

SPEECH BY MR CHAN CHUN SING, MINISTER FOR TRADE AND INDUSTRY, AT THE LEADERS IN SCIENCE FORUM ON TUESDAY, 4 SEPTEMBER 2018 AT 8.30AM AT AUDITORIUM, LEVEL 2, MATRIX BUILDING, BIOPOLIS

Distinguished Guests,

Ladies and Gentlemen,

Good Morning.

- 1 Thank you very much for being here. It is a pleasure to meet all of you, as it is not often we get to meet so many leaders in science together. Thank you also for inviting a non-scientist to join you here; I don't profess to know science as well as you but I thought today I'd just share with you some perspective from a non-scientist.
- 2 We have heard about all the great work you have been doing, and now the question that I want us to ponder today is, how do we define success for all of us in this hall? Many people will judge our success from many different dimensions. Some look at input, some look at output, but I hope you will look at outcomes.

Outcomes as Success Indicators

- 3 Let me start with input. We started on this journey to build our own local scientific community many years ago. In fact, Chuan Poh shared with me that this journey started almost 30 years ago. The amount of money that we spent on the scientific community to build up capabilities is not small by any measure, especially if we take a look at it from the per capita basis.
- 4 But more important than the money we put in is the amount of talent that we are committed to sustain the scientific sector. Many countries also do that as and when they have the talent and resources, but we do it a bit differently and we have done so consistently. As far as the input measure is concerned, we do not believe in a feast-and-famine strategy, which is why over the last 30 years, we have invested consistently because our philosophy is that

many of the things that we do require a long gestation period. It does not do justice to our investment if we just have a feast-and-famine strategy when it comes to investment in science. And this is why we have consistently upheld investment in both talent and hardware. So by many measures, our input is not only significant and we should congratulate ourselves for being able to maintain this. But that cannot be our only measure of success.

5 If you look at the output indicator, we can also congratulate ourselves for doing considerably well, particularly as we build momentum. Even in biomedical science, which has a long gestation period for results to be seen, we are slowly but surely heading in the correct direction, and we are quietly confident that we will achieve breakthroughs in the coming years after many years of investment. But it is very difficult for the scientific community to tell people about its output. It is not often easy to measure what is done quantitatively. Even qualitatively, it is also difficult to convince people that you have done well. But therein lies the challenge. If we cannot convince people that we have done well, then the rest of the society will question if the resources put in are correct, and if they are in the right areas. These are valid questions that we all grapple with as managers of the science and technology budget and talent pool.

6 But perhaps today, I would like us to ponder, for all the investment we put in consistently over the many years, what would be the measure of success from the outcome perspective? I will list three sets of things which may be useful for us as we consider the outcome indicators.

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New Competitive Edge for Businesses

7 The first, coming from MTI, must be has science created new competitive advantages for our economy and society. Singapore is a small city-state and in the history of city-states, it is very difficult to survive without a hinterland, without access to resources and markets. Since 1965 when we became independent, we have never been able to compete on the basis of price or size. If we had to compete on price and size, it would have been a very different Singapore that we have today. We have always tried to compete

on the basis of the quality of our ideas, the innovation of our enterprise and so forth. And this is where your work is so important for us to continue this dream. If we truly believe that Singapore cannot compete on size and price, but on the quality of our ideas, the assurance that we can give people on the standards that we can deliver, then your work is of utmost importance, because it is through your work that we truly do not need to compete on the basis of price and size, but on the quality of our ideas, innovation and technology.

Translating Scientific Results to Improve Quality of Life

- 8 Having said this, we need to do more beyond what we achieved - how can we do even better to translate all the good work you have done into tangible outcomes. One measure of success from the outcome perspective is how has this scientific community help and enable our economy to have new competitive advantages because of your creativity and innovation.
- 9 And if you ask the man on the street, there can be another second outcome, and that is how well are we able to help the average Singaporean enjoy a better quality of life. How well we are plugged in to know their fears, concerns and aspirations so that we can address them to the fullest extent possible.

Inspiring the Next Generation of Scientists

- 10 Last but not least, you have yet another responsibility as leaders in science when it comes to the delivery of outcomes, and that is to inspire the next generation of people to come forward to join this sector and create all the wonderful outcomes that we intend. It is not easy.

