



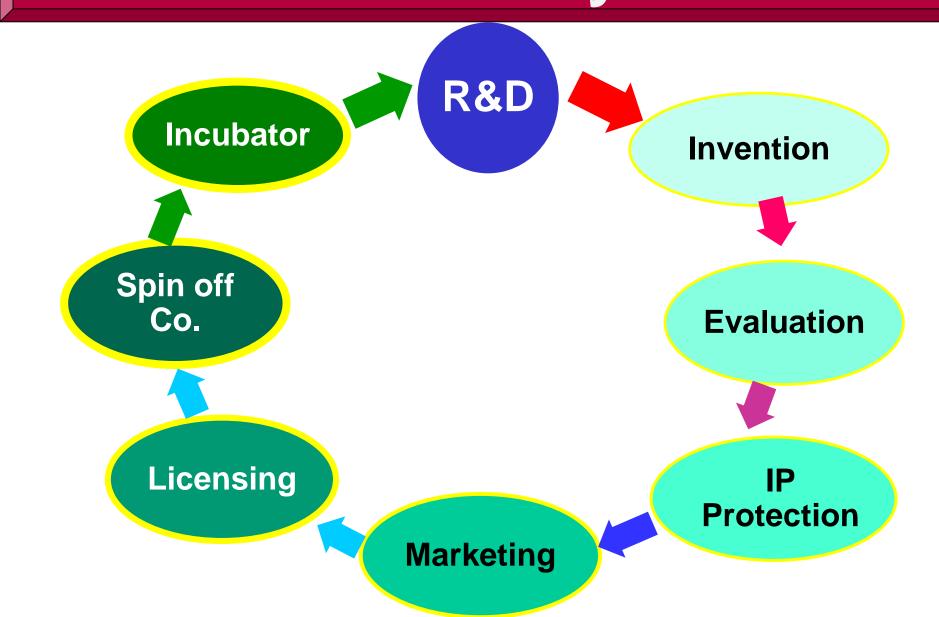
From Idea to Market: Which Policy and Strategy?

Mohamed Shariff Mohamed Din

Advisor, Putra Science Park Universiti Putra Malaysia

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Inovation cycle





R&D & Innovation at UPM





Human Capital

Professor	197
Associate Professor	349
Senior	1611
Lecturers/Lecturers	
Administrative Staff	918
Support Staff	3427
Total	6502

83.8% Academic Staffs with PhD

2157

2014

Students from more > 60 countries

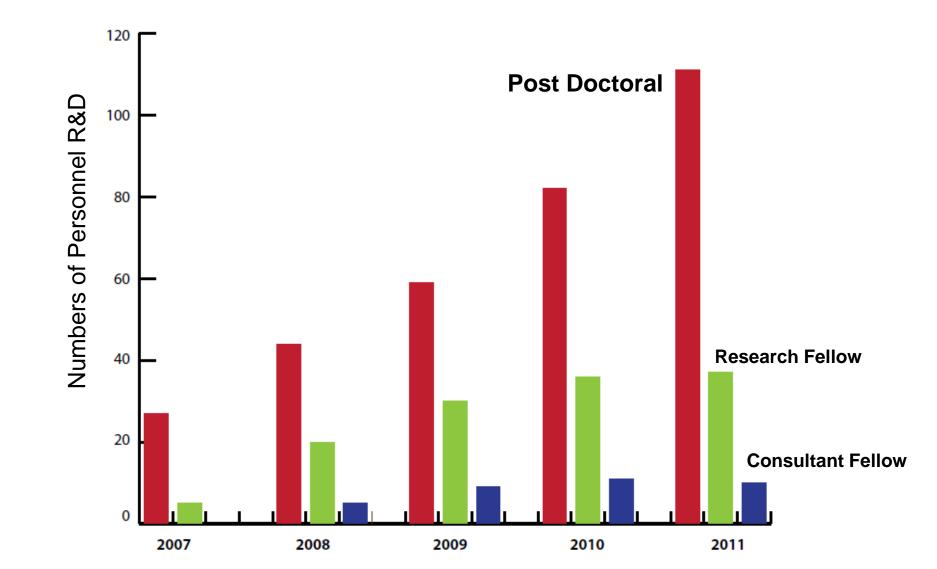
Algeria Brunei Canada Egypt Pakistan Sierra Leone Japan Ghana Iran Colombia Thailand Nigeria Myanmar France Korea Malawi Morocco Nepal Oman Philippines Turkey United States Vietnam Yemen Zimbabwe Bahrain Cameroon Ethiopia Fiji Island Germany India Laos Kenya Maldives Namibia Palestine Jordan Mongolia Singapore Tanzania Uganda Venezuela Uzbekistan Botswana China Gambia Indonesia Libya Mauritius Syria Sudan Bangladesh Cambodia Saudi Arabia Mauritania Cote D'Ivoire Somalia Sri Lanka Iraq Sweden

