



**UPM**  
UNIVERSITI PUTRA MALAYSIA  
BERILMU BERBAKTI

# Using IP for economic growth & Development: The Role of industrial property with emphasis for national technological capacity building



**Mohamed Shariff Mohamed Din**

**Advisor, Putra Science Park  
Universiti Putra Malaysia**

# Mohamed Shariff

- ☺ **Universiti Putra Malaysia (since 1977)**
- ☺ **Doctor of Veterinary Medicine**

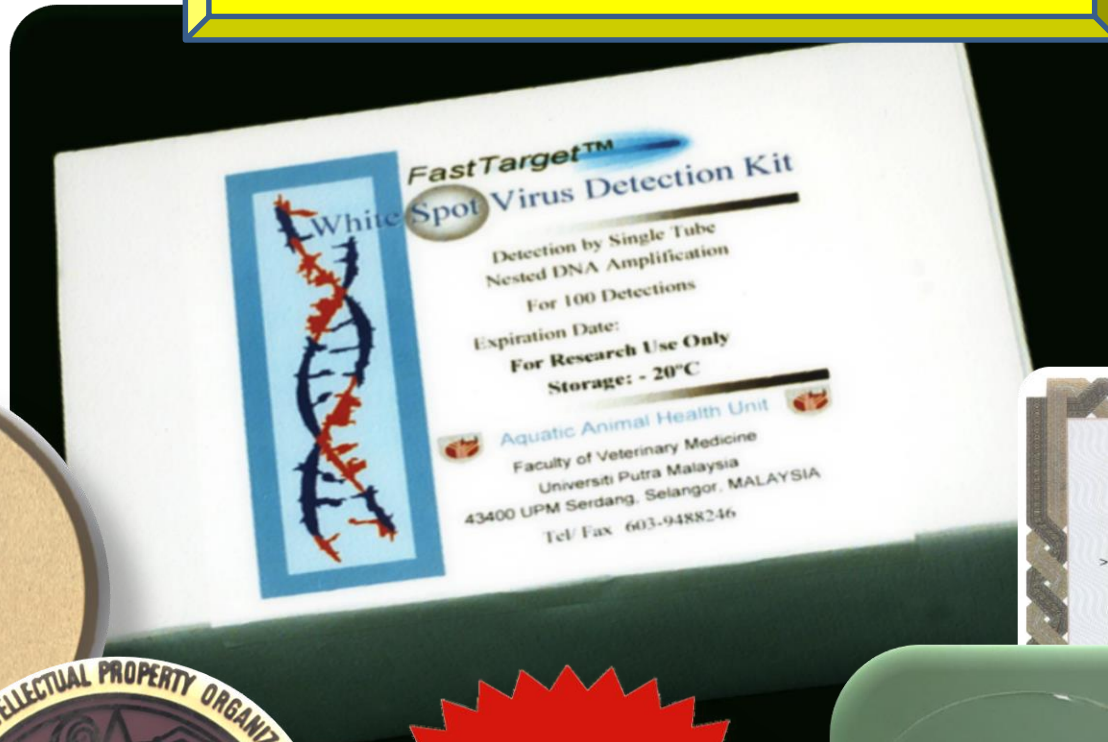
**Fish/shrimp doctor**



# FAST TARGET™ WHITE SPOT VIRUS DETECTION KIT

2000

Sold in a few countries



# Mohamed Shariff



**2006 -2010**



**Director, Innovation and  
commercialisation Cen**



**2010 - 2013**

**Director,  
Putra Science Park**

- **Scientists**
- **Inventor**
- **Commer  
technology**
- **Established  
Comm.  
Centre - 7 yrs**
- **Still fish Dr.**



# Universiti Putra Malaysia

## Academic staff

<b>Professor</b>	<b>204</b>
<b>Lecturers/ Tutors</b>	<b>1934</b>
<b>International Lecturers</b>	<b>84</b>

**75.7%**  
**Academic**  
**Staffs**  
**with PhD**



**Patents Granted**

**182**

**704**

**Patents Pending**

**Industrial Design**

**104**

**281**

**Copyright**

# Contents



**Global competitive index**



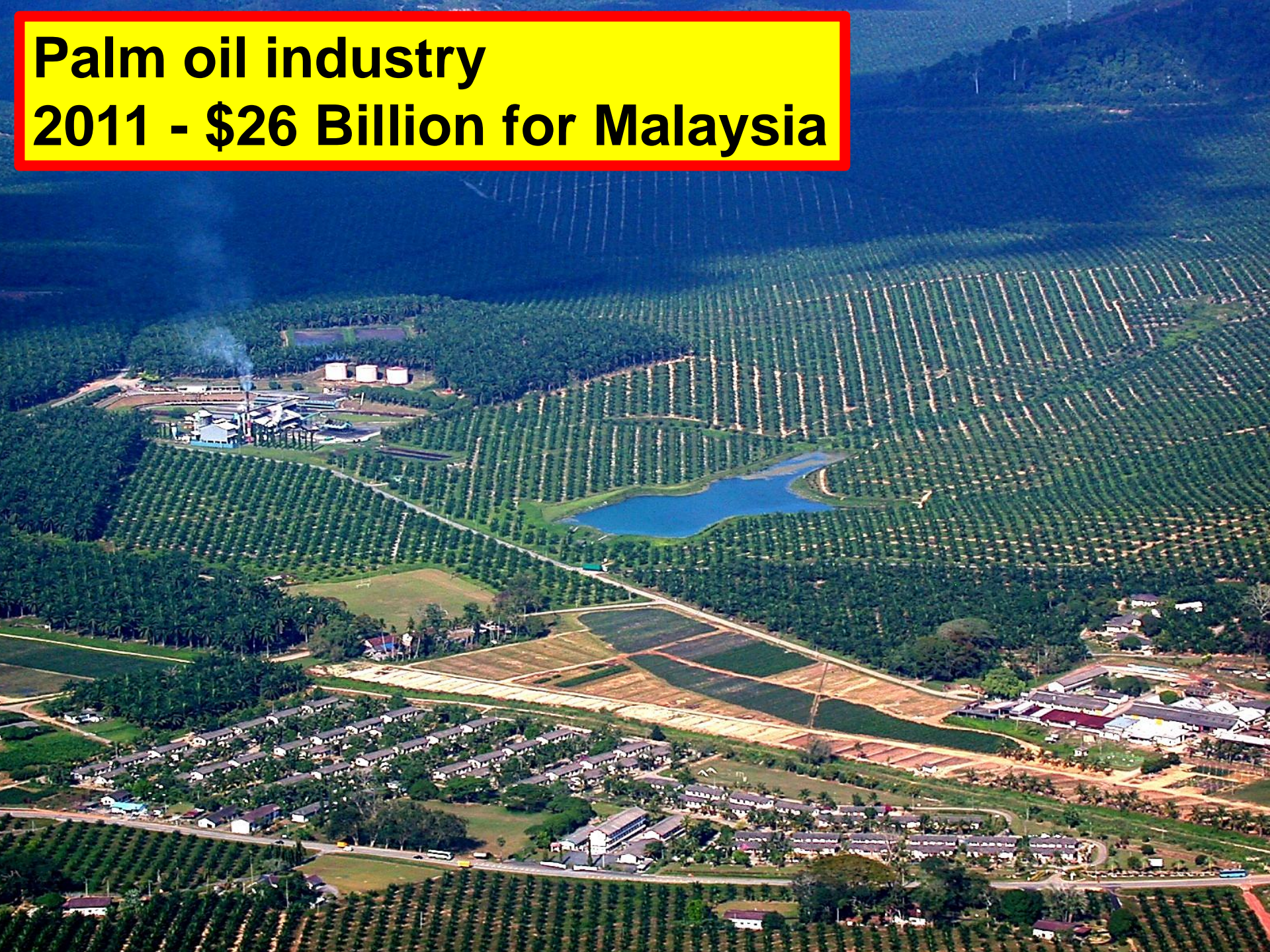
**Preconditions for successful  
technology transfer**



