



Universiti Teknologi Malaysia– in brief

WAHID OMAR

VICE CHANCELLOR UTM

UTM Journey From Technical School to Entrepreneurial Research University



New Infra of the Kuala Lumpur Campus [2012]



Entrepreneurial Research University [2020]



Country's Research University [2010]

1,148 hectare Johor Bahru Campus [1985]

Universiti Teknologi Malaysia (UTM) [1975]

– University Status [1972]

National Institute of Technology (ITK)

UTM Global Plan [2010 – 2020]

PHASE 1	PHASE 2	PHASE 3
2011-2014 Alignment to be a Global University	2015-2017 High impact programs	2018-2020 Strategic Transformation & Advanced Research

Technical College – Professional Programmes [1960]



[1955] Technical College, Jalan Gurney

[1946] Technical College – Diploma

[1930] Technical School, High Street

[1925] Technical School, Brickfields road --- JKR

[1906] Technical School, Batu Lane, Bangunan Muzium, Bukit Nanas

[1904] Treacher Technical School, Weld Road, (Raja Chulan road)



Desired State by 2020

**Student
enrolment:
27,000**

**UG-PG ratio:
40:60**

**Academic staff-
student ratio:
(1:8 – 1:10)**

**Academic staff-
non-academic
staff ratio:
(1:1.3)**

**Academic staff
with PhD by
2020:
85%**

**Research
University:
Maintain status**

**Rating:
Tier 6
(SETARA)**

**QS World Univ
Rankings:
Top 50
(engineering and
technology)**

**Graduate
employability:
80%**

**Financial
sustainability:
70:30
(Govt: UTM)**

UTM Campus – Johor Bahru



**UTM Johor Bahru
(1145 Hectares) – main campus**



UTM Campus – Kuala Lumpur



**UTM Kuala Lumpur Campus
(35 Hectares) - branch**

Facts and Figures

23,974
Total students

10,382
Undergraduate
students

13,592
Post Graduate
students

5,383
PhD students

4,119
International
students

8,962
students
International
mobility
(2009-2014)

166,787
UTM alumni
(as of 1 Nov. 2014)

1,213
Industrial linkages
(71 GLCs)

UTM Faculties & Schools

Science & Technology

- ▶ Electrical Engineering
- ▶ Civil Engineering
- ▶ Chemical Engineering
- ▶ Mechanical Engineering
- ▶ Petroleum Engineering & Renewable Energy Engineering
- ▶ Bioscience & Medical Engineering
- ▶ Computing
- ▶ Science
- ▶ Geoinformation & Real Estate
- ▶ Advanced Informatics School
- ▶ Razak School of Engineering and Advanced Technology
- ▶ Malaysia Japan International Institute of Technology

Non Science & Technology

- ▶ Built Environment
- ▶ Management
- ▶ Education
- ▶ Islamic Civilization
- ▶ Language Academy
- ▶ International Business School
- ▶ Perdana School of Science, Technology & Innovation Policies



UTM Research Alliances (RA)

Research Alliances

Innovative Engineering

Smart Digital Community

Frontier Materials

Resource Sustainability

Health and Wellness



Global Universities Partnership and Engagement

- Develop a new synergy and partnership framework
- Partnership on academic programs
 - Joint supervision
 - Joint research
 - Joint publication
 - Summer Programs
- Partnership on mobility
 - Students exchanges
 - Staff exchanges
- Synergy on global alliances
- Partnership on industrial internship



UTM Global Linkages

EUROPE:

Germany, Sweden, Italy, Finland, Netherlands, UK, Switzerland, Spain, Denmark, Hungary, Poland, Russia, Czech Rep, Romania, Greece, Estonia, France

MIDDLE-EAST:

Saudi Arabia, Palestine, Qatar, Turkey, Iran, Iraq, Yemen

ASIA:

