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TRANSCRIPT OF SPEECH BY DR VIVIAN BALAKRISHNAN, MINISTER FOR THE ENVIRONMENT AND WATER RESOURCES AND MINISTER-IN-CHARGE OF SMART NATION FOR THE AWARD CEREMONY OF THE SINGAPORE GEOSPATIAL CHALLENGE, 29 JULY 2015, 3.30PM AT BRADDELL HEIGHTS COMMUNITY CLUB

1. Good afternoon everyone.
2. When you first see a title like the “Singapore GeoSpatial Challenge”, do you think most people outside this room would understand what we are talking about? How many of you understood this before you participated in this event? Let me try to translate this into ordinary language and explain to you why this is so important. Since I used to be a doctor, let’s start with a medical example.
3. In 19th century London, there was no proper sewage system which meant that human refuse, debris and everything else just went into the streets. In fact even if you visit London today, you will notice that there are gutters on either side of the street instead of monsoon drains like we have here. At that point of time, there was a cholera outbreak and over 500 people died. You must remember that at the time, people did not know what caused cholera, how it was transmitted and why all these people were dying. All they knew was that there was a problem.
4. But then a physician called Dr John Snow took the trouble to map the location of the water pumps in London. He went around and identified all the pumps - in those days people did not have taps at home so people got their water from these pumps - and then he mapped the incidence of cholera, overlaid the two maps and his key insight was that there was a link. A link between the location of a certain pump and the concentration of cholera victims and in a sense, this was the beginning - or a very clear example - of how location and spatial data, combined with measurements and making sense of it actually saved lives. So never mind the big words, but remember that location counts.
5. Even when you talk about Singapore - Singapore is located at the southern tip of Asia; 1 degree 15 minutes north of the Equator and at a junction where the Northeast monsoon meets the Southwest monsoon. In other words, sailing ships from China will sail down during the Northeast monsoon and they would park at our harbours. Then boats from Europe and India would come in, taking advantage of the Southwest monsoon. The meeting point would be Singapore and that is how we became a trading port and a hub. Our geographic location - along with what we have done in the last 50 years to transform Singapore - gave us an advantage. The point that I am making is that location matters.
6. Now let me move forward to today and why we are all here. I believe we are now living in the age which would be characterised as the ‘Internet of Everything’. I think we are all familiar with the internet; it is the system that enables us to communicate, send emails, surf the web, to buy things and to do many things which we have taken for granted on a daily basis. But what does the ‘Internet of Everything’ mean?

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7. It means that we are in the midst of a revolutionary change where there will be billions - not millions - billions of objects, each having processing capability, being able to have on-board sensors similar to those sensors you are assembling today, each object will have real-time connectivity to the Internet and even being location-aware.
8. Now if you don't believe me, I would ask for each of you to look into your pockets. Do you have a device called a mobile phone? Yes? Everyone who doesn't have a mobile phone, put up your hand. You realise that you, because of what you have in your pocket, are already part of the 'Internet of Everything'. What is going to happen over the next five years is not just going to be about the billions of people carrying mobile phones, but that every lamp-post, home, roof-top, river and even tree will have an object that is connected to the internet.
9. Now if you imagine a world with tens of billions of objects; all smart, connected, actively measuring the environment and communicating – in a sense, what we end up with is the original experiment in London during the 19th century but on an unimaginable scale. The challenge will be: now that there is so much data out there, how do you join the dots?
10. In fact, some of you have done it in the sessions here and you realise knowing where the sun shines, the temperature, humidity, noise, traffic patterns and even how many people are in a room at any one time can make a big difference to the quality of life. It will affect the way we design and build Singapore, and the way we organise ourselves.
11. It will even lead to what I believe is a fairer and more transparent society. Let me give you an example of this. Now that every one of you can make a sensor, measure carbon monoxide, noise and light - the ability to measure and report has become commoditised and democratised. In the future, it is not only the Singapore Land Authority (SLA) that will know the details of every square inch of Singapore, but all of you as well.
12. What this means therefore, is that when we educate, empower and enable you; all of us will have a chance to participate in contributing to the designing, planning and building of our society - that is really what this is all about. To take advantage of a technological revolution, to empower each and every one of you with the necessary skills, tools and abilities so that you can play a real role in the future of Singapore. Of building Singapore, not SG50, but building the Singapore of SG100. Therefore, education is key and I am very glad to be here today. I want to congratulate the SLA for investing in geospatial education and giving all of you this opportunity through the Singapore GeoSpatial Challenge.
13. The other thing which we are announcing today is the Singapore GeoSpatial Scholarship. I understand that SLA is collaborating with Nanyang Polytechnic under a Memorandum of Understanding (MOU) to better proliferate the use of geospatial information and technology in Singapore. All these are essential efforts.

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14. I am also glad that our other tertiary institutions are working towards this same goal.
- a. The National University of Singapore (NUS) is starting a Master of Science in Applied Geographic Information Systems. This is the very first Masters in Geospatial Science in Singapore. This course will be hosted in the Department of Geography which is one of the top ten geography departments around the world. This opens pathways to an enriching career in applied Geospatial Science. The first cohort will start in 2016 so for those of you who are interested, please apply to NUS.
 - b. The Nanyang Polytechnic (NYP) has officially launched its professional development course which will cover geospatial topics and mobile-app development using OneMap. It is now open for enrolment for its first September intake.
15. I am also pleased to be here to present the Singapore GeoSpatial Scholarship award to our successful recipient today who is seated here with her parents. Launched last year, this scholarship is a collaboration between seven Singapore public agencies and I hope that the scholarship will continue to support deserving students as you embark on this interesting and challenging next step in your career. This scholarship is important not only for you as a person but also for us in Singapore, as Singaporeans. So you carry a heavy burden on your shoulders.
16. My friends, this year is SG50 and we celebrate how much have been achieved in the last 50 years. I mentioned earlier that Singapore has an advantage in location but Singapore will not be what it is today if we just sat still on that advantage. It is because Mr Lee Kuan Yew, the pioneer leaders and the pioneer generation of Singapore who worked hard, exercised imagination, re-created, rebuilt, redesigned and therefore, co-created a completely different Singapore.
17. Today, we are the beneficiaries of SG50. We are now equipping all of you with access to the tools, the skills and the capability to re-imagine, rebuild and redesign to build another Singapore of possibilities - for you, your children and grandchildren.
18. I congratulate all of you on this journey.
19. Thank you all for making this possible!