**Details - tomorrow**



# **Palm oil industry 2011 - \$26 Billion for Malaysia**





# Patent - financial benefit to nation

**20% Oil Extraction Rate (OER)**

**\$26 Billion (2011)**



**OER increased by 1%**

**+ \$260 million**

**increase by 2%**

**+ \$320 million**

# Global Competitiveness Index 2014

Rank	Country
20	Malaysia
39	Mauritius
56	South Africa
72	Morocco
74	Botswana
90	Kenya
96	Zambia
106	Gabon
111	Ghana
112	Senegal
115	Cote d'Ivoire
116	Cameroon
118	Ethiopia
119	Egypt
121	Tanzania
122	Uganda
124	Zimbabwe
127	Nigeria
128	Mali
130	Madagascar
132	Malawi
133	Mozambique
135	Burkina Faso
140	Angola

*“The set of factors, policies and institutions that determine the level of productivity of a country taking into account its level of development.”*

**Northern & Sub-Saharan Africa**

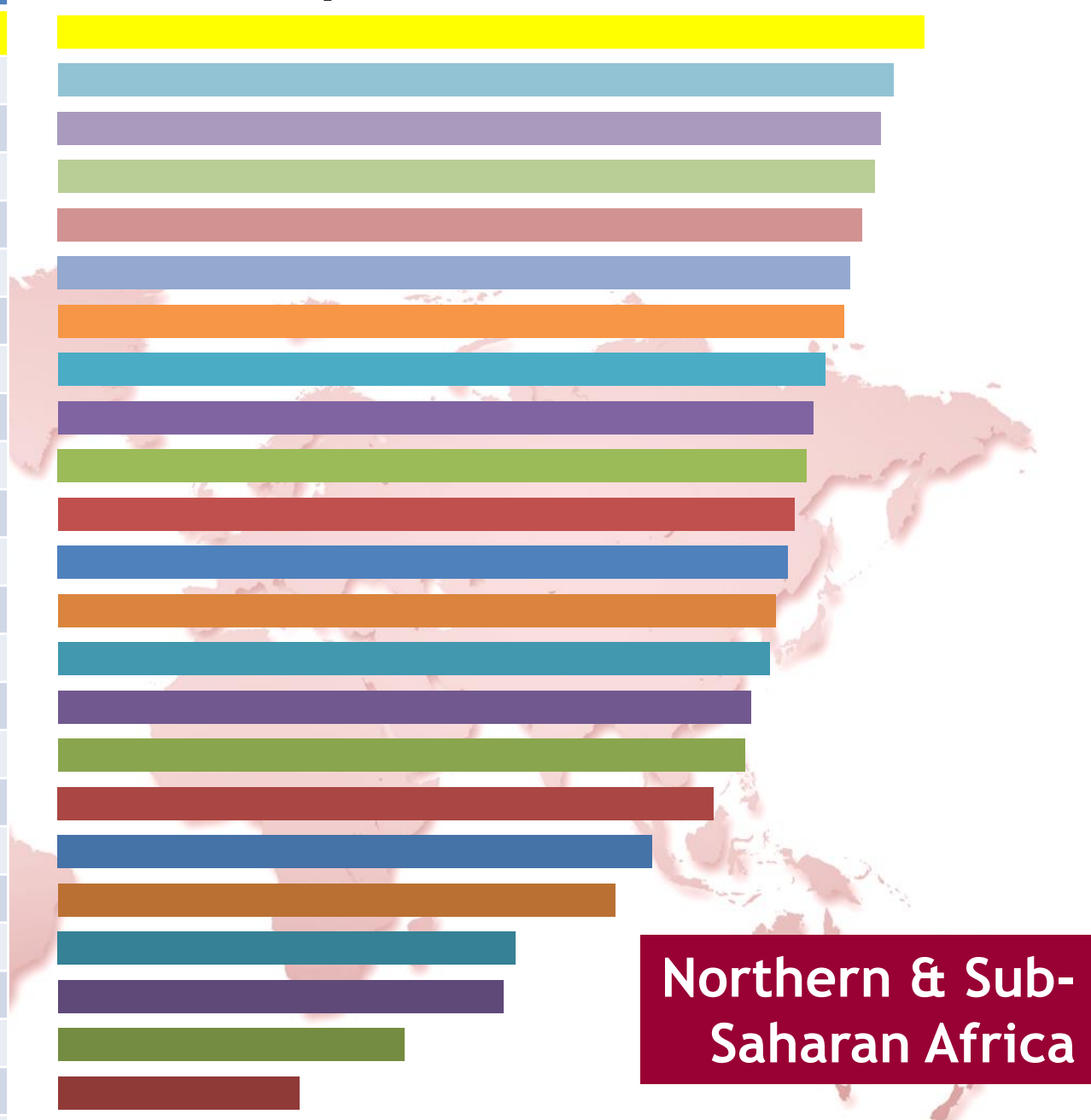
# The 12 Pillars of Competitiveness



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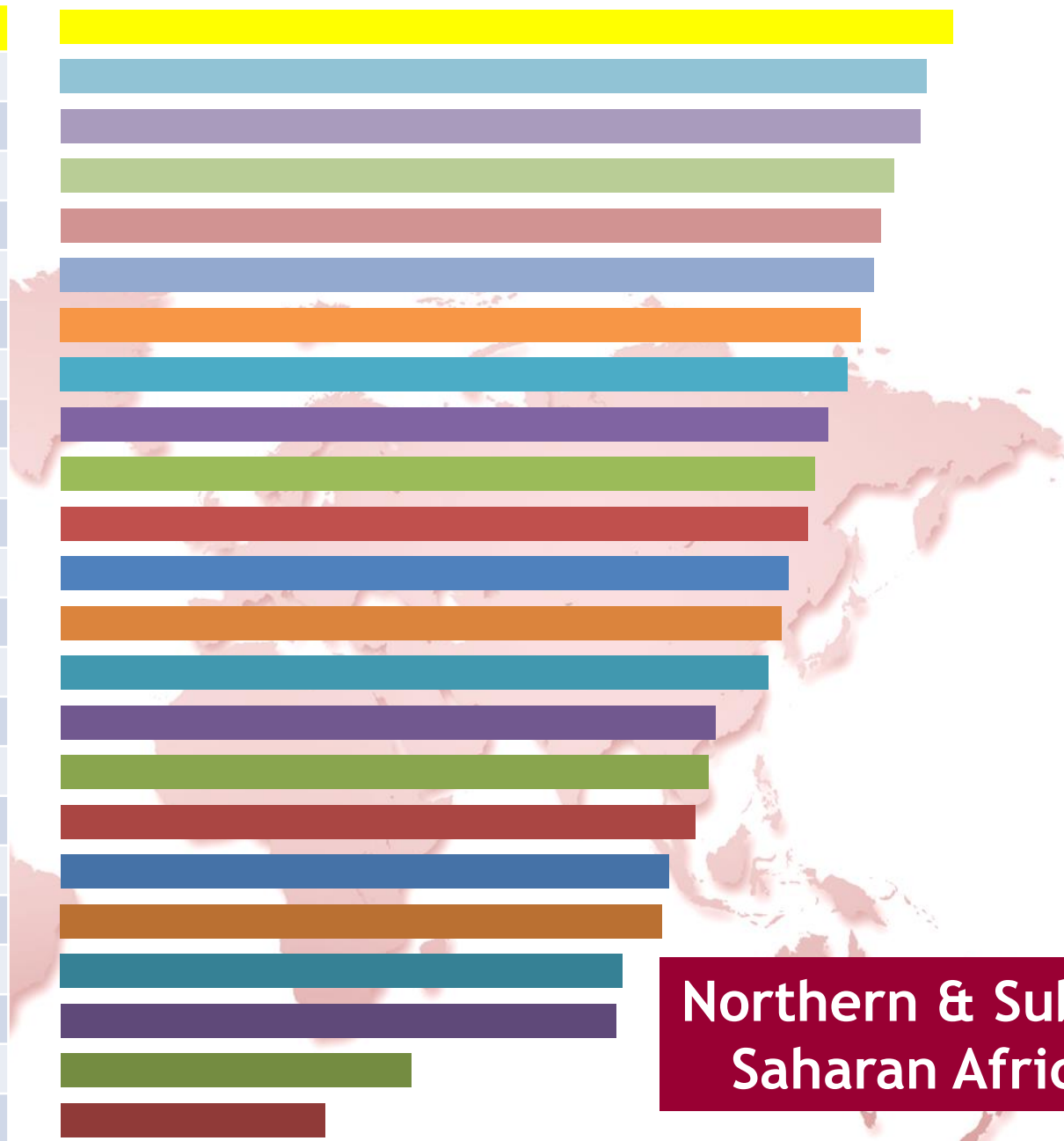
# Global Competitiveness Index 2013-2014

2014	2013	Country
20	24	Malaysia
39	45	Mauritius
56	53	South Africa
72	77	Morocco
74	74	Botswana
90	96	Kenya
96	93	Zambia
106	112	Gabon
111	114	Ghana
112	113	Senegal
115	126	Cote d'Ivoire
116	115	Cameroon
118	127	Ethiopia
119	118	Egypt
121	125	Tanzania
122	129	Uganda
124	131	Zimbabwe
127	120	Nigeria
128	135	Mali
130	132	Madagascar
132	136	Malawi
133	137	Mozambique
135	140	Burkina Faso
140	142	Angola



# Global Innovation Index 2013-2014

2014	2013	Country
33	32	Malaysia
40	53	Mauritius
53	58	South Africa
84	92	Morocco
85	99	Kenya
91	89	Uganda
92	91	Botswana
96	94	Ghana
98	96	Senegal
99	108	Egypt
107	121	Mozambique
109	116	Burkina Faso
110	120	Nigeria
113	119	Malawi
114	125	Cameroon
116	136	Cote d'Ivoire
119	106	Mali
121	118	Zambia
123	123	Tanzania
124	140	Madagascar
126	129	Ethiopia
