

PROJECT NZ: ACCELERATING SMART TRANSPORT IN NEW ZEALAND

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ABSTRACT

This paper will inform the reader about the Sustainable Business Network's (SBN's) new workstream to "Accelerate Smart Transport in New Zealand." In September 2014, the SBN's Project NZ (#ProjectNZ) conference launched a new approach to business transformation called 'The Big Shift' (#theBIGshift). The Big Shift method was created by the SBN's UK partner, Forum for the Future* to bring about a big shift in the way we do business for a more sustainable future.

Nationally, a range of pioneering options already exists and the SBN recognises their potential for scale, replication and mass promotion. Business opportunities continue to emerge as a result of new technology, greater uptake of location-aware social media, better utilisation of the national fleet and integration with home energy systems. The shift to smart transport is already underway, The Big Shift seeks to accelerate it. In the lead-up to its conference, the SBN engaged with government, businesses and industry experts to shape the transport stream and identify partners. Opus is one of the support partners. This paper has been written to raise awareness of Project NZ, report its progress and to discuss some of the challenges it faces and how these might be overcome.

*Forum for the Future is one of the world's leading sustainability organisations.

INTRODUCTION

In 2014, the Sustainable Business Network in New Zealand (SBN) partnered with Forum for the Future (FFF) to develop and launch 'Project NZ'. Project NZ is modelled on Forum for the Future's 'The Big Shift' campaign which is taking action to transform the key systems we rely on to ensure a sustainable future (FFF, 2014a). In New Zealand, the SBN is collaborating with a growing number of businesses through Project NZ to lead positive change towards a better, more sustainable business future for New Zealand. Project NZ comprises four 'Transformation Areas', namely, Renewables, Megaefficiency, Community, and Restorative. Each Transformation Area has its own workstream, the Renewables area workstream is "Accelerating Smart Transport in New Zealand." "Smart Transport" in this context encompasses alternatives to fossil-fuel powered (single-occupant) cars that have lower or zero CO₂ emissions, and the use of location-aware applications (apps), social networks and other technological advances that help commuters and other travellers to make better, more efficient and sustainable transport choices.

This paper explains why the Renewables Transformation Area is focusing on accelerating smart transport, describes The Big Shift and Project NZ approach and scope, reports progress to the end of 2014, outlines plans for 2015-16, discusses some of the challenges that Project NZ faces and presents a series of case studies from which lessons could be learnt to address these. This paper has been written to raise awareness of Project NZ and to generate support for the 'Accelerating Smart Transport in NZ' workstream.

OVERVIEW OF FORUM FOR THE FUTURE'S CAMPAIGN- 'THE BIG SHIFT'

Forum for the Future is "*an independent non-profit [organisation] working globally with business, government and others to solve complex sustainability challenges.*" (FFF, 2014a). 'The Big Shift' is FFF's campaign to transform the key systems we rely on to ensure a sustainable future. The campaign reflects FFF's c.20 years' experience working in partnership with pioneering businesses on futures analysis and system innovation, and demonstrates how significant change is possible if organisations and businesses work *together* to solve complex sustainability challenges (FFF, 2014b). The 6-step process of achieving The Big Shift is illustrated in Figure 1 and FFF have been putting it into practice by working with large international businesses such as Nike, Unilever, and Marks and Spencer. Forum for the Future has also worked, through the 'Glocal' experimental project, with Ecover to establish a new, sustainable industry manufacturing eco-friendly cleaning products on the small island of Mallorca¹, making use of the plentiful citrus grown on the island (Ecover & FFF, 2014). FFF see collaborative working between multiple businesses, organisations and governments as critical to achieving a transformation of our key systems.

¹ Mallorca / Majorca is a small island (3,640km²) off the coast of Spain in the Mediterranean Sea, it has a population of c.869,000. Tourism accounts for half of its gross domestic product and half of its population are believed to be working in tourism, in 2010 over 6 million tourists visited Mallorca. (Source: Wikipedia, 2014. <http://en.wikipedia.org/wiki/Majorca> last visited 28 November 2014).



Figure 1 'The Big Shift' Method. Source: <http://www.forumforthefuture.org/thebigshift>

THE CONTEXT: ABOUT THE SUSTAINABLE BUSINESS NETWORK AND 'PROJECT NZ'

The Sustainable Business Network is “a membership-based social enterprise, made up of businesses, governmental agencies and organisations located across New Zealand. It was established by founder and CEO Rachel Brown in 2002 with the vision to make New Zealand the model sustainable nation for the world.” (SBN, 2014b). The SBN plans to achieve this vision by leading positive change through ‘Project NZ’ which launched in 2014. Project NZ identifies four Transformation Areas: Renewables; Mega-Efficiency; Community and Restorative. Major workstreams were developed for each Transformation Area that aimed to utilise the strength and diversity of the SBN to shift systems onto a sustainable path. The Transformation Areas and their respective workstreams are listed in Table 1. The key workstream for the Renewables Transformation area is ‘Accelerating Smart Transport in NZ.’