Froid

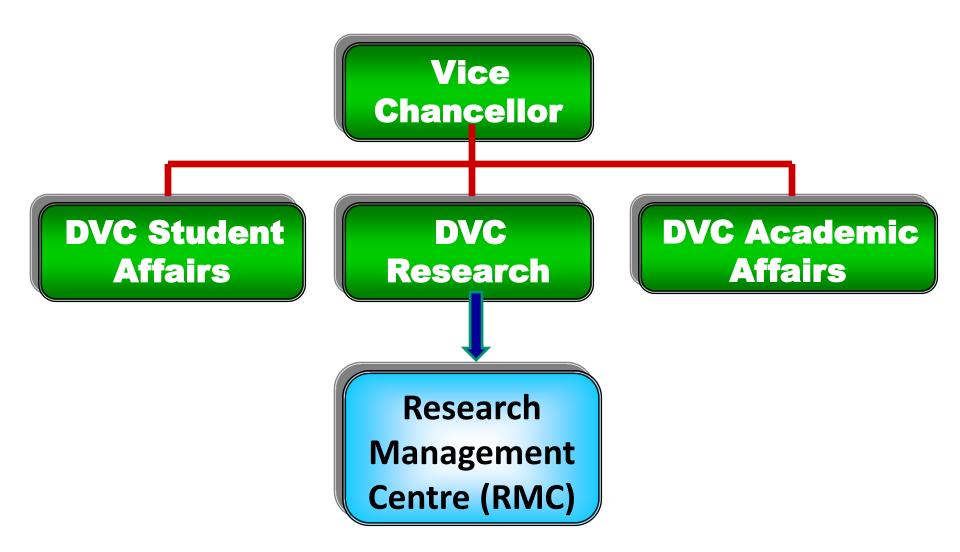
Courant

- ant

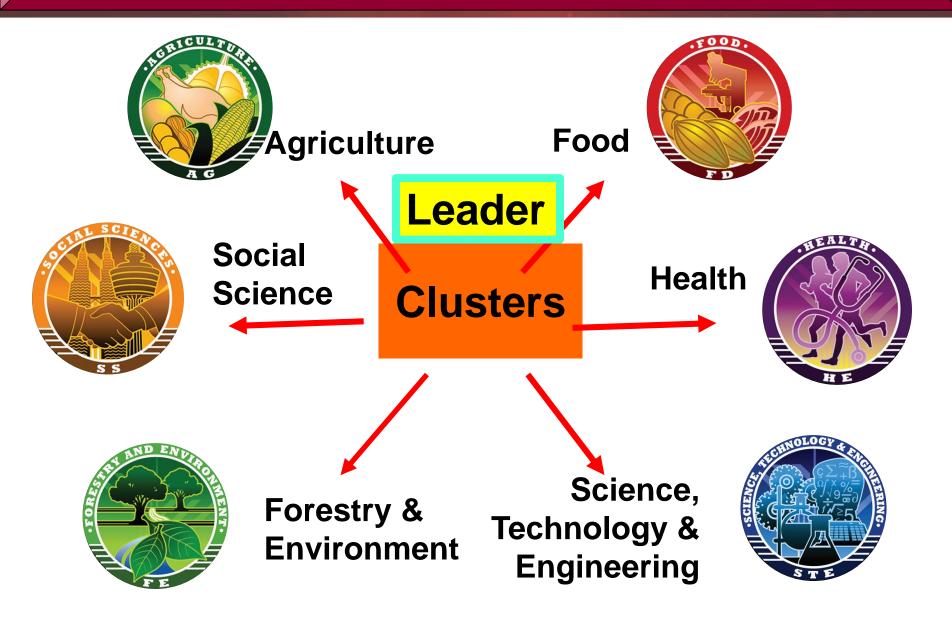
Statistics of Personnel R&D



Research Management Centre



Research Clusters



Internal assessment of Research Proposals for Research Funding

Application submitted to RMC

Screened by internal senior Professors

Submitted to MOSTI/MOHE etc

Screened by National Experts

If necessary revised (80%)

External assessment of Research Proposals for Research Funding

Ministry – appoints national experts/panel to screen proposal

Panel members sign NDA & declare no conflict of interest

Applicant may be requested to make a presentation

If necessary revised (80%)

Accepted/Rejected

Research Monitoring Process

Submission of quarterly report to RMC

Final report to sponsor

Report screened by RMC

Any changes to project must be approved by sponsor Report presentation to sponsor – to National Experts

Output – Papers IP, Product/prototype

In good books? More funds?

