

Singapore Tomorrow: The Drivers of the City's Future of Mobility

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Deeshraf Elias: Often described as a global leader in the future of mobility, the island state of Singapore boasts one of the world's most robust public transport systems. According to Deloitte's City Mobility Index 2020, good vision and investments are amongst the many strengths that drives Singapore towards being example of that vision is the Land Transport Master Plan 2040 (LTMP 2040) which aims to promote active mobility, eco-friendly vehicles and optimised land transport through technology.

As the city state strives towards creating an even smarter and more inclusive public transport system, funding and investments are amongst the many factors that will advance this vision. Today we will discuss the drivers behind Singapore and its promising transport system.

Hi everyone! Welcome to another edition of our Future of Mobility series, bringing you the top voices from the sector - decision-makers, innovators and shapers pushing the envelope on future ideas for transportation and beyond. I am your host, Deeshraf and today, we are joined by Daniel Chow, Vice-President at ComfortDelGro Ventures, Gilad Shay, Head of Legal at Goldbell Investments, and Axel Tan, General Manager at SMRT Ventures. Daniel, Gilad and Axel, thank you for joining us today!

Gilad Shay: Thanks Deeshraf, for inviting us.

Axel Tan: Thanks Deeshraf, good to be here.

Daniel Chow: Yeah, thanks Deeshraf and to the Deloitte team for having us today. Very excited!



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Deeshraf Elias: That's great. Now, Daniel, I'd like to start off with you, as the Vice-President in ComfortDelGro Ventures, what is the vision of the fund? And how do you think new ventures can contribute to the future of mobility in Singapore?

Daniel Chow: Sure, thanks Deeshraf. Yeah, happy to kick things off. Maybe I can start with giving a quick overview about ComfortDelGro. So ComfortDelGro operates in seven markets worldwide, including Singapore, which contributes 60% of our business and the remaining 40% of our markets are within countries such as Australia, UK and China. We are the largest public bus operator in Australia, London and Singapore, and we have nine joint ventures in China. At ComfortDelGro Ventures, we believe in finding and supporting the best teams and businesses across the world that are using technology to help reinvent the future of mobility. We do this primarily in three ways – 1) in global innovation because of pilot trials and POC. Our goal is to work with the best teams to try out new technologies that could awaken innovation across our fading markets around the world. 2) We form strategic partnerships. We actively support tech start-ups with strategic access to corporate assets and data to enable mutually beneficial partnerships, between our business operations and the start-ups (to) jointly solve mobility challenges. 3) We invest. We actively invest in best of class tech start-ups that are reinventing the future of mobility together with ComfortDelGro and help them bring new ideas and businesses to light.

Deeshraf Elias: Okay, and Gilad as the Head of Legal for the corporate venture capital arm of the Goldbell Group, could you tell us more about your organisation and what role do you



see it playing in supporting the local ecosystem, especially through mobility initiatives and technologies?

Gilad Shay: Thank you for the question there, Deeshraf. So, I'll just share a few words about Goldbell. So Goldbell, unlike ComfortDelGro, we are coming from the leasing, distribution and rental side, where we are market leaders in Singapore. So well, we have been doing this for the past 40 years, and about three years ago, as part of the whole vision of the group entering into what we call new mobility, we established a new division called the future of mobility, and the investment arm is one of the pillars in the future of mobility. Other than the investment side, as you mentioned, I'm the Head of Legal, but I'm also a partner and member of the investment committee. We (are) also doing integration of new technologies within the core business, meaning, (we are) trying to buy new technologies, whether through the start-ups we are investing (in) or

