

CUSE Newsletter

A semiannual newsletter of Regional Centre for Manufacturing Systems Engineering, Chulalongkorn University (Chula Systems Engineering - CUSE)

In This Issue

In conversation 2

WMG Overseas Award 3

CU Rankings 4

Research Corner 6

CUSE Office.

p. +6622186804
m. +66649834495
f. +6622186805
e. cuse.chula@gmail.com
a. 3rd Floor, Building 4,
Faculty of Engineering,
Chulalongkorn University.
w. <https://cuse2.eng.chula.ac.th>

Message from the Director



The importance of the diaspora advantage and international mobility in present-day engineering management higher education cannot be overemphasised.

The diaspora advantage is the ability of people who have lived or worked in multiple countries to bring a unique perspective and skillset to their work.

This can be a valuable asset for engineering managers, as it can help them better to understand the needs of their customers and to develop innovative solutions to complex problems.

International mobility is the ability of students and professionals to move and work in different countries. This is becoming increasingly important in the globalised economy, where companies are increasingly operating across borders.

CUSE is committed to providing its students with the opportunity to develop the diaspora advantage and international mobility skills that will make them successful in today's global economy. We offer a variety of initiatives that support internationalisation, including:

- A global curriculum that includes study modules on aspects of international business, industry, technology, and management
- An international classroom that encourages lively exchanges of opinions among students from various backgrounds
- Opportunities for students to take up study modules at Warwick Manufacturing Group, University of Warwick and eight overseas centres in Europe and Asia
- Research projects supervised by highly-experienced and internationally-known advisors
- A strong international alumni network that can provide support and networking opportunities

I encourage you to take advantage of the opportunities that CUSE offers to develop your diaspora advantage and broaden your international view. By doing so, you will be well-positioned to succeed in the global engineering management workforce.

Chuvej Chansa-ngavej
(Associate Professor Chuvej Chansa-ngavej, PhD)
CUSE Director

In conversation with **Sudev Kumar Shah** Management Consultant, Orient International Relocations, Nepal

Why do you apply for the dual degree at WMG? (CUSE)

I was sure that I wanted to do something in the domain of supply chain management, even before I started my undergraduate degree. Unfortunately, in Nepal, we did not have any schools that could provide such a course. To his end, CUSE was regarded as an immense opportunity to me, as it provided not only a supply chain management program taught by experienced module tutors (from the UK) but also a supply chain engineering program that allowed me to exercise what I had learned in class in a real business project.



What are the benefits of our program from both academic and practical perspectives?

There are a number of benefits that I have gained from this program, in both terms.

When it comes to academic perspectives, during the program, we have been directly trained by experts who work in globally well-known corporations, such as Rolls Royce, Ford, and many more. They have provided us insights into real and contemporary businesses — rather than an outdated concept with no current-day applications.

When it comes to practical perspectives, getting two graduate degrees from two prestigious universities is a big plus to me, as they could open up new opportunities to me — not only in Thailand or the UK but also in any countries around the globe.

What are your impressions regarding our program?

I do like all parts of the program. For instance, it was interactive, even though I had completed most of my classes online (due to the COVID-19). At first, I was expecting it would be somewhat difficult, but the module tutors, as well as my thesis advisor, had sufficient and reliable online tools that the students could use to complete the tasks.

All in all, the program is wonderful and I would highly recommend people to come and join this program.

Please give us comments related to the program, learning environment, working opportunity, thesis advisor, or anything that you want to say.

First of all, I have met a number of friends — some of which are engineers, accountants, businessmen, or even pharmacists — at the CUSE, which helps extend my current network to a great extent. My thesis advisor, namely Dr. Pisit Jarumaneeroj, is very analytical, competent, and supportive. He does not spoon-feed me; rather, he guides me in the right direction. Whenever I have a query regarding the project, he always provides a streamlined answer with logical reasoning which helps me in clarifying my doubts. Finally, I do appreciate the schedule of each module provided by the CUSE, as it well gives me time for both working and studying at the same time.



WMG Overseas Award

CUSE would like to congratulate Mr. Padipat Mattayasinchai who won the WMG Overseas Award for his academic excellence at the May 2023 Examination Board meeting.

