Optimizing Innovation for Global Commercialization

Optimizing Innovation for Global Commercialization

RESEARCH INVENTION INNOVATION & DESIGN

Copyright © 2013
Division of Research,
Industrial Linkages & Alumni (PJI&A)
Universiti Teknologi MARA Melaka

Email: riid2013@melaka.uitm.edu.my
Web: www.riidmelaka2013.com

Optimizing Innovation for Global Commercialization
Research, Invention, Innovation Design

Published by
Division of Research, Industrial Linkages & Alumni (PJI&A)
Universiti Teknologi MARA Melaka

Tel 606 - 5582313
Email riid2013@melaka.uitm.edu.my
Website www.riidmelaka2013.com

Chairman
Assoc. Prof. Dr Roaimah Hj Omar

Chief Editor
Shafezah Abdul Wahab

Writers
Siti Najah Raihan Sakrani
Shahril Anuar Abd Ghalim

Abstracts
Sulaiman Mahzan
Mohd Ab Malek Md Shah
Nur Syuhada Mohamad
Mohd Fajil Abdul Batau
Khalilah Ibrahim

Design
Anith Liyana Amin Nudin
Norsharina Samsuri

Copyright 2013
Division of Research, Industrial Linkages & Alumni (PJI&A)
Universiti Teknologi MARA Melaka, Km 26 Jalan Lendu,
78000 Alor Gajah, Melaka

All Rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without permission of the copyright holder.

ISBN 978-967-0637-02-0

UNIVERSITI TEKNOLOGI MARA | RIBU RESEARCH INNOVATION BUSINESS UNIT

contents

BACKGROUND 4
of Research, Industrial Linkages & Alumni

RIID 2013 5
objectives

CHRONOLOGY 5
of RIID

FOREWORD 6
message by Chief Minister Melaka

FOREWORD 7
by Rector of UiTM Melaka

FOREWORD 8
by Director of AKEPT

PROGRAMME 9
Tentattive

RIID COMMITTEE 10
member

ABSTRACTS
Invention: Staff Category 12
Invention: Student Category 38
Innovation: Staff Category 50
Innovation: Student Category 133
Design: Staff Category 174
Design: Student Category 184

LIST OF 193
acknowledgement

SPONSORS 194

background of

RESEARCH, INDUSTRIAL LINKAGES & ALUMNI

Objectives

- To promote word-class research.
- To administer, coordinate and provide service for research development, consultation and research publication.
- To provide assistance in exploring new subjects and identify niche area of interest.
- To disseminate information and provide ample training in research, consultation and publication of research.
- To ensure innovation, quality research, consultation and publication are maintained.
- To assist in research publication for high impact journals.

Vision

To become the leading administrative centre for research, development, consultation and world-class research publication.

Mision

To enrich the academia, creative ability and innovation through quality service.

Division of Research, Industrial Linkages and Alumni or known as PJI&A started as the Research Management Unit (RMU) or IRDC and was formerly known as Planning, Research and Development Centre which was established in April 1980. However in September 1987, IRDC was restructured with its heightened importance in research and consultation in UiTM and was divided into two units, Research and Consultancy Centre (RACC) and Planning and Evaluation Unit. This centre was then renamed to Research and Consultancy Bureau in 1994 and went through another name change to become Institute of Research, Development and Commercialisation (IRDC) on 15 July 2003.

With the mooting of the post of Deputy Vice Chancellor in March 2008 to take over the intellectual property and commercialisation portfolio, IRDC was given the responsibility to maximise innovation and increase the number of research which will later be published in high impact journals. Ensuing this, on 31 July 2008 IRDC was changed to Research Management Institute (RMI) to synchronise with UiTM's aspiration to become a Research University that will develop innovation activities and new research. It was only in 2011, that RMI became the Research, Industrial Linkages and Alumni Division (PJI&A), headed by its Deputy Rector, Associate Professor Dr. Roaimah Omar. Under her tutelage, Invention, Innovation and Design (IID) was born in 2009.

The different divisions or units in PJI&A are responsible to manage, monitor and conduct research in science and technology, management and social sciences, consultation, financial assistance for consultation, innovation, publication and Information for Research and Consultancy (INFORAC). PJI&A also conducts seminars, workshops and roadshows to encourage, motivate and train the academic and non-academic staffs in research and consultation, securing research grants and projects, to manage good financing and publish research in a responsible and ethical manner.