	RENEWABLES: Accelerating Smart Transport in NZ- Addressing one of the toughest challenges in renewable energy
	MEGAEFFICIENCY: Accelerating the Circular Economy in NZ- Moving from waste management to material optimisation
	COMMUNITY: Making Community the Heart of Business- Embedding social value into business models
	RESTORATIVE: Restoring NZ Food Systems- Creating a globally successful, restoratively sustainable food system

Table 1 Project NZ Transformation Areas and their Workstreams (SBN, 2014a).

Figure 2 illustrates Project NZ’s key steps and timeline, this is the timeline and process that the ‘Accelerating Smart Transport workstream has been following, in parallel with the other three workstreams.

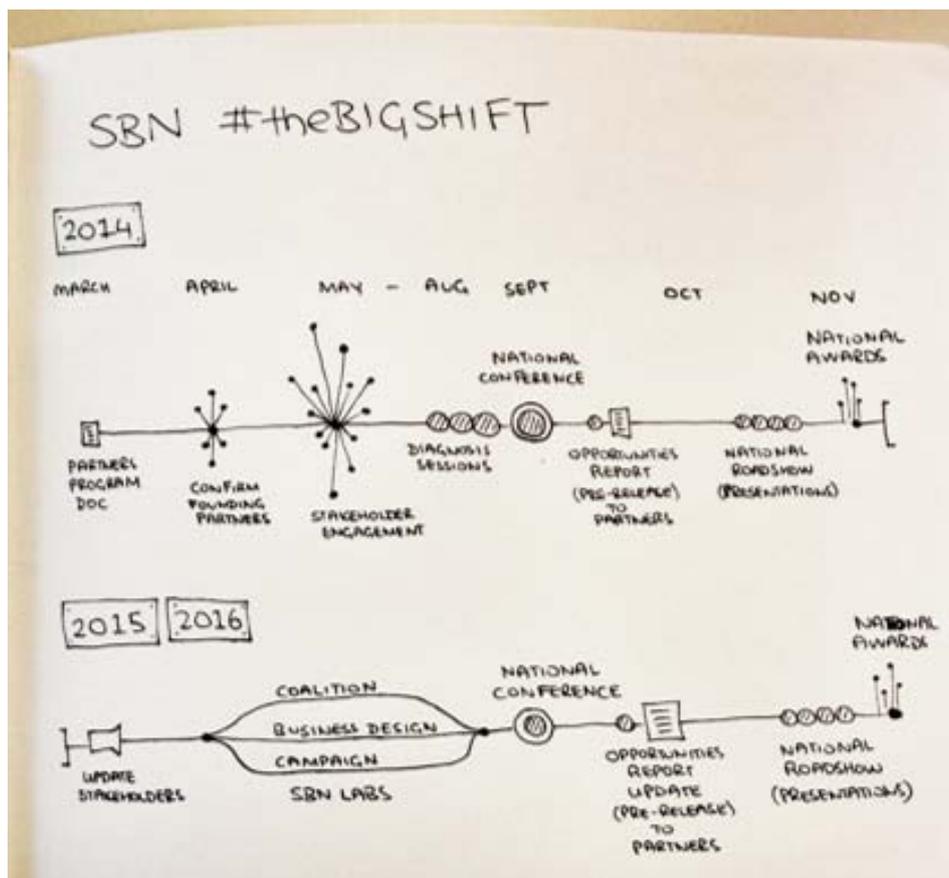


Figure 2 The SBN's "Big Shift" Timeline Diagram 2014-2016

WHY ACCELERATE SMART TRANSPORT IN NEW ZEALAND?

The SBN explains the reason for the 'Renewables' Transformation Area and its transport-themed workstream in its Opportunities Report:

"New Zealand currently holds one of the leading positions globally in renewable energy sources for electricity use. However in the efforts to move towards sourcing all our energy from renewable sources, one of our biggest challenges is transport. Almost all the energy sourced to power our national fleet is non-renewable. The current situation has us exposed not only to the environmental risks associated with greenhouse gases and climate change, but also the security of our energy supply and dependency as a nation on the global energy markets.

The shift to smart transport alternatives is already underway. Nationally a range of pioneering transport options exist which may have the potential for scale, replication and mass promotion. Growing business opportunities exist in capitalising on emerging technology, integration with home energy systems, and better utilisation of the national fleet." (SBN, 2014e)

Other evidence that also supports a move to a smart transport future includes: the New Zealand Transport Agency recently conducted research on future travel patterns, with a focus on under 35's, which indicates that the younger generation are choosing to drive less (NZTA/Opus, 2015 forthcoming); the 2014 briefing to the incoming Minister for Transport discussed growing demand for public transport and active modes, a role for "travel assistance [smartphone] apps" as well as a growing market share for electric vehicles (MoT, 2014); and Generation Zero, Transport Blog and the Campaign for Better Transport continue to lobby and gather evidence to support a 'Congestion Free Network' for Auckland, and to push sustainable transport

options in other New Zealand cities. Further to this, Seba's July 2014 Auckland Conversation drew a full house, indicating interest from the public (AC, 2014), and the NZIER published a paper that discussed how changes to auto-technology (i.e. electric and autonomous vehicles) will disrupt the New Zealand transport system (Allison, 2014).