Incentive -Research Funds

ScienceFund





Innovation of products or processes for further development & commercialisation



Lab scale investigation for production of CQ10

Max: \$162K





TechnoFund



Develop products & technologies for pre-commercialization stage



\$1.6Million

Pilot scale production of CQ10

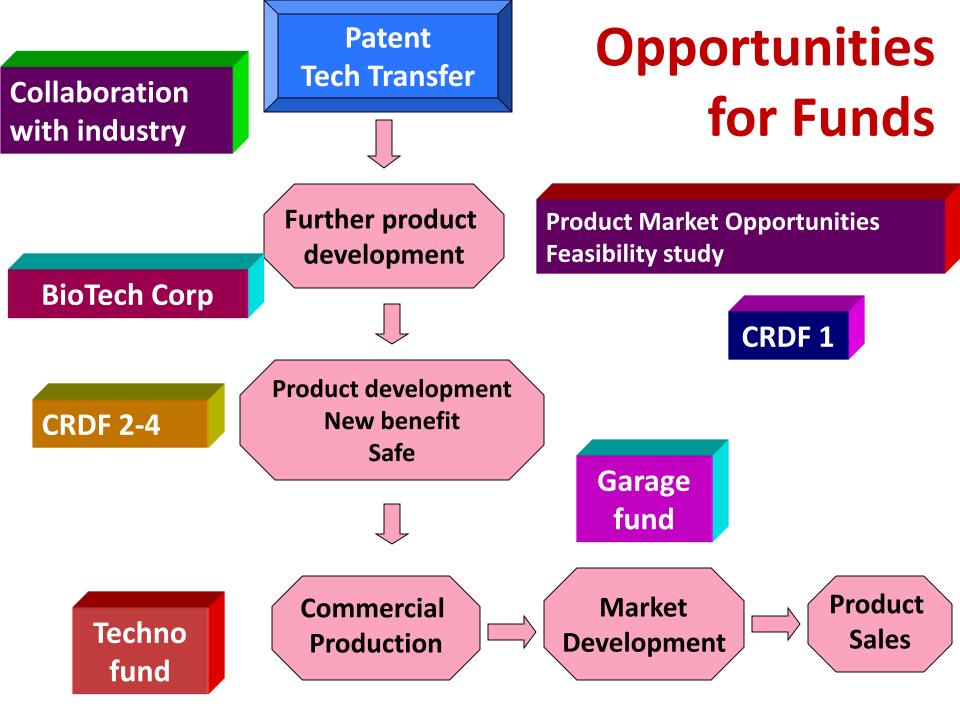


\$1.6 million Pilot scale

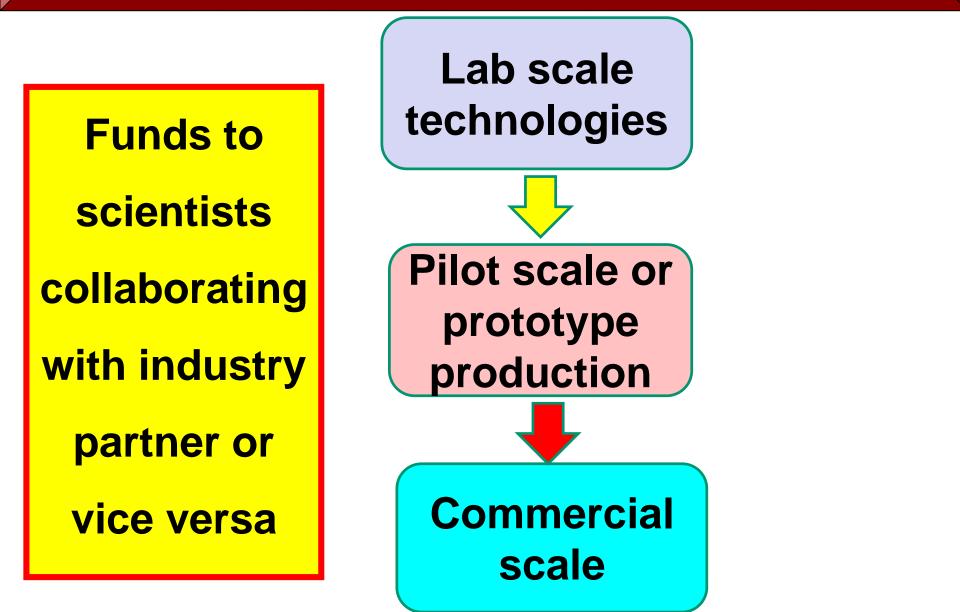
\$20 million Commer Scale

Various sources of funds for scientists with patents

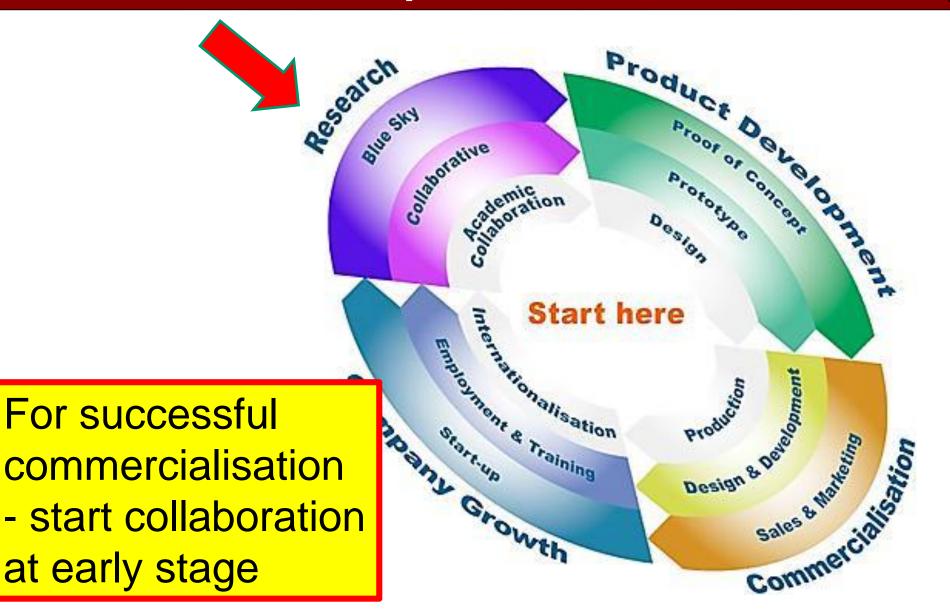
Commercial plant - VC - \$20 million



Project funds for collaborative partners



Early stage collaboration with industry partners





Key performance index (KPI)

Position	ISI Journal papers	PG students	Teaching credits /year	Research grants US\$K
Prof	3	5	3-12	21
Assoc	2	2	"	12
Prof				
Lecturer	1	1	""	10

Patents: 1 patent = 1 publication /2 years

← → C 🗋 km.upm.edu.my/kmportalweb/portal/infox.asset.list.do?actionFlg=mylist

UPM KM Portal

Welcome Moha

O Home O RMC O About UPM KM Portal O Contact Us O UPM KM Portal Manual O My K



Welcome to UPM Knowledge Management Portal

Home > Knowledge Management > Document Listing

Knowledge Contribution Management

- Contribute New Document
- My Documents
- All Documents
- My Application
- My Recycle Bin
- Search Document(s)

km.upm.edu.my/kmportalweb/po

My Documents

Knowledge Class Name :	ALL
Document Title :	
Listing 1 to 10 of 87	

	No	Document Title 🗘	Version 🗘	Created D
	1.	Quality of proximate and biochemical composition of tropical microalgal biomass using different growth media in photobioreactors	1.00	03-Jan-201
orta	al/infox	.asset.list.do?actionFlg=mylist n	1.00	01-Jan-201



Generate Report Report Listing Home > Staff Evaluation > Generate Report

Staff Score

Bahagian	Full Marks	Marks
Bahagian 3 - Pengajaran (Teaching) (20 %)		
3.1: Kuantiti Pengajaran (Quantity of Teaching)	20	60.3
3.2: Kualiti Pengajaran (Quality of Teaching)	5	5.0
3.3: Inovasi dalam Pengajaran (Innovation in Teaching)	10	53.0
3.4: Portfolio Pengajaran (Teaching Portfolio)	10	10.0
Bahagian 4 - Penyeliaan (Supervision) (Bahagian ini diisi oleh PYD yang telah berkhidmat 2 tahun dan ke atas) (For services 2 years and above) (5.0 %)		
4.1: Kuantiti Penyeliaan (Quantity of Supervision)	10	26.4
4.2: Kualiti Penyeliaan (Quality of Supervision)	10	8.0
Bahagian 5 - Penyelidikan - Input (Research - Input) (20 %)		
5.1: Kuantiti Penyelidikan (Quantity of Research)	10	10.7
Bahagian 6 - Penyelidikan - Output (Research - Output) (15 %)		
6.1: Kuantiti Penerbitan (Quantity of Publication)	10	27.2
6.2: Kualiti Penerbitan (Quality of Publication)	10	22.7
Debenies 7. Khidmet Klisikel (Clisical Comisses) (0.8()		

PEJABAT PENDAFTAR UNIVERSITI PUTRA MALAYSIA

- NO STAF NAMA JAWATAN PTJ
- NO STAF : A0331K
- NAMA : MOHAMED SHARIFF BIN MOHAMED DIN
- JAWATAN : PROFESOR
 - : JABATAN PENGAJIAN KLINIKAL VETERINAR

Markah Penilaian Prestasi Staf

BIL	TAHUN	MARKAH
1.	2005	97
2.	2006	95.14
3.	2007	92.43
4.	2008	98.5
5.	2009	87.4
6.	2010	100
7.	2011	96.67
8.	2012	95.29



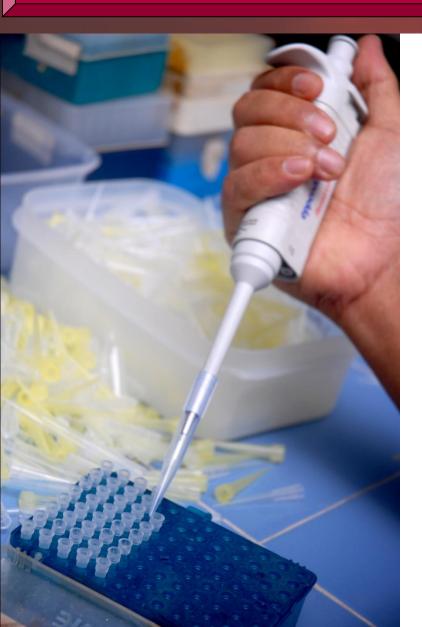
R&D Outcome	2009	2010	2011	2012	2013
Total number of publications in citation-indexed journals	1,809	1,889	2,707	2637	3184
Cumulative impact factor of publications	900.2	1,160.1	2,204.7	2591. 733	2670.154
Total number of publication in non-citation-indexed journal	540	774	398	812	705
Total number of books authored	134	136	112	120	152
Total number of chapter in books	369	290	395	471	102
Conference Proceeding	1,573	1,917	1,892	1824	2648



