



UNIVERSITI  
TEKNOLOGI  
MARA

CELEBRATING  
COMMERCIALISATION  
YEAR 2014

# iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention  
innovation  
& design  
exposition 2014

INNOVATEUR  
wannabe!  
2014

27<sup>th</sup> - 30<sup>th</sup>  
APRIL 2014

DEWAN AGUNG TUANKU CANSELOR (DATC)  
UNIVERSITI TEKNOLOGI MARA  
MALAYSIA

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

RESEARCH BOOK

# iidex2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

## invention innovation & design exposition 2014

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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**  
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## 23 CYCLE

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The cycling oriented programming and urban design integrated with the nature of Langkawi promotes a healthy lifestyle while creating a new niche market for Langkawi tourism and supporting LADA vision of international tourism events. The design aims to define a new typology of sport tourism facilities and urban programmes. The programming started with designing the main principles and guidelines for urban physical settings. The undulating surfaces in parks and bikeways subjected to develop challenging tracks for bikes and create the sense of excitement to encourage cycling. Besides the challenge, the security and safety comes as the priority by the segregation of pedestrians and cyclists with handrails while the bike tracks surface built with the EPDM (Ethylene Propylene Diene Monomer) to avoid injuries to the cyclists if any accidents occur. The facilities for bike parking up to the user's private space create a sense of closeness between the cyclist and their bicycle. In the way of that, the vertical movement of bike to each and every building will be provided to the maximum. The playground for grassroots encourage the children to involve in cycling activities to develop their sensory-motors and interactive activities imposed for them such as turning the lights of the parks public lighting through cycling. It develops a sense of a simple act which may contribute to change the world into a better place. Several bike- pit- stop network will be provided as the checkpoint for bike renting and repair at the same time serve as the cycling milestone for the user. The cycling mile stone program is an incentive to the user to involve in cycling to receive the worthwhile prizes or rebate as they cycle through the sites by the assistance of the mobile technology such as smart phones. In the era of sustainable movement, the programs also cater for the nature by imposing energy generation through cycling by installing dynamo on each bike can store energy in their electric bank and then later on bank-in to the large current storage. Each of the building will be equipped with PV panelling for solar power harvesting. The rainwater catchment also serves the public and cyclist as the rainwater harvested will be filtered until it fit for drinking. In the economic aspect, the notion of energy harvesting can be turned into an income by selling that energy to the authority for another area distribution besides the bike rental activity and events held on the other main components of the development. The development consists of the 23 Cycle Velodrome equipped with international standard of high-speed indoor cycling for international competitions to attract tourism to Langkawi. The velodrome compromised with the GBI criteria brings the sustainability into the building a climate responsive design. The stadium serves as the field sport stadium to cater any other sports than cycling can be seen far from the Langkawi arriving point, Dataran Lang due to its sophisticated and iconic design of steel structural components. The sports village and hotels create a leisure living for the professional athletes for vacation cum training holiday. The Olympic size indoor swimming pool also held an aquatic events while serve as the relaxation point of users whether locals or tourists.