



# **Technology Transfer in Malaysia : Challenges, Opportunities and Successful Cases**

by

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*INSPIRING CREATIVE & INNOVATIVE MINDS*



## **Outline presentation**

- Background of Malaysian universities
- UTM case study technology transfer

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## Background

- Malaysia GDP growth target of 6% per annum under 10MP (2011-2015) which expected be driven by private sector investments to grow by 12.8% per annum (compared to 11.2% per annum under 9MP).
- R & D & C spending increase rapidly as other countries as will explain in the next slide.

## Background

1. 2010-Malaysia has announced New Economic Transformation Program. Increase income from USD6,700 or RM23,700 in 2009 to more than USD15,000 or RM48,000 in 2020.
2. Innovation is the drivers for the nation wealth creation.
3. Government has Announced 2012 as Malaysia innovation year.
4. RM100 million allocation, to encourage innovation ion and commercialisation among young Malaysian to promote the development of new ideas and commercialisation of innovative products.

## Cont.

6. An initial allocation of RM30 million will be set up by the Malaysian Technology Development Corporation and the Malaysia Innovation Agency.
7. 300 intellectual properties on these new products and technologies, will be opened to the private sector for commercialisation.
8. At the same time, a RM500 million shariah-compliant Commercialisation Innovation Fund will be set up to encourage more SMEs to commercialise research products.
9. MyCreative Venture Capital with an initial fund of RM200million will be established to support the creation of new ideas by local institutions.
10. Industrial design services will now be eligible for tax incentive in the form of Pioneer Status with income tax exemption of 70% for five years.

## Agency Innovation Malaysia (AIM)

### Objectives: amongst others:

- (a) to formulate national policies, strategies and directions relating to innovation;
- (b) to organize, co-operate in and coordinate the performance of activities with the public and private sector to stimulate innovation in Malaysia and commercialisation ;
- (c) to conduct inquiries, survey and analysis of data, research and development relating to innovation and the national innovation eco-system;
- (d) to promote and facilitate investment activities and initiatives by the public and private sector in relation to innovation;

## Universities In Malaysia

- Total 20 public universities in Malaysia
  - 5 research universities: UTM, UPM, UM, UKM, and USM.
  - 15 Non Research universities; new universities.
- 23 Private universities
- Total 43 universities in Malaysia

## Number of Patents Granted in Malaysian Universities (public and private Universities).

Years	Number of patents granted
2005	1
2006	10
2007	34
2008	22
2009	47
2010	44
2011	85

Source: MyIPO 2011



RESEARCH UNIVERSITY

## Innovation & Commercialisation Centre (ICC)

# UTM Technology Transfer Model: Challenges, Opportunities and Successful Cases



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RESEARCH UNIVERSITY

## Universiti Teknologi Malaysia (UTM)

- Was established in 1894 and became a leading university in engineering and science in Malaysia.
- 16,000 undergraduate and 10,000 postgraduate students.
- University's mission is focused on the development of innovative and creative mind towards entrepreneurial university.
- Has more than 2400 IPs.
- Recently has developed Technology Transfer office called Innovation and Commercialisation Centre (ICC) to facilitate commercialisation activities.

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## Innovation & Commercialisation Centre (ICC)

### Vision

**To be an efficient one stop management centre for technology innovation and commercialisation.**

### Mission

**To assist in UTM's IP management and exploitation, to add value to the technologies towards achieving innovative and commercially viable products, that meet market needs for the nation's wealth creation.**

### Strategies

**To achieve these, ICC shall work strategically with the Faculties, Research Alliances and Centres of Excellence in tandem with relevant government agencies and industries in promoting UTM's technologies.**