- 20 Public universities
- 5 universities accredited as RU
- Accredited based on Key performance Index (KPI)
- Audited every 3 years & must maintain the 80% KPI

More Research Funds

Research funding





Research Universities assessment

Criteria & Full marks	Marks obtains	Full marks
Quantity & Quality of <u>Researchers</u> – 15%	12.5	15
Q & Q of <u>Research</u> – 35%	22.5	35
Q & Q of Postgraduates – 10%	8.8	10
Innovation – 10%	17.3	10
Professional Services & Gifts – 10%	5.2	10
Support services – 5%	1	5
Total marks	75.5	100

Marks C	Marks Obtained: 10.08 Full Marks (100%): 10.50			
Criteria	Unit for KPI	Adjust d KPI		
Critical Mass	Percent of academic staff involved as principal investigator of research grants	81.4		
	a. University Funded	400		
	b. National Grants	600		
	c. Industry Grant (All types of grant)	25		
	d. International Grants	40		
PhD/ Professional Qualification	a. Total number of staff with PhD/DSc, D.Eng.	1100		
	b. Total number of staff with Professional Qualifications (such as medical,	²⁶ 70		

Marks Obt	ained: 12.27 Full Marks (100%): 10.00			
Criteria	Unit for KPI			
No. PhDs graduated	 Total No. in the year 			
	No. of PhDs graduated per academic staff			
	No. of PhD graduated within 7 semesters			
	% of PhD graduated within 7 semesters			
Postdoctoral appointment	No. of local Post-doctoral fellows active in the vear			
	No. of foreign active Post-doctoral fellows in the year			

Marks Obt	ained: 22.90 Full Marks (100%): 15.00		
Criteria	Unit for KPI		
Patents	a. Total No. patents granted		
	(i) National patents		
	(ii) International patents		
	b. Total No. patents filed in the year		
	(i) National		
	(ii) International		
Commercialized products	Total No. of new products licensed in the year		
Technology know-how licensing	Total No. of new technology know-how licensing in the year		
Total no of IPR(other than	28		

Faculty Star Rating

1	Marks	Star Rating (★)
J.,	> 100	****
	90 – 99	****
	80 – 89	***
	70 – 79	**
	60 – 69	*
	< 60	-

Evaluation every 4 months

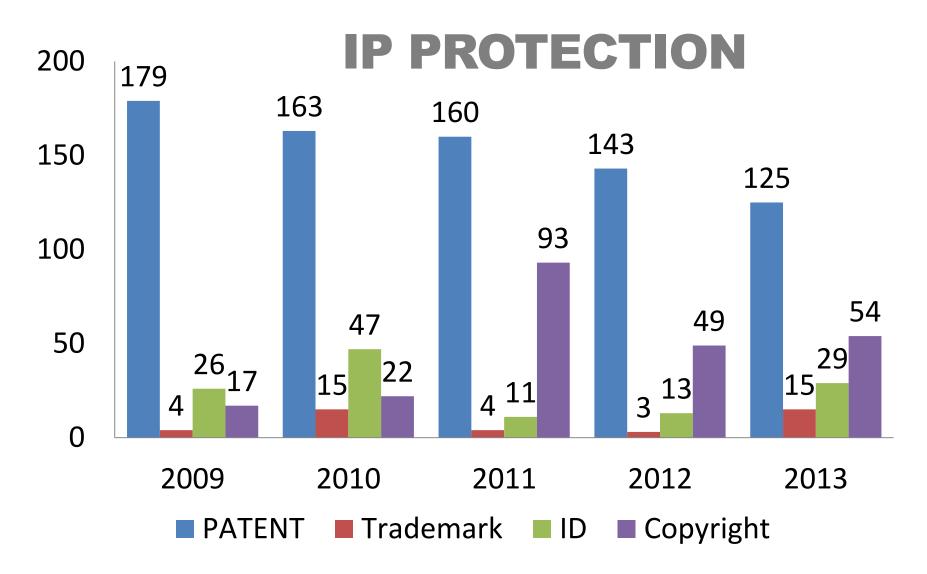
Faculty Star Rating

RANK	Faculty	NORMALIZE D	STAR
1	Fac. Biotechnology and Biomolecular Sciences	220.73	5
2	Fac. Food Science and Technology	204.77	5
3	Fac. Engineering	154.98	5
4	Fac. Science	138.44	5
5	Fac. Veterinary Medicine	134.03	5
6	Fac. Environmental Studies	133.15	5
7	Fac. Agriculture	129.40	5
8	Fac. Educational Studies	96.81	4
9	Fac. Forestry	94.67	4
10	Fac. Computer Science & Infor. Technology	94.60	4



Innovation How it is done at At Universiti Putra Malaysia





www.tncpi.upm.edu.my

Driver of Innovation

Cumulative Patent 2012

•Australia Brazil •Canada •China Egypt European Hong Kong India Indonesia •Japan •Korea Libya Mexico

 Morocco New Zealand Philippines Singapore South Africa •Sri Lanka Switzerland Taiwan Thailand •UAE United Kingdom •USA Vietnam

108 Filed in Foreign countries

Commercialisation

- Products commercialized 97
- Gross Sales > \$16.5 million
- Income (royalty, licenses fee, outright)

= \$2.9 millions

2015



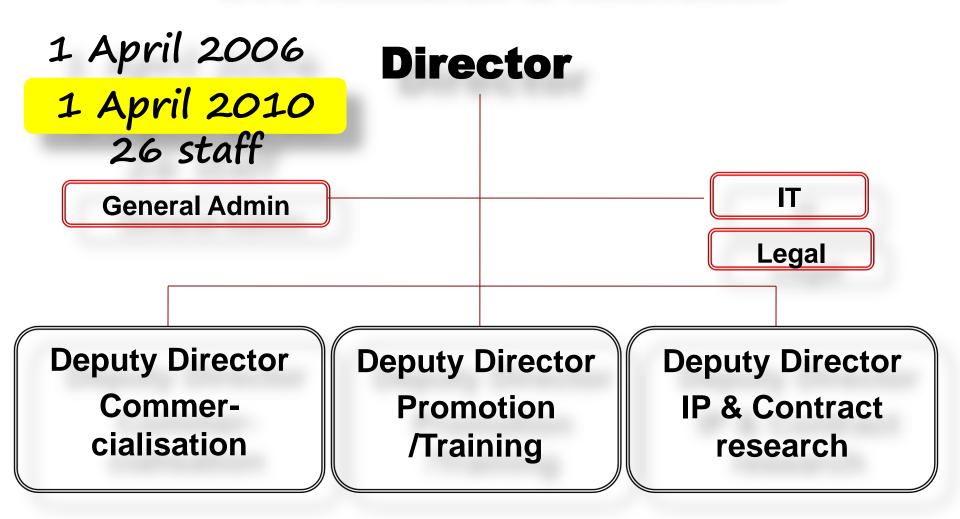
Establish a high profile





TTO Organisational structure

DVC Research & Innovation



Have the right expertise!







