Taklimat

Program Sijil Eksekutif Pendidikan Tinggi 2018

CICT

Pusat Teknologi Maklumat dan Komunikasi

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Creative ● **I**nnovative ● **C**ohesive ● **T**echnopreneur

1

Program Sijil Eksekutif Pendidikan Tinggi

Pengenalan Organisasi

Pusat Teknologi Maklumat & Komunikasi

1975

Pusat Komputer

1981

Pusat Komputer **bergabung dengan Jabatan Sains Komputer menjadi Bahagian Sains Komputer** di bawah Fakulti Sains

1984

Naik taraf menjadi Institut Sains Komputer

1991

Pusat Komputer (PKUTM)

2004

Pusat Teknologi Maklumat dan Komunikasi (CICT)

2016 Hingga Kini

Pusat Teknologi Maklumat dan Komunikasi sebagai Pusat ICT Lestari

1 Pengenalan
Organisasi

Perkhidmatan Awal (1975 – 1985)

- **Proses GAJI KAKITANGAN**

- **Gunakan sistem kerangka utama IBM 390**

- **Tambahan SISTEM MAKLUMAT KAKITANGAN**

- **Tingkatkan Sistem kerangka utama kepada IBM 4341 - menampung keperluan semasa serta menggunakan Sistem Operasi VM/SP 5**

- **Tambahan SISTEM KEWANGAN**

- **Bantu agensi luar, proses:**
  - ➢ **Maklumat peperiksaan STP dan SPM**
  - ➢ **PENGAMBILAN GURU**

Perkhidmatan Awal (1985 – 1995)

- **1988 - Pusat Komputer di Kampus Johor Bahru, ditempatkan sementara di Fakulti Alam Bina**
- **1990 - Sistem kerangka Utama ditingkatkan dengan penggunaan IBM 3090-12J**

  Pertambahan sistem:

  - ➢ **Sistem maklumat pelajar**
  - ➢ **Sistem kewangan pelajar**
  - ➢ **Sistem peperiksaan pelajar**
  - ➢ **Sistem jadual waktu**

- **1992 – Tingkatkan keupayaan sistem rangkaian komputer (Penggunaan E-Mel melalui Jaringan BITNET, sistem otomasi pejabat PROFS dan Internet)**

- **1995 - Jaringan rangkaian komputer utama disambungkan melalui Rangkaian System Network Architecture (SNA) IBM dan Ethernet dan Token Ring**

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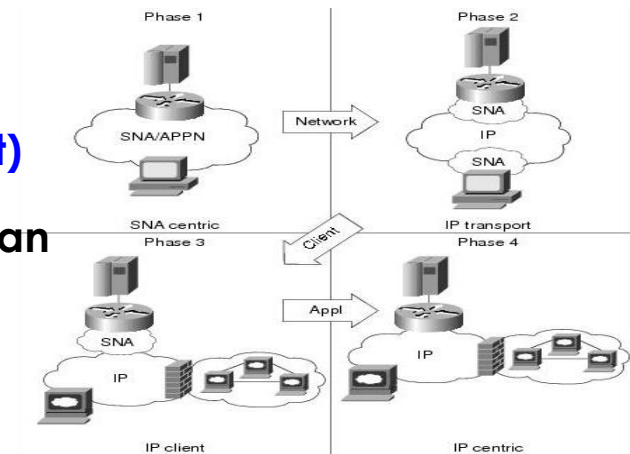
2004 - 2017

VISI

Menjadikan Pusat Teknologi Maklumat & Komunikasi (CICT) sebagai nadi perkhidmatan ICT yang berkualiti dan inovatif ke arah merealisasikan aspirasi Universiti Teknologi Malaysia.

MISI

Komited untuk menyediakan perkhidmatan untuk memenuhi keperluan ICT universiti melalui aktiviti pengkomputeran pentadbiran dan akademik, penyediaan infrastruktur ICT dan latihan, penyelidikan serta perundingan berasaskan perkhidmatan yang berkualiti.
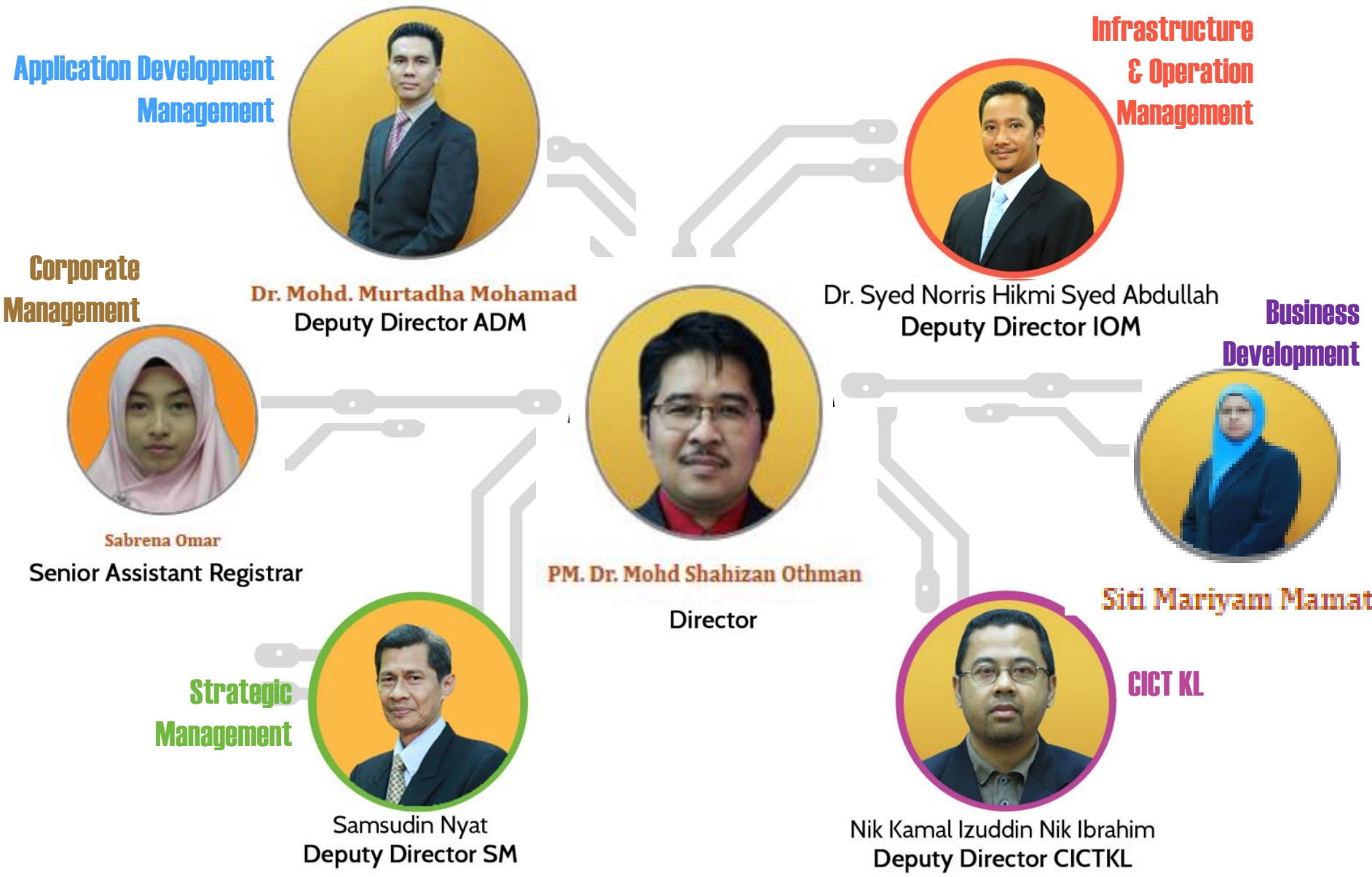
2018

VISI

Visi kami untuk UTM menjadi "Universiti Digital peneraju penyampaian perkhidmatan berpaksikan akademia"

MISI

Meneraju pembangunan ekosistem digital bersifat entrepreneurial dengan memupuk profesional digital berinovasi dan menggalakkan kerjasama dalam perkhidmatan digital

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

UTM
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Application Development Management

Infrastructure & Operation Management

Corporate Management

Dr. Mohd. Murtadha Mohamad
Deputy Director ADM

Dr. Syed Norris Hikmi Syed Abdullah
Deputy Director IOM

Business Development

Sabrena Omar
Senior Assistant Registrar

PM. Dr. Mohd Shahizan Othman
Director

Siti Mariyam Mamat

Strategic Management

CICT KL

Samsudin Nyat
Deputy Director SM

Nik Kamal Izuddin Nik Ibrahim
Deputy Director CICTKL

Fungsi Bahagian

Timbalan Pengarah (DS 54)