Importance of Developing New Bilingualism

- 11 Now that I have laid out these three possible outcomes - to create new competitive advantages for our economy that is not based on size and price, to create solutions to enable our people to have a higher quality of life, to talk to their fears, concerns and aspirations, and to inspire yet another

generation of people to come forth to serve in this community - how can we close the gap. And today I come to my main point, which is that besides being leaders in science, we need to do a bit more. We need you and the partners that are not scientists to come together to develop a new skills set, **a new bilingualism** – people who are bilingual in science and business, people who are bilingual in science and social understanding, people who are bilingual in science and yet can be story tellers, people who are bilingual in science and yet have the necessary mind-set to put in place systems and regulations to better enable the community. These aspects of this new bilingualism is of utmost importance in our way forward. Let me go through each of this, one at a time.

12 Today we have very good output from our scientific institutions. Our challenge is not the output from our scientific institutions, but how to marry the output and translate them into outcomes for our enterprises. This is why every time I meet A*STAR and the scientific community, I have always asked if we have done all we can to translate many of the good output we have into enterprise, to connect the loop from research and innovation and enterprise, and to connect enterprise back to research and innovation. Now, this is a job not to be done just by the scientists. In fact, we need to mix the people from the enterprise and the people from the scientific community together. This is an area I think we can do much more structurally and organically. When I was in MIT, I was always very impressed by how they put different people in the same class. At the beginning of the course they do not talk to each other because they have different languages. But at the end of the course, they start to share common perspectives and a two-way flow of perspectives of what the business community look forward to and what the scientific community can push for in terms of ideas. In Singapore, this is something we can step up our efforts in and we will need to do this.

13 Now, the second area of bilingualism, is the understanding of our society's issues. And this is also where I also encourage both communities – from the scientific and social community – to have greater interaction, to know what are the issues that talk to our people's hearts, their fears, concerns and

aspirations be it in terms of healthcare, transport, or whatever else, because without that understanding and collaboration, it is very difficult for us to translate many of the good output that we have from the scientific community into tangible things that touch the hearts of our people.

14 Third, storey telling. I am very happy to hear that you are going to have this weekend festival to bring the kids and community into one-north. One-north is not a gated community; one-north has never been designed to be isolated from the community. We serve the community but we draw strength from the community as well and this is why I hope every scientific officer and every scientist in this room will be a great storey teller because you all have great stories to tell and you need to tell these stories to the next generation in the schools to inspire the very best and the most committed people to come and join this community, so that we can continue to have those breakthroughs for our economy and societies so that we are not dependent on price or size to survive.

15 Now the fourth aspect, is the importance of the role of government officials. Government officials who are in charge of regulations also need to be bilingual in science, and the scientific community must also help the government officials be bilingual in science and regulations. When you discuss many of the breakthroughs in artificial intelligence, robotics and so forth later, you will increasingly realise that we need to compete not just on the basis of science, but also on the basis of our regulatory agility. Our ability to use rules and regulations to enable innovation for us to progress at a faster pace than even our competitors. Many countries ignore this part of the equation; they just focus on the science. But science without a conducive operating environment in a larger society will only go that far. And this is where we need to work together.

Conclusion

16 So this is my simple wish, that as we go along, we continue to maintain our focus on inputs, to stay consistent, that as we go along we better understand the needs of the business and social communities, that we all develop new

competencies to all be bilingual in science and enterprise, science and social, science and storey-telling, science and regulations. If we can do all these, then your contribution will go way beyond just producing the scientific output. Your contribution will really be because you can help Singapore to continue to defy the odds of history, and not only surviving but thriving as a city-state.

17 And I have always said, city-states do not survive very well or very long in history because they always have problems with access to resources and markets. But in today's world, the competition is no longer just between countries based on size or price. In fact, today the most dynamic regions in the world tend to be cities, and cities like Singapore occupy a good position –big enough to have some critical mass, yet small enough for us to remain agile in how we regulate and how we push the ideas out to the community and how we link the community back to the private sector community.

18 If we can truly do this, then I am very confident that Singapore will continue to thrive in the next 50 years because we are unshackled from the constraints of history where we were once dependent on size, the amount of resources that we have, and unshackled because we have Singapore Unlimited - unlimited by size or geography. We can only be limited by our innovation, our creativity and our ability to bring this innovation and creativity in the forward edge of our business and community so that we can grow our enterprises not based on size or price, but based on ideas and innovation, that we can grow our communities not just based on who we are today but how we can use science to gather everyone together and create a better quality of life for all. And of all these, the most important thing is for us to make sure we continue to inspire yet another generation of the most-able and most committed people to come forth and serve this community, to journey this together for Singapore.

19 On that note, thank you very much for your contributions in the scientific community, and I just want you to know that your contribution is not just about your output in the scientific community, that your output in the

scientific community has a much wider impact on the entire Singapore history and when we move forward as a nation because it is your effort that will help us to continue to defy the odds of history, that we are never shackled by size or geography.

20 Thank you very much, have an enjoyable morning.

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