CERTIFICATE

This is to certify that PROF. DATO' DR. MOHAMED SHARIFF B. MOHAMED DIN

HAS COMPLETED THE WIPO TRAINING PROGRAM ON

WIPO Successful Technology Licensing (STL)

organized by the World Intellectual Property Organization (WIPO) Intellectual Property Corporation of Malaysia (MyIPO)

in cooperation with the KOREAN INTELLECTUAL PROPERTY OFFICE (KIPO)

HAJI SHUIB BIN MD YUSOP

DIRECTOR GENERAL

MyIPO

KUALA LUMPUR, MAY 30 TO JUNE 2, 2006

KAMIL IDRIS

DIRECTOR GENERAL

CERTIFICATE

THIS IS TO CERTIFY THAT

MINISTRY OF

AFFAIRS OF

AL AVSIA

DOMESTIC TRADE

AND CONSUMER

PROF. DATO' DR. MOHAMED SHARIFF MOHAMED DIN

INTELLECTUA PROPERTY

CORPORATION

OF MALAYSIA

(MYIPO)

WORLD

INTELLECTUAL

ORGANIZATIO

PROPERTY

HAS COMPLETED THE WIPO TRAINING PROGRAM ON

Advanced Successful Technology Licensing (STL) Workshop

organized by the World Intellectual Property Organization (WIPO)

in cooperation with INTELLECTUAL PROPERTY CORPORATION OF MALAYSIA (MyIPO)

KUALA LUMPUR, MARCH 5 TO 9, 2007

HAJI SHUIB BIN MD YUSOF DIRECTOR GENERAL, MVIPO KAMIL IDRIS DIRECTOR GENERAL, WIPO

Have the right expertise!

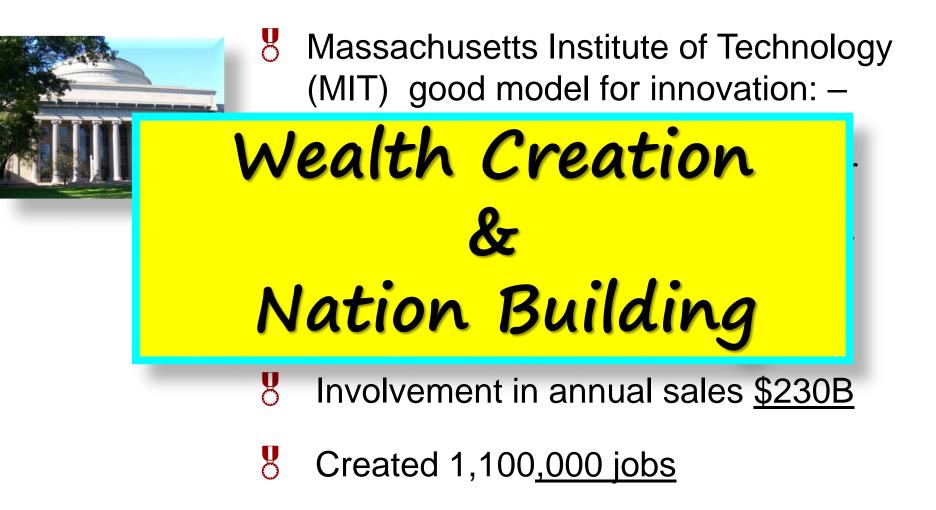
TTO Related Activities

- > New guidelines
- Innovation policy
- New funding mechanisms
- Incentives
- Trainings programs



Introduce concept of Wealth Creation Nation Building

University Innovation Model



Contribution towards nation building?

Zero contribution if technologies not commercialised





WIPO AWARD OUTSTANDING INVENTOR I-TEX'2000 KUALA LUMPUR



Good understanding of the clients!

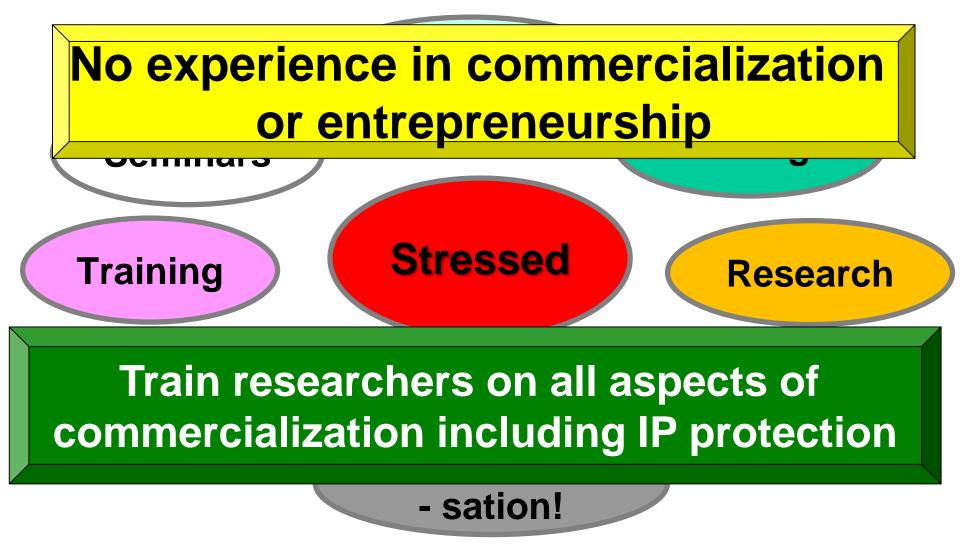
If you don't understand people You don't understand business

Simon Sinek



www.shutterstock.com 98110106

Researcher's role



Past main research output



Journal papers

Presentations at seminars – national & international meetings

Human resource development MSc, PhD

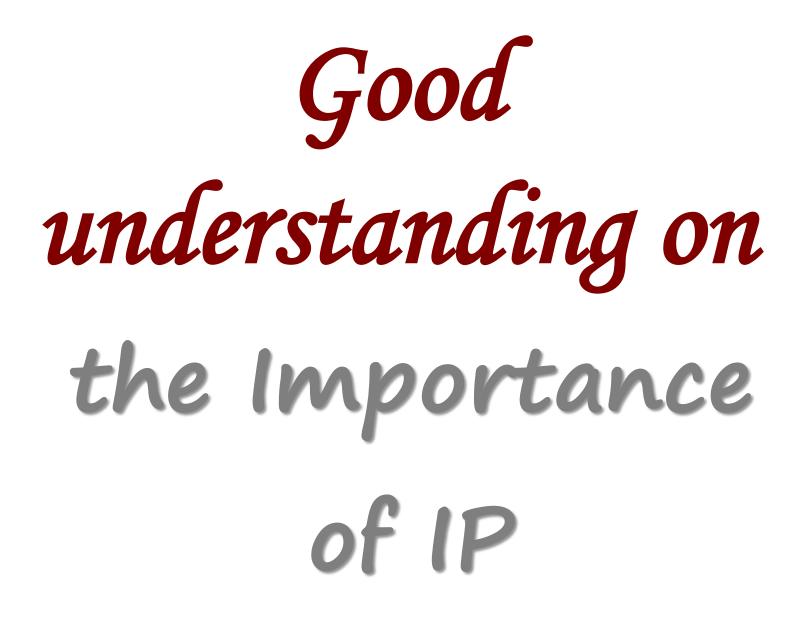
Additional research output

More

Develop IP & technology transfer culture

Change of mindset

Paradigm shift required



IP – A power tool

For:

