

Presentation by Thabani Mtsi delivered at SAICE National IP Showdown on 7 March 2019

Hi colleagues, as mentioned in the introduction my name is Thabani “uJojo uZikhali uTiyeka ubutsolo beentonga uQocwa” Mtsi and I come to you on behalf of the future. YOUR future in particular.

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One of the first few conversations my supervisor and I had was about the first purchase I was going to make with my first pay cheque? I gave him the answer than any other future black millionaire would give him: “I’m going to buy a car sir”. Ever since I’ve embarked on my research I have since been challenged ladies and gentlemen and I come today I’m here to challenge YOU. I’m here to challenge the way you look at **public transport, commuting and most importantly I’m here to influence and change the way you look at safe and reliable mobility—not as car ownership but as a service that you can use from point A to B, granting you the benefits of car ownership without you actually owning a car**. So, by the end of this presentation I will be expecting everyone to be submitting their car keys in the yellow box situated on the left-hand side of the entrance.

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Let’s start with some numbers—Statistics clearly show that car ownership and purchase is decreasing in developed countries as opposed to the increase that is being experienced in developing countries. Here we see countries like Thailand and Argentina having high increases as opposed to the UK and America which have decreases in car and light commercial vehicle sales. These numbers are obviously informed by the infrastructure and public transport facilities but it is safe to assume that decreased car ownership is a positive indication of development.

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A typical example of this is seen in the Stellenbosch town, the geographic location of my research—like most urban areas in the world— is plagued with fully occupied parking lots, poor public transport usage and high car ownership levels which result in an increased carbon footprint. Today I’m here to propose a fourth industrial revolution inspired disruptive technology that aims to address some of these issues.

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I want to invite you to journey with me. I want you to imagine a world where just from the tap of your finger you’d be able to get access to a safe, accessible and convenient mobility service that speaks to YOUR needs. Where you can access to a bicycle, bus, taxi, Uber and even a private car anytime, anywhere, customized for you. What you’re imagining now and that warm feeling in your heart is mobility as a service/ MaaS.

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You’re probably thinking “**Ahh chief that’s Uber**” but allow me to correct you comrades: “Mobility as a Service is NOT Uber—its Uber on Steroids” because Uber is a mere component of MaaS along with bicycles, busses, taxis and private cars.

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The formal dictionary definition for MaaS “Is the integration of various forms of transport services into a single mobility service accessible on demand”. How does this work you may ask?

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It's quite simple really—you plan your trip, book it, board the mode and pay. Mobility as a service, unlike Uber, gives you the luxury of intermodality which is the integration of various transport modes to complete one trip.

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Now to make such a system work we would need buy in from the government, public and private entities, the infrastructural component and of course most importantly YOU—the user. The user has the opportunity to be both the producer and consumer because platforms such as rideshare and carpool facilitate such.

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The methodology used for my research project conducted in Stellenbosch had three levels of abstraction. The highest level of abstraction I used was Human Centred Design because design is too important to be left in the hands of the designers. The second level of abstraction and subsequent to Human Centred Design is a Stanford Design School born methodology called Design Thinking. Design thinking is a non-linear process of design that is collaborative in nature and inclusive in execution. The third level of abstraction I used was focus groups and stated preference surveys.

The benefit of the design thinking process is that it is not sequential or linear—it is cyclic and hence iterative. From the empathy phase I facilitated focus groups to see what the students' understanding of transport and mobility were. This enabled me to define the thesis statement based on the response of the student population. After defining the needs, I had to empathise with the students and conduct stated preference surveys. I then had to synthesize the data into qualitative and quantitative aspects and furthermore analyse the collected data, for behavioural patterns, attitudes and perceptions. This then led me to the development of the proposed MaaS model.

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After the qualitative and quantitative categorization and analysis of my data I observed some behavioural patterns, attitudes and perceptions.

My survey results indicated some attitudes and perceptions which included:

- 49% of the car owners said car ownership wasn't worth it
- 66% of the student population had mobility on their phones
- The MaaS related attributes had an average 75% buy in rate

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- The gym was the most frequented destination followed by class, so lectures you know where your students are when they're not in class
- Studying was done most on a daily basis
- Grocery shopping were done the most on a weekly basis

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- The males prioritized cost effectiveness when making mobility choice while the females prioritized safety
- 82% the black respondents didn't own cars
- 95% of them didn't own bicycles

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The solution was a MaaS model that made use of the following facilities and had the following pricing scheme. The facilities used were the Matie bike and vehicle pool rental services, the shuttles and Ubers.

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These are ideal packages developed for different kinds of students who have different mobility needs, come from different socio-economic backgrounds and study different degree programs. The packages can be on a pay-as-you-go basis or subscriptions for instance the black young lady comes from a local township called Khayamandi and she has to walk to campus every morning. I have given her unlimited bicycle rides so that she may roam around on campus and I've also given her taxi & Uber rides to meet her daily travel needs.

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All of this will be facilitated using the already existing Facilities Management App which gives a campus map, time and location of all the classes, tests and exams.

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In conclusion it was apparent that the Stellenbosch's non-motorized infrastructure, the car rental and bicycle rental services and given that everything is within close proximity—MaaS is possible in Stellenbosch. The already existing facilities management app can be used to plan trips around campus as it has the database of the University map, all the classes and their respective times and it also has test and exams schedules on one platform.

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Motivation

The implementation of such a system has various economic, social and environmental benefits as have been mentioned throughout the whole presentation but what makes this project a first of its kind is the fact that I am taking a very unique approach that is going to revolutionize the way we see transport and mobility. The fact that I am taking this traditionally Eurocentric solution, turning it over its head and integrating the minibus taxi industry—an informal trade industry—is a bound to bring about vast business opportunities across the board. I am not only working with numbers here but I'm talking perceptions, attitudes and travel behaviours. Quite frankly it's a leap of faith but a positive one.

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Gustavo Petro a Colombian politician and economist once said "A developed country is not a place where the poor have cars. It's where the rich **use public transportation**".

So as a closing remark I'd like to pose the following question to you— with the fourth industrial revolution upon us: Do YOU want to work for YOUR mobility or do you want mobility to work for YOU?