130	132	Zimbabwe
131	131	Niger
135	135	Angola



**Northern & Sub-Saharan Africa**



# Sub-Saharan Africa



- High variation - 45 to 148
- Overall, sub-Saharan trails rest of world especially in basics:
  - ✓ Institutions
  - ✓ Infrastructure
  - ✓ & Higher education
- Comparatively stronger performance in market pillars
  - ✓ Goods
  - ✓ Labour
  - ✓ financial

# Uganda - Key Indicators

<b>Global Competitiveness Index</b>	Rank (out of 144)	Score (1–7)
<b>Basic requirements (40.0%)</b> .....	<b>122</b> .....	<b>3.7</b>
Institutions .....	125 .....	3.2
Infrastructure .....	133 .....	2.1
Health and primary education..	124 .....	4.4

# Uganda - Key Indicators

<b>Efficiency enhancers (50.0%)</b> .....	<b>141</b>	<b>.....2.8</b>
Higher education and training.....	133	.....2.5
Goods market efficiency .....	134	.....3.6
Labor market efficiency .....	122	.....3.7
Financial market development .....	138	.....2.7
Technological readiness.....	141	.....2.2
Market size.....	130	.....2.4
<b>Innovation and sophistication factors (10.</b>	<b>136</b>	<b>.....2.7</b>
Business sophistication .....	137	.....3.0
Innovation.....	135	.....2.4



# The Global Competitiveness Index in detail

INDICATOR	VALUE	RANK/144
<b>1st pillar: Institutions</b>		
1.01	Property rights .....	3.4 ..... 112
1.02	Intellectual property protection .....	2.7 ..... 124
1.03	Diversion of public funds .....	2.0 ..... 134
1.04	Public trust in politicians.....	2.5 ..... 94
1.05	Irregular payments and bribes.....	2.8 ..... 128
1.06	Judicial independence.....	3.0 ..... 106
1.07	Favoritism in decisions of government officials .....	2.6 ..... 103
1.08	Wastefulness of government spending.....	2.5 ..... 109
1.09	Burden of government regulation .....	3.7 ..... <b>42</b>
1.10	Efficiency of legal framework in settling disputes ....	3.8 ..... 61