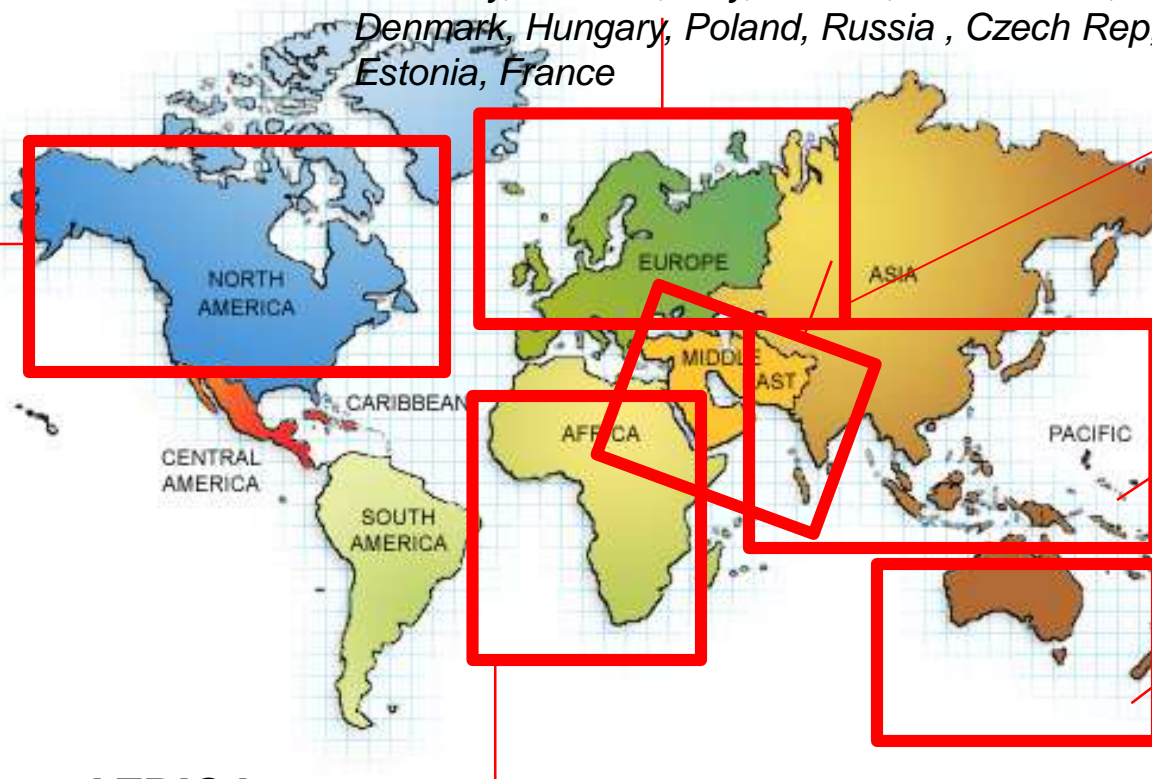
Japan, Korea, China, Australia, Indonesia, Thailand, Brunei, Taiwan, Singapore, The Philippines, Vietnam, New Zealand, Pakistan

AFRICA:

South Africa, Uganda, Nigeria, Kenya, Tunisia, Libya, Sudan, Algeria, Egypt

AUSTRALIA & NZ:

NORTH AMERICA
(USA, Canada)



Impactful Global Partnerships

UTM GLOBAL ENGAGEMENT



**MJIIT - JAPANESE
UNIVERSITIES CONSORTIUM**

Strategic Global Engagement with Japan

Malaysia-Japan International Institute of Technology (MJIT)

- Mechanical Precision Engineering
- Electronic Systems Engineering
- Chemical Process Engineering



- Ministry of Foreign Affairs of Japan
- Ministry of Education, Culture, Sports, Science and Technology-Japan
 - Ministry of Economy, Trade and Industry-Japan
 - The Japan Chamber of Commerce and Industry
- National Institute of Information and Communications Technology(NICT)
 - Japan Advanced Institute of Science and Technology (JAIST)
 - Japan International Cooperation Agency (JICA)



- Kyushu University
 - Keio University
 - Saitama University
- Shibaura Institute of Technology
 - Takushoku University
 - Tokai University
- Tokyo University of Agriculture and Technology
 - Nagaoka University of Technology
 - Nagoya Institute of Technology
- Toyohashi University of Technology
 - Meiji University
 - Ritsumeikan University
- Ritsumeikan Asia Pacific University
 - Osaka University
 - Yamaguchi University
 - Kinki University
- Tokyo University of Technology
 - Tokyo Denki University
- Tokyo University of Science
- Okayama University of Science
- Kyushu Institute of Technology
 - Kanazawa University
 - Yamagata University
 - Tsukuba University