RIID2013 OBJECTIVES

General Objective

To display research, invention, and design from various institutions (IPTA/IPTS) that can be commercialised for global benefit

To culturalise research and innovation through the sharing of expertise and commercialised, creative and innovative ideas

To instill interest and encouragement to the public towards research, invention and innovation that poses as a medium for the nation's development.

Specific Objective

To identify and promote new and inventive discoveries that are commercialised, creative, and innovative from various institutions (IPTA/ IPTS) all over Malaysia.

To select discoveries and new invention to be contested in the national and international level.

To uphold the reputation and image of UiTM as a well-known pioneer in innovation and invention in the national and international level.

CHRONOLOGY OF RIID

RIID Showcase
7 August 2009,
Dewan Kuliah 2,
UiTM Melaka.

1st IID LET'S IID
13 August 2009,
Dewan Bendahara,
UiTM Melaka.

2nd IID Enculturation Of Research & Innovation
5 October 2010,
Dewan Bendahara,
UiTM Melaka.

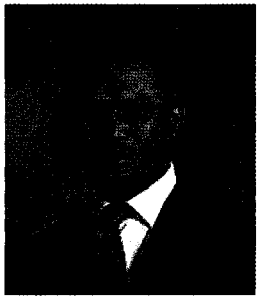
DERIA 2011 Sound, Image & Object
21 - 22 July 2011,
Mini Stadium Bistari,
Ayer Keroh, Melaka.

RIID 2012 Innovation for Sustainable Growth
7 - 8 November 2012,
Dewan Taming Sari,
UiTM Melaka.

RIID 2013 Optimizing Innovation For Global Commercialization
16 - 17 December 2013,
Dewan Taming Sari,
UiTM Melaka.

foreword message by

CHIEF MINISTER **MELAKA**



YAB Datuk Seri Ir. Haji Idris Haron

Chief Minister Melaka
December 2013

ımualaikum wbk and
est greetings Salam 1Malaysia,

nd foremost, I would like to congratulate Research, Industrial ;es and Alumni Centre (PJIA), Universiti Teknologi MARA l) Melaka for yet another successful organisation of this rch, Invention, Innovation and Design Exhibition 2013 (RIID

era of globalisation, the Malaysian government is stepping efforts in developing the country and its people, be ucing a holistic socioeconomic development programme. ɔur Prime Minister Datuk Seri Mohd Najib Tun Abdul Razak uced a massive transformation agenda in implementing the ımme its approach and philosophy. The Prime Minister has utlined five-key strategic thrusts under the 10th Malaysia Plan (10MP) to enable Malaysia to become a high-income and developed nation by 2020.

Therefore, the National Key Results Area (NKRA) and the Key Performance Index (KPI) were introduced towards achieving vision 2020. While moving towards achieving a developed country status, Malaysia needs to draw up a new approach which emphasises on quality human capital, innovation and creativity. The government in addition has to operate as competitive corporation.

I would like to congratulate UiTM Melaka for supporting the country's vision by hosting RIID2013 competition and exhibition. With its theme Innovation for Sustainable Growth, this event is a positive initiative to encourage professionals and academicians alike to enhance their knowledge and practical skills and these are parts of their contribution for the nation's building.

When research activities are conducted continuously, it is expected that more innovations will be generated. UiTM Melaka's initiative is highly commendable as it manages to attract It 340 products to be displayed and competed at this event. It is hoped that this event will serve as a catalyst in enhancing the roles of professionals in various industries.

foreword by RECTOR

Associate Professor Dr. Adnan bin Hashim

Rector
Universiti Teknologi MARA Melaka
December 2013

Assalamualaikum wbkt, Salam 1Malaysia
and Salam UiTM Sentiasa Di Hatiku.,

I would like to welcome our honourable guests, professionals, and academicians from schools, colleges and universities to the 5th Research, Invention, Innovation and Design 2013 (RIID 2013) competition proudly organised by the Research, Industry Linkage and Alumni Division (PJI A) Centre Universiti Teknologi MARA (UiTM) Melaka.

