



**SPEECH**  
**YB DATUK SERI PANGLIMA MADIUS TANGAU**  
**MINISTER OF SCIENCE, TECHNOLOGY AND INNOVATION (MOSTI)**

**MALAYSIA 2050**  
**MEGA SCIENCE 3.0 NATIONAL FORUM AND EXHIBITION**

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**MATRADE HALL, LEVEL 3,**  
**MENARA MATRADE, KUALA LUMPUR**

Salam Sejahtera dan Selamat Pagi

Saya ingin mengucapkan terima kasih kepada Akademi Sains Malaysia (atau ASM) kerana menjemput saya merasmikan FORUM KEBANGSAAN MEGA SAINS 3.0 serta Pameran di bawah Program Flagship ASM iaitu Malaysia 2050.

Terlebih dahulu saya mengucapkan Selamat menyambut Hari Sains Sedunia yang disambut pada setiap 10 November sejak tahun 2001 seperti yang diisytiharkan oleh UNESCO. MOSTI juga bercadang untuk mengisytiharkan 10 November setiap tahun mulai 2017 sebagai Hari Sains Negara.

Saya juga mengambil kesempatan ini untuk mengucapkan tahniah kepada ASM sebagai badan pemikir Sains, Teknologi dan Inovasi (STI) yang ulung kerana melalui projek sebegini telah melahirkan idea-idea bernas untuk melakarkan masa depan Negara ke arah tahun 2050 secara strategik daripada perspektif STI. Pada hemat saya, ini merupakan satu usaha yang tepat pada masanya.

Para hadirin sekalian, izinkan saya meneruskan ucapan saya dalam Bahasa Inggeris.

1. It gives me great pleasure to be at the MALAYSIA 2050: MEGA SCIENCE 3.0 FORUM AND EXHIBITION this morning that showcases strategic economic sectors for Malaysia and more importantly, their positioning for future competitiveness.

### **New Economy that is STI Driven**

Ladies and Gentlemen,

2. Why are more and more governments adopting growth strategies that are heavily underpinned by science, technology and innovation (STI)?
3. In the last thirty days I have had the opportunity to learn first hand from Japan, Korea and Singapore. About 50 years ago, Malaysia was on par with these countries.
4. However, today when our GDP per capita is hovering around USD 10,000, Singapore's is five times more, standing at almost USD 53,000.
5. Meanwhile South Korea managed to jump from a mere USD7,000 per capita in 1997/98 up to USD27,000 today. They knew what they wanted, they were focused and they had strong leadership to pull private and public sectors together.
6. To put things into perspective, let us revisit the first three industrial revolutions. The first was triggered by the advent of production facilities powered by water and steam engines in 1784.
7. Fast forward to 1870, the second started when the discovery of electrical energy led to mass production line in factories.

8. Breakthroughs in electronics and information technology initiated the third version which further automated production.
9. Every revolution changed businesses and drastically impacted lifestyle. Like its predecessors, the 4<sup>th</sup> industrial revolution is characterized by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.
10. **The common denominator for all four industrial revolutions is technology!** Under the fourth revolution, evidently the value of technology is more pronounced than ever.
11. The value of every industrial sector will be primarily impacted by technology. Industries such as electrical/electronics, automotive, aerospace, transportation and telecommunication are natural adopters of cutting edge technologies to stay relevant and competitive.
12. The biggest impact of technology can be observed in traditional sectors such as agriculture, plantation and commodities whereby mechanization and automation reduce the need for labor.
13. Pervasive deployment of technology in these sectors translates into precision agriculture and plantation from 'farm to fork'.
14. My learned friends, history showed that Malaysia was not a participant in the first two industrial revolutions and furthermore, we played at the lower end of the innovation value chain.
15. In simple words, our role was restricted to being a user and assembler of technologies rather than inventors and innovators. This is evident in Malaysia's Electrical & Electronic industry which began

in the early 1980s, though the contribution is currently at 30% to our country's manufacturing output we have been assuming only the role of the host to mere assembling activities.

### **Shaping a Malaysia of tomorrow**

*Ladies and Gentlemen,*

16. We need to raise our game to be competitive. Knowledge is the currency of the new economy.
17. As such, in order to bring the Malaysian economic sectors to the next level, we must ensure the proliferation of knowledge intensive enterprises that leverage on science and technology. This will ensure disruptive innovation by our enterprises.
18. Under my leadership, I am positioning the Ministry of Science, Technology & Innovation (MOSTI) to be the backbone for Malaysia's sustainable economic growth as we navigate through the fourth industrial revolution.
19. It is easier said than done. I do understand that it takes visionary and strong leadership to consolidate existing resources and create collaborations where necessary.
20. Believe me when I say, Malaysia has all the right components to ride with the giants in the current wave of the Fourth Industrial Revolution. We have a talent base, infrastructure, funding system and natural resources.
21. The biggest problem in our STI ecosystem seems to be the proverbial story of about four people named Everybody, Somebody, Anybody, and Nobody.