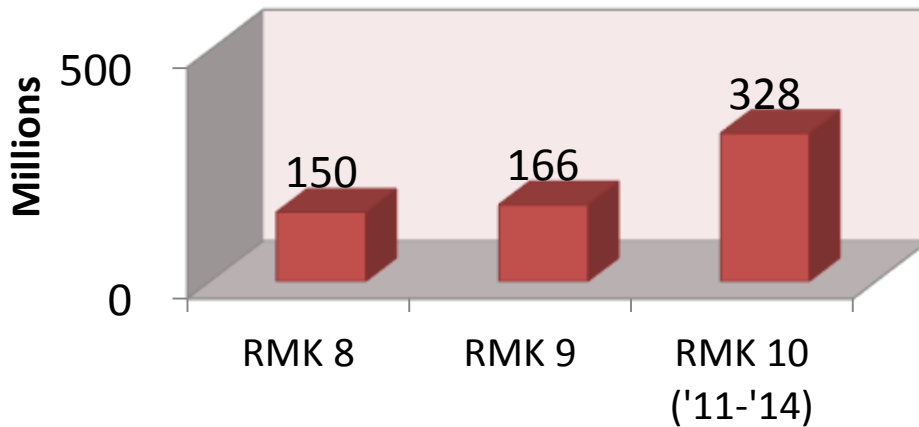
- ❖ 25 Japanese Consortium Partners
- ❖ 7 Partner Government Agencies

Research Grants Received

INCREASING AMOUNT OF RESEARCH GRANTS RECEIVED

Amount of research grants received in 10MP doubled compared with the 9MP.