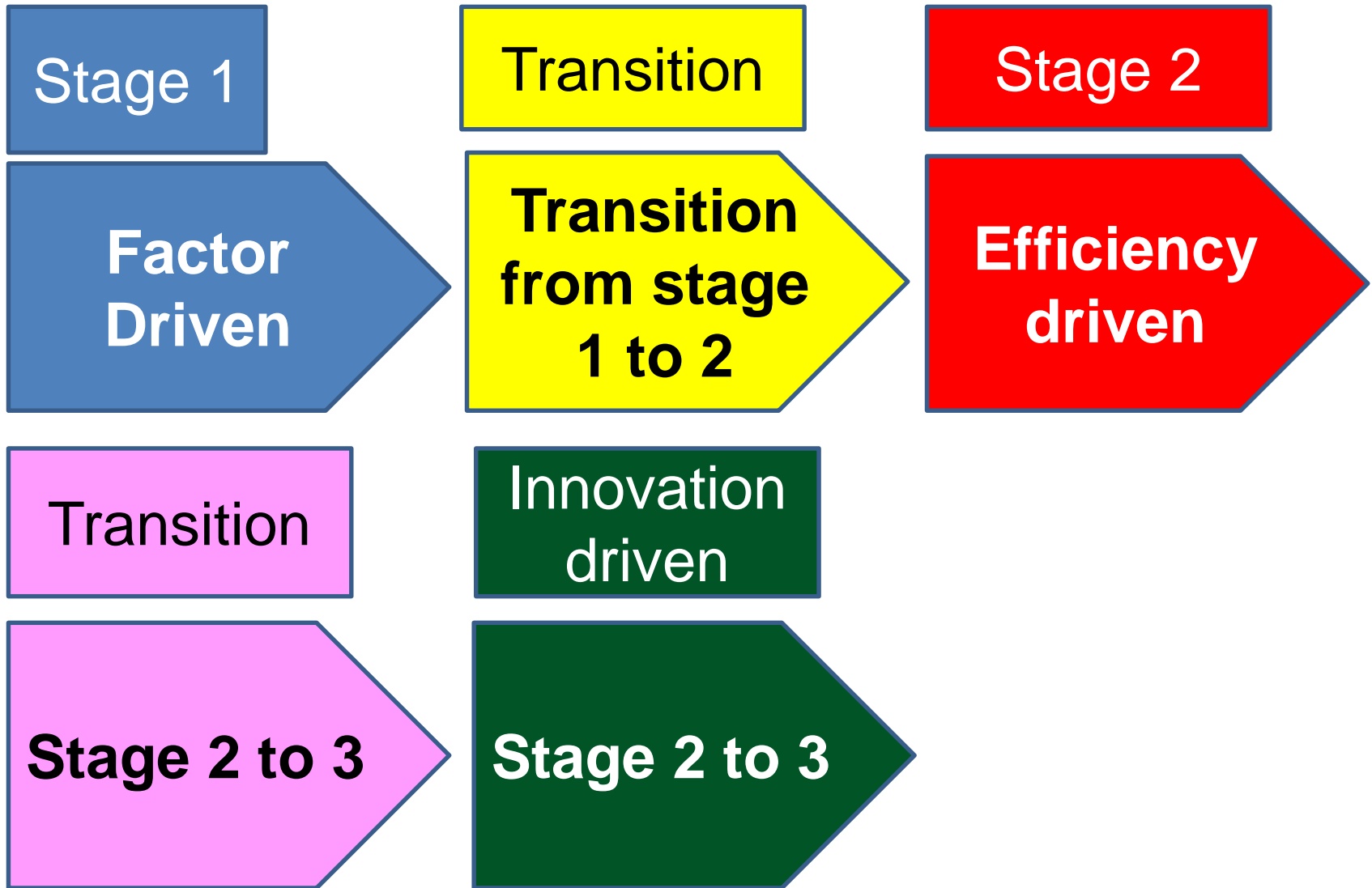
# The Global Competitiveness Index in detail

INDICATOR		VALUE	RANK/144
<b>12th pillar: Innovation</b>		<b>10</b>	
.01	Capacity for innovation.....	3.5 ..	..90
.02	Quality of scientific research institutions .....	3.6 ..	..78
.03	Company spending on R&D.....	2.9 ..	..97
.04	University-industry collaboration in R&D .....	3.7 ..	..62
.05	Gov't procurement of advanced tech pro... ..	3.4 ..	..72
.06	Availability of scientists and engineers .....	3.5 ..	105
.07	PCT patents, applications/million pop.* .....	0.0 ..	112

# The most problematic factors for doing business

Corruption .....	17.0
Access to financing .....	16.7
Inefficient government bureaucracy .....	11.3
Tax rates.....	10.3
Inadequate supply of infrastructure.....	10.0
Tax regulations .....	6.7
Inflation.....	6.6
Inadequately educated workforce.....	6.2
Poor work ethic in national labor force .....	4.7
Crime and theft .....	2.8
Insufficient capacity to innovate .....	2.7
Restrictive labor regulations.....	1.6
Poor public health .....	1.1

# Stages of development



Bangladesh  
Burkina Faso  
Burundi  
Cambodia  
Cameroon  
Chad  
Côte d'Ivoire  
Ethiopia  
Gambia, The  
Ghana  
Guinea  
Haiti  
India  
Kenya

Kenya  
Kyrgyz Republic  
Lao PDR  
Lesotho  
Madagascar  
Malawi  
Mali  
Mauritania  
Mozambique  
Myanmar  
Nepal  
Nicaragua  
Nigeria

Nigeria  
Pakistan  
Rwanda  
Senegal  
Sierra Leone  
Tajikistan  
Tanzania  
Uganda  
Vietnam  
Yemen  
Zambia

> 70 % of exports made up of mineral products (5 year average) are to a large extent factor driven.