through other technology companies that we find, and try to integrate the technology into our core business, and maybe spin off new businesses. (Also, since) we are doing venture building, we are spinning off new technology companies (and) we got two of such businesses thus far. One in the transportation business (where) they do on-demand services for buses, and (the) other one in the autonomous side doing a conversion of autonomous forklifts, and (turning) other warehousing equipment semi-autonomous. Other than that, we also have our corporate accelerator, MoveSG, where we basically try to facilitate collaborations between ourselves as a group since we have got many interests, and also (likewise) with (our) corporate partners. By the way, both SMRT and ComfortDelGro, they are two of our corporate partners and in that regard, in our vision, the entire mobility business is going to be disrupted. Actually, it is already on the brink of disruption, (as) Singapore is one of the main pillars for future of mobility globally. And (as) we

can see, I mean, we can see Hyundai, we can see Continental operating here, and we know another two OEMs coming into the Singapore market. And as such, Goldbell Group decided, as a strategic move, we not only want to tap into this ecosystem, but we also (want) to be one of the builders of the mobility ecosystem, which is also going to be probably, one of the most important ecosystems in Southeast Asia, and probably also globally.

Deeshraf Elias: And Axel, what role does SMRT see itself playing in realising the vision set in the Land Transport Master Plan 2040? And if I may expand, what transformation is needed from the state of operations today?

Axel Tan: Thanks, Deeshraf. And I must say that having read the master plan, it roughly talks about how transport can be more connected and more inclusive. And for the typical Singaporean who commutes to work daily, it's hard not to come across SMRT in the large parts, because our business is quite diversified. You will typically commute by rail or a combination of rail and bus, or just bus and in many of those, you will find yourself taking an SMRT mode of transport. So, given that we are in a way quite intertwined with the commuters' daily lives, I do think that we have a role to play in this transformation as well, to make it more connected and inclusive. Not to oversimplify it, but I think one of the main transformations that needs to happen is digitalisation of all the different touch points and services. And, you know, it may sound too simplified, but digitalisation will involve not just from the commuters' perspectives, but also from the workers' perspectives. Even if say, how we do maintenance (and) how we put in more data points. So, for SMRT Ventures, we have been

looking across some of these business units, whether its commuter facing (or) in terms of interacting with different transport modes, (and envisioning) how seamless it can be. It will also include maintenance, how can we adopt some new technologies in maintenance using big data and data analytics, and even in operations where there are start-ups that are helping (us) do the optimisation of routes. We see SMRT's role as involving our different stakeholders, and start-up partnerships are big pieces of digital development transformation that we can basically play a role in.

Deeshraf Elias: Building on the vision shared in the Land Transport Masterplan 2040, much have been said about the "Future of Mobility" in Singapore and what it promises. In one sentence, can we unpack the term "Future of Mobility" and understand what it means for each of you? Perhaps we will start off with you first, Daniel?

Daniel Chow: Sure, Deeshraf. As for me and for many of my colleagues at ComfortGelGro, when we think about the future of mobility, it really is about the daily commute, which Axel mentioned. Like commuters, right, we use public transportation that works daily, on a very frequent basis. The daily commute from point A to point B could be reimagined with new ways of doing things that enable public transport operators, such as ComfortDelGro, to strike the right balance between safety, speed and convenience.

Deeshraf Elias: Okay, and Gilad, what about you?

Gilad Shay: Well, for us when we look at the future of mobility, the way that we look at it



is the same way we view the telco industry about 20 years ago. When somebody told you about mobile phone, what it's all about is basic, a device that allows you to walk with it and communicate remotely. However it (has) transformed into an entire industry where communication (has) become a side-line, and the telco industry currently has a whole ecosystem evolved around it, and our mobile phones became, actually a minicomputer even. And in some cases, (it is a) stronger computer, not necessarily (limited) to communication. (This) is also happening to the mobility industry, which means that many of the traditional differences that we saw between common ventures, car rental companies, public transport operators, and even telcos are vanishing. So, the way to look at future (of) mobility, it's basically not only mobility, mobility

is the facilitator of this disruption. For example, the car can become your personal clinic, (it) can examine you, and make sure that you're in good health, and this is how we look at the future of mobility.

Deeshraf Elias: That's great. And Axel, what about you?

