

SPEECH BY MINISTER FOR FINANCE HENG SWEE KEAT AT THE OPENING OF GREYFORM BUILDING ON 3 OCTOBER 2017 AT 1100 HRS, GREYFORM BUILDING

Ms Sim Ann

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Chairman, BCA

Ladies and Gentlemen

Good morning.

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1. Thank you for inviting me to join you to open Greyform Building. Congratulations, Chee Heng, Kenneth, the whole Straits Construction team and all your partners and stakeholders.

2. Straits Construction started off as a small company in 1969 and has now grown to be one of the major firms in the sector and an active advocate for construction productivity. Your efforts to achieve significant site productivity improvement at many of your projects were recognised this year when you received BCA's Construction Productivity Award – Advocates (Gold). Today marks another major milestone for you, and I congratulate you – not only for bringing your significant investment from concept

to fruition, but also for your efforts in the past five years accumulating lessons from your previous tender bids and overseas study trips to design this state-of-the-art facility.

3. Greyform Building is the second Integrated Construction and Prefabrication Hub, or ICPH in short, awarded under a public tender by BCA. ICPHs are significant developments, housing exciting innovations and technologies that can raise productivity in and bring new energy to the building industry.

a. Here at Greyform Building, you have robots to automate the manufacturing of prefabricated components such as columns, beams, walls and slabs. Where workers would otherwise have to manually prepare the moulds and formwork and pour concrete to produce these building components out on site, now they can work in a control room, operating machines that do this work for them instead.

b. You are applying Building Information Modelling (BIM) for productivity gains – not just to create 3D models for better visualisation of building plans, but to create detailed digital models of the precast and prefabricated building parts. These digital models generate the required list of materials and components, and are then converted to machine codes for automated production.

c. These are just some of the features I've heard about. Like many of you, I'm looking forward to seeing them.

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Construction Industry Transformation Map (ITM)

4. Let me briefly reflect on the significance of the construction sector, and its relationship with productivity.

5. The construction sector has been integral to the transformation of Singapore since independence from the early years of providing housing and essential

infrastructure, to creating an iconic skyline and a city that Singaporeans are proud to call home.

- a. In the last 15 years, the volume of our construction demand went up by almost 200% from 2001 to S\$26 billion in 2016.
- b. The sector will continue to play a critical role in our Future Economy as we rejuvenate our city and develop new growth areas such as the Jurong Lake District, and in Punggol and Woodlands.

6. With global capital project and infrastructure spending expected to grow to a projected US\$9 trillion in 2025, the built environment sector is set to be a key driver in the global economy.

- a. Asia will account for more than half of this spending.
- b. Countries near us – China, India, Thailand, Malaysia, Philippines, Indonesia, Australia, New Zealand and other economies – have healthy demand for sustainable infrastructure and productive construction technologies.
- c. These signal opportunities for our construction sector to expand beyond Singapore. In particular, those with innovative and productive methodologies will be better placed to create value for their partners in these markets.

7. We started a strong productivity push in 2010 when site productivity improvement was at 0.3% per year and, with hard work and partnership from all stakeholders, increased it to 2% per year.

- a. But challenges remain in the construction sector – the boom and bust cycle in the sector incentivises companies to rely more heavily on variable factors of production such as labour, and less on capital investments in new technologies. This is the productivity challenge for most construction industries worldwide.

- b. In Singapore, we must move quickly and decisively on several fronts to raise our productivity. For example:
 - i. We can create lead demand and rapidly increase supply capacity to bring down the costs of newer construction methods;
 - ii. We can facilitate more collaboration among companies in the value chain through the use of digitised construction plans; and,
 - iii. Our institutions of education and lifelong learning can supply the talent the industry needs, by preparing our students and helping mid-career professionals to fill the new and higher-skilled jobs that come with the new technologies.

8. Later this month, we will launch the Construction Industry Transformation Map, or ITM, at the Singapore Construction Productivity Week.

- a. There are challenges in the construction, which, like I said, are being felt worldwide. But new technologies and sustainability and resource considerations are providing impetus for productivity improvements.
- b. The Construction ITM will bring together the stakeholders to design and act on an integrated, targeted suite of initiatives, including some of what I just mentioned, to raise the productivity and competitiveness of the sector, thereby opening new and more opportunities for our companies and our workers.
- c. I urge our firms and industry players to take up the call to be a part of the ITM – bring your experiences and ideas to it, take advantage of its measures, work with others, raise your capabilities and groom your people.

Integrated Construction & Prefabrication Hubs

9. One key strategy is to make construction like manufacturing.

- a. This means using highly automated and digitally-integrated processes in ICPHs to produce finished products off-site on a large scale, for quick assembly at the construction sites.
- b. This requires earlier involvement of the contractors and manufacturers at the planning and design stage, so as to facilitate what we term Design for Manufacturing and Assembly, or DfMA for short.