- Economic development
- Wealth creation



Not yet being used to optimal effect in all countries, particularly in the developing world

Kamil Idris, DG WIPO

Palm oil industry 2011 - \$26 Billion for Malaysia

Patent - financial benefit to nation

- 20% OER (Malaysia average)
- \$26 Billion (2011)
- UPM New patented technology



OER increased by 1%

+ \$260 million







Awareness Campaign for top management

Awareness campaigns



Involve the total enterprise!

Top management



- Vice Chancellor
- Deputy Vice Chancellors



Registrar



Bursar



- Deans
- Deputy Deans

IP Commercialization Course





2 ½ day course for Univ Top Management







Awareness Campaign for researchers

Awareness campaigns

All academic staff



Road show to all faculties & Institutes

Get a feedback

Motivation!

Role of TTO to synergise with researchers







Training -Technology Transfer

Selected academic staff

Have a patent or potential candidates



Building core of knowledgeable group

SRI Commercialisation Training – 5 DOI

SRI International USA





Advanced Commercialisation Course Philip Mendes, Australia

Awareness campaign & training

- Phase I Awareness & training campaigns
- Phase II Introduce policy & guidelines
- Phase III Implementation of policy
- Phase IV Fine tuning & continuous improvement





Technology transfer Make it easy & flexible

Invention disclosure process

A new culture in the Univ. & PRIs!

Disclosure/ Evaluation of technologies



Meeting every 2 weeks



Meeting every Week

Learn about the technology
 Approve/reject patent/copyright/TS
 Fine tune

Disclosure/ Evaluation of technologies

Medical

AAA

Panel:

- Biotechnology
- Physics

- > Engineer
- > Business

Biology >> Chemistry

If approved: Send to patent filing agents (6)



- Panel members sign a non-disclosure agreement (NDA)
- **Documents only distributed during meeting**
- A Members cannot removed documents from meeting room

No circulating of documents for approval!



Role of patent panel

Whether suitable for filing

Assess novelty



- Non-obviousness
- Prior art
- - Differences between prior art & disclosed technology

Role of patent panel

Assess



- Check patent claims (too general, specific)
- ✓ Commercial potential
- Ownership & inventors
- Recommend changes if necessary

SULIT (CONFIDENTIAL) Patent application form PM/TNCPI/ICC/P01/PP/BR1



INNOVATION AND COMMERCIALISATION CENTRE

Tel: 03-8947 2055 Faks: 03-8947 2059 http://www.icc.upm.edu.my

PATENT APPLICATION FORM

Note:You are required to read about IPR before submitting your application for approval. Please visit the following websites:

http://www.wipo.int/patentscope/en/patents.html

http://www.myipo.gov.my/index.php?option=com_content&task=view&id=12&Itemid=7

Part A

Source of fund and Cluster : [√ or/atau X]

÷						
	Geran Penyelidikan / Source of fund	 Kod Projek / Project Code & Nilai geran / Grant Value (RM) 	<u>*Kelompok / Cluster</u>			
	 IRPA grant Fundamental grant 		☐ Agriculture ☐ Food ☐ Health			
	Science fund		Science, Technology and Engineering			

Applicant to visit WIPO website for info on Patents



Home > IP Services > PATENTSCOPE® > About Patents

PATENTSCOPE®

About Patents
 Meetings
 PCT Resources
 PCT Service Centre
 Database Search
 Data Services
 Publications
 Projects & Programs
 Patent Law
 Priority Documents

RELATED LINKS

Patent Classification: IPC Statistics Life Sciences

About Patents

- » General FAQs on Patents
 - What is a Patent?
 - What does a Patent do?
 - What kind of protection does a patent offer?
 - What rights does a patent owner have?
 - Why are patents necessary?
 - What role do patents play in everyday life?
 - What kinds of inventions can be protected?
 - Who grants patents?
 - How can a patent be obtained worldwide?

Part B:

Instruction: Please visit the following website to search for prior art of your invention. Indicate your keywords used for the search in the column below. Please refer to Appendix 1(a).

)atabases	Keywords search
 United States Patent and Trademark Office (USPTO) 	
<u>http://www.uspto.gov/patft/index.html</u>	
2. European Patent Office (EPO)	
http://ep.espacenet.com/	
3. Intellectual Property Office of Singapor	
<u>http://www.surfip.gov.sg/</u>	
4. The Industrial Property Digital Library	
(IPDL, JPO)	
http://www19.ipdl.inpit.go.jp/PA1/cgi-	
<u>bin/PA1INIT?1175476102765</u>	
5. PatentScope, (WIPO)	
http://www.wipo.int/pctdb/en/	-

PRIOR ART

Describe novelty, inventive steps and industry application of your invention and compare with prior technology

PATENT	CURRENT TECHNOLOGY	PRIOR TECNHOLOGY	PRIOR TECNHOLOGY
REQUIREMENTS		(CiderSure 3500B)	(Aquionics UV reactor)
Novel process/ product	 The tubing is coiled along the five UV amps to increase the surface of contact and the 6th UV lamp will be the supporting UV-C source for the lamps. The secondary flow enhance the mixing process of the fresh fruit juice during the process. 	 A thin film of about 0.08-cm annular gap between the inner surface of the chamber and the outer surface of the quartz sleeve. Three individual treatment chambers are connected around eight concentrically located tubes. 	 Treatment is achieved by passing liquid through a stainless steel chamber containing UV emitting low pressure arc tubes. Each single arc tube is mounted in a quartz sleeve and fitted within the chamber allowing the liquid to pass the sleeve on all sides.

Process for Invention disclosure

Complete Invention Disclosure Form & Submit with prior art search documents

Applicant invited within 2 week for invention disclosure presentation

Approval/rejection letter sent within 1 week & if approved a copy to patent agent

The process at TT office - 3 weeks

Process for Invention disclosure

Agent meets applicant in TT office or faculty to assist finalise patent document

Agent given 3 months to work with Applicant to finalise patent document

TT office monitors document quality

Agent files for registration at MyIPO

IP Management

Patent before participation in exhibitions/seminars

& publishing

Protect the technology!

IP Management

Non disclosure agreement :-





New guidelines!