PENGURUSAN & PEMBANGUNAN APLIKASI (ADM)

- Pembangunan Aplikasi
  - UTMHR
  - UTMFin
  - UTMAcad
  - AplikasiSokongan
- Pembangunan Multimedia & Web
- Pembangunan Mobile Apps
- Pengurusan Data & BI

Timbalan Pengarah (DS 52)

INFRASTRUKTUR & PENGURUSAN OPERASI (IOM)

- Pusat Data
- Keselamatan ICT
- Infrastruktur
- UTM Hosting
- UTM-Ads
- High Performance Computing
- Video Conferencing & Streaming
- Pengurusan Pelanggan
- UTM Cert

Timbalan Pengarah (FA54)

PEJABAT PENGURUSAN STRATEGIK (SMO)

- Pemusatan F
- Pengurusan Staf Attachment & Ambassador
- Pelaporan dan Perancangan Strategik
- Pengurusan Kualiti dan Penjenamaan CICT
- Pengurusan Latihan & Kompetensi Staf

Ketua Bahagian (FA52)

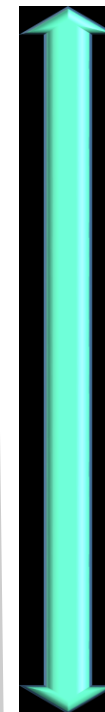### PEJABAT PEMBANGUNAN BISNES (BDO)

- Pengurusan Penjanaan Bisnes CICT
- Pengurusan Peluang Bisnes
- Membangun Model Bisnes

Ketua Unit (FA48)

### UNIT PENGURUSAN PROJEK

- Pengurusan Projek ICT
.

(FA52) CICT KL

(NA44) Pengurusan Korporat

Pegawai IT (F29/F32/F38/F41/F44/F48)

Juruteknik (FT17/FT19/FT22/FT26)

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

STAF SKIM F				
	JB	**KL**	**PTJ-JB**	**PTJ-KL**
Pengurusan Tertinggi (Gred 54)	1	-	-	-
Pengurusan & Profesional (Gred 41-52)	42	4	11	-
Pelaksana (Gred 17-38)	56	14	52	5
JUMLAH	**99**	**18**	**63**	**5**
	185			

Laman Web CICT
- http://cict.utm.my
- http://cict.utm.my/kl
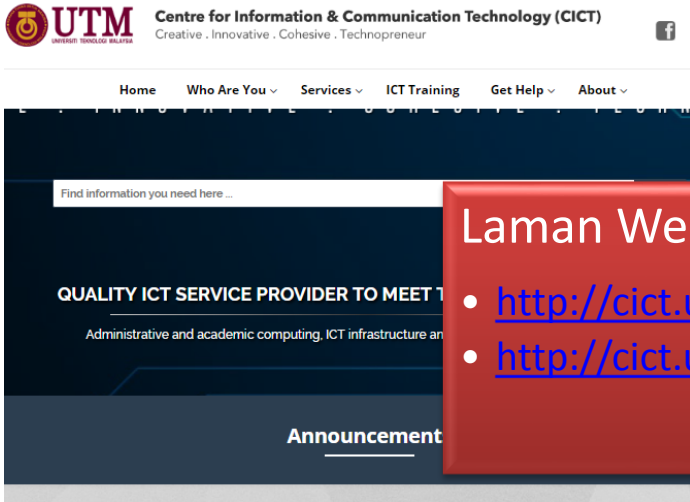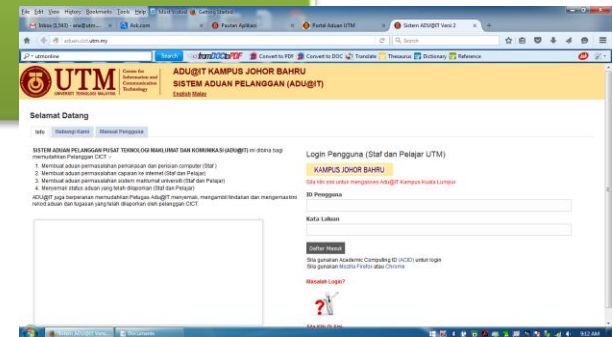
Telegram
- ICT News

Facebook rasmi CICT
- Pusat Teknologi Maklumat dan Komunikasi UTM

Aduan
- Sistem ADU@IT

2

Program Sijil Eksekutif Pendidikan Tinggi
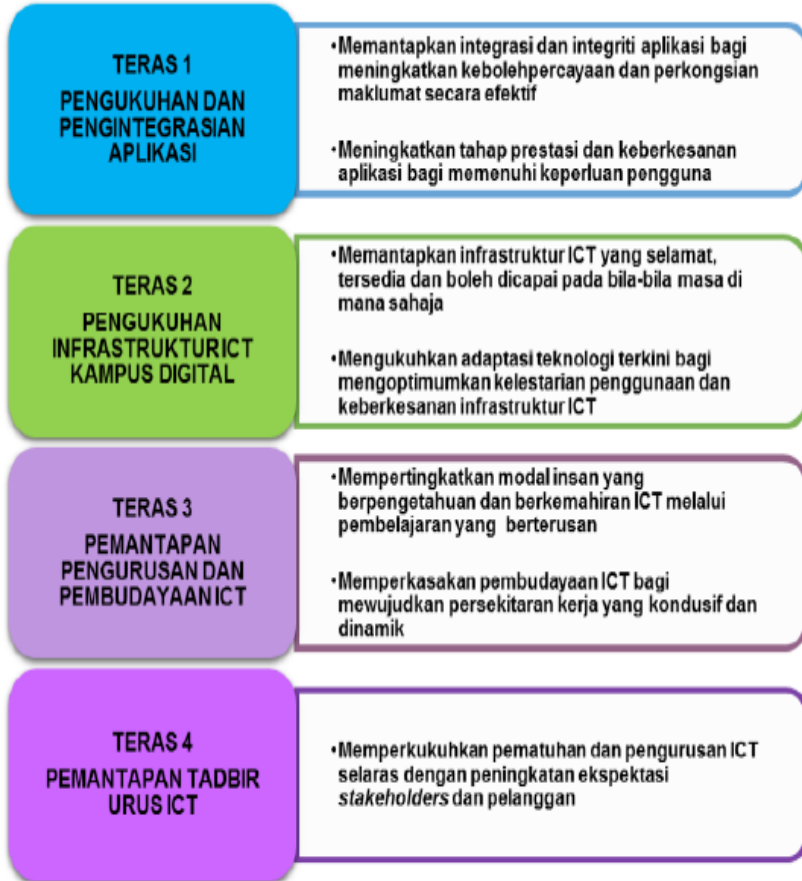
Pengurusan ICT