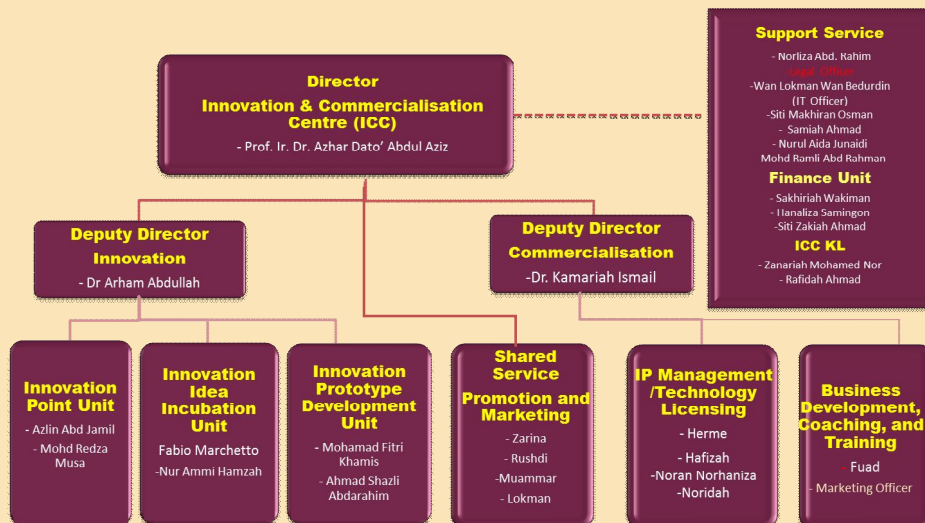
## Objectives of ICC

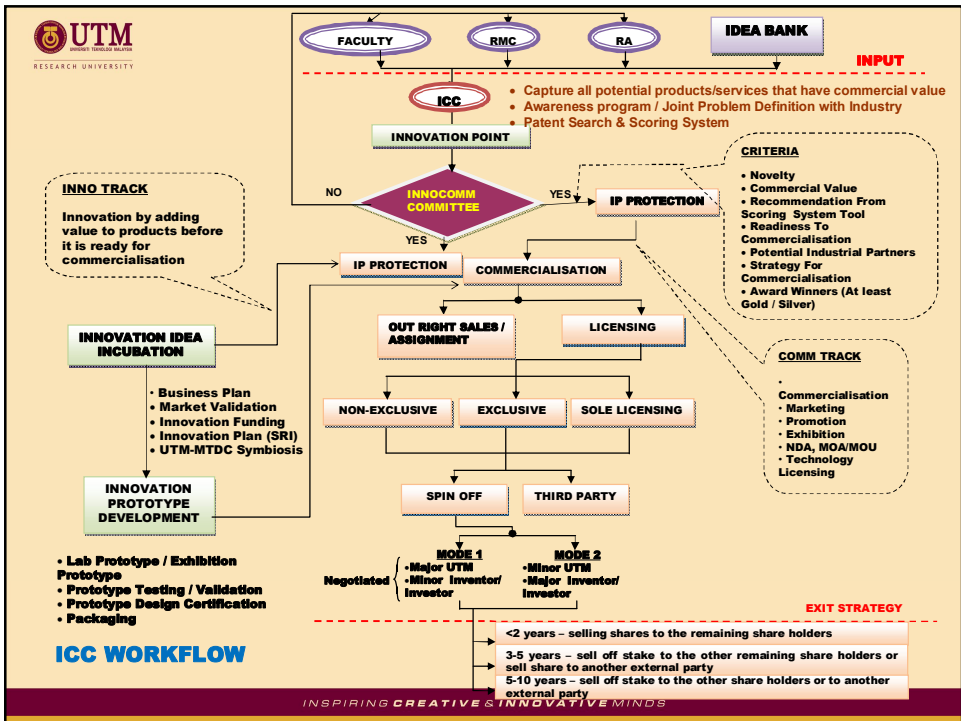
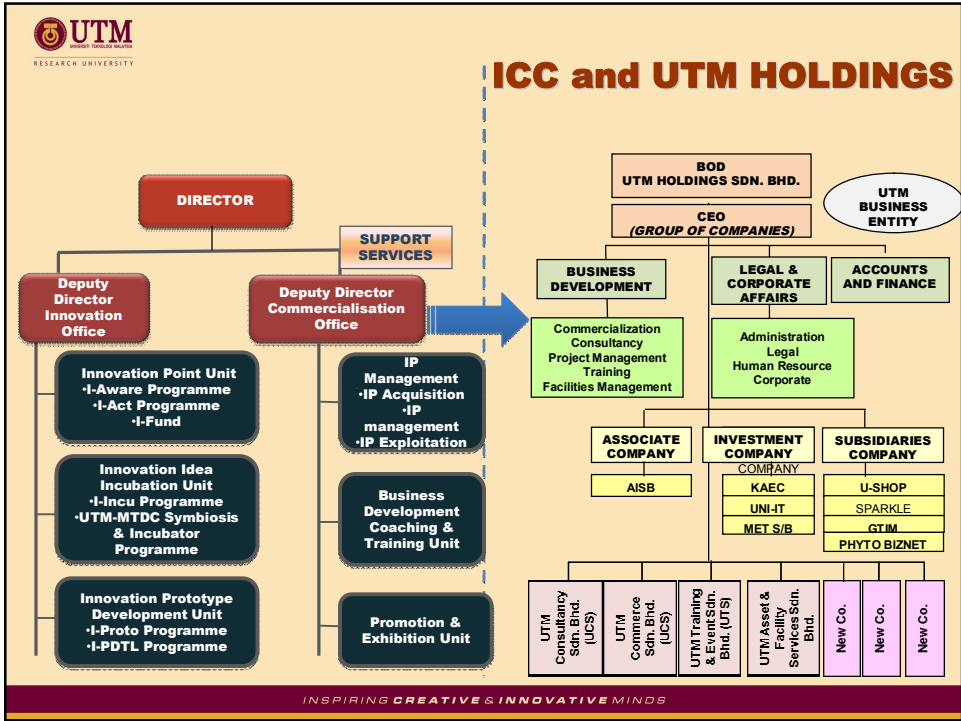
- ⑥ **To help UTM inventors, innovators and entrepreneurs make their ideas more commercially successful through networking with industry and affiliate partners.**
- ⑥ **To help UTM inventors, innovators and entrepreneurs to commercialize their ideas via spin-off formations/start-ups, joint ventures and partnerships.**
- ⑥ **To help UTM inventors, innovators and entrepreneurs commercialize their ideas for the benefit of society, Malaysian economy, the inventors and the University.**

