr>
<td>For whom?</td>
<td>Public transport passengers particularly women</td>
</tr>
<tr>
<td>Who’s it a problem for?</td>
<td></td>
</tr>
<tr>
<td>Making it better</td>
<td></td>
</tr>
<tr>
<td>What are some things can we do?</td>
<td>- Make decision making more transparent</td>
</tr>
<tr>
<td></td>
<td>- Empower women entrepreneurs to work on these problems</td>
</tr>
<tr>
<td></td>
<td>- Encourage diversity in decision making</td>
</tr>
<tr>
<td></td>
<td>- Focus on the holistic mobility with the first and last mile considered as part of the commute</td>
</tr>
<tr>
<td></td>
<td>- Improve accessibly</td>
</tr>
<tr>
<td></td>
<td>- Continue expansion in affordable higher quality public transport to have stops closer to where people live</td>
</tr>
<tr>
<td></td>
<td>- Use the BRT expansion to improve connectivity to poorer townships</td>
</tr>
</tbody>
</table>

Some of Zoe’s thoughts

This is something I felt when I was in Cape Town, both through my own (limited) experience as well as through conversations with professionals and drivers. There was a lot of talk about going cashless as women would get paid in cash from their jobs in town and then get robbed on the way home.

There is a real opportunity with the right governance and supports in place for South Africa to leap frog and lead the change in improving safety for women. This in turn improves safety for everyone and can potentially address some of the inequalities that exist.

For this to occur, the way decisions are made within the government needs to be opened up. This is another area where South Africa could leap frog and be open and transparent in decision making. I acknowledge that this would
be very difficult but not impossible and just starting with small initiatives in mobility could be a positive shift and could start to make a change. Using smart concepts, systems and technology could allow Cape Town to not remain stuck in the past but move to a better future.

South Korea – Jeju Island

What is it? Jeju Island as a Test Bed

What type? Project

The Problem
What’s the main problem? Safety and air pollution due to high numbers of tourists and car rentals

Multiplier Effect
What else could it contribute to? Knowledge sharing, public awareness, improvement in traffic flow and control, increase data-driven decision making, testing the application of new technology

For whom?
Who’s it a problem for? Tourists and residents of Jeju Island

Who
Who’s involved in doing it? Korea Expressway Corporation

The example
What’s involved? Jeju Island has been an Intelligent Transport System (ITS) test bed since around 2001. It has now become a test bed for cooperative ITS (C-ITS) to address the increasing accidents due to rental cars and using electric vehicles to address the increasingly poor air quality in South Korea.

This particular project will run from 2018-2020, includes 300km of roads and 3,00 rental and car-sharing vehicles.

Key services include:
- Signal phases and violation
- Pedestrian jaywalking
- Dangerous road for driving
- Inclement weather
- E-Call service
- Smart Tour
- Smart payment
- Smart reservation

Some of Zoe’s thoughts

Jeju is home to a natural world heritage volcano and is a popular holiday destination for Korea and international tourists. The island has a population of 620,000 and just over 400,000 of those live in the City.

Over half of all rental cars in South Korea are on Jeju. The public transport system hasn’t caught up with the demand and needs of the tourists. With so many cars, holiday makers, different levels of experienced drivers and unfamiliar terrain, there’s bound to be issues, right? Crashes, missing tourists, pollution etc. the list goes on.

Over half the electric cars in South Korea are on Jeju Island and the island is a test bed for new technology such as cooperative intelligent transport systems or C-ITS which allows the cars to “talk” to each other and the infrastructure. This allows the driver to get warnings in their vehicle about immediate danger such as a vehicle braking hard or a hazard ahead. It also allows them to send out a distress signal if they end up in a ditch somewhere with no reception. It allows the government to use this wealth of
information of how the roads are being used and where problems are occurring to make better informed decisions about traffic and route planning, developments and land use planning. All the while limiting the impact on their biggest asset, the beautiful environment and keeping it intact by not investing in big, heavy infrastructure. Jeju is an example of where the regions are leading the change.