Pusat Teknologi Maklumat & Komunikasi

Tadbirurus ICT

MICTU

JTICT

CICT

JKJ TEKNIKAL PEROLEHAN ICT

JKJ TEKNIKAL KESELAMATAN ICT

JKJ PENYELARASAN SISTEM/APLIKASI

JK LATIHAN ICT

JK MODAL INSAN ICT

JK PEMANDU PROJEK

PMO ICT

PASUKAN PROJEK
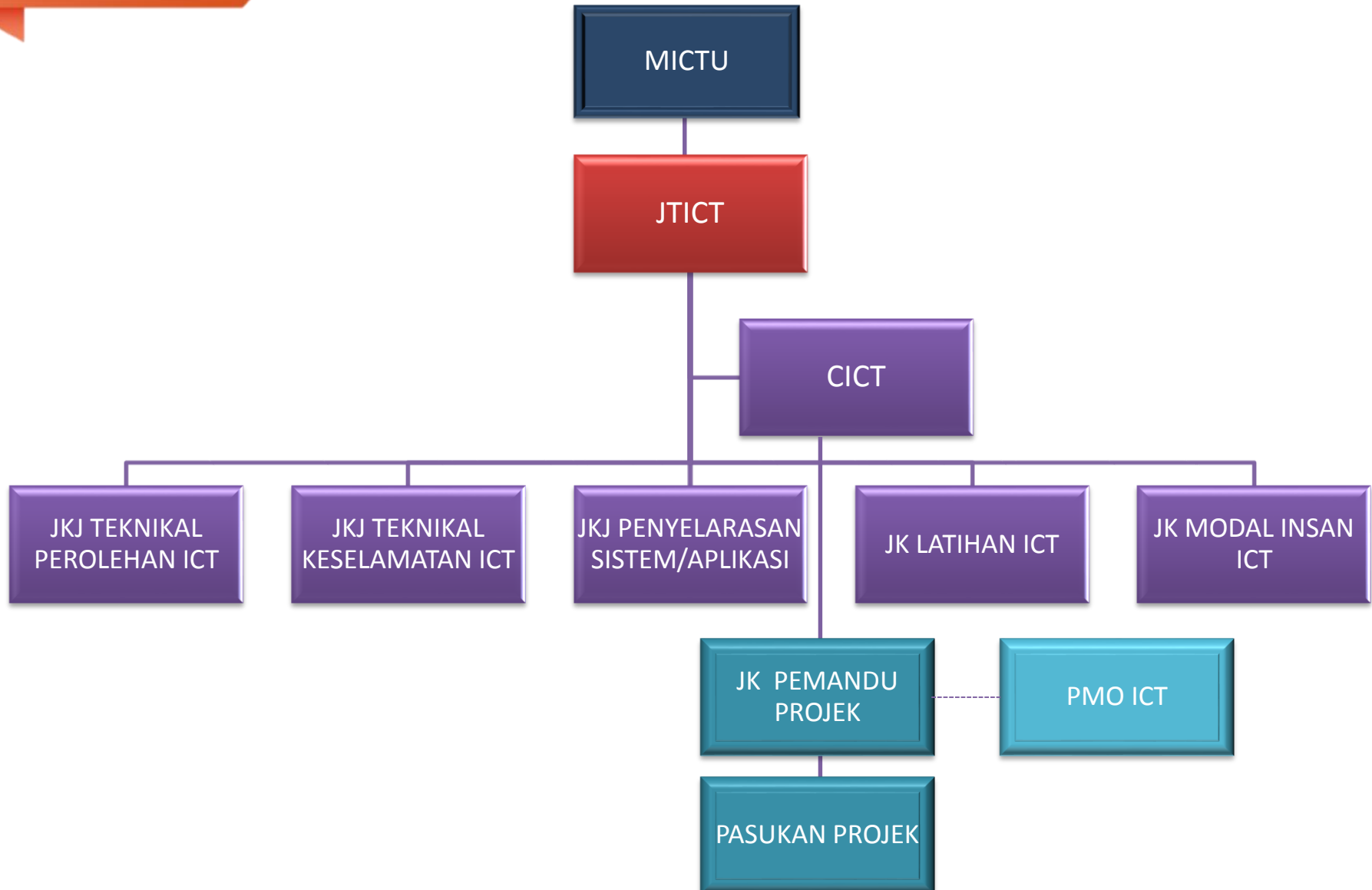
Perancangan Strategik Organisasi dan Penjajaran dengan Perancangan Strategik Universiti

Pelan Perancangan Strategik ICT 2014-2018

Pelan Strategik ICT UTM 2014-2018

Ringkasan Eksekutif

TERAS 1
PENGUKUHAN DAN PENGINTEGRASIAN APLIKASI

- Memantapkan integrasi dan integriti aplikasi bagi meningkatkan kebolehpercayaan dan perkongsian maklumat secara efektif
- Meningkatkan tahap prestasi dan keberkesanan aplikasi bagi memenuhi keperluan pengguna

TERAS 2
PENGUKUHAN INFRASTRUKTUR ICT KAMPUS DIGITAL

- Memantapkan infrastruktur ICT yang selamat, tersedia dan boleh dicapai pada bila-bila masa di mana sahaja
- Mengukuhkan adaptasi teknologi terkini bagi mengoptimumkan kelestarian penggunaan dan keberkesanan infrastruktur ICT

TERAS 3
PEMANTAPAN PENGURUSAN DAN PEMBUDAYAAN ICT

- Mempertingkatkan modal insan yang berpengetahuan dan berkemahiran ICT melalui pembelajaran yang berterusan
- Memperkasakan pembudayaan ICT bagi mewujudkan persekitaran kerja yang kondusif dan dinamik

TERAS 4
PEMANTAPAN TADBIR URUS ICT

- Memperkukuhkan pematuhan dan pengurusan ICT selaras dengan peningkatan ekspektasi *stakeholders* dan pelanggan

Pelan Pembangunan Pendidikan Malaysia (Pendidikan Tinggi)

Pelan Global UTM 2012-2020

PERANCANGAN DAN PELAN TINDAKAN CICT

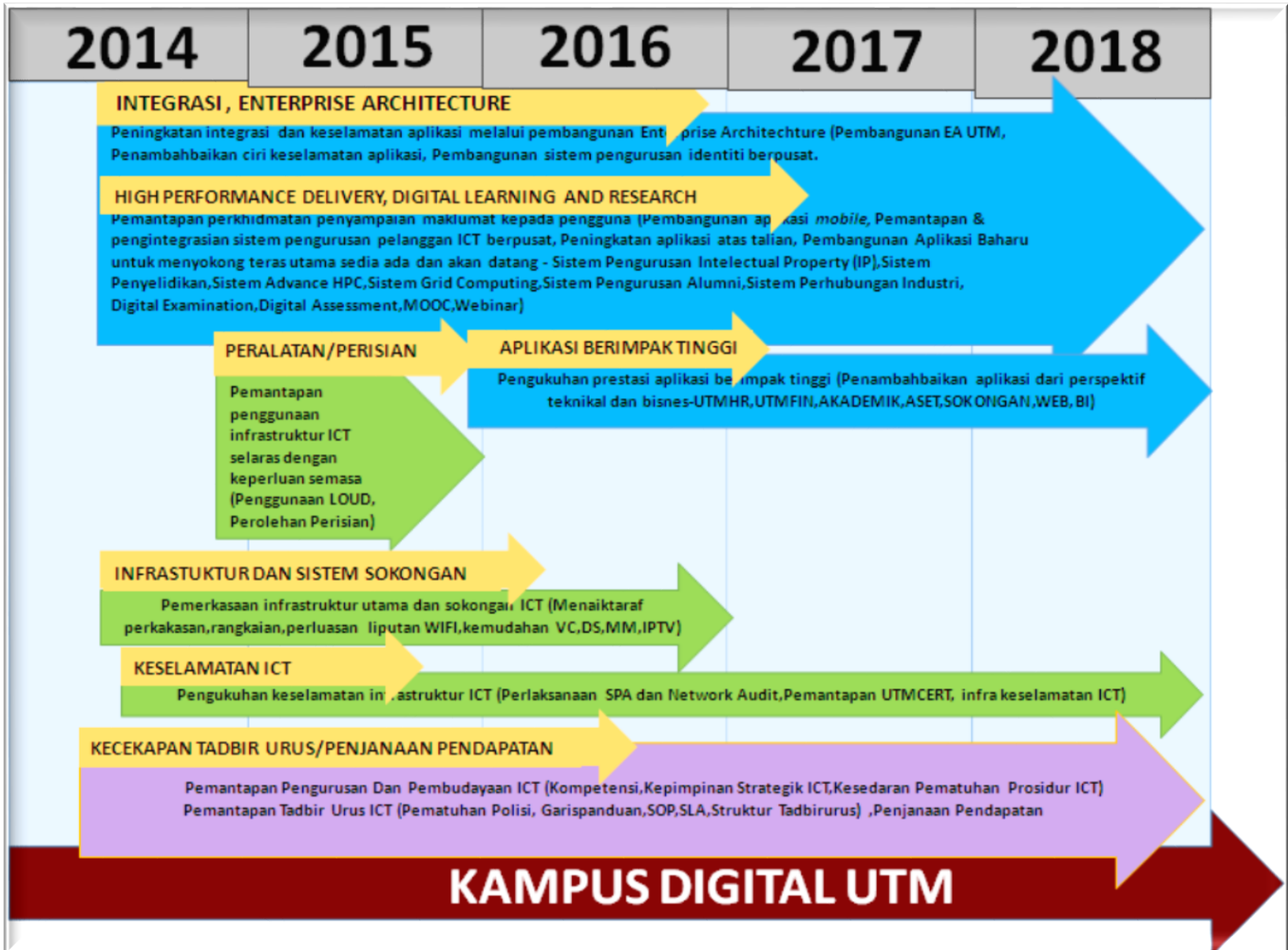**KFA 3** *Infrastructure, Information and Communications Technology (ICT) System*
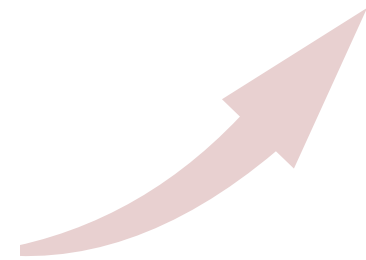
Rajah 4-4: Teras Strategik ICT UTM dan Objektif