Axel Tan: Well, coming from the perspective of an operator and a service provider, I think that the future of mobility will be one that will be a lot more seamless. As soon as we allow innovation and digitalisation to break down the barriers and say, (with) payments, you know, we can remove the friction in terms of how we consume mobility services. But also, I think that the future of mobility will be a lot safer, especially when autonomous

technologies come in. Rather than look at it from the commuter's point of view of, you know, just having a driverless car, I think the ability to standardise the approach to operations will actually make it a lot safer, for a lot of us.

Deeshraf Elias: Okay, and speaking about all these points that all of you brought up on the future of mobility, what are some of the technologies or solutions that the three of you foresee being introduced, that can help establish significant progress for the future of mobility in Singapore? Axel, maybe we will get you to weigh in on this first. You mentioned about autonomous vehicles, so maybe you can expand on that?

Axel Tan: Yeah, well, I cannot say for sure whether I know what will be introduced. Because, you know, it depends a lot on the regulators and the ministries that are managing this part of the strategic planning. But from what I see in, say the start-up landscape (and) innovation landscape, I think connected vehicles and infrastructures will be one of the key levers for us to really bring our mobility to even more advanced stages in Singapore.

Deeshraf Elias: And Daniel, what about you?

Daniel Chow: Well, we believe that autonomous technologies are the holy grail for the future of mobility in Singapore, and many sceptics think that it is too far away. But our read is that we are close to the inflection point of the S curve and (we) are likely to see mass adoptions sooner than later. So, as a public transport operator, ComfortDelGro wants to make sure that (we) are well prepared and ready to adopt autonomous technology when the tide hits.

Deeshraf Elias: And Gilad, do you have anything else to add? What kind of technologies or solutions do you think will be introduced to help establish significant progress for the future of mobility in Singapore?

Gilad Shay: So, in the Singapore context, it is a bit different than in other places around the world just because the infrastructures in Singapore are much more advanced than other places. The ability to execute your project in Singapore is much better than in most parts of the world. So, I would say that when you look at the future of mobility in Singapore, it is divided between the short term and the long term. In the short term, what we want to see, and we want to be seeing, is (the) adoption of connected vehicles, mainly electric vehicles, charging stations (and) charging infrastructures. Singapore is probably going to be one of the best adopters of these kind of technologies. And then from the long run, obviously (it is) regarding the autonomous vehicles, autonomous shuttles (and) autonomous public transportation. To (a) certain extent, (it) is already in Singapore and if you look at the MRT lines, for example, some of them are driverless. So moving forward, for sure, Singapore is going to be one of the early adopters of autonomous technology.

Deeshraf Elias: And Gilad, I wanted to expand and pick up on some of the points that you mentioned. According to Deloitte's City Mobility Index 2020, Singapore is seen as a benchmark in urban mobility by many cities around the world, the time spent getting caught in traffic congestion alone is considerably lower in Singapore than in other cities. So, how do you think Singapore has managed to maintain high standards for the mobility of people and goods?

Gilad Shay: Well, what Singapore did in mobility, (is) the same as it did with many, many other types of infrastructure. From long term planning, great execution, bringing the brightest minds into a single plan (and envisioning) how exactly it's going to look like. And this is something that, you know, I mean, I'm from Israel, so coming from my home country, I can really appreciate what I have seen in Singapore. Many of the things that Israel and other places, (where) they're talking about what is going to happen in the future, in Singapore, they are already happening now. I mean, you can see it with the deployment of electric charging stations (and) you can see it with the infrastructures for autonomous vehicles that are in place. Especially with the regulations, Singapore is the first one to introduce regulations, really detailed and structured regulations for autonomous vehicles. These are things that are going to put Singapore well ahead of most, if not all cities around the globe.

Deeshraf Elias: And speaking of benchmark and standards as well, as major transport operators in Singapore, Daniel and Axel, I wanted to hear your thoughts on what do you think are the potential challenges that will arise in the next decade, especially in terms of planning and transportation management? Daniel?