Ownership of IP Rights and Revenue Sharing



Basic concept of IP ownership

In public institutions

A staff member invention in the field of employment (regardless of time of day invented) belongs to the employer

Basic concept of IP ownership

Sponsored research projects -Depends on various factors

- Governed by employment contract
- Source of funding for project government or private funds
- Contractual agreement

Income for Researchers

Distribution of income generated from commercialisation

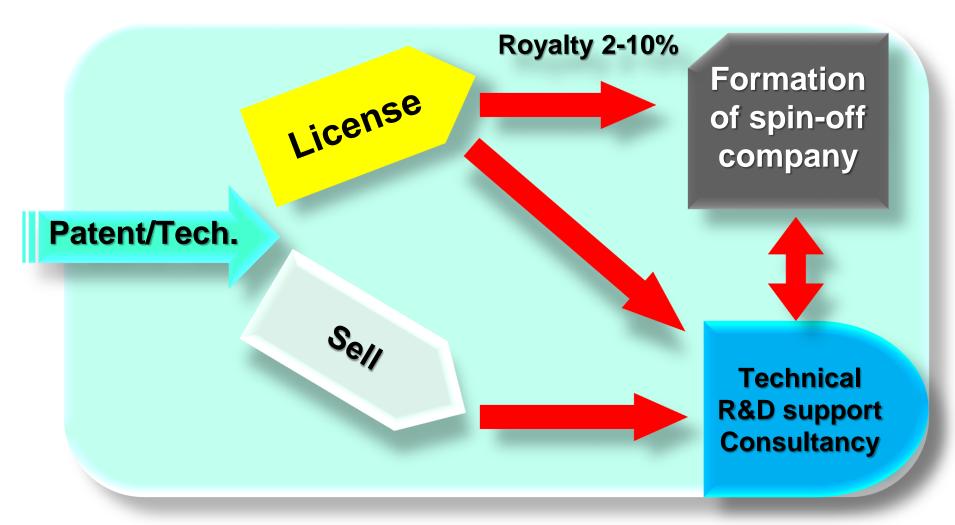
Researcher/ Inventor **75%**

University 25%



Modes For Technology Transfer

Modes : Technology Transfer



Importer of products – Unfriendly terms

Identify team of local scientists X 4 meetings

Agree :

Collaborate to develop in house technology

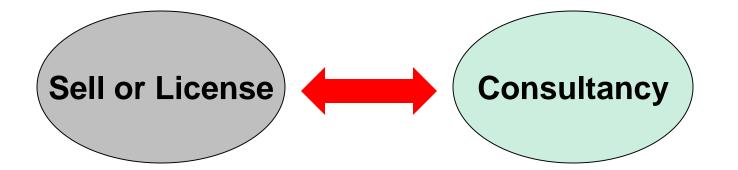
Form spin off Co. & have equity in Co.

Apply for fund to upscale technology

Sign non disclosure agreement (NDA)



Equity in Company

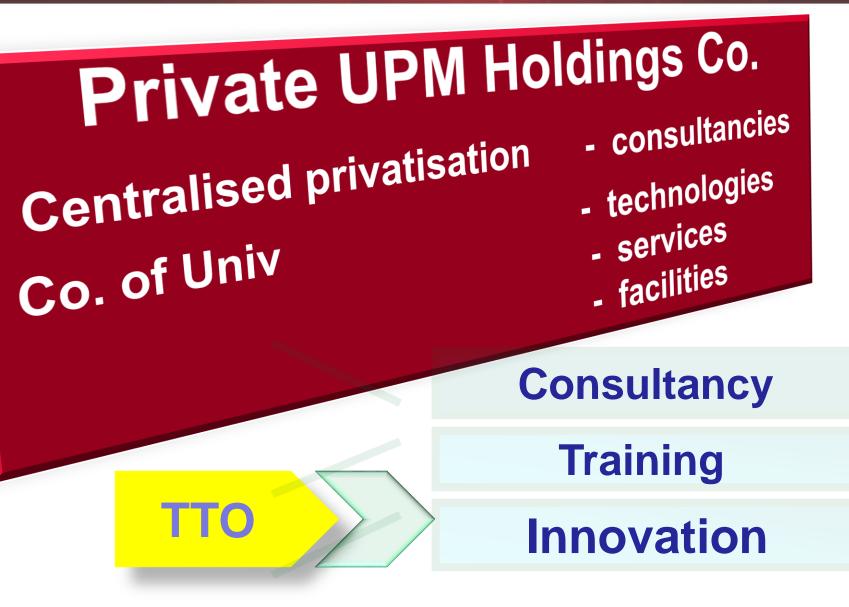


10% University Holdings

10-30% Researcher/Technical director Negotiable

60-70% Entrepreneur

Univ. Company



Incentives for invention

Provide incentive schemes for Inventor(s)

- Upon Filing of Patent : \$1,615
- Upon Grant of Patent : \$3,230





EMIK NEGA 200 IGAJ Oleh: lh Haji eri Mala 2008 yen Antaraban rdan

Best R&D university commercialised product award - \$16,000

DR. OSUMANU HARUNA AHMED Senior Lecturer

Department of Crop Science Faculty of Agriculture and Food Science (UPMKB) Agriculture Sciences, Soil and Water Sciences

are rotten, never say die."

"Until the bones

a world leader in pew tropical agriculture

Until the bones are rotten never say die!

C Dec 2009 M. Shariff, UPM All Rights Reserved





Bestowed the honorific title "Dato"

Commercialised Technology









Fiber Duplexer Module



Stone Mastic



MRT Latexometer™

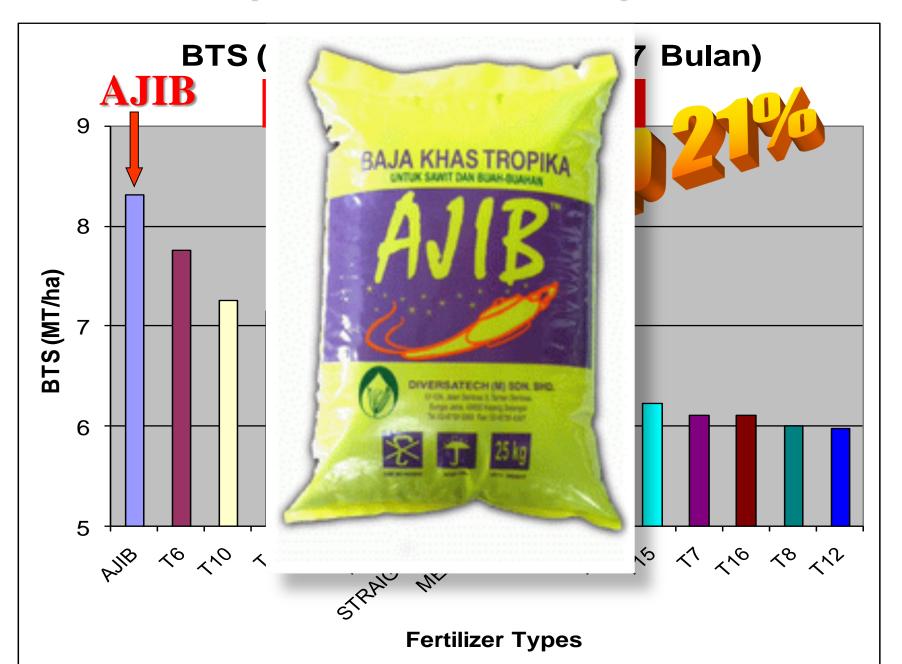




Was sold in

Australia
India
Indonesia
Malaysia
South America
Sri Lanka (FAO)
Thailand

Rank top out of 16 others products !