C r e a

T e c h n o p r e n e u r

Current Desired State (PGU II) - ICT

Student enrolment: 27,000

UG-PG ratio: 40:60

Financial sustainability: 70:30 (Govt: Non Govt)
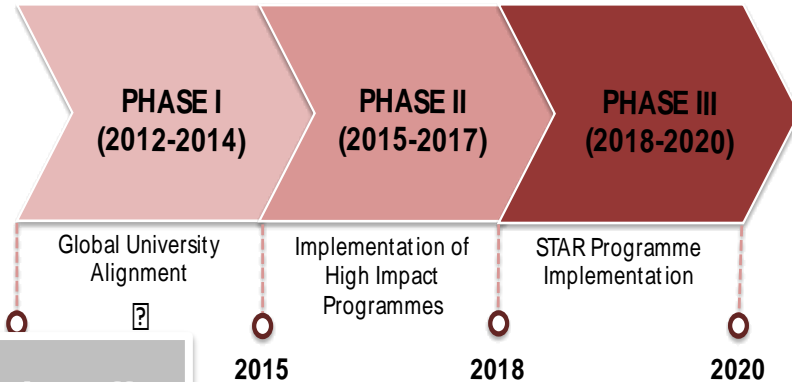
Academic staff with PhD by 2020: 85%

Rating: Tier 6 (SETARA)

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

Research University: Maintain status

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

- Sustainable Campus, Infrastructure, Information and Communications Technology (ICT) System, and Community Engagement & Industrial Network.
- Total Campus Experience
- High Performance Delivery
- Financial Sustainability

UTM Global Plan (2012-2020)

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PHASE I (2012-2014)

PHASE II (2015-2017)

PHASE III (2018-2020)

Global University Alignment

Implementation of High Impact Programmes

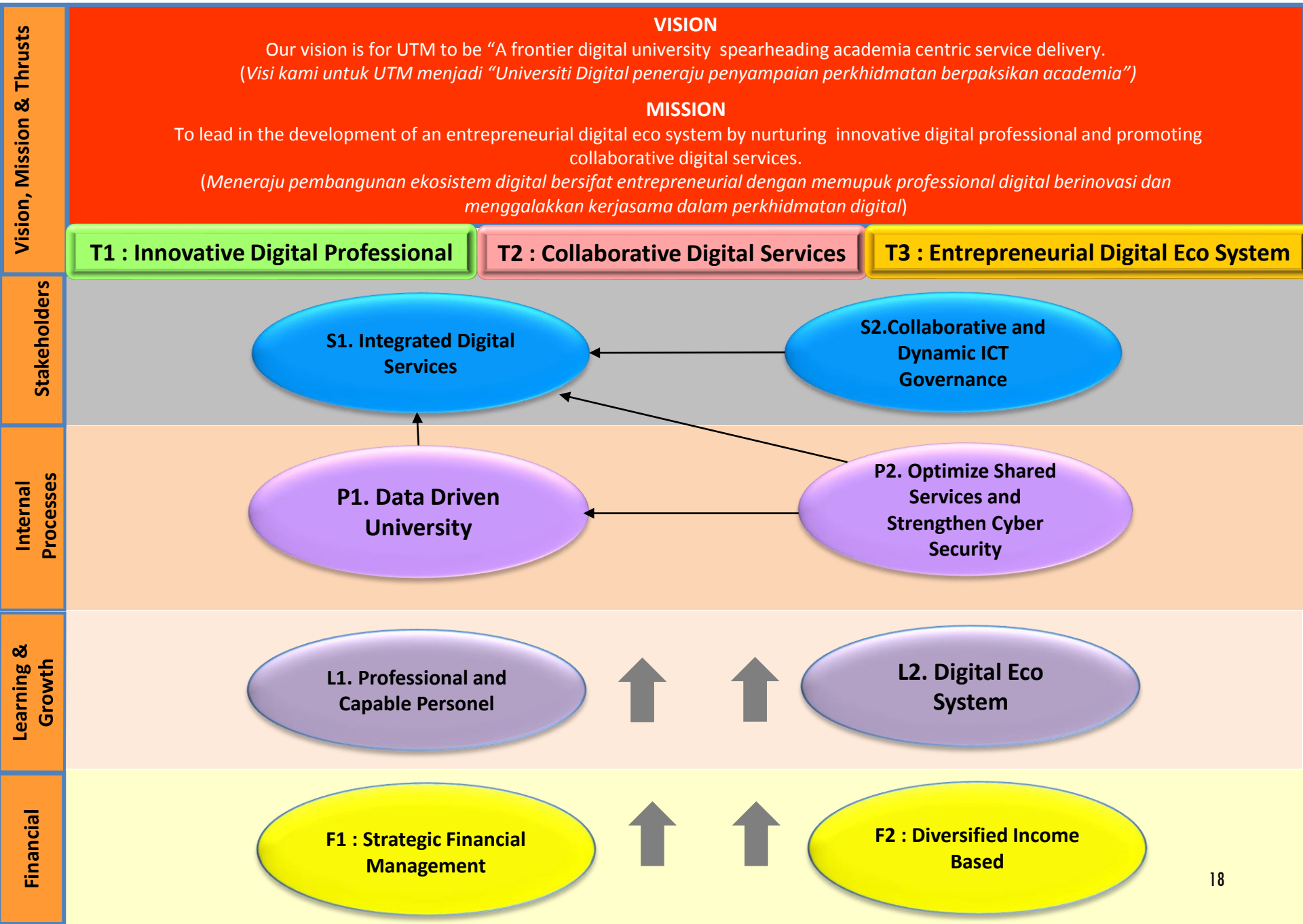STAR Programme Implementation

2015   2018   2020

Seven KFAs:
- Excellence in Learning & Teaching
- Excellence in Research, Innovation and Commercialisation
- Sustainable Campus, Infrastructure, Information and Communications Technology (ICT) System, and Community Engagement & Industrial Network.
- Total Campus Experience
- High Performance Delivery
- Financial Sustainability
- Global Reputation

innovative ● entrepreneurial ● global

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

UTM – CICT Strategy Map 2018

Vision, Mission & Thrusts

VISION
Our vision is for UTM to be "A frontier digital university spearheading academia centric service delivery.
(*Visi kami untuk UTM menjadi "Universiti Digital peneraju penyampaian perkhidmatan berpaksikan academia"*)

MISSION
To lead in the development of an entrepreneurial digital eco system by nurturing innovative digital professional and promoting collaborative digital services.
(*Meneraju pembangunan ekosistem digital bersifat entrepreneurial dengan memupuk professional digital berinovasi dan menggalakkan kerjasama dalam perkhidmatan digital*)

T1 : Innovative Digital Professional   **T2 : Collaborative Digital Services**   **T3 : Entrepreneurial Digital Eco System**