ACCELERATING SMART TRANSPORT IN NZ: A PROGRESS REPORT, 2014

In 2014, the SBN's 'Accelerating Smart Transport in NZ' workstream accomplished the following:

- Appointed Transformation Leaders to promote Project NZ and work with partners; (Matt Ayers, this paper's co-author, is the Leader of the Renewables Transformation Area)
- Interviewed 30 transport sector experts across New Zealand to identify focus areas that were believed to be key to shifting transport solutions beyond fossil fuels
- Published a Partners Report which explained Project NZ and the opportunities for partnering
- Confirmed founding partners. The lead partner and support partners of the 'Accelerating Smart Transport in NZ' workstream were:
 - **Partner:** Gull
 - **Support Partners:** Auckland Council; Aecom; Auckland Transport; Fulton Hogan and Opus International Consultants.
- Engaged stakeholders through a series of "Big Think" events which were held in Auckland, Wellington, Hamilton, Bay of Plenty, Nelson, Dunedin and Christchurch (SBN, 2014c). These events were free and open to any interested parties, they were well-attended (by c. 400 people) by SBN members, businesses, academics, government and interested individuals
- Launched Project NZ at its national conference and presented Project NZ at a series of roadshows around the country
- Published the Opportunities Report (SBN, 2014e) and held workshops around the country outlining its key findings.

The focus areas that emerged as a result of interviewing transport sector experts were as follows:

1. Adopting electric vehicles and biofuels
2. Smart phones, homes and neighbourhoods
3. Using public transport
4. Sharing vehicles
5. Reducing vehicles on the roads.

These focus areas were explored further in the Big Think events. At the events, progress with each Transformation Area was reported and the focus areas were brainstormed by attendees. As a result of the events, the SBN were able to develop a deeper understanding of the associated challenges and innovations for each of the focus areas, and to identify opportunities for each. These opportunities are articulated in more detail in the Opportunities Report and are summarised below:

FOCUS AREA 1: ADOPTING ELECTRIC VEHICLES AND BIOFUELS

The dominant expectation from Big Think attendees was that electric vehicles and biofuels will be the technology that will best leverage our natural resources, and provide the most feasible options to power the New Zealand fleet in the near future. There has been a lot of activity recently in both these areas, for example, the price of a Nissan Leaf has now fallen to just under NZ\$40k (Dearnaley, 2014) and its annual recharging costs are less than 25% of the fuel-running cost of an equivalent petrol car (JuicePoint, 2014). This lower upfront cost and the savings on running costs are putting electric vehicles within reach for some fleet managers.

Since New Zealand already sources 40% of its energy from renewables, which is the third highest contribution for renewables in the Organisation for Economic Co-operation and Development, (MED, 2013), an electric vehicle on the road here really is a low-carbon option when compared to a fossil-fuel powered car, and will become more so as locally generated solar energy gains market share. In addition, public moves by Z Energy and Gull in their commitment to biofuel production have put it on the radar for those companies interested in the emission reductions possible with these fuel types.

Opportunities include:

- **Corporate fleet models:** collaborate with a set of companies to create models of electric vehicle or biofuel-integrated corporate fleets
- **Station electric vehicle fleets:** make available an electric vehicle fleet that people can take home or use to travel to meetings from train or bus stations, supported by a user-friendly payment method
- **Open power grid:** create a set-up pack and a website platform to enable consumers to offer their driveways for electric vehicle charging stations and be paid a flat fee for use. (The range of new electric vehicles is 100-400km and NZ only has a handful of fast charging points (Edwards, 2014), so this project will help to address range anxiety by building a network of places at which drivers can charge their vehicles)
- **Model smart home:** build a demonstration home with the technology of the future (i.e. on-site solar energy generation), showing how electric vehicles integrate with the home.

FOCUS AREA 2: SMART PHONES, HOMES AND NEIGHBOURHOODS

More than two million Kiwis currently own a smartphone and these devices are expected to play much more of a central role in transport in the future (Dutzik & Madsen, 2014). Ride-hailing apps like Uber in Auckland and Wellington, and Lyft in the USA, show the potential of the phone in transport, users can hail a ride with the touch of a button, and split fares by sharing a ride or organising a shuttle. (Lawler, 2014)

Opportunities include:

- **Trip planning:** develop or promote smartphone apps that help people to plan their trips on public transport
- **Local hub:** create or retrofit office space as hubs for local business people to use instead of commuting into town
- **Local social network:** create or strengthen local web-based social networks to help locals share their commute, school trips and grocery trips
- **Model smart home:** create a demonstration home with the technology of the future, showing how it can connect people to work from home.

FOCUS AREA 3: USING PUBLIC TRANSPORT

There are a growing number of model cities around the world providing inspiration for the challenge of how to increase the use of public transport, and public transport already plays a key role in New Zealand's transport system. Creative collaborations and Council experiments were seen as key to increasing uptake and growing services.

