Keynote Address by

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Theme:
"Enhancing the Construction Industry Through IR 4.0"

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[Final salutations to be provided on event day]

[Slide 1]
Distinguished Speakers,
Tan Sri, Dato' Sri, Datuk-Datuk, Datin-Datin,
Ladies and Gentlemen,

Assalamualaikum Warahmatullahi Wabarakatuh, Salam Sejahtera and a very Good Morning to all of you here today.

1. First and foremost, I would like to take this opportunity to convey my sincere thanks and appreciation to the organiser, the Faculty of Architecture, Planning and Surveying of Universiti Teknologi MARA Shah Alam, for inviting me to deliver the keynote address for the inaugural International Conference on the Built Environment and Engineering or IConBEE2018. On behalf of the Construction Industry Development Board (CIDB), Malaysia, I extend warm greetings to everyone here.

2. It is indeed an honour to be here among distinguished guests, speakers, and participants to share with you Malaysia's vision for the construction industry and the steps we are taking towards making it a reality by 2020.

Ladies and Gentlemen,

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3. "Enhancing Construction Industry Through IR 4.0" - The theme of this conference is indeed very relevant. We are living in the digital age, where technology plays a big role in our daily lives and work. In business, technology is advancing in almost all areas and transforming how industry functions in the process. From smart fridges to Artificial Intelligence or AI-driven Customer Relationship Management, the synergy between traditional industry practices with technology is the dawn of a new industrial age.

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4. Let me begin by saying that the construction industry is no stranger to technological disruptions. New technologies throughout the ages have enabled builders to construct bigger and better buildings with higher quality and efficiency. Today, technologies such as 3D printing, building information modelling (BIM), and integration of design and off-site component-based assembly - such as the Industrialised Building Systems (IBS) - are evolving fast and coming of age.

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5. In Malaysia, the construction sector is a key engine in driving the country's economic growth, consistently recording a higher GDP growth year-on-year as compared to the national GDP since 2012, surpassing the performance of all other economic sectors in the country. As a key component of the economic well-being of the nation, the industry needs to be resilient to challenges for both today and tomorrow, especially when faced with technological disruption.

Construction Industry Transformation Programme (CITP) 2016-2020

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6. As such, raising the productivity level of the construction industry is a high priority in the Construction Industry Transformation Programme (CITP) 2016-2020 which comprises of four strategic thrusts: Quality, Safety and Professionalism; Environmental Sustainability; Productivity; and Internationalisation.

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7. CITP was specifically developed to address existing issues in the industry and craft a new industry culture that is modern and world-class. Specifically, it seeks to more than double the productivity levels of the construction sector, with commensurate higher wages of RM 61,939 by the year 2020, from the base year of 2011. As of 2017, the productivity per worker is RM 40,105, which is a significant increase from RM 22,464 per worker in 2011.

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8. Digitisation, integration and automation of construction methods and practices are key areas of focus under the Productivity strategic thrust of the CITP. The Construction Industry Development Board (CIDB) is the custodian and champion of the CITP, and works closely with all stakeholders to make this a reality.

Ladies and Gentlemen,

Construction Technologies in Industry 4.0

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9. Industry 4.0 applications involve large scale deployment of technologies such as Big Data Analytics, Artificial Intelligence and the Internet of Things (IoT) to increase automation of processes, improve communication, as well as provide for higher productivity through better monitoring, self-diagnosis and data analysis.

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10. For the construction sector, Industry 4.0 has the potential to revolutionise the entire building life cycle - from how physical structures are designed, to how they are built and maintained. This automation enables much smoother processes for companies and minimises worker exposure to mundane or dangerous tasks and allows them to focus on more productive activities.

Building Information Modelling (BIM)

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11. At the design stage, intelligent technologies can be applied to Construction Design Management (CDM) to identify areas where efficiency can be increased and potential problems avoided. In Malaysia, facilitating the adoption of Building Information Modelling (BIM) -- one of the technology subsets of CDM -- has been identified as a key sectorial game changer under the CITP.

