

CELEBRATING  
COMMERCIALISATION  
YEAR 2014

# iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention  
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exposition 2014

INNOVATEUR  
wannabe!  
2014

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UNIVERSITI TEKNOLOGI MARA  
MALAYSIA

*Bridging  
the valley of death :  
advancing the  
commercialisation  
of research*

RESEARCH BOOK

# iiindex 2014

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innovation  
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## FOREWORD

The Honourable Minister of Science, Technology and Innovation (MOSTI) has launched 2014 as Malaysia Commercialisation Year 2014 (MCY2014) with the theme Science Technology and Innovation (STI) for Wealth Creation. In line with this theme, Invention, Innovation, Design & Exposition 2014 (iidex2014) is an annual exposition organized by UiTM and is the ultimate platform to highlight and commercialise new inventions and innovations. Researchers and inventors will exhibit their products which cater to the needs and wants of the community and the country.

The iidex2014 creates a new dimension by fusing two competitive concepts, a competition among innovative products and a competition to invite Innovateur Wannabes to perform live pitching of their products to the audience. The iidex2014 focuses on comprehensive commercialization and creating opportunities for entrepreneurs to carry out R&D as well as to provide avenue to commercialise their products. Through expositions such as iidex2014, MOSTI hopes to inculcate the culture of commercialisation of new technology designed and created by Malaysians.

I wish to congratulate all the participants of the iidex2014 and this is the opportunity for all researchers to show their ideas and exhibits their products and creativity. Apart from showcasing their products, innovators will have the opportunity to provide a window to the industry for business matching during the exposition.

Tan Sri Dato' Sri Sallehuddin Mohamed  
Pro-Chancellor, Universiti Teknologi MARA

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## ELICITING EXPERT OPINION VIA DELPHI SURVEY

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The Delphi technique has been recognised to be amongst the most powerful techniques of eliciting expert opinion. This technique has been named after the ancient Greek temple where the oracle could be found (Grisham, 2009). It was originally developed by Olaf Helmer and his colleagues at the RAND Corporation in the early 1950s, and has been designed intentionally to remove conference room impediment to a true expert consensus (Gordon, 1994; Yousuf, 2007). For over half a century of its existence the Delphi technique has gained popularity and has been employed in a various field of studies such as in health care (Cramer, Klasser, Epstein, & Sheps, 2008; Sharkey & Sharples, 2001), business (Czinkota & Ronkainen, 2005; McGuire & Cseh, 2006), education (Kurubacak, 2007; Rice, 2009), management (Loo, 2002; Schwarz, 2008) as well as in engineering and construction (Brewer & Gajendran, 2009; Xia, Chan, & Zuo, 2012). This method has been designed as a group communication process aims to achieve a convergence of opinion on a specific real-world issue from respondents within their domain of expertise (Hsu & Sandford, 2007). As defined by Linstone and Turoff (1975), the Delphi method “may be characterised as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem”. The rationale for the procedure as pointed out by Dalkey (1969), is that “two heads are better than one”. This paper attempt to provide an overview on the Delphi technique and how it has been implemented in an on-going PhD research which aimed to validate findings obtained from earlier questionnaire survey and semi-structured interview with regards to the current practice in of construction industry practitioners in substantiating and assessing Extension of Time (EoT application in Malaysian construction industry. This paper will not reveal the overall outcome of the research, but only results from the Section B of the questionnaire will be discussed. The discussion in this paper will cover the features and characteristics of the Delphi technique, and the implementation of this technique in the proposed research. This paper is expected to provide a clear picture on the Delphi technique that might be useful to the other researcher to be taken into their consideration in selecting the best-suited method of data collection for their research. findings from the questionnaire is expected to produce a statistical report with a high degree of confidence, while the qualitative approach on the other hand is expected to provide a rich data that could facilitate detailed explanation on the subject being studied as it based on respondent’s perspectives of their work experience, which will reflect the real situation of construction industry. In order to achieve a robust and highly credible research finding, a quantitative data analysis using statistical software will be conducted to obtain consensus from the experts on the subject being studied i.e. extension of time application, which will be collected via a Delphi survey. At the end of this research, an appropriate framework for a successful EoT application will be developed based on the findings from the triangulation approach. Results obtained through the Delphi technique will provide a sound basis for framework development process.