Daniel Chow: Sure Deeshraf, the public transport system and infrastructures in Singapore, have us swerved and geared towards maximising efficiency and throughput, in terms of being able to carry as many people as possible to the intended destination. However, there's been a dramatic shift in travel patterns in recent months, so the challenge will now be in being able to sustainably operate. A



public transport network will reduce ridership and change peak traffic patterns. There is also a distinct shift in the way commuters are approaching first and last mile connectivity and in particular, cycling will likely need to be integrated into public transport network planning as a primary mode of transport going forward. I think there will be more and more people, who will choose to cycle to (the) nearest transport node to transfer to a bus or train, or even cycle through to the end destination and use bus or train on an intermittent basis instead of on a daily basis.

Deeshraf Elias: And Axel, what are your thoughts on this?

Axel Tan: I'd like to think of the transformation (as) a shift towards more green and sustainable vehicles. And some of the potential challenges that operators will face, will be in how to manage it from (an) operational standpoint, in a sustainable manner. Meaning, being

able to keep your vehicles running, providing services, generating revenue (and) minimising costs. As we transition from, you know, the vehicles of today which are more traditional to those in future where there will be more electric vehicles. I think that will be one of the challenges, especially when it comes to providing the right infrastructures to enable such operations.

Deeshraf Elias: And on that note, given some of the discussions that we've had earlier, we understand from Gilad as well as Daniel earlier that ComfortDelGro and Goldbell operates in international markets all around the world, such as London and Israel. I actually wanted to ask Daniel and Gilad, what do you think are some of the key learnings that should be integrated into our local mobility landscape, so as to advance Singapore's positioning as a global leader in the future of mobility? Gilad, maybe we'll get you to share your experience first?

Gilad Shay: Well, first of all, I think that in many cases, fortunately, most of the work and the learning (happens in) Singapore— how to adapt to the future (of) mobility. But if we dig into the start-ups in Singapore, so obviously, when we look at really the start-up scene in Singapore, and versus, let's say to Israel, or Silicon Valley, or even Germany, we see that right now, Singapore is (lagging) behind the other players. However, what we do see is that the gap is being minimised very rapidly, and I will not be surprised if two to three years from now, (we) can actually compare apple to apple between Singapore and the best mobility ecosystems globally. Now, the government is doing many, many good things. I mean, by the fact that the government is able to bring major mobility players into the market, (and) to have them start working with the local ecosystem. And what I assume that we're going to see is that many of the strengths that Singapore already has, whether it's AI or big data analytics, they will be plugged or diverted into (the) mobility ecosystem, (it) will happen. Obviously, Singapore can learn from countries with experiences towards similar depth of technology like Israel, in the US or also in Germany. In fact, I think they're already doing it. So I'm quite optimistic that, I would say, (in) two to three years' time, not too long from now, we're going to see a flourishing tech ecosystem around many of the OEMs and tier one companies that will be coming to Singapore.

Deeshraf Elias: Daniel, what are some of the learnings from ComfortDelGro that can actually be integrated into the local mobility landscape?

Daniel Chow: Sure, Deeshraf. I would echo a lot of what Gilad has said, right, but I will add on also an added dimension, for people



to think about timeframes, right? It's easy to think about what has happened in the last three years or five years. But if we kind of pull back the time horizon even more, I think about what has happened in the Singapore mobility industry in the last 20 or 30 years. I think the mobility industry in Singapore has been very, very welcoming of international market practices. And some of the best practices that you see today in the local mobility landscape were learnt from external markets. At the various business units in ComfortDelGro in particular, (we) have been early adopters of fleet management, operations management and payment technologies from Canada, Germany, Japan, and the UK, in our various taxi, bus and rail businesses worldwide. More recently, we're also starting to explore emerging technologies from Israel and China, in our core business.