# Natural Rubber



**Processing  
raw rubber  
sheets**

**Exported smoked  
rubber sheet**

**Sold at relatively  
low price**

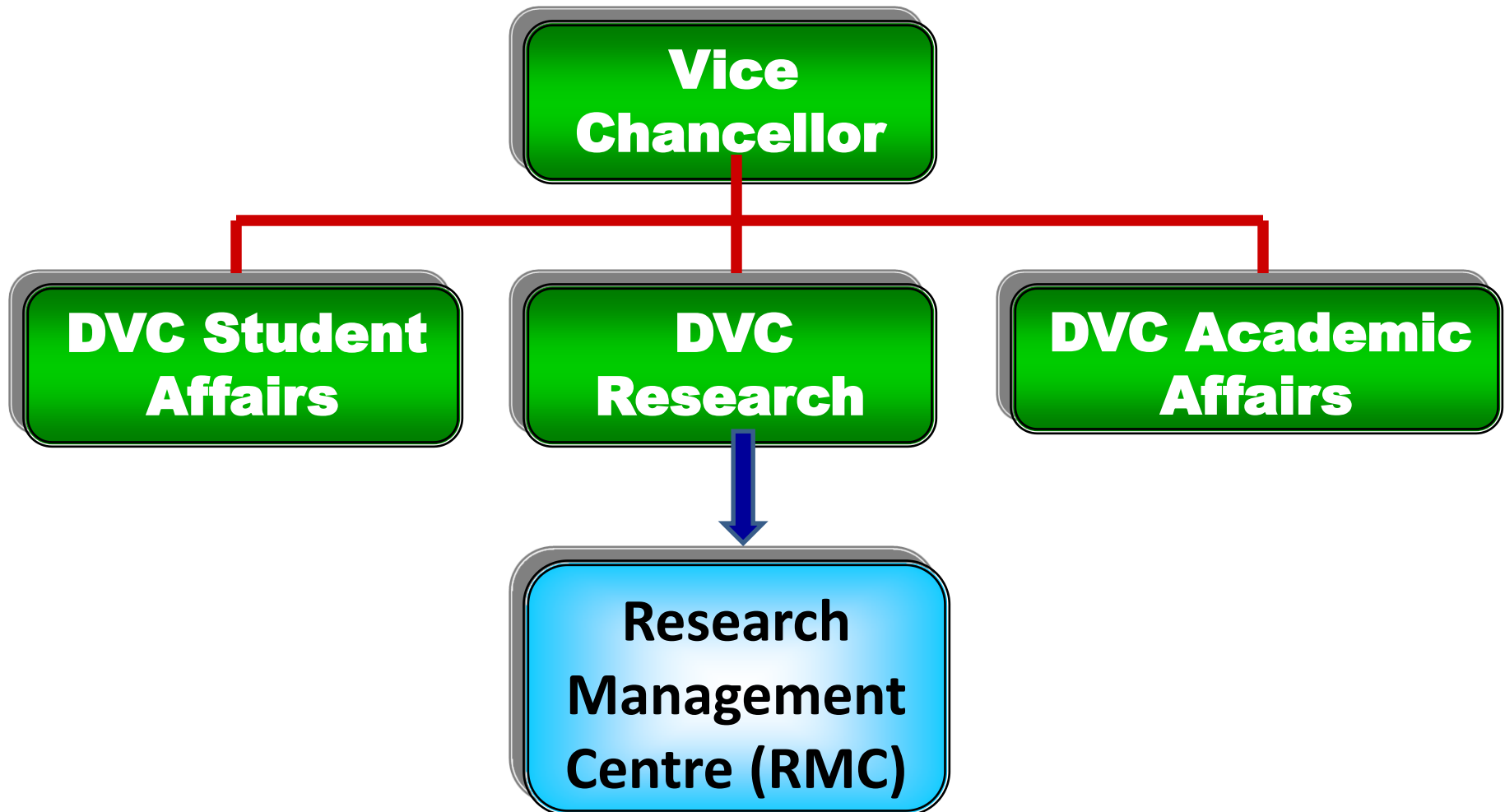


*Preconditions for  
successful  
Technology  
Transfer*

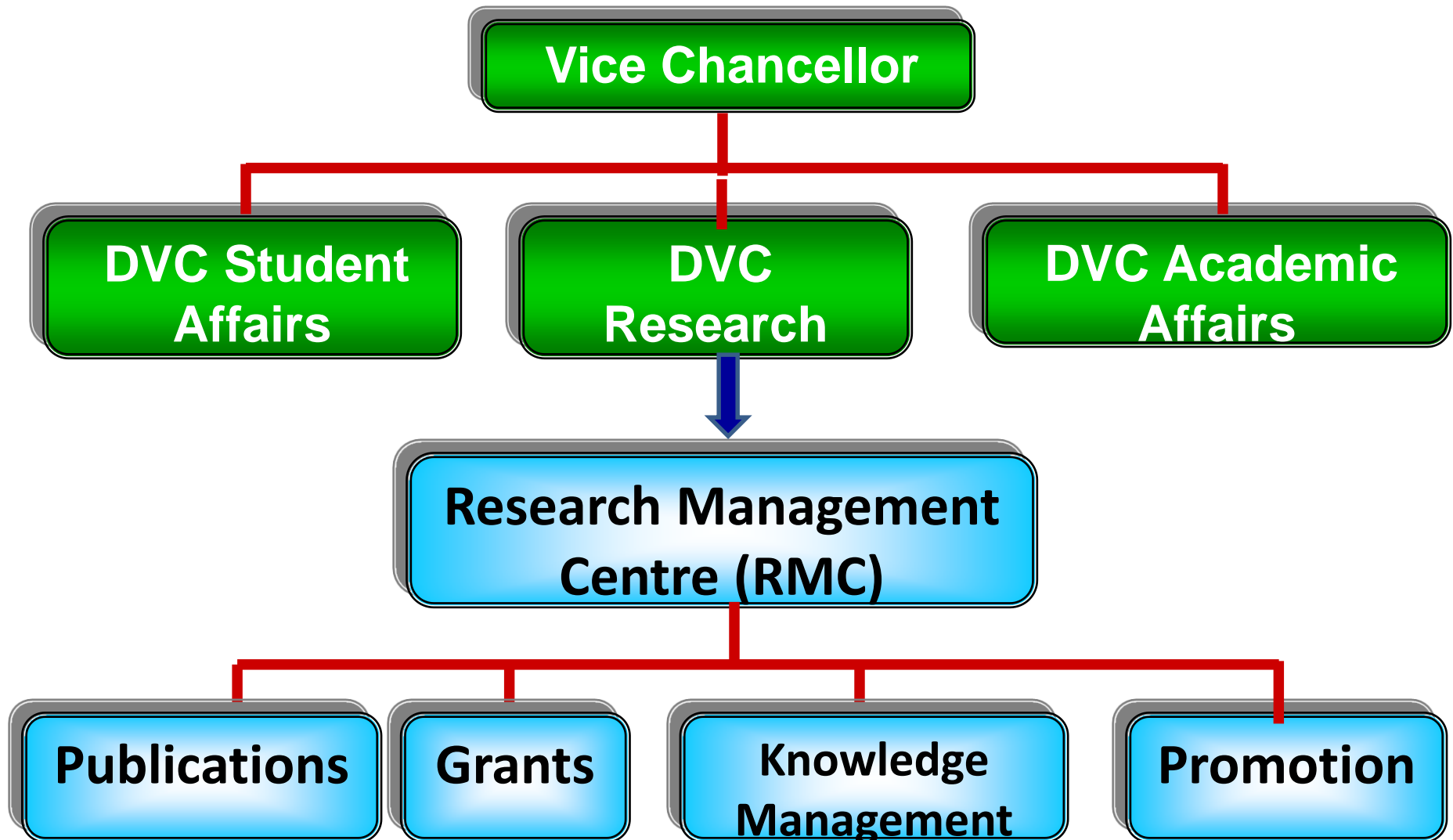
# *Establish TMO*



# General Organization of Univ. Administration & Research Management

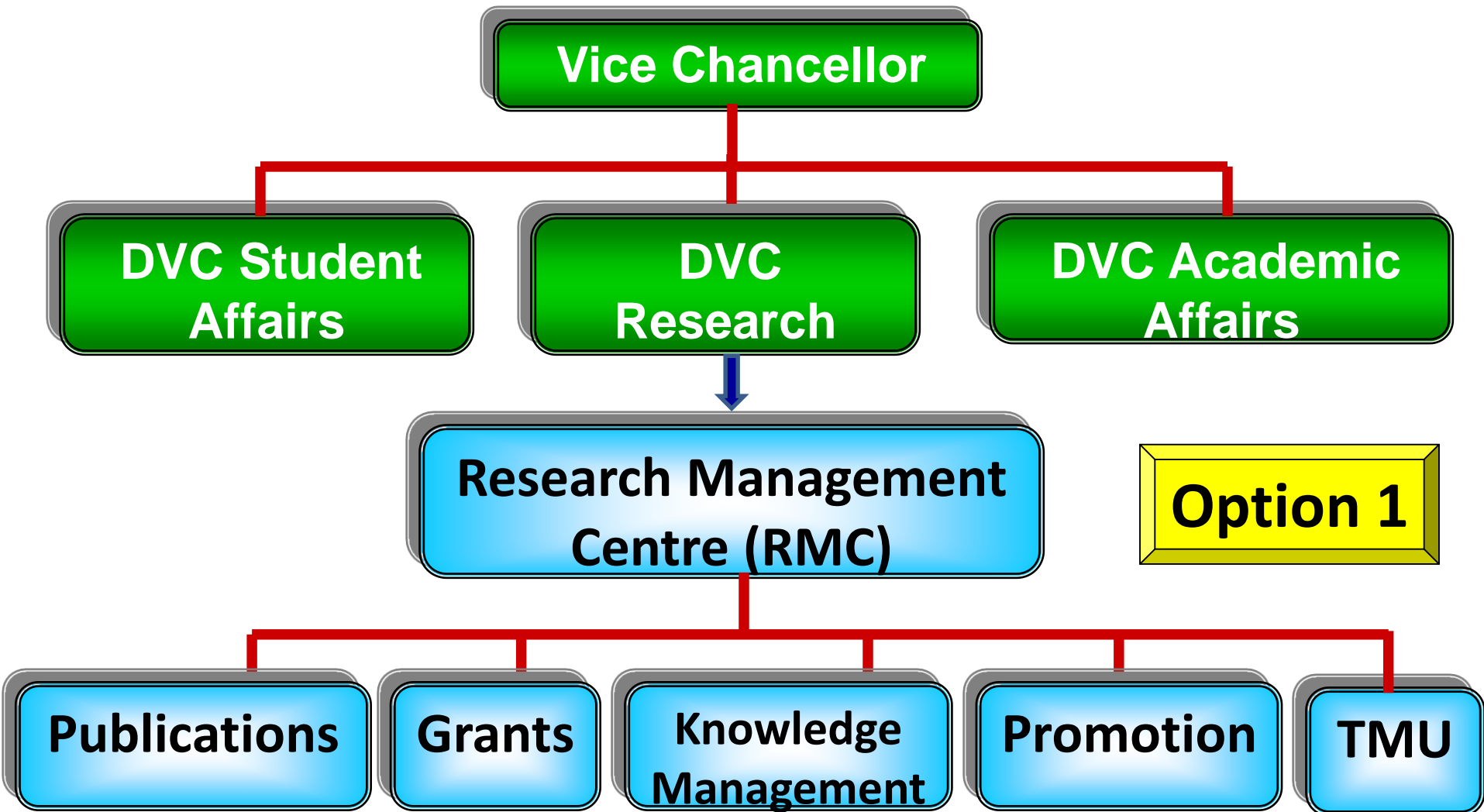


# General Organization of Univ. Administration & Research Management

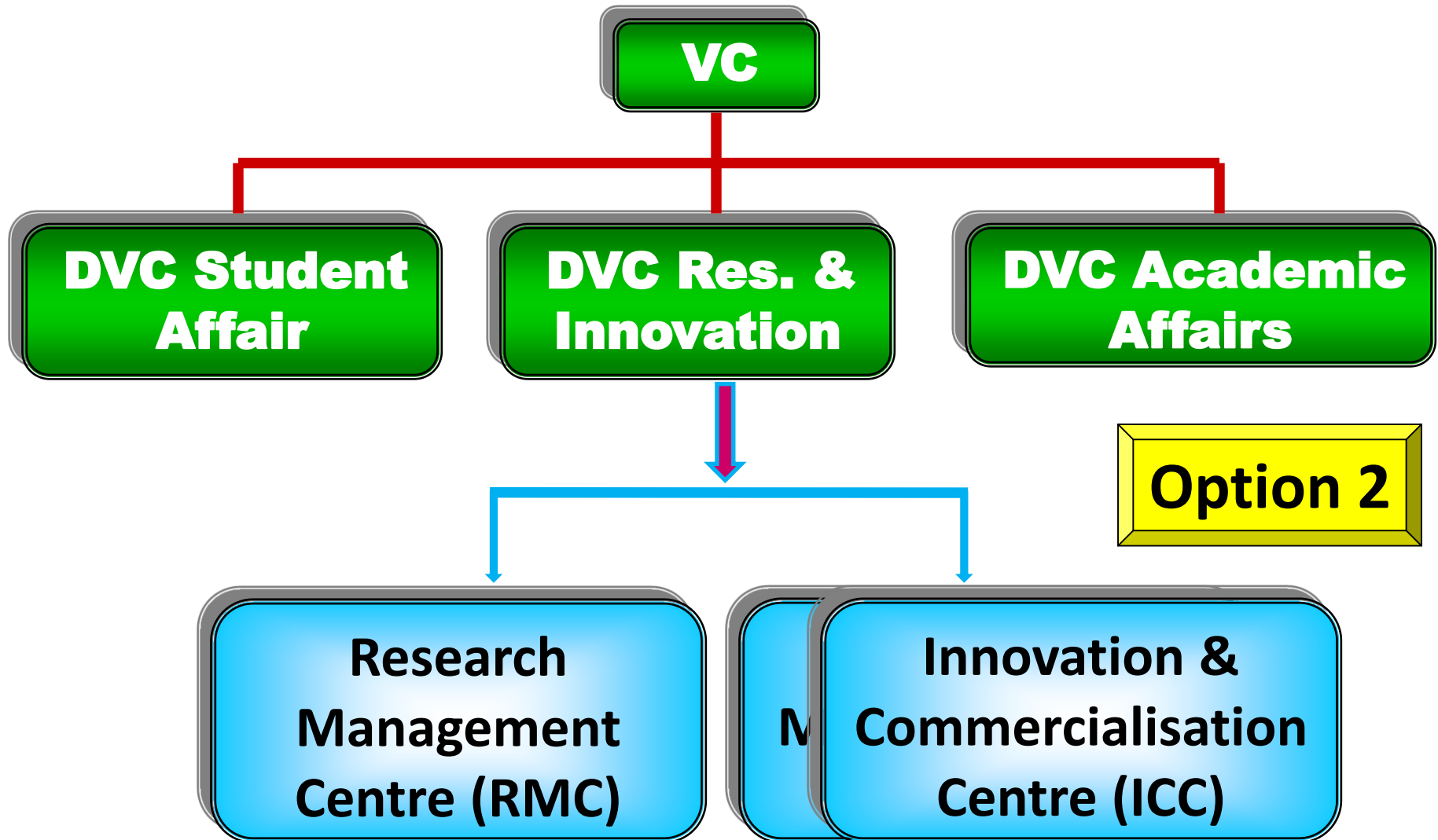




# Organizational Options for Tech. Management Unit



# Organizational Options for Tech. Management Unit



# University Co. for Operational Flexibility

**Private UPM Holdings Co.**

**Centralised privatisation**

**Co. of Univ**

- consultancies
- technologies
- services
- facilities

**Consultancy**

**Training**

**Innovation**

**TTU**

# *Skills required to Manage IMO*



# TMO must have trained staff

## Have the right expertise!





# **Strong leadership**

- **Deep understanding about role of TMO**
- **Have great talent to contribute towards development of TMO**
- **Able to drive forward all staff to achieve excellence**
- **Able to engage with academics and business**

# *Political Commitment*



# Innovative Nation



To become an innovative nation, we need a mental transformation in the Government, industry and the education sector. This is to shape the attitude of our future generation. This is our mission”

Hon Prime Minister of Malaysia

# Policies



AGENSI INOVASI MALAYSIA

# INNOVATING MALAYSIA

A Joint Effort by  
**MOSTI & AIM**

**NATIONAL INNOVATION POLICY**

# Policies that will

- **Facilitate**
- **Motivate**
- **Enhance**

**User friendly policies &  
guidelines**



# Management of IP rights

- Develop new legislation related to IP policy
- Enact legal provisions to allow securitization of IP where IP rights can be used as collateral for loans