Issues & Challenges



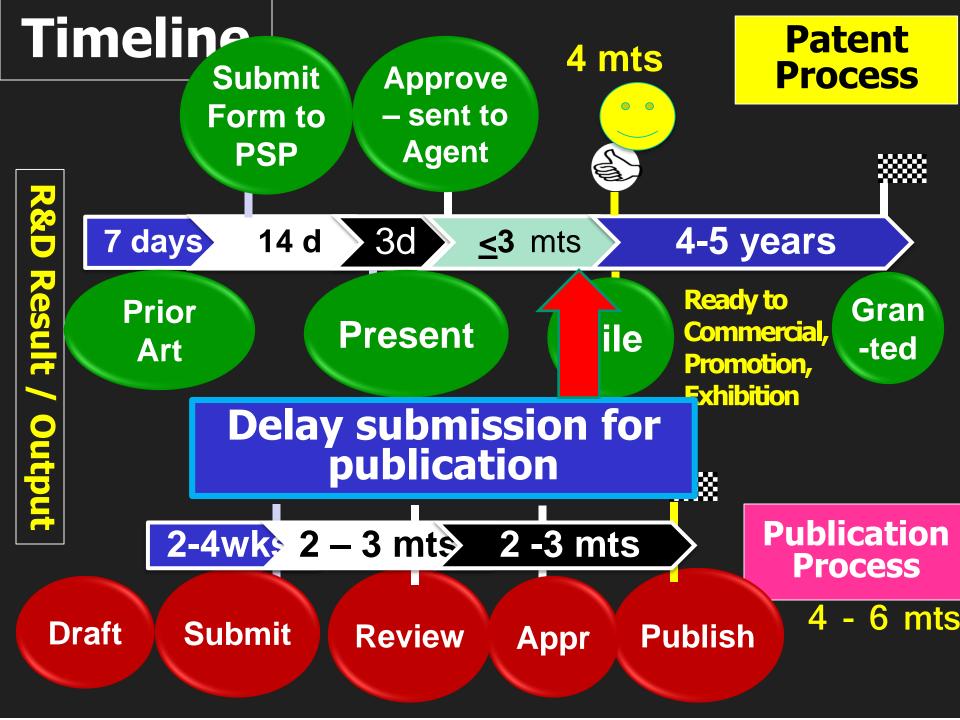
Disclosure of critical technology knowledge

Scientist very found of telling everything to everybody!

WARNING !

Your invention can be STOLEN by someone! You may LOSE your invention that HAS BEEN DISPLAYED IN THE PUBLIC DOMAIN Somebody can steal it! SOMEBODY WANTS IT F.O.C

To protect your invention please call PSP : 03 – 8947 2055 www.icc.upm.edu.my



New culture & shy scientists

The TT/ commercialization/ business is a new culture in University

Scientists not aggressive in marketing themselves & their products

Importance of a right partner

Finding the right collaboration/ business partner is an important process



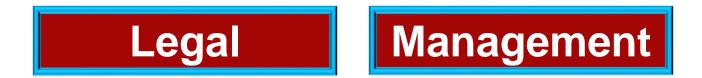
Work with global partners

Local market small & non sustainable



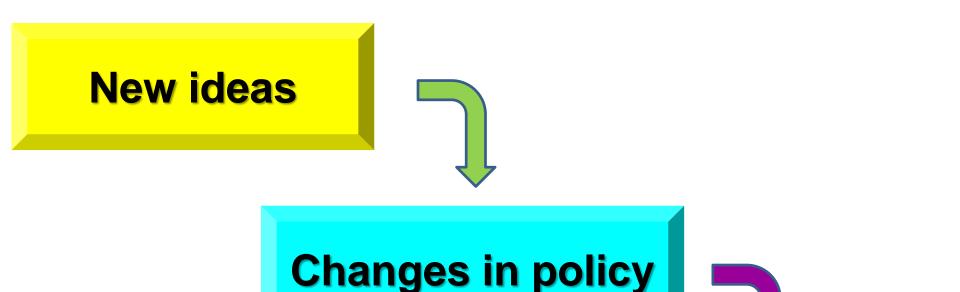


Approval from various levels



For private sector – time is money

New Leaders



Attempt to minimise disruption



Unpredictable changes

Private sector – loses trust with the institution

Private sector's perception

Private sector skeptical of local Technologies

Work smart to win them

Convince the industry World class expertise & technologies

Win - Win situation = smart partnership



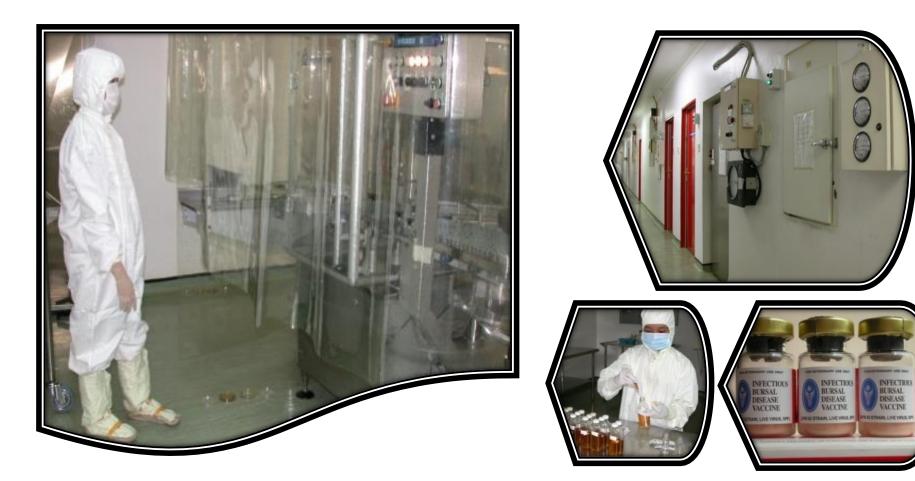
Clearly spell out TOR

Obligations & responsibilities of each party

Milestones & payments



Poultry vaccines production



GMP

Kaizen- continuous improvement







Whatever you do, do it with