Opportunities include:

- **Free ride challenge:** provide free access to public transport services for a day, with a challenge to incentivise people to use it
- **Innovation class:** use LinkedIn as a platform to create connections between business mentors and those needing mentoring, using a train carriage or a bus as a meeting place
- **Public transport rewards:** create a rewards structure with partners like Flybuys to reward those using public transport and encourage greater use
- **Station bike fleets:** provide a fleet of bikes people can use at public transport interchanges, bus stops and stations using a platform like the Auckland Transport HOP Card (AT, 2014) for easy payment.

FOCUS AREA 4: SHARING VEHICLES

A big opportunity area for emission reduction is more efficiently using the vehicles that we already have on the road. There are a number of ventures working in this area including YourDrive (Your Drive Ltd, 2014), a peer-to-peer car share service, and findatruckload.co.nz (FINDATRUCKLOAD, 2014) which helps users to identify trucks travelling around New Zealand with empty loads available for use.

Opportunities include:

- **Share parked cars:** create an online app to enable people to share their cars when they are parked at work, the airport, around town or at home
- **Friend car sharing:** using a social network platform, create challenges for friends and colleagues to share cars between themselves or with a group of trusted strangers
- **Use shipping containers:** develop a set of services to utilise unused shipping containers for product returns or slow freight
- **Find a truck:** extend 'FINDATRUCKLOAD' to include smaller vehicles, and integrate it with companies like New Zealand Post.

FOCUS AREA 5: REDUCING MOTOR VEHICLES ON THE ROAD

While the current government's transport spending prioritises roads (Frost, 2014), a balanced mix of transport infrastructure is needed for mature transport systems, so it is important that those with interests in active transport modes (such as walking and cycling) make the most of the current resources and infrastructure available. Most of the conversations regarding active transport at the Big Think events focused on bikes and cycling infrastructure, and a range of creative ventures already exist.

Opportunities include:

- **Bike pools:** develop a number of shared pools of bikes across cities where people donate their old bikes to be fixed and used
- **Bike game:** develop apps that motivate people to start and continue cycling
- **Public bikes:** provide access to bikes to those using integrated public transport ticketing e.g. HOP card users
- **Bike share systems:** combine the learning from around New Zealand on how to build effective and user-friendly bike sharing services.

Source: Opportunities Report, SBN, 2014.

ACCELERATING ‘THE BIG SHIFT’ TO SMART TRANSPORT- PLANS FOR 2015-2016

In 2015 and 2016, the SBN plans to facilitate businesses and organisations to take the opportunities identified in the previous section to scale by using a new tool that it has created called an Innovation Canvas. The SBN describes its Innovation Canvas² to its members as *“a tool to help you map trends, stakeholders and issues facing your business so that you can start planning specific actions...to put your business onto a more sustainable path...SBN will be holding a series of events around New Zealand in 2015 to facilitate use of the Canvas.”* (SBN, 2014e).

The outcome of applying the Innovation Canvas will be to facilitate the initiation of a number of “commercial labs” to develop the products and services identified in the Opportunities Report. In this context, a commercial lab can be likened to a startup in that it will bring businesses together to work to develop a repeatable and scalable business model for each opportunity. In the commercial lab, the partners will validate, assess and develop the opportunity and business concept to gain a deeper understanding of it and to assess the commercial potential. It is described as a lab because it will start in a phase of development and further research before a new business is established in its own right. Bringing businesses together is a key element of the Big Shift method, because *“the actions of a combination of businesses, large and small, will together effect change for the better and no one organisation can make a genuine shift towards a more sustainable future on its own.”* (SBN, 2014d)

WHAT ELSE MIGHT ‘PROJECT NZ’ NEED TO SUCCEED?

The FFF’s ‘The Big Shift’ approach has been successful when applied by large, multi-national corporations, and also to launch a new industry on the small, but densely populated island of Mallorca. At the SBN’s national conference in 2014, attendees asked the SBN whether it could expect to replicate the FFF’s success when applying The Big Shift method in New Zealand’s predominantly small to medium-size enterprise economy; those asking this question considered New Zealand to have unique qualities that would present new and different challenges to those encountered by FFF so far. To reframe the question: if the aim of the workstream is to achieve a fundamental shift in how the transport system operates in New Zealand, will launching commercial labs to deliver the opportunities the SBN has identified put the nation on track to achieve this?

The authors believe that the answer to this question is that more may be needed from government to ensure that the policy environment and infrastructure keeps pace, and that the challenges of accelerating a nation to a smart transport future can be compared to the challenges faced by those developing a

² At the time of writing, the SBN are restricting the release of further detail about the Innovation Canvas to the partners investing or involved in the commercial labs.

successful 'Intelligent Community' or 'Intelligent City'. The Intelligent Community Forum (ICF) describes Intelligent Communities as:

"Those which have – whether through crisis or foresight – come to understand the enormous challenges of the Broadband Economy, and have taken conscious steps to create an economy capable of prospering in it. They are not necessarily big cities or famous technology hubs. They are located in developing nations as well as industrialized ones, suburbs as well as cities, the hinterland as well as the coast." (ICF, 2014b)