# Important legal aspects

**Safeguard interest of all parties - legal documents**



**Academic staff**



**Students**



**NDA before detail discussion on technical aspects**



**MoA for all terms negotiated**

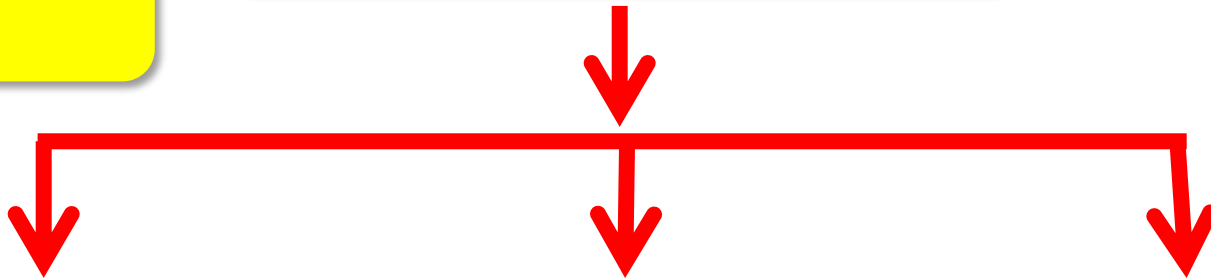


**Technology transfer**  
*Make it easy*  
**& flexible**

# Malaysia's S & T Policy for 21st Century

**Develop strategies & programs for Univ. & PRI**

**Establish Business Develop. Unit in Ministry of Science**



**support  
Innovation  
units**

**Pre - seed  
funding**

**Commer.  
output**

# *Sustainable Funding*





SYMBIOSIS

# Graduate Entrepreneurship Program

- ❑ Train selected graduates to become technopreneurs



