

CELEBRATING  
COMMERCIALISATION  
YEAR 2014

# iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention  
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& design  
exposition 2014

INNOVATEUR  
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2014

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UNIVERSITI TEKNOLOGI MARA  
MALAYSIA

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

RESEARCH BOOK

# iiindex2014

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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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## E-PROCUREMENT BENEFITS FRAMEWORK FOR CONSTRUCTION INDUSTRY

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The development of internet technology has profoundly changed the way construction industry operates. Value gains from e-commerce applications, particularly e-Procurement, are well known and it has been accepted across industries. However, the adoption of e-Procurement is considerably low in the construction industry, which lags behind other industries such as manufacturing and retail industry. Low adoption of e-Procurement in the industry is attributed to the various criteria required by e-Procurement investment (people, process and technology), since e-Procurement is costly and adopting e-Procurement requires substantial changes in internal processes of organizations. Therefore, an increase in the availability of information related to value benefits will be significant as one of the primary motivation for professionals in the industry to adapt to new technologies. The opportunity for direct benefits in their own operations may create change. As the construction industry implements e-Procurement, decision makers need benchmarks to understand the value of e-Procurement for their organizations and projects. For over a decade, empirical studies of IT in business have attempted to understand the value gained through IT investments. However, results have been inconclusive and found little or no improvement in productivity, despite massive IT investment. The aim of this research is to develop and establish e-Procurement framework in Malaysian construction industry. In developing the framework, items designed to measure the construct were adopted from previous studies and refined through several procurement managers, then were reviewed by faculty members to assess face and content validity. Specifically, the development of a construct is based on the adoption of relevant research streams. Using survey approach, 190 respondents were selected, which have moved beyond the basic stages of e-Procurement. Exploratory factor analysis was used to identify underlying variables and investigate the relationship among the items used to assess the benefits of e-Procurement. The results of Kaiser-Meyer-Olkin (0.736) and the Bartlett's Test of Sphericity ( $\chi^2 = 465, p=0.000$ ) indicated that the data set satisfied the assumption for factorability. The final factor structure, with three factors containing 31 items total, was obtained after the third iterations. Three main categories of benefits were identified from the exploratory factor analysis namely operational, tactical and strategic benefits. This framework formed a baseline metrics that can be used for measuring e-Procurement benefits and it can be used as a reference and an assessment whether the current e-Procurement solution is convenient or not. The novelty of this research is an assessment model for e-Procurement benefits since it is the first effort that empirically and comprehensively investigates e-Procurement benefits in Malaysian construction industry.