



PROTOTYPE INNOVATION USING TRIZ FOR 4th INDUSTRIAL REVOLUTION

INTRODUCTION

The 4th industrial revolution (IR4) combines various advanced technologies in the physical, digital and biological world, has dramatically reshaped the way people live, work and relate to one another, which drastically improves the efficiency of business and organizations.

Institutions of higher learning around the world are equipping themselves to cope with the trend brought by the IR4 where the speed of technological breakthroughs has no historical precedent when compared with the previous industrial revolutions. However, lecturers and their students are struggling to incorporate these technologies into teaching and prototyping.

Innovation is an important skill much needed during the IR4. As the IR4 is evolving at an exponential pace, the competition to achieve breakthrough in technology is becoming more intense. As a result, innovation is no longer a “nice-to-have” skill but a “must-have”. There is a way to learn innovation in a systematic approach. The approach is called TRIZ or Theory of Inventive Problem Solving.

TRIZ is a tool which frequently applied in modern inventions to create smarter products and improve product families. TRIZ is recognized as one of the powerful methods for innovation. It is embraced by many corporations namely Siemens, Samsung, Intel, Whirlpool, LG, Christian Dior, Boeing, Procter & Gamble, L'Oreal, KIA, Hyundai, etc.

COURSE OBJECTIVES

At the end of the workshop, participants will be able to:

1. Understand the need for TRIZ
2. Understand the ecosystem of the prototype
3. Analyze the functioning of the prototype and its ecosystem
4. Uncover the users experience through 9-windows
5. Discover new opportunity through the trend of evolution
6. Improve current prototype through hybridisation

WHO MAY ATTEND

This workshop is suitable for students who are currently doing prototyping for class assignments and final year projects such as business ideas, engineering and smart product, as well as anyone who is interested in TRIZ and looking to be more innovative.

CONTENTS

DAY 1:

Module 1 - Systemic Approach

- Identify the system, subsystem and supersystem

Module 2 – Functional Analysis

- Identify primary, auxiliary and secondary function
- Identify useful, insufficient and harmful function

Module 3 – 9-windows

- Map ecosystem into three time frames (before, during and after)
- Map the experience of users

DAY 2:

Module 4 – Trend of evolution

- Study the main patterns of evolution

DAY 3:

Module 5 – Hybridization

- Hybridize alternative system by product genotype, addition, subtraction, division and multiplication

FACILITATOR

Mr. Keong Chee Sheng is a chemistry lecturer in Centre of Pre-Universities Studies, Tunku Abdul Rahman University College (TARUC) since 2003. He hold a degree in Chemistry and Biology and a master in Environmental Science Majoring in Integrated Water Resource Management and currently pursuing Phd in Education in the area of Theory of Innovative Problem Solving (TRIZ).

Mr. Keong has been actively practicing TRIZ since 2011. He is a certified TRIZ Level 1 Instructor and MATRIZ Level III practitioner member of Malaysia. His technical focus is on problem solving and innovation using TRIZ. Mr. Keong has conducted many TRIZ facilitation sessions in TARUC and University Malaysia Pahang. He has published twelve articles in journals and conference proceedings.

He won first place and runner up in 2012 and 2014 respectively in a team event in Malaysia TRIZ competition. He has supervised more than one hundred students' prototypes using TRIZ. His students had won People Choice Award in Samsung Solve for Tomorrow competition in 2015 and finalist in Mainstreaming Grassroots Innovations Pitching and Value Assessment organized by Yayasan Inovasi Malaysia in 2016 and 2017.