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12. BIM helps teams visualize physical and functional characteristics of a project design in a virtual 3D format. The benefits of BIM are many as it enables consultants and contractors to build with more accuracy, fewer errors, less waste, better safety, improved efficiency, and shorter time frame.

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The potential of BIM to reduce construction costs and avoid design problems right in the planning phase was the main impetus behind push to increase adoption of BIM in the industry. As such, we are working towards mandating the use of BIM Level 2 for public projects worth RM 100 million and above.

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13. Another key component of Industry 4.0 is access to accurate, real-time data at all stages of a building's lifecycle. Employing Big Data Analytics, builders can achieve time and cost efficiencies and reduce costly errors. In fact, four out of the six key initiatives that make up the Productivity strategic thrust contain

elements of digitalisation and the use of big data to spur productivity levels in the industry. With knowledge and evidence-based decisions, we will be able to steer the construction industry towards increased productivity and efficiency as envisioned under the CITP.

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14. However, I do understand that there are concerns among industry stakeholders regarding data sharing, especially security and confidentiality issues. As you may know, adoption of BIM is still relatively low at 17% in Malaysia[1], as compared to the United States of America at 71%[2], Singapore at 65%[3], and the United Kingdom at 54%[4].

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15. That being said, I believe the various stakeholders can work this out in order to achieve this mutually-beneficial goal. I'm glad to note that several other government agencies and professional bodies, in collaboration with CIDB, has been making great progress in this direction already, where we have developed or are developing several Big Data resources for the construction industry.

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16. Towards this end, I would like to highlight some of the key initiatives undertaken, and successes achieved as we push forward our agenda of transforming the Malaysian construction industry to become digitally-savvy, modern and advanced in its processes and systems.

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17. Furthermore, CIDB through the support of the Ministry of Works established MyBIM Centre in November 2017, which serves as a one-stop resource centre to promote and increase the use of BIM amongst industry players. MyBIM Centre was introduced as a means of providing the industry with a more cost-effective avenue in implementing BIM. The Centre features

[1] Malaysia Building Information Modelling Report 2016, CIDB Malaysia
[2] Construction Market Report 2014, McGraw Hill
[3] CIDB Survey 2014, Construction Industry Transformation Programme 2016-2020
[4] National BIM Report 2016, NBS

state-of-the-art facilities that enable users to model and visualise building projects in a simulated environment. The MyBIM Centre also housed the National BIM library where users can download and use any of the BIM objects and materials listed in the library.

Industrialised Building Systems (IBS)

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18. Another Industry 4.0 technology identified under the CITP is Industrialised Building Systems (IBS). We want to move away from labour intensive activities, and move towards industrialising the construction industry with IBS. Industry experiences around the world has shown that IBS adoption is able to speed up delivery time, improve overall quality, ensure better safety, and reduce construction waste.

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19. On this score, I am glad to note that there is an increasing trend in IBS usage within the Malaysian construction sector. As such, we are looking at making IBS mandatory by 2020. Meanwhile, CIDB is actively engaging all stakeholders to create awareness about IBS benefits and technologies, and champion its adoption across the industry.

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20. It must be mentioned that the initiatives introduced cover the entire construction ecosystem, involving both the public and private sectors, different levels of authorities as well as different sizes of industry players, to ensure that IBS awareness and adoption is understood and realised across the entire construction value chain. These initiatives include:

- Drive scale of IBS adoption via public sector projects;
- Drive scale of IBS adoption via private sector projects; and
- Propel IBS supply chain via economic mechanisms.

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21. As a part of the initiative to drive scale of **IBS adoption through public sector projects**, the government of Malaysia, since 2008, has mandated that all public projects worth above RM10 million must adopt IBS and achieve a minimum IBS score of 70. I am pleased to share that, as of June 2017, it was reported by the Implementation Coordination Unit of the Prime Minister's Department, that 77.8% of public projects, or 1,113 out of 1,431 public have adopted IBS and have successfully achieved an IBS score of 70. Moreover, the number of public projects that complied with IBS requirements have increased by 21.74% in 2017 and I am confident that this will continue to grow further in the years to come.