<table>
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<th>Links and further information</th>
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**South Korea**

### The Challenge

**What’s the challenge?**

Air pollution and particulate matter

### The Issues

**What issues does it cause?**

It’s no secret that Seoul suffers from air pollution or micro-dust as the locals call it. There’s an issue in it drifting across from China as well from domestic emissions. Looking at the numbers, Seoul is number one on the list for both 10mm and 2.5mm particulate matters which impacts human health and the natural environment. Although the public transport in South Korea is extensive, people are still driving their cars and it doesn’t help that the carriageway is 8 lanes in a lot of place in each direction, i.e. planned for cars.

### For whom?

**Who’s it a problem for?**

Seoul Residents

### Making it better

**What are some things can we do?**

- Education and programs focused on decreasing car ownership
- Joined-up government approach
- Specific policy and task force action to tackle
- Changing streets to prioritise people
- Improving active transport infrastructure
- Increasing green space in the city areas

### Some of Zoe’s thoughts

I really love Korea but that doesn’t mean it’s perfect and due to the density and topography suffers really significantly with air pollution, traffic congestion and lack of green space. By all accounts it’s getting worse as the population continues to grow. Korea has tried to disburse this by moving government services and offices out of the city centre.

Korea has advanced traffic management and control and this continues to be an area of focus and improvement.

Korea is a safe place to live and travel in. Even at night time, I always felt safe walking around most places and on public transport.

Another factor that could feed into this would be the ability to reduce the need to travel for people. Koreans are known to work hard and for long hours and often have dinner in the office ‘to avoid the peak hour traffic’. From my experience, working from home is not really accessed at this point in time and there is still a large emphasis on daily face-to-face interaction. It would take a lot to implement this cultural shift but I think they could do it and it would then make the times that people get together more valuable.

I also think that Barcelona’s superblock could have application here in Korea as they adapt old neighbourhoods and build new ones.

<table>
<thead>
<tr>
<th>Links and further information</th>
</tr>
</thead>
</table>
Appendix 2: The amazing people I met

Mexico
- Pablo Lao of Udiado Design
- Benjamin Ramirez of HPI
- Ivan Takan at Auto

USA
- Benba of Oracle
- Jonathan Reichenfeld of FutureHarmon
- Harvey & David Silver and Celia

UK
- Chelsea Cotter of Ultimate & Smart Cities Connection

Canada
- William Safio Ontario Ministry of Infrastructure
- Kyle of ETS

Sources:
- We Are Connected Places Group
- Dr. Williamson from Connected Places Catalyst
- Mark Burnham, WAC, University of Warwick & Medias Future Mobility
- Sarah Way of Smart Cities World
Ireland

Arup's David O'Keeffe, Orla O'Halloran, Adam Farenden, Padraig Kenny, Leen Doody, Kevin O'Sullivan, Tim Mullen, Chris Whitworth, John McCarthy & Brendan Tangney
Smart Dublin's Alan Murphy and team

Netherlands

Marco Marechal of Connected City of Amsterdam: Lizann Tjon, Diedrik Basta & Esseline Schieven
Amsterdam Institute for Advanced Metropolitan Solutions: Tom Kuipers & Arjen Van Timmeren
Cornelis Dinca of Amsterdam Smart City
Jose Oudijk & Bram Hendrix at Smart Mobility Embassy
Arup: Martin van Oosten, Carol Lemmens and Hugh Cardine
Guus Derks at Netherlands Enterprise Agency

Denmark

Arup's Kristian Winther
Peter Bjorn Larsen of Smart City Insights

Spain

Anna Grau Galvany and team of DOX Innova & Smart
Mons Baelde of anteverdi
Joaquim Akarez of Forest - Future Technologies Institute Center for Innovation in Transportation (CENTI):
Kristi Shalla & Sergi Sauri
Sigrid Hohmann
Mariano Llanarca Lorente of Barcelona City Council
Jordi Torrent at Barcelona Tech City
Jordi Miró Brux