In some cases, business has led or driven the work to become an Intelligent Community or an Intelligent City, but ultimately success has been achieved a result of political leaders, national and local government, or an influential mayor either supporting business' strategic direction, or creating a vision that has led business towards a desired future, and then has *built the infrastructure to support the change*. Although the current Government has shown its commitment to reducing greenhouse gases by exempting electric vehicles from paying road user charges up to 2020 (Edwards, 2014), National's current transport funding allocation plan for 2015-2025 prioritises building new highways and maintaining existing roads over building sustainable transport infrastructure (Frost, 2014). This will have an impact on Project NZ's outcomes because, when it comes to achieving a shift to public transport, carpooling and active modes, the network of businesses that make up SBN can deliver new transport services and apps, but people's transport choices, particularly in urban areas, are also influenced by the built environment and infrastructure, i.e. people are willing to:

- Walk in significant numbers when their route is pleasant and safe (Knuiman, 2014; Maciag, 2013; MoT, 2005; McCormack & Shiell, 2011)
- Cycle in significant numbers when there is an efficient and safe cycle network, and when a city has a cycling culture (City of Vancouver, 2014; Turner, 2014) and
- Carpool or use public transport when they will not be held up in the same congestion as they would if they chose to drive alone. (AT, 2011; ITS, 2005; LIA, 2000)

Since SBN's desire to accelerate New Zealand towards a smart transport future is shared by some areas of government (e.g. Auckland Council's Sustainability Team), the SBN and its partners may wish to ask government to explore the success factors behind the Intelligent Communities and Intelligent Cities, and encourage government or mayors to make changes that will help Project NZ to achieve its goals. The following case studies have been included to provide inspiration:

- **Pirau, Brazil- "Pirau Digital City"**- In 1996, Pirau elected a new mayor, Luiz Fernando de Souza, who felt strongly that communications and information technology should be a part of the city's future. In 1997, Mayor Souza invited the Brasilia University to develop an IT Master Plan for Pirau and beginning in 2001, Pirau won a series of grants and loans to plan a "Pirai Digital City" project. The Master Plan and other initiatives were implemented over the next decade, and through a local initiative, Pirau went from being one of the least-connected to one of the best-connected places in Latin America by 2004 (p.131, Bell et al, 2014)
- **New York City (NYC)- a turnaround story** - Today, New York is one of the safest, cleanest and best-run cities in the USA, and one of the most important catalysts of this transformation was governance. The New York of the eighties narrowly avoided bankruptcy, the crack cocaine epidemic was spreading crime and fear, and NYC was run by one political party that had been in power for decades, as a result the city suffered from the effects of corruption, lack of accountability and embedded interests. Then the people elected Rudolph Guiliani, a former prosecutor who owed nothing to the existing political system; after eight years, Guiliani was succeeded by another leader who owed even less to anybody: Michael Bloomberg. Between them, over 18 years these mayors shook the city government up and led an information technology and infrastructure turnaround.

(Bell et al, 2014, p.121). In 2014, NYC continues to implement its Digital Roadmap (NYC, 2011) and it boasts a progressive transportation system

- **Oulu, Finland, (population 150k)- The Living Lab-** *“The Smart City Programme is led and orchestrated by Oulu City. It uses a Public Private Partnership (PPP) based on a living lab concept, in which no incubation is required because the whole city becomes the lab for new services. Living Labs have now spread throughout Europe and further abroad...The municipality advocates, endorses and funds advertising and comms, for new urban services to the citizens, and incubates the service development by testing it directly on the population, as per the living lab concept. It also provides city furniture and infrastructure to be used in the pilot.”* (GSMA, 2011). Oulu was selected as one of the Top 7 of the Intelligent Community Forum’s annual Smart21³ in 2012 and in 2013 (ICF, 2014a)
- **City of Stratford, Ontario, Canada- A Rural Success Story-** the City of Stratford, population 30,886 as at 2011, has been internationally recognized as a digital technology centre and a “Smart City.” The ICF has placed Stratford in the Top 7 Intelligent Communities for the past three years (Wikipedia, 2014). This achievement is a result of commitment by its local Council, and it has success stories in using digital technology to improve access to healthcare, using social media apps within the community to effectively turn many disparate small businesses into a unified whole, developing a cultural brand spanning theatre, food, history and art that attracts not only tourists, but also companies and employees to Stratford, and it has used the interactivity of social media to attract tourists (Bell et al, 2014, p.133)
- **Helsinki, Finland, (population 1 million), commits to make cars obsolete:** in another example from Finland, Helsinki has made a commitment to make cars obsolete and transform its public transport into a demand responsive service, they have set a goal to have *“zero personally-owned cars in capital city Helsinki by the year 2025”* (Streeter, 2014). This project was inspired by a young woman who wrote a white paper that has now been adopted by government. Fourtané, attributes Helsinki’s ability to make this commitment to its *“short chain of command”*, Fourtané says that in Finland, *“it’s easy to get all the relevant ministries, industries and academia together to discuss this issue...[Finland] possesses a stable electricity grid and low-carbon electricity generation.”* (Fourtané, 2014)