- ❑ **Startup** Co. to commercialise  
Uni/Ri IPs



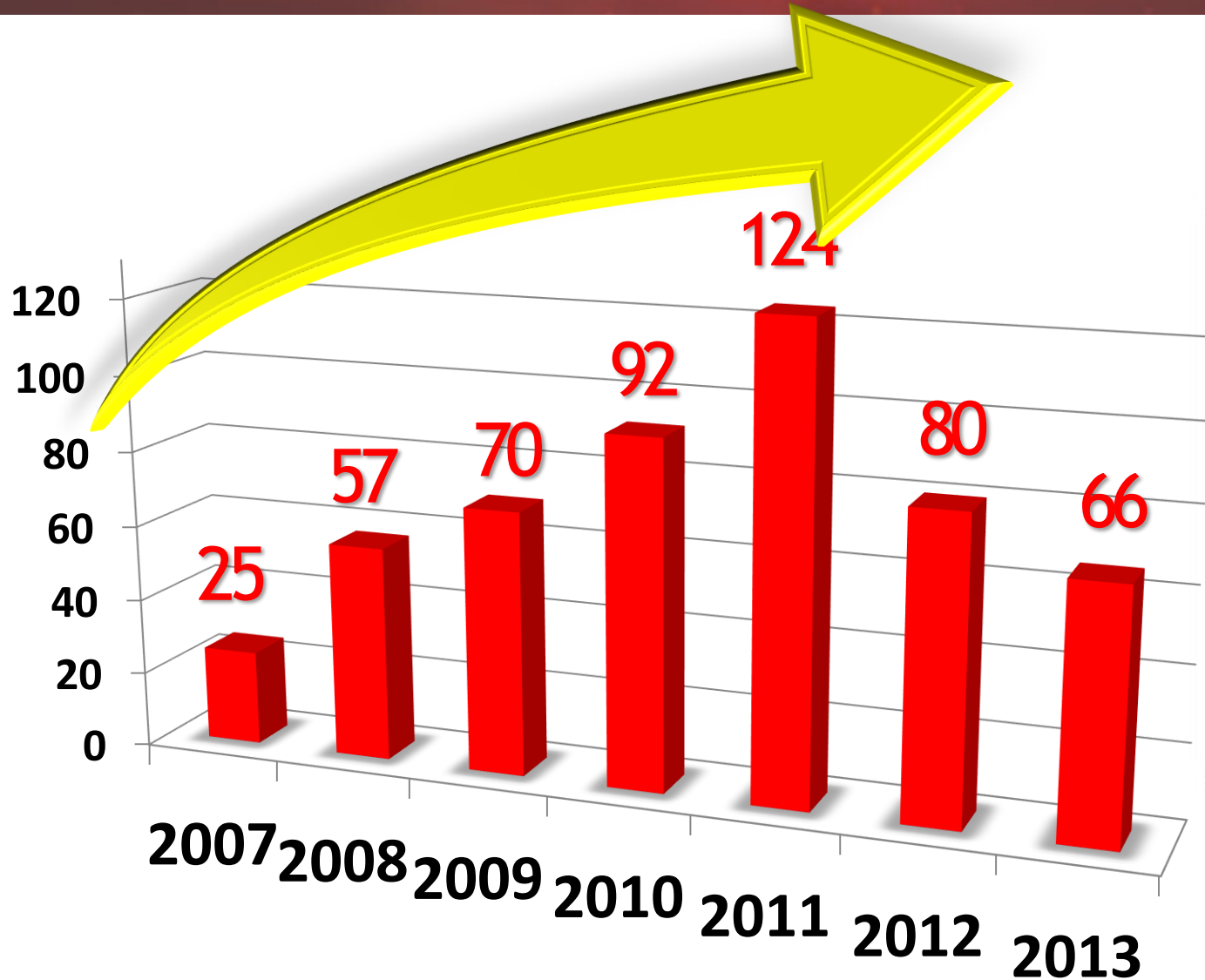
# Research Funding



Total  
**\$35m**  
/year

**Universiti Putra Malaysia**

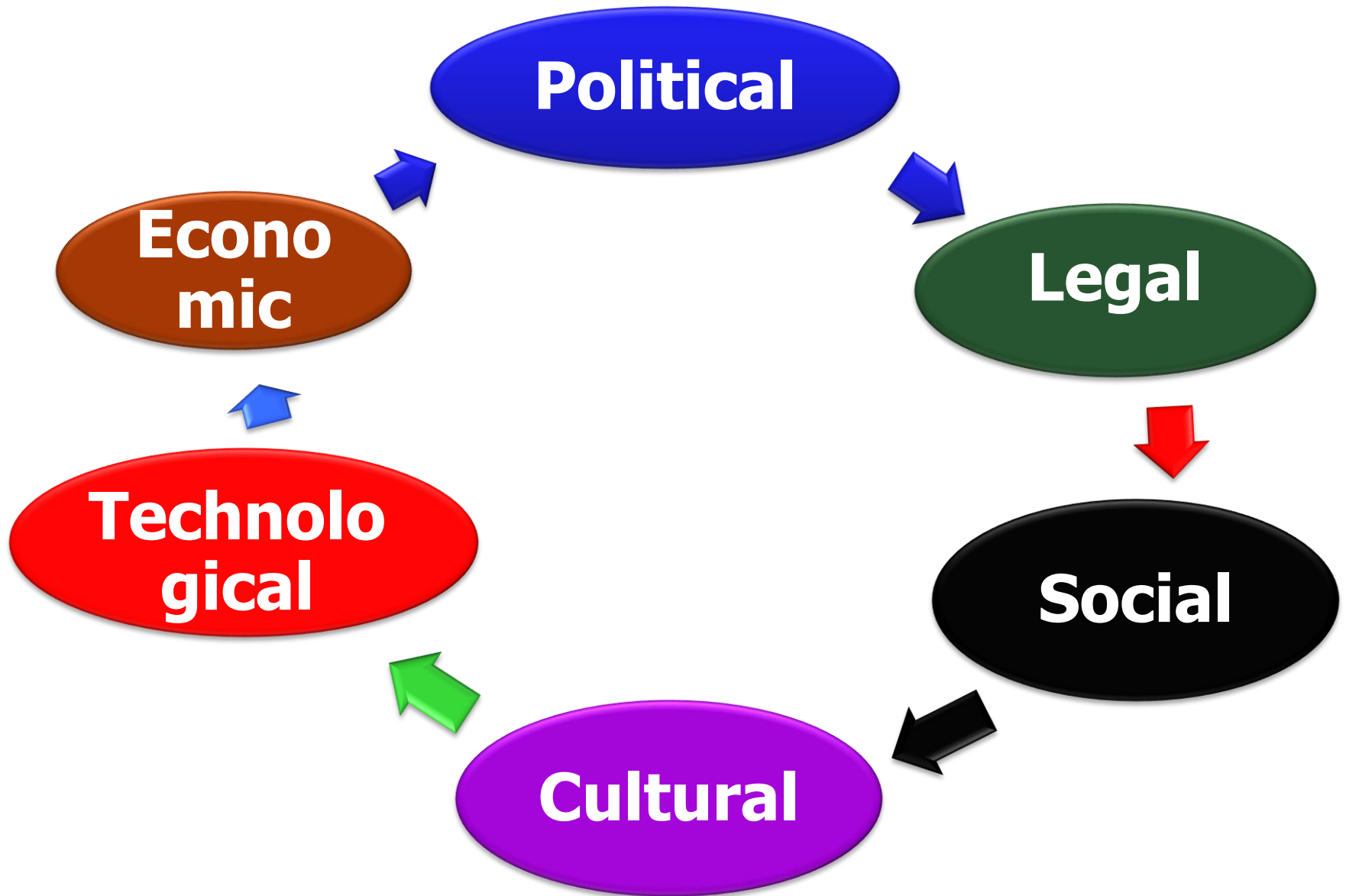
# Patent Applications





R&D Outcome	2009	2010	2011	2012	2013
No. publications in citation-indexed journals	<b>1,809</b>	<b>1,889</b>	<b>2,707</b>	<b>2,828</b>	<b>3,294</b>
Cumulative impact factor (IF)	<b>900</b>	<b>1,160</b>	<b>2,204</b>	<b>2,696</b>	<b>2,844</b>

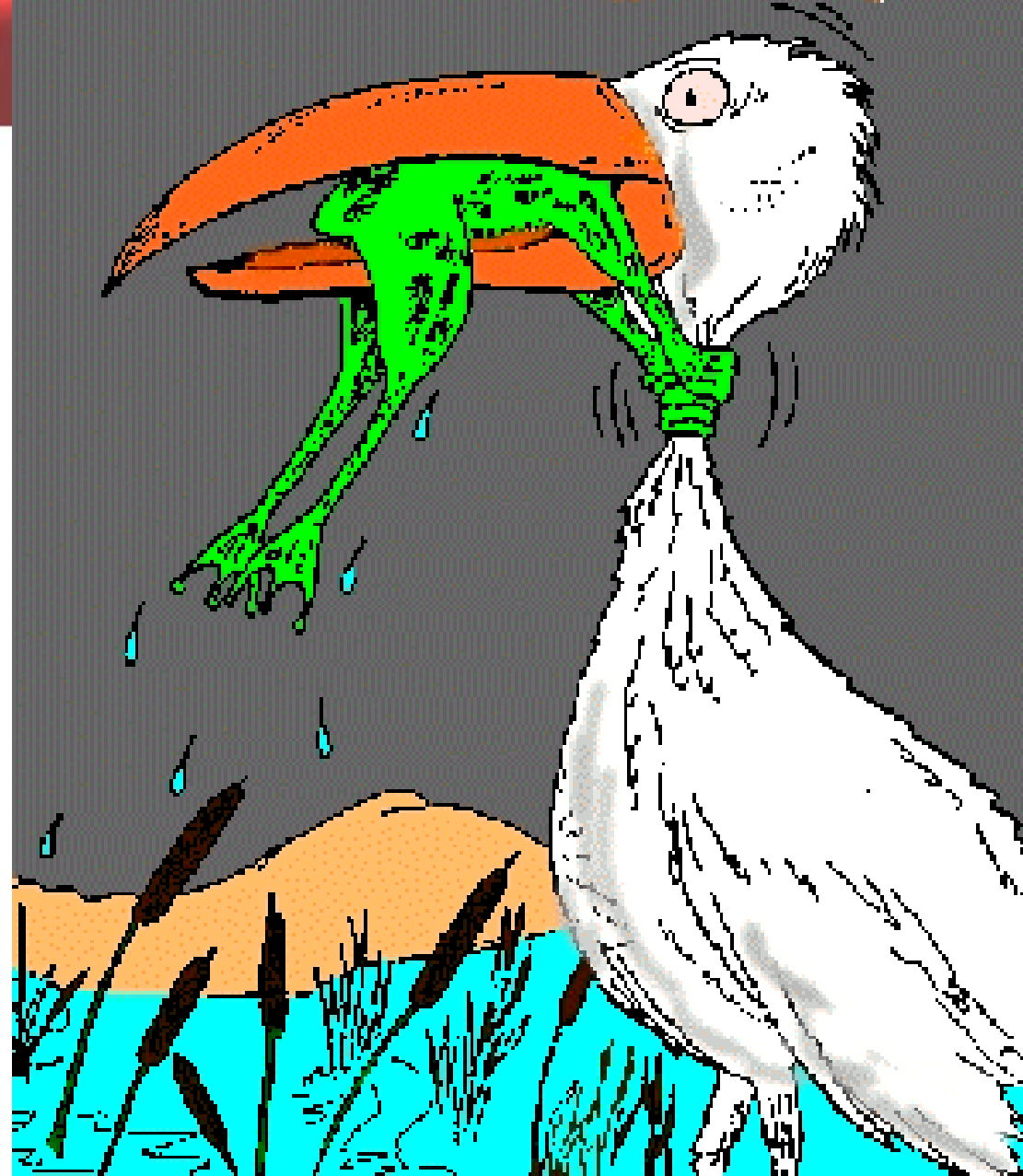
# Barriers



**Nothing  
is  
impossible!**

**You can  
do it!**

**Never ever give up!**





# Twin Towers

Asanta

Thank you