Deeshraf Elias: That's great to hear and we're definitely really excited to see what ComfortDelGro has planned in the future as

well. But now, I'd like to move the conversation forward. Speaking about the Singapore mobility investment space, we know it's been thriving. And Axel, we understand that SMRT has a corporate venture arm, SMRT Ventures, which invest in early-stage start-ups to pilot technologies and business models for urban transportation. What are some considerations that you look out for when evaluating potential investments in a start-up?

Axel Tan: Thanks Deeshraf, that's a good question and I get asked that quite often actually. I guess for us when we are looking (at) innovation in urban transportation, one of the main considerations is how disruptive the idea that the start-up has or is pursuing and whether it really improves transportation in a meaningful way. And other considerations we have is also whether SMRT, as an organisation or our business units can actually provide some kind of value add to the start-up as a strategic investor. So, we will look into opportunities

(in) either adoption of the technology, or for us to work together with a start-up on the pilot, say, to pursue a new business model together. But we also have some of the standard considerations that I think most VCs would have, in terms of the attractiveness and their business models. And we keep those considerations there, because we think it's important that there is some rigor and basis (for) us (when) looking into investing in the start-ups.

Deeshraf Elias: And similarly, Daniel, we understand that ComfortDelGro Ventures has dedicated a funding of 100 million US dollars to invest in start-ups. So besides funding, can you elaborate on the support that ComfortDelGro provides to start-ups that they invest in?

Daniel Chow: Well, Deeshraf, ComfortDelGro Ventures falls under the type of CVC which only invests in start-ups when there's a strategic collaboration between a start-up and our business units. This means working with start-ups, and with the help of our business units to either plug technology gaps or discover new business models. For the start-ups, especially the early-stage ones, these strategic collaborations are often the critical hand holding process that enables them (to) develop processes and capabilities to work with large corporates at scale up.

Deeshraf Elias: And Gilad, moving to you. You mentioned earlier about MoveSG, one of Goldbell's accelerator programs, which also invests in high potential early-stage start-ups. Can you share the focus areas of some of the start-ups in your portfolio and the markets that they are functioning in?

Gilad Shay: First of all, I just want to clarify, we have got the MoveSG which is the accelerator program that as I mentioned, we are running globally but (it is) also embraced (by) corporate partners that work with us to support the start-ups. Actually, the investments for corporate groups are done through global investments, also known as the CVC arm. So basically, the companies that participate in the accelerator can see the potential in these companies, then the VC arm will look at these companies and consider whether or not to invest. So unlike ComfortDelGro and SMRT, for our side when we're looking from the investment angle, we don't necessarily look for immediate collaborations. We look from a very broad perspective on technologies, actually also mobility side, we look very broadly. And specifically (with) MoveSG, what we are doing is trying to form collaborations with our own core business - leasing, rental and distribution of commercial and industrial vehicles. And also, for our corporate partners, our corporate partners are coming from very large companies, like Shell (and) Continental, (and) they have wide interests. So you can see companies doing data analytics, cybersecurity, logistics, basically all across the board. We've got 16 companies currently participating in our program for the areas (of) which their focus is very, very wide, almost every kind of vertical that you can think of when it comes to mobility, you will see participating in our program. And if you're looking at the investment portfolios, we have got 70 companies globally. You will also discover that some of the companies are dealing with autonomous technologies, while others are dealing with big analytics, (and) cyber security for IoT devices, so it's a very, very wide spectrum of areas that we are looking at.

Deeshraf Elias: Thanks, Gilad and now with all these discussions around investment, I wanted to hear from the three of you. Based on the start-ups that you have invested in Southeast Asia and other parts of the world as well, can you share experiences or even tips, in terms of successful implementations for our listeners who are budding mobility entrepreneurs looking to start new ventures in the region? Maybe we'll start off with you first, Daniel?