Stakeholders

S1. Integrated Digital Services

S2. Collaborative and Dynamic ICT Governance

Internal Processes

P1. Data Driven University

P2. Optimize Shared Services and Strengthen Cyber Security

Learning & Growth

L1. Professional and Capable Personel

L2. Digital Eco System

Financial

F1 : Strategic Financial Management

F2 : Diversified Income Based

18

INFORMATION & COMMUNICATION TECHNOLOGY (ICT) SYSTEM DAN *UTM DIGITAL INFRASTRUCTURE*
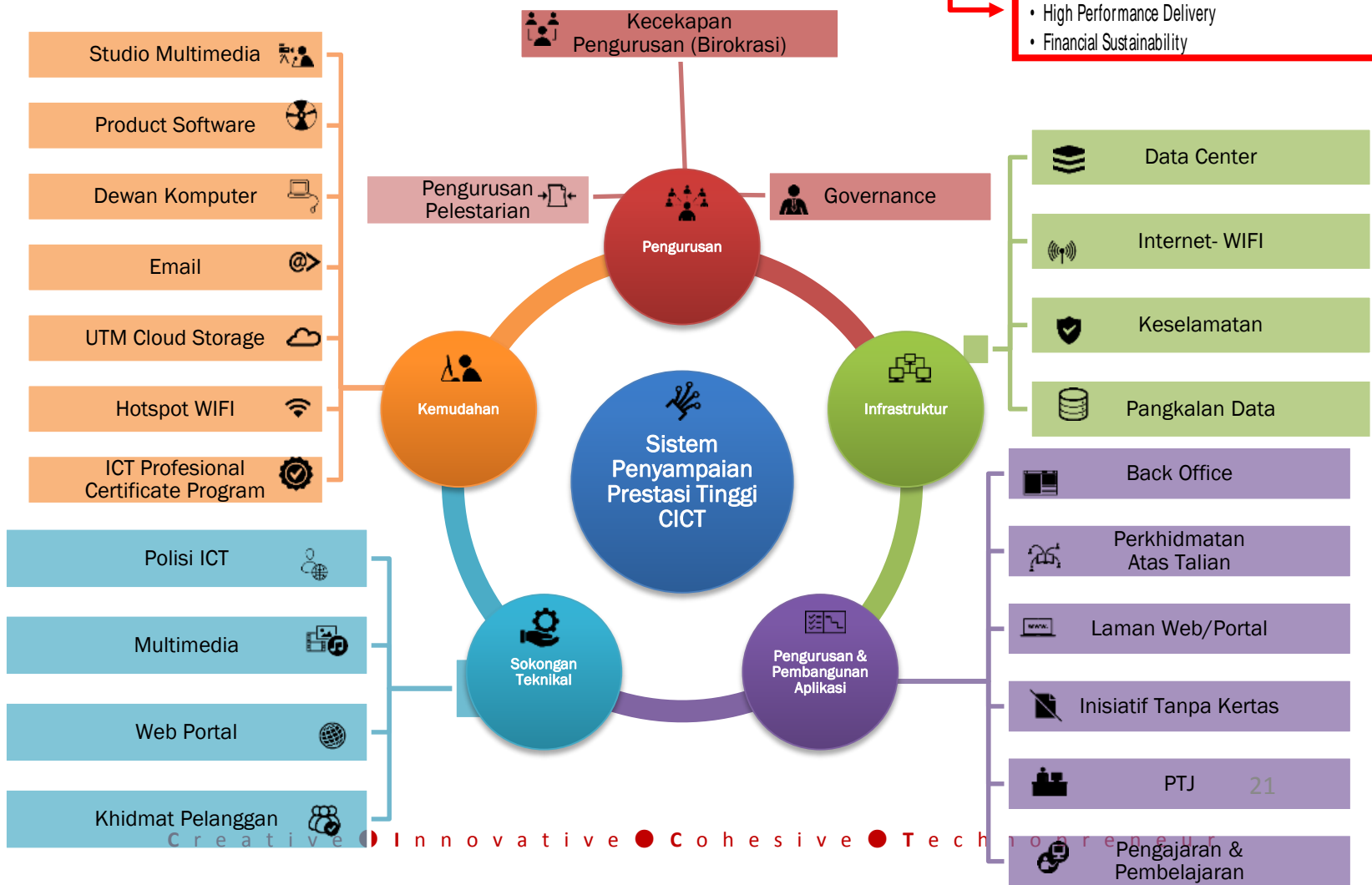
- Sustainable Campus, Infrastructure, Information and Communications Technology (ICT) System, and Community Engagement & Industrial Network.
- Total Campus Experience
- High Performance Delivery
- Financial Sustainability

INFORMATION & COMMUNICATION TECHNOLOGY (ICT) SYSTEM
(Applications In Numbers)

- HUMAN RESOURCE MANAGEMENT — 40
- SUPPORT SYSTEMS — 21
- FINANCIAL MANAGEMENT — 22
- 137
- ACADEMIC COMPUTING — 6
- ACADEMIC MANAGEMENT — 41
- BI & DATA MANAGEMENT — 7
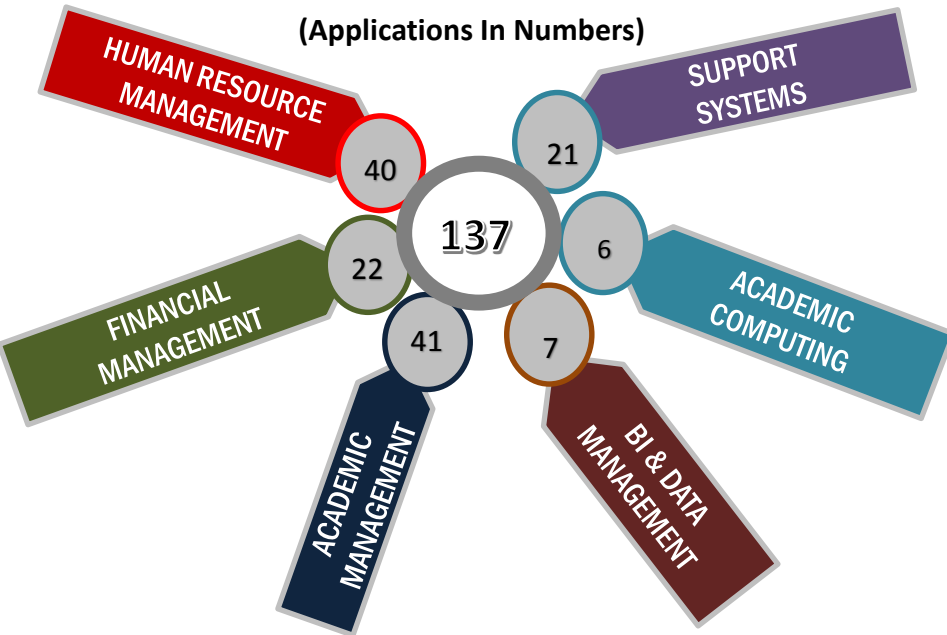
UTM DIGITAL INFRASTRUCTURE

	2017	2020
Wifi Collage Services		
• Access Points covering all Collages	2,000	2,000
• Access Points for Hotspot in Admin Building	350	500
Internet Gateway		
• UTMJB-Internet-TM	2 GB	2 GB
• Collage – Internet - YTL	1.5 GB	
• UTMKL – Internet – TM	1 GB	1 GB
• UTMJB-UTMKL – TM	100 Mbps	100 Mbps
• UTMJB - MyREN	50 Mbps	10 GB
Server & Storage		
• Server Virtualization	300 units	1000 units
• Main & DRC Storage	115 TB	150 TB
• HPC CPU Core	208 Core	500 Core

HIGH PERFORMANCE DELIVERY

- Sustainable Campus, Infrastructure, Information and Communications Technology (ICT) System, and Community Engagement & Industrial Network.
- Total Campus Experience
- High Performance Delivery
- Financial Sustainability

Kecekapan Pengurusan (Birokrasi)

Studio Multimedia

Product Software

Dewan Komputer

Email

UTM Cloud Storage

Hotspot WIFI

ICT Profesional Certificate Program

Pengurusan Pelestarian

Governance

Pengurusan

Kemudahan

Sistem Penyampaian Prestasi Tinggi CICT

Infrastruktur

Data Center

Internet- WIFI

Keselamatan

Pangkalan Data

Polisi ICT

Multimedia

Web Portal

Khidmat Pelanggan

Sokongan Teknikal

Pengurusan & Pembangunan Aplikasi

Back Office

Perkhidmatan Atas Talian

Laman Web/Portal

Inisiatif Tanpa Kertas

PTJ   21

Pengajaran & Pembelajaran

Creative ● **I**nnovative ● **C**ohesive ● **T**echnopreneur

FINANCIAL SUSTAINABILITY

- Sustainable Campus, Infrastructure, Information and Communications Technology (ICT) System, and Community Engagement & Industrial Network.
- Total Campus Experience
- High Performance Delivery
- Financial Sustainability

KOS PENYEDIAAN VC BAGI PROGRAM CICT TAHUN 2017

PROGRAM/AKTIVITI	Kekerapan Mesyuarat CICTJB & CICTKL	Harga Tiket Flight/Tambang Gantian	Jumlah (Kekerapan X Harga Tiket 2 way)	Bil. Orang	Total
Perjumpaan staf bersama Pengarah	12	460	5520	2	11040
Mesyuarat Peringkat Bahagian/Unit CICT Bersama Staf Bahagian/Unit CICT	2	460	920	2	1840
Mesyuarat Jawatankuasa Pengurusan CICT	11	460	5060	2	10120
Mesyuarat Jawata... CICT 2017				4	7360
Perjumpaan Penga... staf Penolong Pegawai Teknologi Maklumat	1			2	920
Perjumpaan bersama Pengarah bersama AJK BKCICT	1			1	460
Mesy. Pengarah dgn BDO & Liason Officer setiap Bahagian CICT video conferencing bersama CICTKL	2		920	2	1840
Mesyuarat Jawatankuasa Pengurusan CICT	11	460	5060	2	10120
Mesyuarat Jawatankuasa Eksekutif CICT	4	460	1840	2	3680
Sesi Perjumpaan Pengurusan Bersama Staf	3	460	1380	2	2760
Mesyuarat Jawatankuasa Penilaian Teknikal Perolehan ICT Universiti (JATIT)	8	460	3680	2	7360
Mesyuarat Pembayaran Projek	7	460	3220	2	6440
Jumlah Keseluruhan	**66**		**30360**		**63,940**

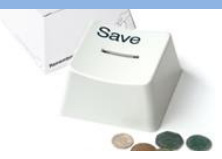Penjimatan Pembelian Tiket Kapalterbang CICT

RM 63,940
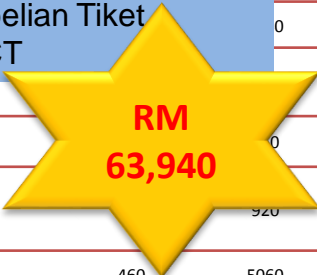
KOS PENYEDIAAN VC BAGI PROGRAM UNIVERSITI TAHUN 2017

Tempahan VC Bagi Program Universiti dan PTJ	Bil Tempahan	Harga Tiket Flight/Tambang Gantian	Anggaran Bil. Orang	Jumlah (RM)
Program Universiti dan PTJ	443	460	2	407,560.00

PEKELILING KEWANGAN CICT BIL.1/2016
PENTADBIRAN DAN KEWANGAN

UTM.07.01/10.12/32 (9)   19 Januari 2016

Kepada Semua Timbalan Pengarah / Ketua Bahagian / Staf

LANGKAH-LANGKAH PENJIMATAN 2016
PUSAT TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

1.0   Tujuan
Pekeliling langkah-langkah penjimatan ini dikeluarkan adalah untuk memberi panduan mengenai inisiatif CICT dalam usaha mengurus kewangan mengikut keutamaan serta mengawal secara berhemah semua perbelanjaan CICT.