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22. On the initiatives put in place to **drive scale of IBS adoption through the private sector**, IBS has been made compulsory for all private projects worth above RM50 million and to achieve a minimum IBS score of 50. These mandates are currently being implemented in stages from 2018 up to 2020. Through these private sector mandates, we expect to see more impact in terms of economies of scale as there are significantly more private projects compared to public projects constructed annually. For example, in 2016, private projects made up for 77.8% of the total construction projects as compared to public projects, which stood at only 22.2%.

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23. Several **economic mechanisms have also been introduced to increase IBS acceptance and adoption** in the country. These economic mechanisms include tax holidays for qualified local IBS manufacturers that was introduced in 2016 as well as import duty exemptions for heavy machinery and equipment, in order to provide a viable environment for IBS growth.

Ladies and Gentlemen,

24. These are just some of the Industry 4.0 initiatives that CIDB is championing in the Malaysian construction industry. But there are new

technologies constantly being developed that are specifically designed to address the needs of the construction sector. These vastly improve project quality, efficiency and safety from design, planning, construction and maintenance of a project.

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"Driving Construction Excellence Together"

25. In Malaysia, we are seeing the take up of these initiative among stakeholders. However, in order to meet the CITP's objectives by 2020, the Malaysian construction industry needs to achieve a critical mass of acceptance and implementation. Approaching these changes with a positive attitude will speed the transition and allow stakeholders to quickly realise the productivity and quality gains.

26. The Malaysian government is committed to advancing the use of technology in the construction industry as we recognise that it will certainly benefit the industry and its entire value chain. With the implementation of such technologies, I am confident the industry will be able to lift itself to be one that is known for its high quality, safety, environmental-sustainability and high productivity.

27. Of course, adopting these new process and technologies requires change. In reality, this requires an initial increase in costs for staff training, process implementation, and new technologies. However, for the Malaysian construction industry to move forward as a whole, there needs to be the will among all stakeholders to make this shift – "driving construction excellence together" as per the underlying principle of the CITP.

Ladies and Gentlemen,

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Facilitating the Construction Sector's Shift to Industry 4.0

28. CIDB has the mandate to bring the Malaysian construction industry to the next level of progress and establish a new standard for what is achievable. As such, CIDB will continue to engage with stakeholders on the one hand and on the other, establish the quality standards and regulatory ecosystem that will sustain the industry into the future. To facilitate the construction sector's shift to Industry 4.0, CIDB also provides various capacity-building programmes as well as other resources.

29. On **People**, we are working to bridge the knowledge gap and develop a highly-skilled talent pool that are trained in the best construction technologies and practices. This will be achieved through educational and awareness initiatives as well as skills accreditation. We are also looking at streamlining and integrating certain systems and **processes** to set a clear procedure when it comes to regulatory requirements for the industry to adopt new technologies and practices.

30. On **Technology**, we will be introducing the right kind of infrastructure and tools into the construction industry that reflect the direction we want to take. And finally, on Policy, where we will be looking towards increasing discourse with relevant Ministries and Agencies to provide incentives for the industry players who adopt positive change.

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31. In light of the technological disruptions overtaking many well-established industries, such as transportation, food and retail, it is no longer an option but a necessity to adopt the latest technological advances. To survive and thrive in the Fourth Industrial Revolution, or Industry 4.0, it is imperative that the construction industry embrace digitisation and technological disruptions and

transition from being a labour-driven industry to a knowledge-driven one.

Ladies and Gentlemen,

Conclusion

[Slide 21]

32. Before I conclude, I would like to express my appreciation to the Faculty of Architecture, Planning and Surveying of Universiti Teknologi MARA Shah Alam for inviting me to share about where the Malaysian construction industry is headed. I believe this is a great platform where we can share ideas that would be helpful to further improve the construction industry in Malaysia, and ensuring its continued prosperity in the future.

33. I would like also to thank all of you for your attention, and I wish all of you a fruitful day ahead.

Thank you.