Daniel Chow: The best advice I can share with entrepreneurs is to make sure that you don't develop your products and services in isolation. Technology cycles are short, and whatever you're developing could be redundant very quickly. The best way to make sure your product is relevant is to constantly talk to your customers, involve them as early as possible in your product development process and make sure that you're solving a real and genuine pain point to them. That will ensure that you're able to engage your customers as early as possible, and convert them into paying customers, which really is the whole point of doing a start-up at the end of the day. Otherwise, you just end up being an R&D experiment. This is true, regardless of where in the world you are, either in Southeast Asia or elsewhere.

Deeshraf Elias: And Gilad, what about you?

Gilad Shay: Well, first, obviously, I couldn't agree more with Daniel. Knowing your market (and) knowing your clients, it's a big thing. But if we (look) a bit earlier, when you start your company, one of the things that I'm also trying to push here (for) start-ups in Singapore, is to make them understand that when we are saying mobility, it's not only vehicles (and) it's not only about transferring goods from one



place to the other. For example, if you've got an idea for cyber security, so yes, break the market (and make it) to be a huge market for yourself. This is a multi-trillion-dollar market, enough to cause a disruption. Additionally, when you look at the investment seams globally, you will actually discover that most of the investments and M&A buyouts of the companies globally are not coming from the traditional mobility players, but (are) actually, from the giants like Intel, Google, Apple and Amazon. I mean, those (companies), you don't necessarily first think about them as mobility players, but they are the future of mobility. So this is one key point, when you look at mobility, understand that it's much more than vehicles and definitely look at it as a market that you need to focus on. Another point is (to) be flexible, know your clients (and) know your competitors, but also be ready that

this "Black Swan", as we see right now with the COVID-19, can happen. And they're happening all the time, they're coming in cycles, we never know when they're going to come (and) we never know how they're going to come. But you as the CEO, as the founder or founders of a start-up, you need to be flexible enough to understand that once you encounter this kind of issues, try to walk around it and find a solution.

Deeshraf Elias: Thanks Gilad, that was really helpful. And Axel, anything else to add?

Axel Tan: I will just add that, given that mobility is you know, such an important space, it touches a lot of people's lives. And it's also something that a lot of governments place as (an) important priority for city developments.

Any start-ups looking to work in the mobility space, (it is) important to know the local regulations, (and) also align yourself with the requirements of the particular region or country you are entering. So, you know, there will be countries where, you know, regulations (are) very strong, then the strategies need to be different. In countries where say, they are a bit more open, then the focus will be more about partnerships and how to innovate quicker for customers.

Deeshraf Elias: Now I want to bring back the conversation to Singapore, and we understand right now that SMRT Corporation and SBS Transit are working with the local authorities to run an open innovation program called the Singapore Mobility Challenge. So for our listeners who are not familiar, Daniel and Axel, can you share the objectives of the challenge and how it can elevate the local mobility landscape in the long run? Daniel, maybe we'll get you to weigh in on this first.

Daniel Chow: The Singapore Mobility Challenge is organised by the Land Transport Authority of Singapore, our sister company SBS Transit, our friends over at SMRT Corporation, (and) it is (also) supported by Enterprise Singapore. A key objective of the Singapore Mobility Challenge is to let start-ups know that the public transport industry in Singapore is open to innovation and new ways of doing things. And that we are razor- sharp focused on enabling the best possible public transportation experience for commuters in Singapore. We have come to realise that the pool of start-ups who are developing products, specifically for the public transportation industry are few and far between. So the challenge aims to attract start-ups who are

developing horizontal technologies that can be applied across multiple industries, and also (for) start-ups to discover through our challenge statements that their products, which may have been developed for another industry, could find a use case in public transportation.

Deeshraf Elias: Daniel, thanks for that. And Axel, do you have anything else to add?

Axel Tan: No, I think Daniel has covered it really well. But it is really just about getting the problem statements out to innovators, who would have good ideas that we want to bring into the system.

Deeshraf Elias: Okay, perfect. And I wanted to expand on that question as well and wanted to ask Daniel, can you briefly share the innovations and technologies that have been proposed by the finalists?