Langkah-langkah ini adalah berikutan kekangan kewangan Universiti yang telah mengurangkan peruntukan 40 – 60 % kepada semua PTJ.

2.0   Langkah-Langkah Penjimatan 2016
2.1   Tiada keraian/jamuan makan untuk semua mesyuarat dalaman.
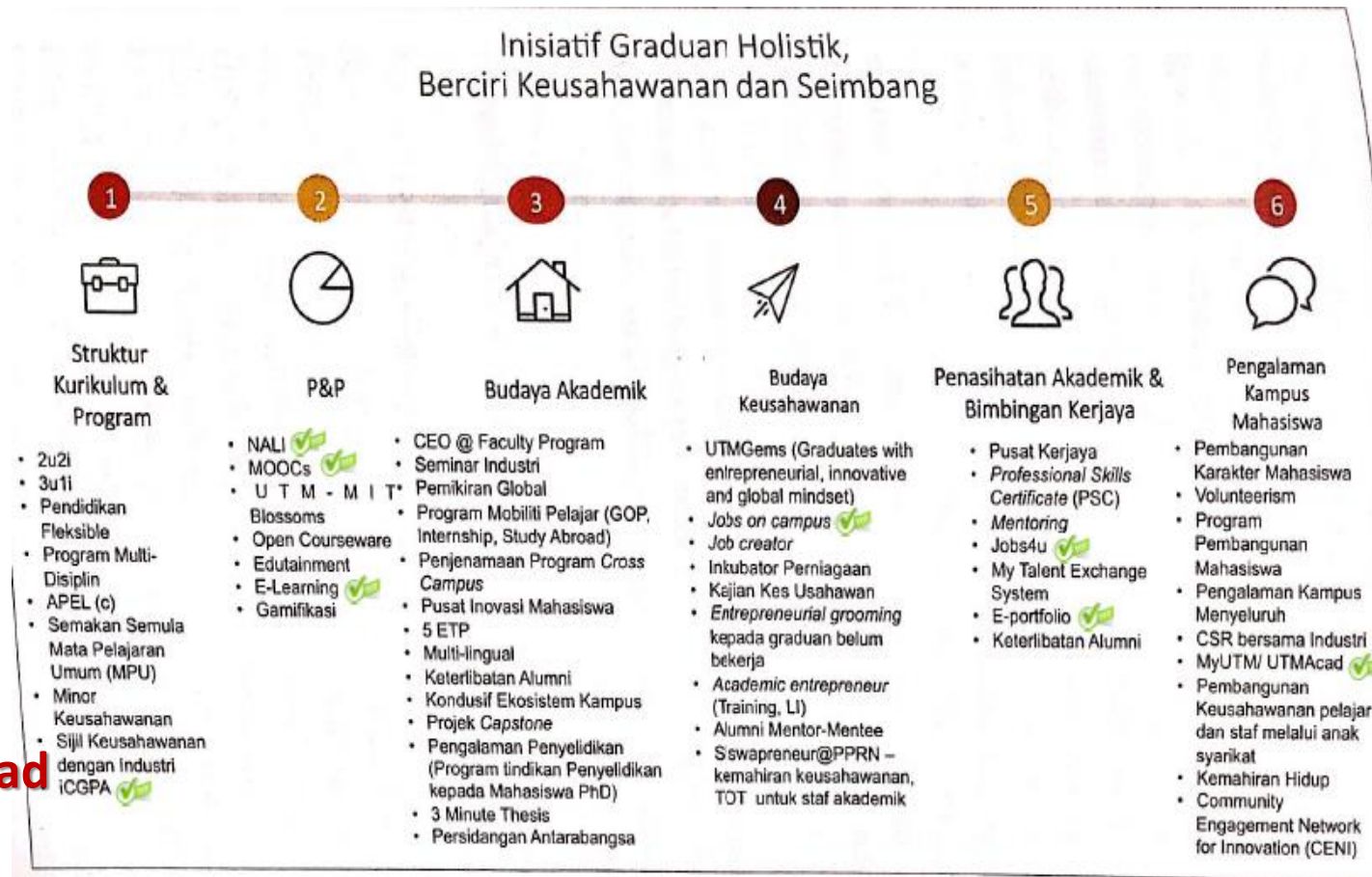...

RM 407,560.00

Perkhidmatan VC telah menjimatkan perbelanjaan perjalanan Universiti

Inisiatif Graduan Holistik

iCGPA

eLearning

NALI

MOOCs

ePortfolio

Jobs On Campus

Jobs4U

MyUTM/UTMAcad

Rajah 4.2   Inisiatif dalam menghasilkan graduan holistik, berciri keusahawanan dan seimbang

1. PERANCANGAN STRATEGIK

- Pelan Strategik ICT 2014 – 2018

2. PENJANAAN PENDAPATAN

Gred Jawatan	: F44
Nama Bahagian	: PENGURUSAN STRATEGIK
Nama Unit	: Unit Strategik

A	KAI INDIVIDU (60%)	SASARAN BHG	SASARAN INDIVIDU	PENCAPAIAN INDIVIDU	% PENCAPAIAN INDIVIDU	% PENCAPAIAN SEBENAR
1	Bilangan aktiviti dalam hubungan strategik dengan rakan industri dan komuni	2	1	100.00%	100	93.3
2	Peratus (%) indek kepuasan pelanggan (PTJ) terhadap staf attachment dan	90	100	90.00%	95	
3	Bilangan Polisi dan SOP yang dibangunkan	15	13	90.00%	100	

B	Penjanaan Pendapatan (20%)	SASARAN BAHAGIAN (500K)	SASARAN INDIVIDU (200K)	PENCAPAIAN INDIVIDU	% PENCAPAIAN INDIVIDU	% PENCAPAIAN SEBENAR
1	Projek Pembangunan Sistem Aduan Pejabat Harta Bina Ver 2.0		150	100	70	75
2	Pembangunan Sistem Thumb Print		50	40	80	

ICT

- Jawatankuasa Teknikal Projek ICT
- *Report Card* Individu

- Unit *Customer Relationship Management* (CRM)

SUPPORT

PROJECT MANAGEMENT OFFICE (PMO)

Jawatankuasa Pemandu Projek ICT

Jawatankuasa Teknikal Projek ICT

PROJECT MANAGEMENT OFFICE (PMO)

Jawatankuasa Audit Projek ICT

Mesyuarat Pembayaran Projek ICT

01 **Memantau dan menyelaras Pengurusan Projek**

02 **Kompilasi dokumen projek-projek ICT**

03 **Menyelaras audit projek ICT dan pelaporan**

04 **Urusetia mesyuarat Jawatankuasa ICT**

05 **Menyelaras pembentukan Jawatankuasa Projek ICT**

06 **Menyelaras penyediaan Polisi, Prosidur Kerja Mengikut Piawaian (SOP) projek ICT**

SKOP TUGAS PMO

5. PEMBANGUNAN APLIKASI BERASASKAN IR4.0

APLIKASI	IMPAK
eCS v2	• Kepuasan pelanggan meningkat • Proses kerja lebih lancar • Tempoh operasi dikurangkan • 'Real Time' Process • 'Tracking System' – staf & kerja
GuideMe@UTM	• Semua maklumat berkaitan UTM boleh diakses bila-bila masa dan dimana-mana
Pay2UTM (FPX, Credit Card, E-Wallet)	• Transaksi tanpa tunai • Jaminan Keselamatan (Secured) • 'easy reconciliation' • Semua transaksi direkod
Portal Pelajar & Staf (MyUTM)	• Kemudahan Capaian menggunakan 1 ID - UTMID (authentication) • Kawalan aras capaian pengguna (peranan) – keselamatan data dan maklumat