## ICC's Commitment:-

- ⑤ **Help UTM's researchers add value to their technologies and promoting innovative and commercially viable products**
- ⑤ **Representing UTM in promoting, marketing, business matching and collaborating with industry**
- ⑤ **Manage licensing or assignments of UTM's technologies; and**
- ⑤ **Assists UTM's researchers in the formation of spin-off companies, or joint ventures**

## ICC Organization Chart



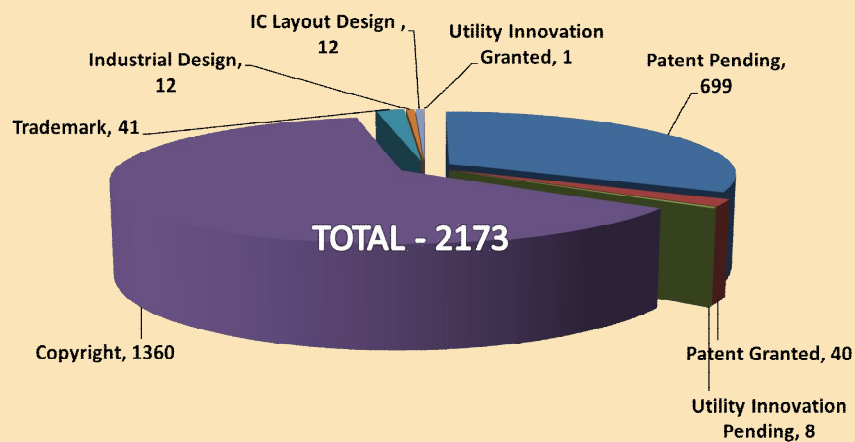




## UTM's IP Management Background

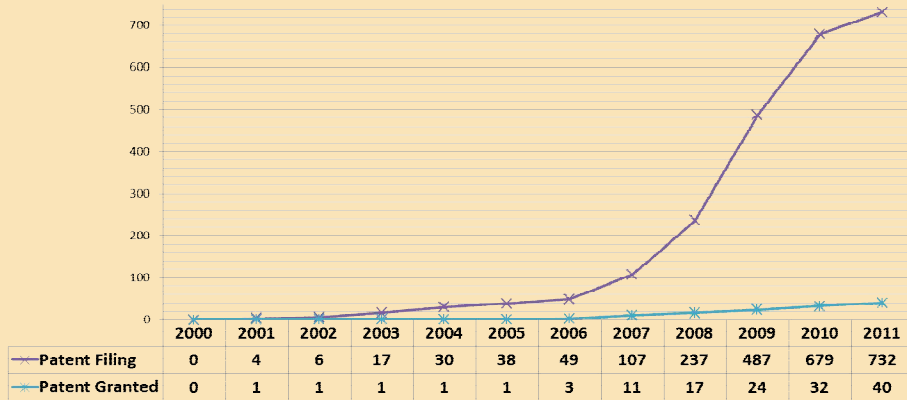
- Intellectual Property Policy has been approved by the University Senate on 2<sup>nd</sup> March 1999 and subsequently endorsed by the University Board of Directors in 1<sup>st</sup> April 1999.
- Amendment will be done in line with the National IP Policy 2007 and Intellectual Property Commercialisation Policy (MOSTI) 2009.
- UTM IP Committees established and effective from year 2000
- UTM was awarded with National Intellectual Property Award for year 2006, 2009 & 2010
- ICC is ISO 9001 version 2008 certified on the Innovation and Commercialisation Management including IP Management
- More than RM3 mill is allocated for IP management and awareness program per year.