Daniel Chow: Sure, Deeshraf. Our sister company, SBS Transit, have selected a number of finalists who are developing exciting solutions in AI and computer vision. We have started POCs with these finalists, and (we) will be happy to share more details in the coming weeks. We have a couple of tentpole events upcoming in December, namely a panel discussion involving our senior management and the Challenge Demo Day, so do continue to watch this space.

Deeshraf Elias: Well, that's something that we're definitely looking forward to hearing more of and following through. But right now, I wanted to bring up the topic of the COVID-19 pandemic, something that all of us have personally experience. We've seen the COVID-19 pandemic accelerating the adoption of new technologies by organisations to remain relevant and competitive. I wanted to hear from

the three of you on how your organisations, or the portfolio of companies you are working with, are dealing with the pandemic and adapting to bounce back stronger. Gilad, maybe you can weigh in on this first?

Gilad Shay: Well, I would say from the organisation level, obviously, well, one of the things that we're pushed to do is basically to move online. I mean, many of the face-to-face meetings and sales that we used to do with clients, we realised that we have to move online. We're starting to implement these kinds of technologies all across the board in our various business units. I mean, some of them are going to be announced very soon. But this is a move that, if (I have) to be honest, we (have) already started before the pandemic, but I would say that the pandemic definitely accelerated digitalisation, and this is due to implementations in the group, on the corporate side. From the portfolio side, I mean, I would say, we saw like the natural selection. Meaning this pandemic came so quickly, so surprisingly, (with) so many unknowns and this kind of distinguishes between the strong ones to the weak ones— those who plan ahead (and) those who are flexible. Whatever you planned before, whatever you saw that you are going to do before, you have to put it aside, (and) not rain check it (till) later stages but understand that you need to keep running the business and keep, you know, being relevant, (and) those (are the companies) that are flourishing. I mean, luckily for us, I will say that most of the companies in our portfolio were able to actually do this pivoting, and we are very happy about it.



Deeshraf Elias: That's great, thanks a lot, Gilad. And Daniel, what about you, what have you experienced and what have you witnessed with your organisation or the portfolio of companies that you are working with right now?

Daniel Chow: I will speak about one of our portfolio companies, which is involved in providing an autonomous vehicle testing software to major OEMs and AV tech developers in the US, Europe and Japan. COVID has definitely impacted their customers' appetite, to test AVs in the same timing and cadence as before. But what they are also realising in recent months, is that there are more and more customers, who are focusing on software testing of AVs. By running computer simulations, (it) enables them to efficiently test millions of traffic scenarios in a short amount of time. And this means less towards miles-based (and) on road physical testing of AVs, (as it) is more time consuming and requires a higher degree of human interaction involvement. Both have their pros and cons, but obviously, a software testing approach yields more robust and comprehensive results. So the company actually hasn't seen much change in their business growth, apart from a short blip at the onset of COVID-19, and they have grown from strength to strength in the past few months.

Deeshraf Elias: Thanks a lot, Daniel. And Axel, what about you? I know you mentioned earlier about how SMRT has a lot of touchpoints, with commuters, who you know, travel to work and travel for leisure as well. So what have you experienced having to deal with the pandemic with your organisation, as well as your portfolio of companies?

Axel Tan: Good question, Deeshraf. You know, although I do not have a lot of experience in the frontline operations, I can definitely say that it requires a lot more management to ensure safe distancing and to look at how the crowd can be, you know, managed better. This includes stepping up the cleaning frequencies in the stations and the trains. I do see start-ups that are not in my portfolio, who are coming up with, say, robotic cleaning devices, new innovations around helping, to either amplify manpower or to provide a higher standard of disinfection. Amongst the portfolio of companies, I think, one of the major shifts observed during COVID-19 is that it has basically put all of us into this idea of not being able to physically meet people. So what I've seen happen is that, in terms of origination, or you know, even in the early stages of the sales process, a lot of companies have had to adapt to more digital means of reaching out to their customers, you know, using online conferences and, other different means of reaching their customers, than they (are) used to before.