CUSE Directorial Meeting

On June 6, 2023, the directorial team, including (i) Prof. Dr. Supot Teachavorasinskun (Dean of the Faculty of Engineering), (ii) Prof. Dr. Pakorn Adulphan, (iii) Mrs. Pimjai Leeissaranukul, (iv) Assist. Prof. Dr. Rawin Raviwong, (v) Assoc. Prof. Dr. Chuvej Chansangavej (CUSE Director), along with Prof. Dr. Parames Chutima (CUSE Senior Advisor) and Assoc. Prof. Dr. Pisit Jarumaneeroj (CUSE Secretary), has met and discussed regarding the operations of CUSE in the previous academic year.



Commencement Ceremony



**Chulalongkorn University Commencement Ceremony
(2022 Academic Year)**

On behalf of His Majesty the King, Her Royal Highness Princess Maha Chakri Sirindhorn will graciously preside over Chulalongkorn University's Commencement Ceremony for the 2022 Academic Year on Thursday 5th, Friday 6th, and Saturday 7th, October 2023.
CUSE would like to congratulate 9 graduates, who will be attending this forthcoming ceremony.



CU
Rankings

Chulalongkorn University has been ranked No. 1 in Thailand for the 4th consecutive year and top 17 in the world by THE Impact Rankings 2023 — the first global performance rankings that assess universities against the United Nations' Sustainable Development Goals.

WORLD'S TOP 17
GLOBAL IMPACT
By THE Impact Ranking 2023

Chula
World's
TOP 17

for
Global Impact
No.1 in Thailand for
4th Consecutive Year

THE IMPACT
RANKINGS 2023

Among 1,591 universities from 112 countries, Chulalongkorn University made it to the world's Top 100 in 9 areas which are as follows;

- SDG3 – Good Health and Well-being ranked 11th out of 1,218 institutions worldwide
- SDG4 – Quality Education ranked 78th out of 1,304 institutions worldwide
- SDG8 – Decent Work and Economic Growth ranked 61st out of 960 institutions worldwide
- SDG9 – Industry Innovation and Infrastructure 24th out of 873 institutions worldwide

SDG11 – Sustainable Cities and Communities placing 52nd out of 860 institutions
 SDG12 – Responsible Consumption and Production ranked at 75th out of 674 institutions
 SDG14 – Life below Water ranked 55th out of 504 institutions around the world
 SDG15 – Life on Land ranked 47th in the world out of 586 institutions
 SDG17 – Partnership for the Goals placing 16th in the world out of 1,625 institutions



Chula - THE Impact Rankings (2022-2023)



Chula #17
in Global Rank
(2023)



	OVERALL RANKING		QUALIFYING SDG (26% OF OVERALL)		QUALIFYING SDG (26% OF OVERALL)		QUALIFYING SDG (26% OF OVERALL)		QUALIFYING SDG (26% OF OVERALL)	
	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
Chula - Global Rank	#=16 of 1,410	#17 ▼ of 1,591	#=16 of 1,101	#11 ▲ of 1,218	#101-200 of 1,180	#78 ▲ of 1,304	#67 of 849	#=61 ▲ of 960	#26 of 785	#24 ▲ of 873
Chula - Score (Normalised Score)	95.2 (-)	94.8 (-)	89.0 (93.0)	88.1 (93.7)	68.7 (71.9)	74.8 (80.4)	72.3 (81.2)	74.4 (88.0)	98.1 (98.0)	99.0 (98.9)



	SDG 11		SDG 12		SDG 14		SDG 15		MANDATORY QUALIFYING SDG (22% OF OVERALL)	
	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
Chula - Global Rank	#66 of 783	#=52 ▲ of 860	#80 of 604	#=75 ▲ of 674	#=26 of 452	#55 ▼ of 504	#16 of 521	#47 ▼ of 586	#10 of 1,438	#=16 ▼ of 1,625
Chula - Score (Normalised Score)	82.6 (87.2)	82.3 (87.9)	77.8 (82.5)	79.9 (85.1)	86.9 (88.7)	75.6 (77.9)	90.4 (92.3)	81.3 (83.1)	97.9 (97.9)	95.6 (96.7)