## Achievements



### UTM's IPR as of September 2011

## Achievements



**UTM Granted and Pending Patent 2000 – Jun 2011**

## Awards 2010

### International Awards

- 1 Best of the Best Award, 3 The Best Awards, 10 Gold Medals, 25 Silver Medals, 17 Bronze Medals - *Malaysia Technology Expo (MTE)*
- 1 Gold Medals, 4 Silver Medals - *International Invention, Innovation, Industrial Design And Technology Exhibition (ITEX)*
- 1 Gold Medals, 1 Silver Medals, 1 Bronze Medals - *Malaysia Biotechnology Exhibition*

### National Awards

- 2 Gold Medals & Double Gold Special Award - *British Invention Show (BIS)*
- 1 Silver & 1 Bronze Medal - *International Invention Fair of Middle East - (IIFME)*

## AREAS OF UNIVERSITY-INDUSTRY COLLABORATION DISCIPLINARIES

- ⑤ **Aerospace/automotive/marine**
- ⑤ **Products/processes related to biotechnology**
- ⑤ **Consumer Product/Services**
- ⑤ **Electrical, electronics & wireless communication**
- ⑤ **Health & Bio-medical products**
- ⑤ **Construction technology**
- ⑤ **Marine & offshore structures**
- ⑤ **Chemical, cosmetics & pharmaceutical**
- ⑤ **Materials – metal and non-metal**
- ⑤ **Renewable Energy**
- ⑤ **Processed Materials**
- ⑤ **ICTs**



## Commercialisation

### Product Commercialised

- 22 biotechnology-based products from Chemical Engineering Pilot Plant (CEPP) licensed to UTM's Spin-off Co. Phytho Biznet Sdn. Bhd.; Biotech products (5% royalty from gross sales)
- 10 IPs licensed to 10 Spin-off Companies under the UTM-MTDC Symbiosis Program (RM20million : USD-5,714,286 )
- Silica Aerogel (Maerogel; nano technology) licensed to Gelanggang Kencana Sdn. Bhd. – RM 140,000 licensing fee over 5 years licensing period.
- Fast Track Wall System licensed to MYA Hitech Sdn. Bhd. – RM1,205,000 (Licensing fee + royalty of RM700/house completion)

## Pre-Commercialization

### Pre Commercialisation Grant (2010)

▪ *Sime Darby Sdn. Bhd.* – RM377,600 for the 'Development of Membrane and Membrane System for Single-Step Process for Degumming and Deacidification of Crude Palm Oil'

▪ *Persatuan Orang-orang Cacat Penglihatan Islam Malaysia (PERTIS)* – RM 2,216,000 for the development of 'Electronic Braille Al-Quran Teaching Aid'

## **Symbiosis Program : UTM and MTDC**

**10 spin-off companies were formed under symbiosis program (UTM and MTDC). Secured funding RM20m**

1. Antenna Array at 2.4 GhZ for Point-to-Point Communication
2. Frequency (RF) Front-end System for Wireless Local Area Network Point-to-Point Link
3. Microclear for the Treatment of Coloured Wastewater
4. Pineapple Fiber-based Product Development for Nutraceuticals/food fiber
5. An Active Packaging Using Smart Bio Switch Concept
6. 3D-based Surveillance System
7. Development of Pre-treatment System for RO Drinking Water Production
8. Nanocrystalline Ni Plating Directly on Aluminium , High Speed Electroforming
9. Novel Low Cost Ultrasound Sonoimprometer
10. Energy Saving in Building Air Condition System

## Spin-off definition

Many definitions and not consistent.