Deeshraf Elias: It's definitely been an enlightening session learning about the mobility landscape in Singapore. And I'd like to wrap up the discussion today by asking the three of you something a bit more personal. So maybe we'll start off with you first, Gilad, what is it about the future of mobility in Singapore that excites you most and what is your personal mantra as a mobility advocate in the community?

Gilad Shay: So I would say that when it comes to Singapore itself, what is exciting about Singapore is (that), (it is) actually becoming one of the centre pillars (in mobility). I mentioned before earlier in my conversation, but this is true. Singapore realised quite early (about) the future of mobility (and), it's very democratic. Meaning that those who are moving fast (and) those who know how to implement properly will win the race. So the same as we saw in China. China, for example, realised very early on that the new oil is actually battery technology, and (now), about 70 to 80% of all the world's batteries (are) coming from

China. The same goes to Singapore, Singapore realised (early) that those who first implement autonomous and connected vehicles, (and) build infrastructures for electric vehicles on its road, will win the race (and) is actually holding the new gold or the new oil for the future. It's very exciting to be at the crater where all these new technologies and innovative ideas that are going to come. Now, my mantra to the start-ups in Singapore is something that (I've) also mentioned before. You are based in one of the best places to start mobility companies, you've got the best infrastructures (and), you've got (a) wide support network, (so) don't be afraid. I mean, the fact that there is no real mobility history in Singapore, so Singapore never manufactured the vehicles, hardly manufactured vehicles in the past. Does it mean anything? The world of new mobility is for those who know (how) to harvest data, for those who know how to implement new technologies in the new computer on wheels. So don't be afraid, take the risk. Here in Singapore, (we have) excellent, excellent infrastructures in comparison to the rest of the world.

Deeshraf Elias: Fantastic, that's great to hear Gilad. And Axel, I wanted to hear from you as well, what exactly about the future of mobility in Singapore that excites you, and what is your personal mantra as a mobility advocate?

Axel Tan: Yeah, so one really exciting thing about Singapore is the potential that Singapore has, to advance a lot faster than, you know, a lot of countries out there. And in my opinion, Singapore has a lot of potential as we have a vision, an ambitious vision that have been set out. We also have good governance, (and) we've got good infrastructures. I think Singapore



is very well positioned to innovate and move quickly, in terms of the future of mobility. Now, as a personal mantra, you know, I've always found that mobility is an important and essential part of people's lives. So to anyone out there who's looking to innovate, I would say that (Singapore) is a good space to innovate in. We will be able to make people's lives better, we will also be able to make people's lives safer and I think that's a very good outcome to have.

Deeshraf Elias: And Daniel, rounding up today's conversation, what is it about the future of mobility in Singapore that excites you most? And what is your personal mantra as a mobility advocate?

Daniel Chow: I am personally very excited about how technologies such as AI, computer vision, autonomous, and robotics are starting to

find genuine and impactful use cases in mobility and help deliver the fundamental promise of transporting people and goods from point A to point B, safer, faster, and more seamlessly than ever before.

Deeshraf Elias: Okay, and Daniel, if I may ask as well, what's your personal mantra as a mobility advocate?

Daniel Chow: Well, I would say that, you know, for start-ups that are looking to get into the mobility space, keep trying. And always keep thinking about how the conditions could continue to evolve, operating environments could continue to evolve, (where) pandemics will come and go. But fundamentally, it really is about delivering on the promise of transporting people and goods from point A to point B, safer, faster, and more seamlessly than ever before.

Deeshraf Elias: Well, that's all the time we have for this episode. I want to thank our guests, Daniel, Gilad and Axel, for their valuable insights regarding Singapore's approach towards being a global leader in the future of mobility. In the meantime, if you want to comment on this podcast or the topics covered, you can send us

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