Chulalongkorn University's success in the THE Impact Rankings 2023 placing 17th in the world and 1st in Thailand reflects its firm commitment to being a world-class university that places significance in terms of SDGs Impact and contributing to societal innovations and sustainable development. For more information on these university rankings you can access <https://www.timeshighereducation.com/impactrankings> Source: <https://www.chula.ac.th/en/news/119157/>

Research Corner

by Assoc.Prof. Pisit Jarumaneeroj, the Secretary of CUSE

Ladkrabang Inland Container Depot (LICD) is the first and only containerized dry port in Thailand. According to the State Railway of Thailand (SRT), the LICD has been receiving an increasing amount of cargo volume each year. The quantity of twenty-foot equivalent units (TEUs) handled at the LICD has seen a significant growth of over 200% since its establishment in 1996. The two key drivers that help boost container flow at the LICD are its strategic location and infrastructure. In terms of location, the LICD is located close to the majority of Thai suppliers and the two main seaports, namely the ports of Bangkok and Laem Chabang, with a combined annual capacity of over 8.7 million TEUs. Furthermore, the LICD is equipped with rail connections not only to these seaports but also to a number of regional industrial estates, which further help connect them with a water gateway to international trade.



Due to the rapid growth of container flow at the LICD, the Port Authority of Thailand (PAT) has thence decided to redesign the LICD so that it could serve as a transportation hub with improved connections to other inland terminals and regional seaports in Southeast Asia. Although the LICD is currently undergoing a major transformation, at both strategic and operational levels, according to the PAT's multi-phase development plan, it is somewhat difficult to evaluate the current performance of LICD, as its present operation involves several gate operators performing different handling operations within the same site and with the same infrastructure.

In order to properly assess the operational performance of LICD, Assoc.Prof. Pisit Jarumaneeroj has developed a discrete-event-simulation-based framework that allows related players to conduct more detailed analyses under different scenarios — which, in turn, helps enhance the utilization of dry port and the respective multimodal transportation network concurrently. While such a framework has been specifically constructed for the LICD, it could also be extended to other dry ports or similar logistics-related facilities with the same or different container handling equipment, which is worth exploring in the future.

Those who are interested in this paper may download the full paper via the following link without charges. <https://doi.org/10.1371/journal.pone.0278649>.

Evaluating the long-term operational performance of a large-scale inland terminal: A discrete event simulation-based modeling approach

Inland terminals, or dry ports, have played an important role in multimodal transportation networks as transportation hubs that provide connections between seaports and hinterland economies. While important, evaluating the operational performance of a dry port is especially challenging since it depends not only on internal factors, such as the variety and number of container handling equipment (CHE) deployed, but also on other external factors, including changes in transportation policies and container demands experienced by a dry port. To properly evaluate the holistic performance of a dry port while considering all the aforementioned factors, a discrete event simulation (DES) framework is herein developed and applied to the Ladkrabang Inland Container Depot (LICD) — one of the largest dry ports in Southeast Asia — under various operational settings. Despite complicated internal operations, the devised DES framework has shown itself useful in the analyses of LICD, due largely to its flexibility that allows users to include sophisticated operational rules into models. According to our computational results, the current LICD operation is markedly ineffective as the usage rates of all CHE types are relatively low and varied across gate operators — especially the yard truck whose values range between 2.46% and 11.15% on yearly average. We also find that, by redesigning the LICD and its internal operations, the LICD's performance could be substantially enhanced — even with fewer numbers of CHE. Regarding the four CHE types, the reach stacker seems to limit LICD's capability, as its utilization tends to first reach the maximum allowable rate of 75%, while the rubber tyred gantry crane could help boost the usage rate of yard trucks, which, in turn, results in reduced container dwelling times. Nonetheless, the modified LICD could accommodate up to 140% of the current container demand before it experiences operational difficulties induced by the saturation of container flow from rail transportation.

Motto

Those who could think would thrive over those who could do.
Engineers, though, had better strive for both, i.e. Think - and do - as well.

Professor Phra Charoen Wisawakam
Longest-serving Dean of Engineering, Chulalongkorn University
(from 11 June 1929 to 18 June 1961)