Amount of Research Grants received 8MP – 10MP

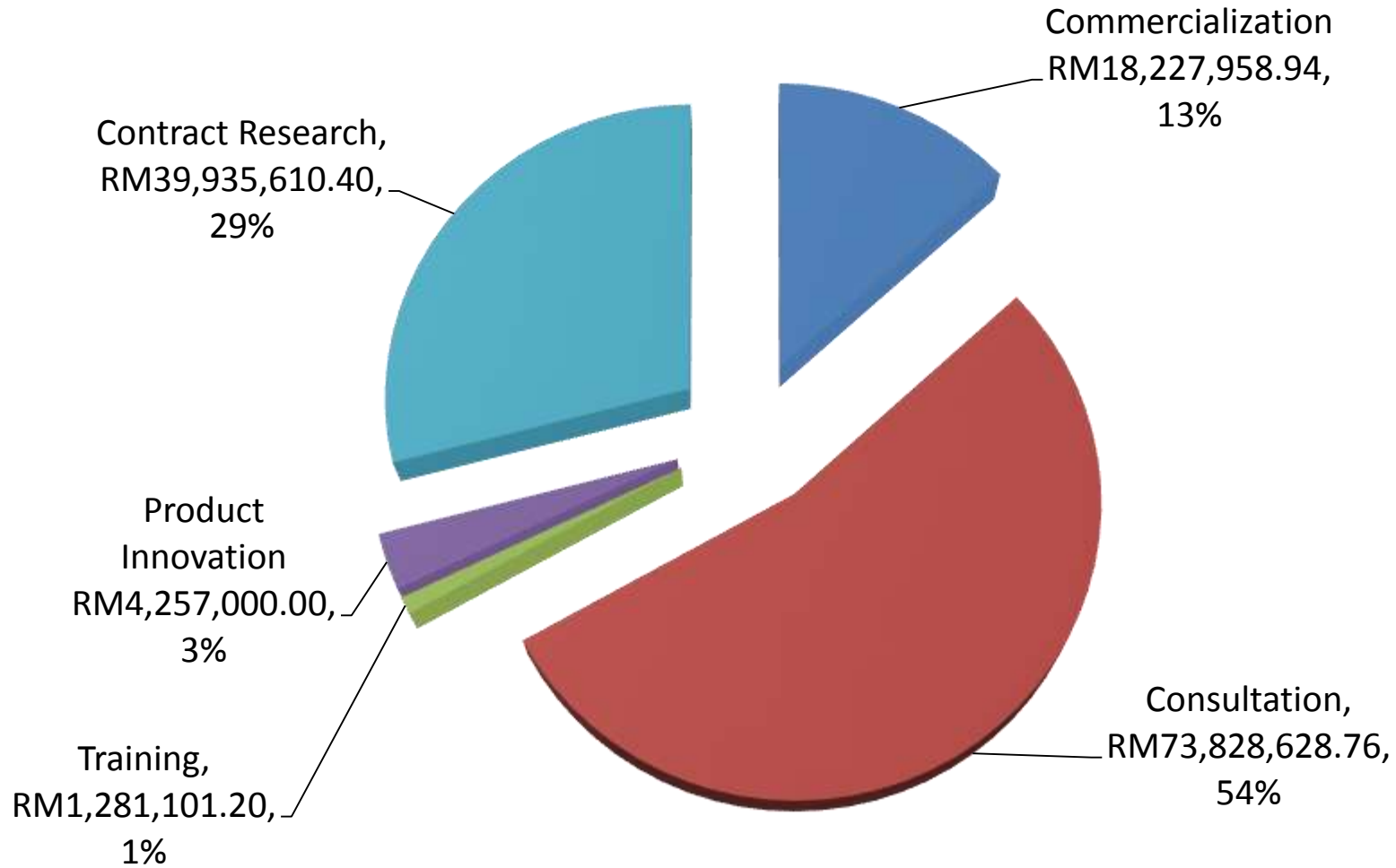


10MP grants	Yr 2011	Yr 2012	Yr 2013	Yr 2014 (Sept)
International	455,561.73	3,374,653.00	2,965,138.00	1,032,411.00
Public	101,819,480.34	84,379,180.56	64,369,675.00	57,623,300.36
Private	1,742,682.00	6,705,341.00	1,126,700.00	2,463,747.00
Total	104,017,724.07	94,459,174.56	68,461,513.00	61,119,458.36

