

**ADDRESS BY MR THARMAN SHANMUGARATNAM, DEPUTY PRIME MINISTER AND COORDINATING MINISTER FOR ECONOMIC AND SOCIAL POLICIES AT LAUNCH OF DELTA ELECTRONICS-NTU CORPORATE LABORATORY ON 16 JUNE 2016 (THURSDAY) AT RESEARCH TECHNO PLAZA, NANYANG TECHNOLOGICAL UNIVERSITY**

Professor Bertil Anderson, President, Nanyang Technological University,

Mr Yancey Hai, Chairman, Delta Electronics,

Mr Cheng Ping, CEO, Delta Electronics,

Distinguished guests, ladies and gentlemen,

1. It is a pleasure for me to join you this morning as we launch the Delta Electronics - NTU Corporate Laboratory.
2. It is one of several initiatives under the Corporate Laboratory@University scheme – aimed at strengthening public-private collaboration, and in particular collaboration between universities and private companies that is focused on applied research.

*Delta-NTU Corporate Lab: Advancing the frontiers in IoT*

3. The Delta-NTU Corporate Lab is focused on cyber-physical systems, which form the backbone of the Internet of Things (IoT). Its research is aimed at generating impactful commercial opportunities, along four application tracks:

- i. Smart Manufacturing – leveraging on robotics and CPS to allow customised or low-volume/high-mix (LVHM) production to take place in factories. As an example, the lab will develop flexible production systems such as quickly reconfigurable shop floors. It has especial potential for SMEs. It allows players without either extensive volume or capital to respond to consumers who want goods customized to their own specifications, and to build customer loyalty.
- ii. Smart Learning – this track essentially aims to use machine learning capabilities to facilitate training. The

research includes real-time assessment of learners' abilities and level of engagement - so that instructors can determine how best to tailor learning to the learner, i.e. the best mode, pace and content.

- iii. Smart Living – another track, with diverse applications. By integrating CPS devices within a home and in the neighbourhood, older folk with health conditions can be monitored by their family members, giving peace of mind to both, and the medical diagnostics sent real-time to health professionals. Machine learning capabilities in the building environment too have potential - for e.g., enabling considerably greater energy saving, and reducing bandwidth requirements of sensor transmission to cloud.
- iv. Smart Commercialization. This fourth track aims to shorten the time-to-market, from technology development to commercialisation and consumer use. It takes a full value chain approach - spanning design, technology development, implementation and business creation.

- 4. In each of these areas, Delta and NTU aim for transformation. They are taking current technologies not just one step forward, but aiming for a step-change. Not just enhancing existing processes, but redesigning them entirely in light of new demands – whether for optimal, reconfigurable factory layout, or a step-change in energy efficiency.

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*Government's support for partnership and creating an innovation ecosystem*

- 5. The Delta-NTU Laboratory is an example of how the Government is seeking to catalyse innovation, in each of our key growth sectors.
  - a. It is an example of an important direction under our national RIE2015 plan. Through our Corporate Labs @ University scheme, we are putting resources into supporting collaboration between our IHLs and industry players. It is one of the key ways we are spawning research aimed at meeting commercial needs.

- b. We are not promoting corporate innovation on its own, however. We are integrating our efforts to support innovation, or advances at the frontier, with our broader initiatives to spread best practices and uplift productivity among the larger group of enterprises within each industry who are not yet close to the frontier.
  - c. And we are integrating this too with our SkillsFuture initiative, which will develop mastery of skills in each of our key industries, and encouraging cross-training within the industry to uplift capabilities as a whole.
6. In addition, we are exploiting the potential of geographical clustering. Proximity does help interactions, and helps knowledge to percolate more easily amongst researchers, innovators, scientists and entrepreneurs in the cluster.
- a. Delta-NTU corp lab is an example - located in the Jurong Innovation District that we are developing.
  - b. Once JID is fully-operational, even our students, especially post-grads, will benefit. When students perform research in areas with potential for commercial application, as identified by the industry, they pick up practical knowledge that helps them in academic learning itself. And it creates a natural continuum between education and the work they do once they graduate.
  - c. The presence of NTU will also make JID an important site for life-long learning, with working individuals returning to school, or combining work and school - to pick up the latest developments in their fields or refresh their skills, or to do applied research.
7. I am glad to hear that Delta and NTU are open to taking in skilled young adults – in fact, 6 PhD students each year - and giving them a platform to grow and find their footing in this industry. Also glad to note that you are also opening up new learning opportunities for over 50 of our research scientists and engineers, to develop their capabilities in IoT.

## ***Conclusion***

8. The new corporate lab between NTU and Delta Electronics embodies the spirit of collaboration that we are encouraging, the collaborations that will drive our industry transformation efforts in the coming years.
9. It has great potential, and will I am sure yield fruit for both NTU and Delta. I wish everyone in your team the best.

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