This section concludes by reflecting on recent change/ disruption efforts to accelerate smart transport that have been led by business:

- **Bridj** launched in Boston, USA in 2014 (currently in Beta testing). Bridj describes itself as an *“everyday transportation system that adapts in real-time to where you live, work, and play.”* The startup allows commuters to build their own routes and it provides luxury vehicles, with wifi, to pick them up within a 5-minute walk from their house and get them within 5 minutes of their destination. It recently hired Former Chicago and DC Transport Head, Gabe Klein to lead its organisation. Klein describes how Bridj plans to work *with* cities to help them tackle transport issues (Shueh, 2014)
- **SHIFT** is a USA startup transport service that launched in Las Vegas in 2014. SHIFT *“..combines the power of a five minute promise with small city cars, sedans, rides and bikes under an affordable monthly membership. SHIFT is your keys and more.”* Similarly to Bridj, in addition to coding their own app, SHIFT own the cars, shuttles and bicycles that their users can access, and they plan to transform transportation systems (Project 100, 2014)

³ It is of note that Wanganui, New Zealand has been in the Smart21 for the last three years, and this could present an opportunity to collaborate on transport that might be worth exploring.

- **Ridescout's #workthebus**- RideScout is a smartphone app that makes it easier for users to search, discover, and explore transportation options around them. Ridescout amalgamates trip options from all modes. In November 2014, in Austin, Texas, a proposal to build light rail was defeated. Joseph Kopfer, a founder of Ridescout, led a campaign that reached out to Austin citizens through Twitter, their website and local media, to oppose this decision (Ridescout launched in Austin and is now available in a number of US cities). Further information about Ridescout's #workthebus campaign can be found on their website. (Ridescout, 2014)

Lastly, Transport Management Associations⁴ (TMAs) in the USA and Europe have a long history of giving businesses (and their commuters) a collective voice to demand better transport services and infrastructure for an area e.g. San Francisco's "Connects" programme (TMA of San Francisco, 2013). Auckland Transport has established two TMAs in North Harbour and Wynyard Quarter.

In summary, Project NZ's 'Accelerating Smart Transport' workstream is an ambitious project not without challenges. Some of these have been discussed above, others are as follows:

- Can government deliver the infrastructure and policy changes quickly enough to allow business to accelerate change? Can New Zealand use its "short chain of command" to make commitments in the same way that Finland has?
- If 'Smart Transport' is accelerated and this brings about disruption, for example to the traditional taxi, public transport and private car industries, how do we ensure that change grows jobs in new areas in a way that benefits displaced industries? Can we achieve positive job growth in parallel with disruption?
- Historically app developers have struggled to make money from product development, can the SBN help to make their work financially sustainable? How can we grow skills and jobs in technology, encourage needs-based innovation and help good initiatives, websites, services, products and apps to thrive? Can we achieve a balance of "homegrown" local enterprise and world class solutions? Could New Zealand become a place to trial products in Beta testing?
- How will any change be sustained after Project NZ is complete and, in a time of very rapid change, how will any new transport services or products that it delivers be kept up-to-date?

DISCUSSION

This paper has been written as Project NZ reaches the end of the first year of a three year project. The research and engagement work that the SBN has completed to date, (with its Partners' support), has already delivered value by demonstrating the level of interest and support for accelerating smart transport from SBN's members, partners and other stakeholders. Work is already underway to bring businesses together to develop the opportunities described in this paper, and other evidence (cited in the Introduction section) suggests that some areas of government support the SBN's intentions.

In Focus Area 1, Project NZ has identified opportunities to accelerate the shift from a fossil-fuel powered national fleet to one powered by renewables. This outcome is considered by the authors to be the most easily realised because as the ownership cost of an electric vehicle falls and as consumers' range anxiety concerns are addressed, buyers will choose electric vehicles over fossil-fuel powered alternatives. National's commitment not to charge RUC's on electric cars until 2020 will also encourage this transition.

⁴ Transport Management Associations are non-profit, member-controlled organisations that provide transportation services in a particular area, such as a business district, mall, medical center or industrial park. They are generally public-private partnerships, consisting primarily of the area's businesses with local government support. Source: Victoria Transport Policy Institute. (2014). *TDM Encyclopaedia*. Available: <http://www.vtpi.org/tdm/tdm44.htm> . Last accessed 13 January 2015.

But Project NZ is seeking more than just to accelerate a shift from a fossil-fuel powered national fleet to one powered by renewables. The SBN is also seeking, through Focus Areas 2-5, to change the New Zealand transport system to one that is more efficient, i.e. a system that enables New Zealanders to realise the potential of smartphones to drive less by sharing trips and vehicles, and that encourages New Zealanders to choose public transport, walking and cycling over driving. The opportunities in Focus Areas 2 to 5 have been developed to achieve this system change. Collectively, these need the right policy and infrastructure environment to succeed, and while it is beyond the scope of Project NZ to apply all of the lessons learnt from the Intelligent Communities/ Cities mentioned in this paper, these should certainly be considered by its supporters, particularly in government, who wish to see Project NZ meet with success, grow jobs and deliver on other national objectives such as achieving climate change targets, reducing congestion and improving quality of life in New Zealand's cities.

