Research

DEMAEX-SIM Simulator latest innovation by Dr. Lee Chia Kuang

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GAMBANG, 15 June 2021 - DEMAEX-SIM or DEMATEL EXCEL Simulator is the latest innovation from a researcher and senior lecturer from the Faculty of Industrial Management, Universiti Malaysia Pahang (UMP), Dr. Lee Chia Kuang, 36.

According to him, DEMAEX-SIM can provide a systematic approach to identify important criteria and risk factors in Excel format, based on the DEMATEL algorithm or Decision Making Trial Evaluation Laboratory.

“It collects input from decision makers through questionnaires that are available online.

“The design of the DEMAEX-SIM system is based on a cloud-based system that uses cascading style sheets (CSS) and HTML by Bootstrap.

“This innovation has also successfully applied the DEMATEL algorithm for data generation into Excel format,” he said, who received his doctorate degree from The University of Auckland, New Zealand.

In addition, these data can be used for more comprehensive risk simulation purposes such as Monte Carlo analysis.

He said the DEMAEX-SIM study was explored and led individually.

“DEMAEX-SIM collects input from decision makers through questionnaires that available online.

“Based on the factors and criteria proposed, the decision makers will make a pairwise comparison.

“The collected data will then be analysed by the DEMAEX-SIM system, namely consistency and reliability analyses such as corrected item-total correlation analysis and Cronbach’s alpha reliability test.

“After data filtering is done, the critical factors or criteria will be separated into causal domain and effect domain in Excel format.

“The analysis can be used for the next phase, such as risk simulation (Monte Carlo analysis).

“This innovation indirectly enables decision makers (professional managers), scholars and researchers to identify critical factors, critical risks and critical criteria effectively, consistently and efficiently.

“It also allows learning based on experience, either theoretical or practical, especially in the field of

Project Management," he said, who has expertise in the field of Project Management.

The research officially started on 27 June 2019 (with research grant funding) and is expected to officially end before 26 March 2022.

This Kedah-born said DEMAEX-SIM is a continuation of the results of his first study, DEMATEL Digraph.

"The idea for this product study started in mid-June 2018 when I managed to process the Dematel algorithm in Excel after reviewing high-impact research articles on Dematel analysis.

"In early January 2020, I found that there was no software capable of performing consistency and reliability analyses on DEMATEL data to be processed in Excel format.

"DEMAEX-SIM is able to analyse and generate DEMATEL data for risk simulation efficiently and effectively.

"This has offered opportunities for me to innovate," he said.

This innovation also helps solve project and industry problems that require effective methods to identify important and critical components of complex systems.

According to Dr. Lee, the initial planning of this study includes commercialisation activities for DEMAEX-SIM.

"This product can utilise the element of lifelong learning through microcredential training and scholarly and research activities, especially in the field of project management.

"This product is developed through MTUN Commercialisation Fund.

"This product also bagged gold medals at CITREx 2020 and International Award of Merit at The Malaysia-Croatia Technology Exchange 2021 competition and a silver medal at MTE 2021.

I hope that this innovation can be further developed to be applied in microcredential courses that can cultivate lifelong learning among communities and project-based industries and widely used for scholarly activities such as research and publication.

"My other product is DEMATEL Digraph," he said.

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