328M



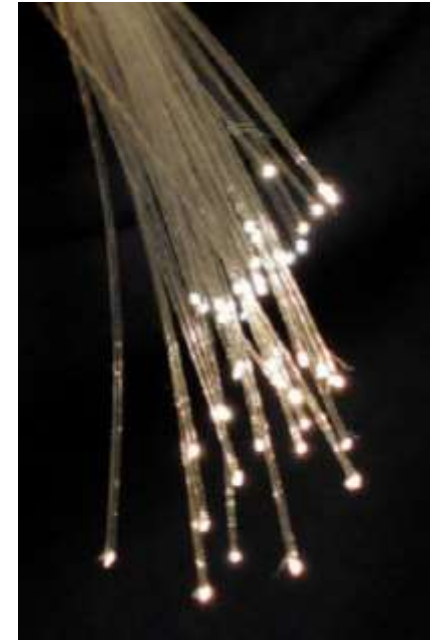
COLLABORATION WITH INDUSTRIES



Percentage area of cooperation

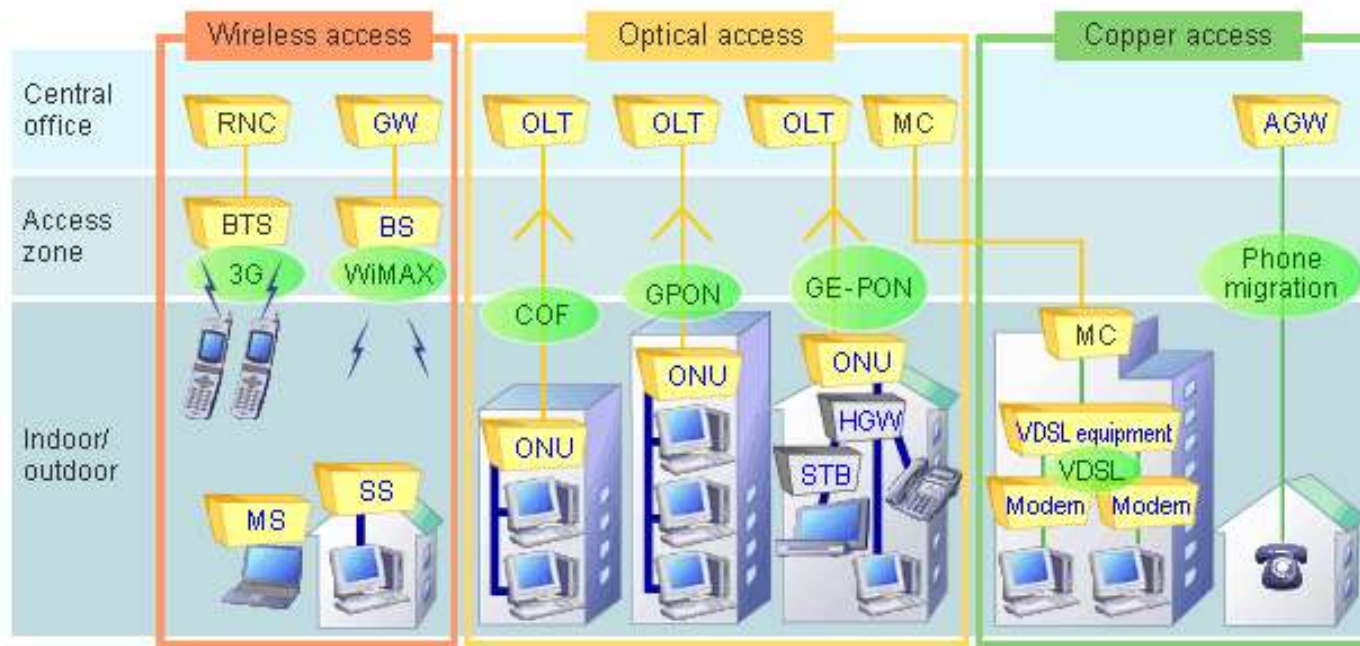
UTM ICT Related CoEs

1. Centre for Telecomm. Tech. UTM MIMOS (UTM MIMOS)
2. Wireless Communication Centre (WCC)
3. UTM-IRDA Digital Media Centre (DMC)
4. Lightwave Communication Research Group (LCRG)
5. Artificial Intelligence & Bioinformatics Group (AIBIG)
6. Computational Nanoelectronics Research Group (CoNE)
7. Soft Computing Research Group (SCRG)
8. Software Engineering Research Group (SERG)
9. Information and Service System Innovation (ISSI)
10. VLSI + Embedded Computing Architectures Design (VeCAD)
11. Information Assurance and Security Research Group (IASRG)



UTM ICT Core Research Areas

1. Green Optical Comm. Network
2. Defense & Homeland Security
3. E-Health
4. Precision Agriculture
5. WiMAX& LTE Advanced
6. Intelligent Disaster Management
7. Smart City and Residence
8. Ubiquitous Network



Facilities and Laboratories



University Industry Research Laboratory

Laboratory Services:

- Advance Mass Spectroscopy Analysis
- Microscopy Analysis
- Surface Science Analysis
- Analytical Instruments
- Many more...



Anechoic Chamber



SAR Lab



LTE & LTE-A Lab
WIE Lab



Propagation & Interference Lab

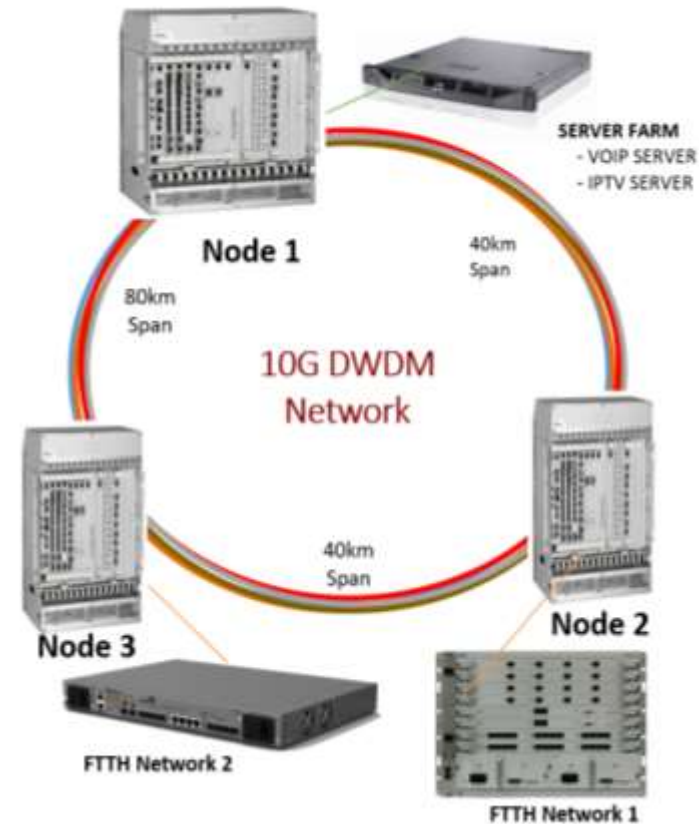
Facilities and Laboratories (ICT)