10. DfMA, and the ICPHs which support DfMA, are critical for improving productivity in construction. How?

- a. First, ICPHs **optimise land use** by consolidating construction processes of many sites in a single facility.
- b. Second, they **improve labour productivity**. With the mass production of prefabricated components, our companies require less time and fewer workers to be on site to construct the buildings. We can also prevent delays from design changes and abortive works, which are more common when using traditional processes and construction methods.
- c. Third, the controlled and conducive manufacturing environment in an ICPH helps to **improve the quality of prefabricated components** and minimise disturbance to the surrounding residents.
- d. Last but not least, ICPHs **create new and higher-skilled jobs** that require multidisciplinary skills in construction, manufacturing, logistics and ICT. This provides meaningful challenges to meet the evolving aspirations of Singaporeans.

- i. I am glad to hear that some of the people working at Greyform are mid-career switchers who joined the built environment sector from other fields.
- ii. One example is Shi Weiyi, Anders who was attracted by the opportunity to work with robots and high-end technologies, and switched over from the oil and gas industry.

- iii. I hope, as the industry transforms, that more Singaporeans will choose to develop their careers in the construction sector.

Partnerships

11. Besides providing the hard infrastructure needed for the transformation of the sector, we will need a strong spirit of partnership within the sector and with the Government in order to realise our productivity targets and improve our competitiveness.

12. The Government is committed to working with industry to push the frontier. For instance,

- a. Firms can tap the **Land Intensification Allowance** scheme to defray the upfront capital cost of developing ICPHs through claiming tax reliefs.
- b. The Government has a **Productivity Gateway Framework** and the **Public Sector Construction Productivity Fund** to encourage and help our public agencies adopt productivity-boosting technologies.
- c. You would also be aware of BCA's **Construction Productivity and Capability Fund**, and the comprehensive curriculum offered by the **BCA Academy**, which help to build capabilities and expertise in the new technologies.
- d. Last week, Minister for National Development Lawrence Wong announced that we will be bringing forward a further \$700 million worth of projects to boost the sector. And we will **place more emphasis on the non-price components** when evaluating public project tenders, so as to incentivise our companies to focus more on productivity, quality and safety. Minister Wong also said we will review our regulations to reduce compliance costs for companies.

13. BCA has looked into what more it can do to facilitate the transformation of the industry. Today, I am happy to share that BCA will start to provide a forecast of the number of tenders with specified DfMA technologies to be called in each year.

- a. Currently, BCA provides a forecast of construction demand at the start of the year, so as to facilitate better resource planning by our built environment firms. This has been BCA's practice since 1990, and the industry has found it to be useful as it provides better visibility of upcoming workload for informed business decision making.
- b. As the adoption of DfMA becomes more prevalent, BCA's new move will be a service to the industry. This provides greater resolution for firms – they have the runway to plan ahead how best to deploy resources, as well as to seek out partners and collaborators with whom they can join forces to integrate their complementary areas of expertise.
- c. BCA's first forecast is available on their website from today onwards. The projects will be categorised according to the type of DfMA technology and project value.
- d. To give you an early sense, from now till the end of 2018, we expect about 60 DfMA tenders to be called for public sector projects and Government Land Sales sites. Just 4 years ago, we had fewer than 10 such DfMA tenders a year. The growing number of firms investing in DfMA technologies will have these opportunities to look forward to. Other companies can also know where the opportunities lie ahead and make more informed investment decisions.

14. The efforts of BCA alone will, however, not be enough to bring about successful transformation of the sector. We need all the stakeholders in the industry to tackle common challenges, push the envelope, and test new opportunities as a cohesive whole. This is the defining character of all our ITMs. I am encouraged that we currently have strong collaboration and collective ownership of the challenges facing the industry.

- a. For example, firms have shared feedback regarding training schemes available for high skilled jobs, and provided suggestions raising awareness of internationalisation schemes that firms can tap on, and sharing stories of firms that have successfully ventured abroad. This highlights pertinent issues to the Future Economy Council, and helps shape the ITM's measures to meet the built environment sector's unique challenges.
- b. Straits Construction has been active in this process too, joining many council members of the Singapore Contractors Association Limited (SCAL) to provide valuable input during the preparation of the Construction ITM this year. I understand that Kenneth also initiated an engagement session to bring together C-suite leaders from many contractor firms to gather their feedback.
- c. I commend and thank the players in the industry, including Straits Construction, for your spirit in pulling together to share opportunities and tackle challenges as one. It is by working together in partnership, in collaborating in order to be competitive, that we can all move up together.

Conclusion

15. The built environment sector has come a long way since the days when Samsui

women and coolies hauled cement and laid bricks by hand.

- a. With new technologies and methodologies have also come new job and business opportunities. And we can expect more ahead.
- b. The upcoming Construction ITM will highlight key strategies and measures for the transformation of the sector. I warmly invite workers, companies, industry associations, research and educational institutes to

work together with one another, and with the Government, to drive the transformation and growth of the sector.

- c. Times and technologies have transformed, but, I believe, if we face changes ahead with the same frontier spirit of the pioneers of our construction industry, we can build a robust and vibrant industry for the future.

16. Congratulations again to Straits Construction and your partners on the opening of Greyform Building. I wish you success in your innovation and productivity journey, and look forward to your partnership with the Government and other partners to bring the construction sector to a new frontier.

17. Thank you.

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