22. Everybody thought that Anybody could do it, but Nobody realized that Everybody wouldn't do it. It ended up that Everybody blamed Somebody when Nobody did what Anybody could have done.
23. As a result, we ended up creating agencies after agencies with overlapping roles, to the extent of overstretching available resources.
24. Another significant problem of this scenario is the territorial mentality which limits collaboration and consortium initiatives that are very much needed to create commercially viable global products.
25. In leading the STI agenda of the nation, I cannot over emphasise that STI cannot be considered in isolation as it cuts across economic sectors, ministries and knowledge domains and should not be viewed as the purview of MOSTI alone. Today's event is a testament of the importance of STI in the industry sectors featured here.
26. We need to ensure an enabling ecosystem for STI to thrive not only now but in the future. This requires everyone to come together and play their part. **Communication and collaboration must become the order of the day.**
27. In shaping a Malaysia of tomorrow, firstly, the old mould of thinking and working must be cast away. As Albert Einstein once said and I have repeatedly mentioned, **"We cannot solve problems by using the same kind of thinking we used when we created them"**.
28. It is time to recognize this and take action. In order to remain competitive, we need to understand the forces of change and facilitate the development of knowledge enterprises driven by STI that can prosper in a diverse world.

## **National STI Masterplan**

29. With that, how do we ensure a more integrated and collaborative approach to make Malaysia a scientifically advanced nation? The answer lies in developing a National STI Masterplan.
30. The STI Masterplan will serve as a crucial governance tool to harmonise, consolidate and focus all of the nation's STI related initiatives and palyers in consonance with the national aspiration to become a high income, developed nation with an innovation-led economy.
31. I am pleased to announce that MOSTI through ASM will be embarking on developing the STI Masterplan next year.

## **Foresight Initiative by ASM**

32. Dear friends, as we move towards 2050, we have to ask ourselves what new economic areas should the nation identify and develop to ensure Malaysia's prosperity in the future.
33. We can no longer rely solely on the agriculture sector, the manufacturing sector as well as the oil and gas sector to be the main contributors to our economic pie.
34. In this regard, the foresight initiative by ASM including the Mega Science studies play an important role in identifying new niche areas for R&D that would create value in the new economy.
35. The five sectors being showcased today, namely, Furniture, Automotive, Creative, Tourism as well as Plastics and Composites are potential economic sectors of the nation to move up the innovation value chain.

36. The challenge is for these sectors to migrate to the new way of doing things rapidly enough and increase innovation capacity to create significant impact.
37. As we usher industry 4.0, it will undoubtedly revolutionise the way people live, work and interact with one another. We will see an escalation in interconnectedness of people, services and things through the internet. Welcome to the world of Internet of Things! **The ideas carried by the Jetsons, a cartoon series aired in the US in the 60s and in Malaysia in the late 70s has become a reality today.**
38. When it comes to implementing ideas and creating value to realise innovation, the key factor is people at the heart of global networks. People are the prime movers of innovation. As such, I cannot over emphasise STEM talent development.
39. While the Internet is a powerful enabler for people to connect and collaborate, we cannot stop at only developing infrastructure but must invest in ensuring that people are empowered through knowledge, creativity, skills, networks, values to bring about disruptive innovation.
40. In the manufacturing sector for example, industry players worldwide are preparing for greater automation and real time monitoring that can be executed through a push of a button.
41. Machines are expected to fully take over the cumbersome, dangerous and routine tasks as they would be able to deliver greater productivity and efficiency.
42. As for the role of people, how would this change in the new operating landscape? Their responsibilities will increasingly shift to knowledge work, process control and decision making.

43. In order to remain competitive, our industries must embrace industry 4.0 and our talent must move to the knowledge paradigm. This calls for shaping of a new mindset and sharpening of skillsets.
44. Whether it is carrying out R&D to discover new knowledge or applying knowledge to implement ideas and create value, talent is a key factor.
45. The workforce of 2050 will be made up of today's Generation Z (or, Gen Z), the post millennials and Generation Alpha (Gen Alpha) comprising those born from 2010 onwards.
46. Technology is a defining factor of Gen Z and Gen Alpha. Gen Alpha is predicted to be the most formally educated generation ever, the most technology supplied generation ever and the generation with the greatest wealth at their disposal.
47. When they enter the workforce, spatial cognition, robotics, and artificial intelligence would be common place.
48. Are our youth and young children being prepared for this future now? Will what they are being taught or learning today be relevant then?
49. This is perhaps the reason President Obama challenged US educators to go beyond measuring students cognitive ability to assessing if they possess 21st century skills such as problem solving, critical thinking, entrepreneurship and creativity.
50. We need to invest in nurturing the workforce of 2050, in particular by developing science, technology, engineering and mathematics (STEM) talent.

Ladies and Gentlemen,



51. As I conclude, I would like to remind everyone of a quote by Abraham Lincoln that says, “The best way to predict the future is to invent it”.
52. As the nation’s ‘Thought Leader’ in STI, ASM has a huge role to play in designing the future beyond 2020 that is sustainable, harmonious and prosperous, driven by STI. I look forward to the outputs of ASM’s Malaysia 2050 flagship projects starting with the Mega Science 3.0 studies being highlighted today and the ‘Envisioning Malaysia 2050 Foresight Report’ early next year.
53. With that, I would like to wish you all success in your deliberations and thank ASM once again for inviting me. Thank you.