In order to accelerate New Zealand towards a smart transport future, business and government need to work *together* to deliver transport services, products, apps, policy and infrastructure that complement each other.

CONCLUSION

In conclusion, the SBN's 'Accelerating Smart Transport in NZ' workstream has made significant progress in its first year. It is a campaign to watch in 2015-16 which has the potential to bring about lasting change for the better in New Zealand's transport system, particularly if government works alongside business to deliver the policy framework and infrastructure to support it.

AFTERWORD

The SBN welcomes interest in becoming a Partner, Support Partner, project participant, or you can simply follow progress with the 'Accelerating Smart Transport in NZ' workstream by visiting the SBN's website www.sustainable.org.nz.

REFERENCES

- Allison, N., NZIER. (2014). *Disruption on the road ahead! NZIER public discussion paper 2014/5*. Available: <http://nzier.org.nz/publication/disruption-on-the-road-ahead-how-auto-technology-will-change-much-more-than-just-our-commute-to-work-nzier-public-discussion-paper-20145>. Last accessed 28 November 2014.
- Auckland Transport. (2014). *AT HOP card*. Available: <https://at.govt.nz/bus-train-ferry/at-hop-card/>. Last accessed 28 November 2014.
- Auckland Transport. (2011). Media Release: Northern Express services extended. Available: <https://at.govt.nz/about-us/news-events/media-release-northern-express-services-extended/>. Last accessed 14 January 2015.
- Auckland Council. (2014). *Clean Disruption*. Available: <http://aucklandconversations.e-cast.co.nz/auckland-conversations/details/96>. Last accessed 28 November 2014.
- Bell, R., Jung, J. & Zachilla, L (2014). *Brain Gain- How innovative cities create job growth in an age of disruption*. New York, USA: Intelligent Community Forum. p121,131,133
- The City of New York. (2011). *Road Map for the Digital City- Achieving New York City's Digital Future*. Available: <http://www.nyc.gov/html/media/media/PDF/90dayreport.pdf>. Last accessed 28 November 2014.
- City of Vancouver. (2014). Separated bicycle lanes. Available: <http://vancouver.ca/streets-transportation/separated-bicycle-lanes.aspx>. Last accessed 14 January 2015.

Dearnaley, Mathew. (2014). *Price war likely to speed up Kiwis' sluggish switch to electric cars*. Available: http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11272936. Last accessed 28 November 2014.

Dutzik, T. & Madsen, T., Frontier Group. (2014). *A New Way to Go- The Transportation Apps and Vehicle-Sharing Tools that Are Giving More Americans the Freedom to Drive Less*. Available: <http://www.uspigr.org/sites/pigr/files/reports/A%20New%20Way%20to%20Go%20vUS1.pdf>. Last accessed 28 November 2014.

Ecover and Forum for the Future. (2014). *Ecover, Mallorca*. Available: <http://glocal.ecover.com/>. Last accessed 28 November 2014.

Edwards, D., Automobile Association. (2014). *Powered Up- How practical are electric cars in real world conditions*. Available: <http://www.aa.co.nz/membership/aa-directions/driver/electric-cars/>. Last accessed 28 November 2014.

FINDATRUCKLOAD. (2014). *Homepage*. Available: <http://www.findatruckload.co.nz/>. Last accessed 28 November 2014.

Forum for the Future. (2014a). *#theBIGshift*. Available: <http://www.forumforthefuture.org/thebigshift>. Last accessed 27 November 2014.

Forum for the Future. (2014b). *Forum for the Future's Facebook Page*. Available: <http://www.facebook.com/forumforthefuture>. Last accessed 28 November 2014.

Fourtané, S. (2014). *Finland: Sustainable Transport by 2030*. Available: http://www.ubmfuturecities.com/author.asp?section_id=465&doc_id=526910. Last accessed 15 January 2014.

Frost, T. (2014) *Transport Political Discussion, Chartered News, Newsletter from the Central Section of the Chartered Institute of Logistics and Transport*. July. Wellington.

GSMA, London Office . (2011). *Smart Mobile Cities: Opportunities for Mobile Operators to Deliver Intelligent Cities*. Available: <http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Smart-Mobile-Cities.pdf.p.3-4> Last accessed 28 November 2014.

Institute for Transport Studies. (2005). *Transport Strategy: A Decision Maker's Guidebook- High Occupancy Vehicle (HOV) Lanes, First Principles Assessment*. Available: http://www.its.leeds.ac.uk/projects/konsult/private/level2/instruments/instrument029/l2_029b.htm . Last accessed 14 January 2015.

Intelligent Communities Forum. (2014a). *Top7 By Year*. Available: https://www.intelligentcommunity.org/index.php?src=gendocs&ref=Top7_by_Year&category=Events. Last accessed 28 November 2014.

Intelligent Community Forum (2014b). *Homepage*. Available: <http://www.intelligentcommunity.org/>. Last accessed 28 November 2014.