In line with the government's aspiration to nurture and cultivate innovation, UiTM Melaka has taken the initiative to organise RIID 2013 Melaka Innovation Festival. One of the main objectives of the event is to raise the status of local universities globally. To achieve the status of a Research University (RU), one of the criteria is to emphasise on high impact innovation research which leads to invention of new business models, or innovative processes. This would result in an improved efficiency of the organisation and contributes towards better quality of life.

Since innovation is a vital catalyst to attain the status of developed nation in the year 2020, UiTM Melaka is heading the nation's call to attain aspiration through innovative programmes with staff and students. These creative and innovative abilities could be brought to greater heights through competitions and innovation exhibitions held annually. During this two-day event, a talk on innovation will also be held. Innovation is one of the key factors that could push the economy forward. In line with the strategic thrusts, the RIID 2013 competition will serve as a platform for researchers to expand their researches into innovations while becoming a venue for them to showcase their products, prototypes and new ideas.

This competition also serves as a platform for students, lecturer's administrative officers and the public to demonstrate their products or prototypes as well as sharing new ideas for commercial value. Therefore, PJIA decided the Optimizing Innovation for Global Commercialization as our theme for this year 5th Research, Invention, Innovation and Design 2013.

I am proud to announce that the number of participants in this event has increased to more than 300 participants compared to the previous year event. I would like to extend my sincere thanks and gratitude to the committee members who have persistently given their full commitment to this event.

I wish all the participants all the best in the competition.

i-Fasilitator

Sulaiman Mahzan; Mohd Abd Malek Md Shah; Ahmad Khairuman Md Hasim; Shamsol Shafie; Mahirah Ruslan

Fakulti Sains Komputer dan Matematik, Fakulti Pengurusan Hotel dan Pelancongan, Universiti Teknologi MARA Melaka; PPKP, HEP UiTM Melaka.

Pengurusan perlantikan dan hal-hal berkaitan mengenai fasilitator bagi sesuatu program insaniah merupakan tanggungjawab Jabatan Hal-Ehwal Pelajar bagi sesuatu insitusi pengajian tinggi. Selain itu, program berkaitan program insaniah juga dijalankan oleh majoriti organisasi dalam usaha meningkatkan kualiti tenaga manusia masing-masing. Pengurusan fasilitator merupakan tugas yang merumitkan dan terdapat beberapa proses yang perlu dilakukan oleh penganjur dalam memastikan kelancaran pengurusan fasilitator. Lazimnya fasilitator yang dilantik merupakan individu yang kerap kali dipilih dan dilantik dan seringkali dilantik secara berulang kali. Pengurusan secara manual mendatang pelbagai masalah berkaitan pengurusan dan kerap kali memerlukan komitmen yang tinggi di pihak pengurusan. Lantaran itu, pembangunan aplikasi i-Fasilitator bertujuan untuk membolehkan pihak pengurusan menangani beberapa masalah yang berkaitan yang bersangkutan dengan proses secara manual. Aplikasi ini membuka peluang kepada pengurusan untuk mengkoordinasikan fasilitator dan dalam masa yang sama fasilitator mudah untuk mendapat sebarang maklumat yang diperlukan. Aplikasi ini mempunyai nilai komersil yang tinggi memandangkan program insaniah merupakan salah satu program yang menjadi keutamaan bagi mana-mana organisasi terutamanya institusi pendidikan.

4 Steps for Reliable and Accurate Metrics for Student's Ability Using Winsteps

Mohd Nor Mamat; Siti Fatahiyah Mahamood

Universiti Teknologi MARA

Normal practice in formal examination never have accurate measure (metrics) of student's ability, as it merely counts the score of every question to be considered for student's marks. How to assess accurate metrics for student's ability performance, reliably and easily for all educators practice? Measurement of student's performance must be assessed for right and desired learning outcomes, using right and reliable instrument, with right and accurate measure scale for student's answers. Using Rasch model with Winsteps software, student's answer will be analyzed via 4 simplified steps with preset templates to produce accurate student's ability score within psychometric scale and percentile marks, with scientific reliability level for each student's responses. Rasch model manipulates student's answer into ratio-based log odd unit.