- OECD (2001) defined a university spin-offs as a company having one of the following characteristics:
  - Any new firm which includes a public sector or university employee as a founder.
  - Any new firm which licences technology from a university or public research institution.
  - Any new firm in which a university or national laboratory has taken up equity investment.
- the intellectual property of the university is formally transferred to the start-up firms (Shane, 2004; Pirnay et al., 2003; Lockett et al., 2005).

## UTM Spin-off Definition

A spin-off is

- a company that exploiting a university or research institution intellectual property. **The university or research institution may or may not own equity in the company.** However, the royalty (running royalty and upfront fees) will be charged by the parent organisation due to exploiting the IP rights based on the negotiation.

## UTM Commercialisation Routes

1. Traditional licensing: License to established companies (UTM may receive upfront payment and royalties).
2. Create a spin-off (will discuss afterwards)
  1. Spin-off type A (UTM has equity and receives royalties)
  2. Spin-off type B (UTM will receive only royalties).
  3. Joint ventures.

## Why two types of spin-offs

1. Spin-off with equity (license UTM's IPs to UTM researchers or JV)

	Advantages	Disadvantages
1	High profit if the company has good return especially during the exit period	UTM only takes equity, if the University think the company will make profits.
2	UTM has to be one of the BOD.	Liability to UTM if the company is operating at a loss.
3	Need to create surrogate entrepreneurs to run the company	High risk to UTM

## Definition Continued:

### 2. Spin-off without equity (license UTM's IPs to UTM researchers/JV).

	Advantages	Disadvantages
1.	UTM does not required to be BOD	UTM has no right to control the company
2.	The management of the company will manage by the company's BOD	UTM will not get return during the exit period.
3.	No liability	UTM only relies on standing royalties
4.	No risk	
5.	The Company must appoint the	

## UTM supports

Ownership of IPs	Royalties and equity rates
<ul style="list-style-type: none"> <li>Owned by UTM</li> <li>If the technology is based on joint research , joint ownership will be applied, which based on the negotiation.</li> <li>The portion of ownership will be based on the contribution of each party.</li> </ul>	<ul style="list-style-type: none"> <li>Based on the negotiation</li> <li>If UTM invests in the company and willing to take equity, UTM has right to request the rate of equity but limited to the maximum of 51% of equity ( as agreed by MOHE during the last meeting).</li> </ul>

## UTM IP and commercialisation: The success Factors:

- 1.Supports from top management with the right strategies.
- 2.Clear IPR and commercialisation policy
- 3.Incentive given for patent and publish papers in high impact journals (RM1000 for patent filing and proposed RM5000 for granted patent).
- 4.Encourage commercialisation and entrepreneurial activities among researchers (SRI) and students (SCI and SCE).

## Spin-off/joint venture equity sharing

- Give incentives to inventors
- UTM –MTDC symbiosis
  - 40% (UTM), 30% (inventor) and 30% CEOs
- Other Spin-off s and JVs
  - based on negotiation – case by case basis



## - Incentive on Royalty sharing

No.	Gross sales	Inventors	University
1	First RM 100,000.00	90%	10%
2	From RM 100,001.00 to RM 1,000,000.00	80%	20%
3	From RM 1,000,001.00 to RM 2,500,000.00	60%	40%
4	From RM 2,500,001.00 and above	50%	50%

## Problems and Recommendation to encourage UTM spin-off to the government of Malaysia

1. UTM staff is allowed to be a CEO/CTO to his/her own company. Studies showed that academic inventors more successful than surrogate entrepreneurs in managing the technology development.

2. Every universities has a special venture fund. The Fund must initiated by the government. Part of commercialisation profit will give back to this fund to form another spin-offs.

3. Allow academic-entrepreneurs to take paid leave to involve in the company. They are also allow to return back to UTM if the business failed

## Recommendation Contd:

1. Creates 'ready made' CEOs to run spin-offs.
2. This could be done through special program to create technology entrepreneurs through entrepreneurship and commercialisation workshop/ University subject especially for post graduate students.
3. University Entrepreneurship Centre and universities ICCs/ Management faculty are suggested to lead the workshop.
4. Network with industry need to be done by researchers to tap knowledge on applied research that lead to commercialisation.
5. MOHE needs to have a mechanism/give incentive to encourage industries work with universities.
6. Give incentives to TTOs/ICC managers who involve in commercialisation/market the technologies.
7. Debt financing is made available by the government through the commercial banks.

Thank You !



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

Innovation and  
Commercialization  
Centre  
(ICC)