1. Photonics Characterization Laboratory
2. Photonic Research Laboratory
3. Photonic Simulation Laboratory
4. Photonic Fabrication Laboratory
5. Radar Laboratory
6. VeCAD Laboratory
7. Acoustic Laboratory
8. Sensor & Actuator Laboratory
9. UTM MIMOS Laboratory
10. Computational Nanoelectronic Lab
11. Digital Signal Processing (DSP) Lab
12. Advanced Microprocessor (AMIR) Laboratory
13. Microwave And Antenna Laboratory (AMAL)
14. Computer Vision, Video & Image Processing (CvviP)
15. Multimedia Software Engineering Laboratory









Lightwave Communication Research Group - Key Research Area

- **Photonics Devices**
 - Microelectromechanical System (MEMS)
 - Polymer
 - Sol-gel derived material
 - Optical based sensors
- **Optical Communication Systems**
 - Radio Over Fiber
 - Free-Space Optics
 - Optoelectronics Circuit System
- **Optical Communication Network**
 - Photonics Physical Layer
 - Routing and Transport System
 - Optical Bandwidth Management



LCRG- Facilities

	<p>Fabrication Facility</p>		<p>Measurement</p>
	<p>Assembly</p>		<p>Optical Network & System Test Bed</p>
	<p>Metrology</p>		<p>Design & Simulation</p>
<p>Class 1000 clean room, dry box, spin coater, fume hood, oven, and hot plate.</p>	<p>Fiber alignment station, UV curing station, laser source and detector, stereo zoom microscope, microprobe station, fusion splicer, optical table.</p>	<p>Well equipped optical measurement equipment: tunable laser source, optical attenuator, optical spectrum analyzer, power meter, 40GHz spectrum analyzer.</p>	<p>10GHz DWDM-PON Testbed system 4GHz Radio over Fiber, Outdoor Free Space Link (2 Transceivers), Indoor Free Space link (4 Transceivers)</p>
<p>Veeco Wyko NT1100 optical surface profiler, Nikon Eclipse high power microscope, Refractive index measurement</p>	<p>Coventorware, Labview 7.1, Femlab 2.3, Opsim, Optisystem 8, Apsys Crosslight.</p>		