JuicePoint. (2014). *Savings*. Available: <http://www.juicepoint.co.nz/#3>. Last accessed 14 December 2014.

Lawler, Ryan. (2014). *With Lyft Line, Passengers Can Split Fares For Shared Rides*. Available: <http://techcrunch.com/2014/08/06/lyft-line/>. Last accessed 28 November 2014.

Knuiman, M. (2014). *A Longitudinal Analysis of the Influence of the Neighborhood Built Environment on*

Walking for Transportation : The RESIDE Study. *American Journal of Epidemiology*. 180 (5), 453-461.

Legislative Analyst's Office. (2000). HOV Lanes in California: Are They Achieving Their Goals?. Available: http://www.lao.ca.gov/2000/010700_hov/010700_hov_lanes.html. Last accessed 14 January 2015.

Maciag, M. (2013). The Most Walkable Cities and How Some Are Making Strides. Available: <http://www.governing.com/topics/urban/gov-most-walkable-cities.html>. Last accessed 14 January 2015.

McCormack, G. & Shiell, A. (2011). In search of causality: a systematic review of the relationship between the built environment and physical activity among adults. *International Journal of Behavioral Nutrition and Physical Activity*. 8 (125)

Ministry of Business, Innovation and Employment. (2013). 13. *Energy in New Zealand*. Available: <http://www.med.govt.nz/sectors-industries/energy/energy-modelling/publications/energy-in-new-zealand/previous-energy-in-new-zealand-editions/Energy-in-New-Zealand-2013.pdf/view>. Last accessed 28 November 2014.

Ministry of Transport. (2014). *Briefing to the Incoming Minister*. Available: <http://www.transport.govt.nz/about/publications/briefingtoincomingminister/>. Last accessed 28 November 2014.

Ministry of Transport. (2005). *Getting there on foot, by cycle- A strategy to advance walking and cycling in New Zealand transport*. Available: <http://www.beehive.govt.nz/Documents/Files/Getting%20there.pdf>. Last accessed 14 January 2015.

Project 100, Inc. (2013-14). *Home Page*. Available: <https://shiftconnects.com/>. Last accessed 28 November 2014.

Ridescout. (2014). *#WorkTheBus Part 2*. Available: <http://www.ridescoutapp.com/2014/12/02/workthebus-part-2/>. Last accessed 9 December 2014.

Seba, Tony (2014). *Clean Disruption of Energy & Transportation*. Silicon Valley, California, USA: Clean Planet Ventures. p.22, 101-126

Shueh, J. (2014). Government Technology. *Is Ridesharing's Next Stop a Bus?* Available: <http://www.govtech.com/transportation/Is-Ride-Sharings-Next-Stop-a-Bus.html>. Last accessed 28 November 2014.

Streeter, AK. (2014). *Finland's Plan to Make Cars in Cities 'Pointless'*. Available: <http://www.treehugger.com/public-transportation/funky-finnish-way-make-city-travel-super-easy.html>. Last accessed 28 November 2014.

Sustainable Business Network. (2014a). *#theBIGshift: Accelerating Smart Transport in New Zealand- Powering our national fleet with 100% renewable energy*. Sustainable Business Network

Sustainable Business Network. (2014b). *About the Sustainable Business Network*. Available: <http://sustainable.org.nz/who-is-sustainable-business-network/about-the-sustainable-business-network/>. Last accessed 28 November 2014.

Sustainable Business Network. (2014c). *Accelerating Smart Transport in NZ*. Available: <http://sustainable.org.nz/what-we-do/transformation-areas/accelerating-smart-transport-in-new-zealand/>. Last accessed 5 December 2014.

Sustainable Business Network. (2014d). *Are you ready for The Big Shift?* Available: <http://sustainable.org.nz/sustainability-news/are-you-ready-for-the-big-shift#.VLQ6mSuUceE>. Last accessed 28 November 2014.

Sustainable Business Network. (2014e). *Business Opportunities for a Sustainable New Zealand*. Available: <http://sustainable.org.nz/wp-content/uploads/2014/11/Business-Opportunities-for-a-Sustainable-NZ2.pdf>. Last accessed 14 January 2015.

Transportation Management Association of San Francisco. (2013). *Homepage*. Available: <http://www.tmasfconnects.org/#&panel1-2>. Last accessed 28 November 2014.

Turner, M. (2014). Study Shows Bicycle-Friendly City Infrastructure in U.S. Significantly Increases Cycling to Work by Residents, Which Can Improve Health of Locals. Available: <http://www.obesity.org/news-center/study-shows-bicycle-friendly-city-infrastructure-in-us-significantly-increases-cycling-to-work-by-residents-which-can-improve-health-of-locals.htm>. Last accessed 14 January 2015.

Wikipedia. (2014). *Stratford, Ontario*. Available: http://en.wikipedia.org/wiki/Stratford,_Ontario. Last accessed 28 November 2014.

Your Drive Ltd. (2014). *Homepage*. Available: <http://www.yourdrive.co.nz/>. Last accessed 28 November 2014.