6. ONE STOP CENTER ADUAN DAN PERMOHONAN

CUSTOMER RELATIONSHIP MANAGEMENT

aduit@utm.my

FAQ — Di Laman Web cict.utm.my

Sistem AduIT — http://aduan.cict.utm.my

CRM

07-5532136

Kaunter

Kaunter PPICTP – Aduan tahap mudah

Bilik Operasi CRM – Aduan tahap sederhana

PRESTASI PENYELESAIAN ADUAN

- 2017 — 99% selesai
- 2016 — 97% selesai
- 2015 — 94% selesai
- 2014 — 92% selesai

PENGUKURAN PRODUKTIVITI

- SEBELUM — 31%
- SELEPAS — 160%
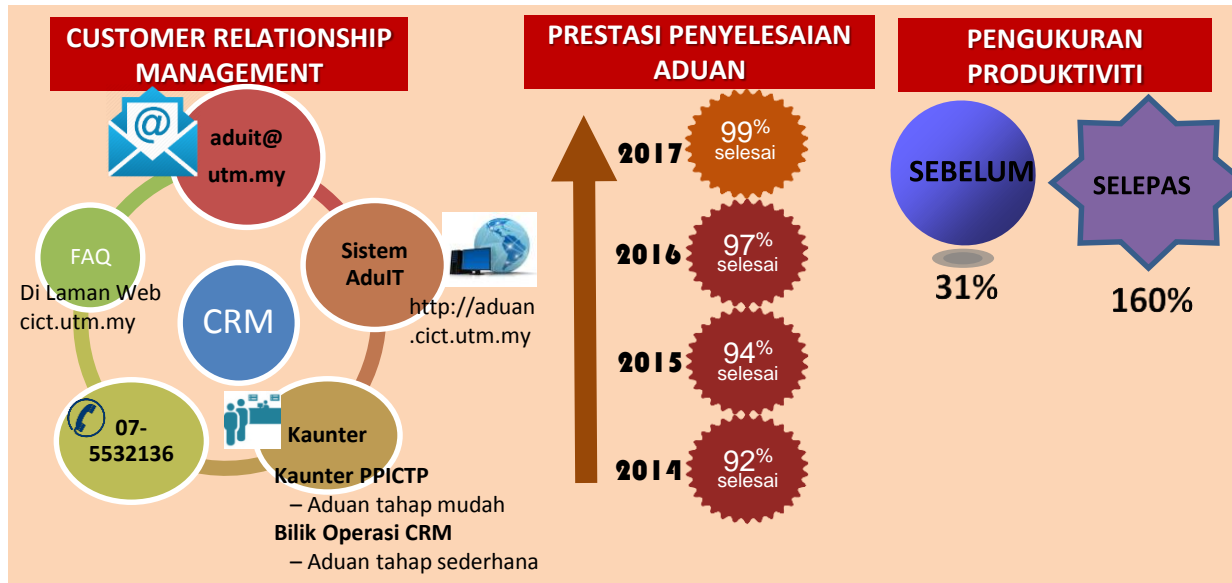
7. PENGURUSAN PEMUSATAN SKIM F

Program
i. Attachment, 2015
ii. Ambassador, 2015
iii. Sinergi, 2018

MAMPU, SPS, FKT, RMC, QriM, PMO, Canseleri, HEK, PHB, Bendahari, CICT, TNC(A&A), AMD, HEMA, PENDAFTAR, ICC, UTMLead, PERPUSTAKAAN
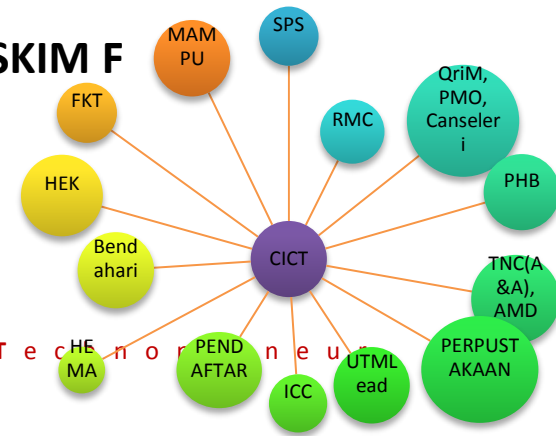
8. Program Wacana Ilmu

OBJEKTIF

Membudayakan organisasi pembelajaran berterusan dan meningkatkan pengetahuan organisasi.

Menggalakkan warga organisasi, meningkatkan kemahiran individu dan pengetahuan melalui perkongsian pengetahuan dan pengalaman.

Menyumbangkan nilai tambah (value added) kepada penyampaian perkhidmatan ICT

Memenuhi KAI L2.1 iaitu Program Sesi Perkongsian Maklumat (cth. Kolukium, Kursus, *eBook Review*, *Technology Update*)

FAEDAH

(Peserta) Mata CPD

(Pembentang) ICT *Knowledge Repository* di dalam laman web CICT

(Pembentang) Markah dalam KAI Individu (CICT *Staff Report Card*)

www.cict.utm.my/ict-knowledge-repository
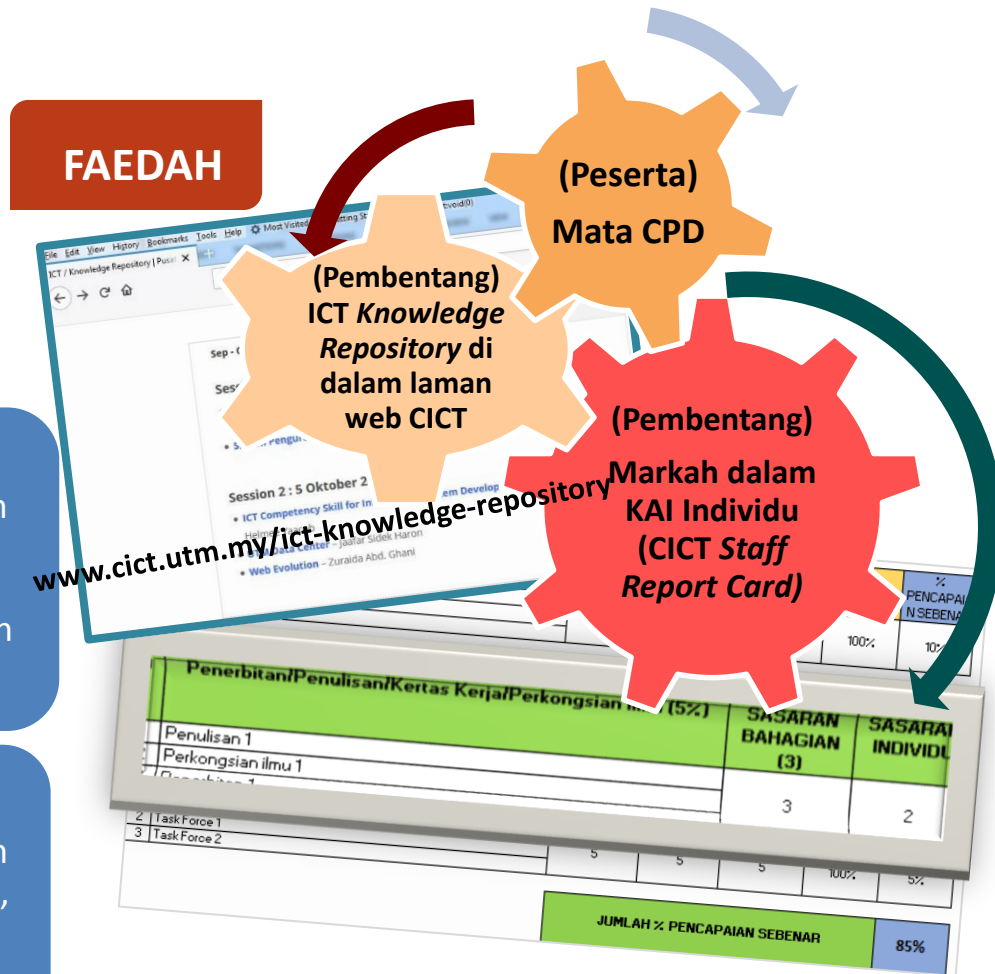
PERINGKAT CICT KESELURUHAN

Bil	Telegram Group	Ahli Kumpulan Telegram & Tujuan
1	**CICT-Staff** 7:49 AM AzmiKamis: Ambil laluan ...	Semua staf CICT, Hebahan dan makluman umum kepada semua staf
2	**JPU CICT 2016** Ali: Yes, blh proceed	Kumpulan Pengurusan CICT
3	**CICT UTM Executives** Nik Kamal: Selamat Hari ..	Keahlian kumpulan, Ketua Unit & Ketua Projek
4	**CICT OPERASI** Mon Mohd Zihan: boleh try prof	Semua staf teknikal yang kendalikan servis ICT
5	**CICT UTM 2017 - Stra...** Alias Mohd: Photo	Ahli Task-Force CICT Strategy Map