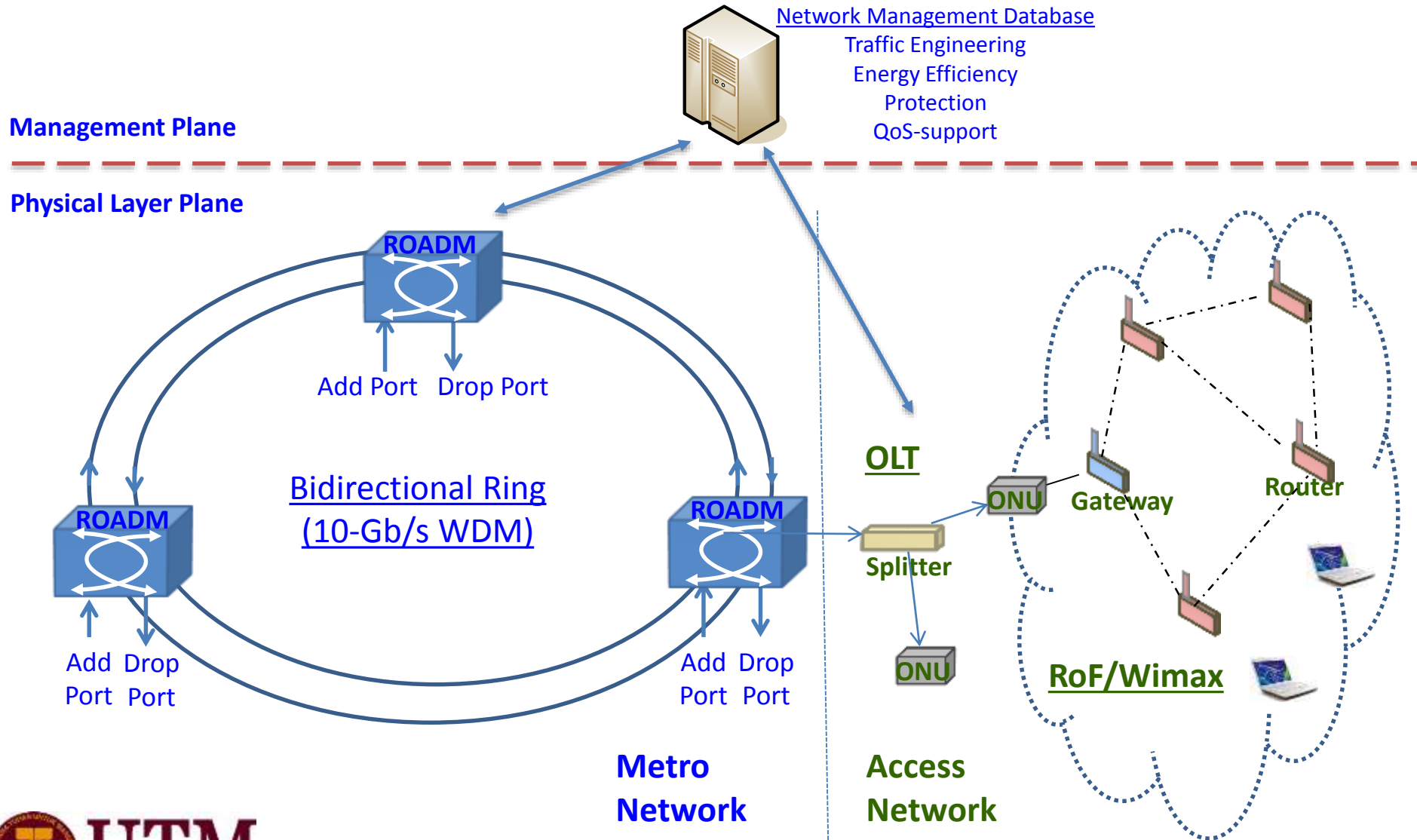
UTM- NICT Collaboration

- Begins with LCRG meeting with Dr Tetsuya Kawanishi & Dr Hiroyo Ogawa from the Photonics Network Research Institute-NICT on 20 Feb 2013.
- Signing MOU UTM-NICT in June 2014
- UTM-NICT-TM Jointly organized the 2nd International University-Industry Workshop On Convergence Of Radio And Optical Technologies, 15 Jan 2015, TM Convention Centre, Kuala Lumpur.
- Internship Research Fellowship awarded to UTM PhD student, Neo Yun Sheng 17 Jan- 31 March 2015 for project Radio Over Fiber Transceiver Design
- Proposed projects under NICT-UTM collaboration;
 - VFSO for Indoor Optical Wireless Communication – Prof Abu Sahmah Supa'at
 - RoF Hybrid Network (Hybrid Wireless and Photonics) – Prof. Sevia M Idrus
 - Photonics Network – NG-PON - Dr. Nadiatulhuda Zulkifli



Potential Research Topics:

- 1- Advanced Routing e.g. physical-layer aware or green algorithms
- 2- Survivability, Protection and Network Management Database
- 3- Hybrid Optical Wireless Architecture/Control Protocols e.g. QoS for Hybrid Networks





THANK YOU

*Please Come and Visit Us at
UTM Green Campus*