Telegram: eLearning@UTM

Telegram: Pengurus Fasiliti

PERINGKAT BAHAGIAN DALAM CICT

Bil	Telegram Group	Ahli Kumpulan Telegram & Tujuan
1	**TaskForce Business CICT** Ali: Mohon wakil decide seger...	Ahli Task-Force Penjanaan CICT mewakili setiap Bahagian
2	**BDO-CICT** 11:42 AM MNazir, Dr: training tea... 3	Urusetia Penjanaan CICT (BDO)

Telegram

https://web.telegram.org/

https://web.whatsapp.com
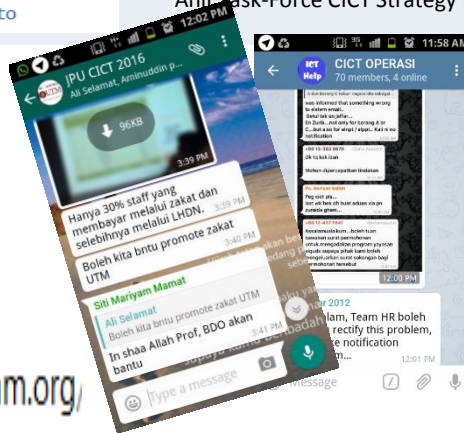
3

Program Sijil Eksekutif Pendidikan Tinggi

Keselamatan ICT

Pusat Teknologi Maklumat & Komunikasi

Usaha Pengenalpastian dan Penilaian Risiko

Data Recovery Centre

Pusat data adalah infrastruktur penting yang terdiri daripada pelayan (server), ruang penyimpanan data (storage) dan pangkalan data. Untuk menjamin "zero loss" data dan maklumat jika berlaku apa jua bentuk bencana, pembangunan DRC yang bertempat di UTMKL telah dilaksanakan.

Power backup/Gen Set

Untuk mengatasi gangguan sumber tenaga seperti elektrik di Pusat Data

CCMC

Unit Command Control and Monitoring Centre (CCMC) ditubuhkan untuk memastikan kelancaran perkhidmatan ICT seperti ketersediaan server, sistem aplikasi dan rangkaian. Pemantauan dilaksanakan setiap masa agar risiko kegagalan perkhidmatan dapat dielakkan dan diatasi dengan kadar segera sekiranya berlaku

UTMCert

Pasukan UTM Computer Emergency Response Team (CERT) ditubuhkan sebagai langkah memperkemaskan pengurusan pengendalian insiden keselamatan ICT. Ianya disarankan oleh MAMPU kepada semua agensi yang melaksanakan infrastruktur ICT

Pengurusan Kewangan

J/K Perolehan Teknikal Universiti, J/K Sebutharga dan J/K Teknikal peringkat CICT. Proses perolehan mesti melalui penilaian jawatankuasa berkaitan bagi memastikan ia mematuhi prosidur pengurusan perolehan/kewangan Universiti dan Perbendaharaan Malaysia.

OSHE

Jawatankuasa OSHE memainkan peranan yang penting di CICT dalam menangani risiko yang melibatkan kesihatan pekerja dan bangunan.

Pengurus Fasiliti

Tindakan proaktif dalam mencegah & mengurangi risiko di CICT

vative ● **C**ohesive ● **T**echnopreneur

Penetapan Threshold Risiko

- Dasar dan Polisi ICT

- Pengurusan Keselamatan ICT ISO 27001

- Projek IDM/ SSO

- UTM Cert

- Kawalan dan Pemantauan CCMC

- Penguatkuasaan kawasan bebas asap

Mekanisme dan Petunjuk Amaran Awal

- Pelaksanaan DRC

- SMS Gateway

- Gen Set / ups

- Notis amaran, pekeliling, memberi ceramah, pengesahan daripada pihak yang bertanggungjawab

- Pemasangan CCTV

- Emel dan hebahan kepada staf

C r e a t i

Beware......
To ensure fair usage to all users, your online experience may be monitored.

Guidelines:

- **Internet Application Policy**
- **E-mail Application Policy**
- **Website Contents and Publishing Policy**
- **Computer Distribution Policy (staff)**
- **Student Computer Lab Policy**
  - **Operating Hours, Booking, Attire Code, Cleanliness**
- **ICT Security Policy**
- **Computer Equipment Loan Policy**
- **Disposing of Computer Equipment Policy**

http://cict.utm.my

Creative ● **I**nnovative ● **C**ohesive ● **T**echnopreneur

Internet Policy

- Your password (UTMID) is your responsibility

- Your PC/devices must be free of spywares, adwares, viruses and worms before connecting to the UTM networks

- Commercial use of UTM networks is prohibited

- Dissemination and access to pornographic and political materials are strictly prohibited

- Hacking, network scanning, phishing and data decrypting activities are prohibited at all cost

- Use of pirated softwares are prohibited.

- Use of gambling apps, gator, hotbar, searchbar, and cracked games on UTM owned computers are prohibited

Email Policy

- You are responsible for your email account and password

- Slanders, fouls language, sexually explicit words are not to be used in email at all time

- Personal use of email is allowed but its use for commercial activities is strictly prohibited

- Dissemination of prohibited materials through email attachment is not allowed

- Encryption is required for sending confidential materials

- Spamming and phishing activities are strictly prohibited

- Use of email account by a third party is prohibited

4

Program Sijil Eksekutif Pendidikan Tinggi

Pengurusan Pelanggan

Pusat Teknologi Maklumat & Komunikasi

Pengurusan

Mahasiswa

Komuniti

Staf

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

Penentuan Keperluan Pelanggan

Mekanisme Pengukuran Kajian Keperluan Pelanggan

- Jawatankuasa Eksekutif CICT (4 Kali Setahun)
- Mesy Pengurusan CICT (1 Kali Sebulan)
- Perbincangan bersama Pemilik Sistem (Setiap kali Mesy dan Perbincangan di adakan)
- Pegawai Attachment /Ambassador di Fakulti & Jabatan
- Maklumbalas Kajian Kepuasan Pelanggan (Sekali setahun)
- Analisis Sistem ADUIT (1 kali Sebulan)
- Pelan Strategik Tahunan (Sekali Setahun)
- Audit Dalam (Kewangan & OSHE)
- Perjumpaan Bersama MPM
- Lain-lain Mesyuarat (LPU, JPU, UMG dll)

Kenyataan Misi Perkhidmatan Pelanggan

KAMI KOMITED MENYEDIAKAN PERKHIDMATAN ICT BERIMPAK TINGGI DAN MELAKSANAKAN PENAMBAHBAIKAN BERTERUSAN BAGI MENINGKATKAN KEPUASAN PELANGGAN SEJAJAR DENGAN VISI DAN MISI CICT

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

Piagam Pelanggan & SLA Antara PTJ

SLA BERSAMA PTJ

Piagam Pelanggan

Menjadikan ICT sebagai utiliti asas universiti

Menyediakan perkhidmatan berpusat bagi memudahkan pelanggan memberi fokus kepada bisnes teras masing-masing

Menyediakan perkhidmatan bersepadu bagi memudahkan capaian maklumat dengan berkesan

Membuat penambahbaikan berkesan dalam perkhidmatan ICT

1. FOKUS PELANGGAN
- Kepuasan Pelanggan - 85% CSI & Kualiti Perkhidmatan
- Khidmat Pelanggan - 90% Permohonan pelanggan dipenuhi
  - i. Kemudahan ICT ≤ 3 hari bekerja
  - ii. Data Universiti ≤ 5 hari bekerja
  - iii. Khidmat sokongan teknikal ≤ 5% gangguan
- Pengurusan Aduan - 90% Aduan diselesaikan
  - i. Masa maklum balas (kecuali Adu@IT) ≤ 4 jam
  - ii. Masa penyelesaian
    - o Berat ≤ 5 hari
    - o Sederhana ≤ 3 hari
    - o Mudah ≤ 4 jam

Objektif Kualiti

2. PENGURUSAN PROJEK ICT YANG EFEKTIF
- Pematuhan spesifikasi teknikal 100%
- Penyempurnaan projek mengikut masa 80%
- Pemantauan projek mengikut deliverable 100%

3. PROFESIONAL DIGITAL BERINOVATIF
- Staf CICT mengikuti program pembangunan Kepakaran digital
- Pelaksanaan perancangan latihan 90%
- Kualiti pengendalian latihan 90%
- Pengurusan kompetensi peserta 80%

4. KUALITI OPERASI & PERKHIDMATAN DIGITAL ICT
- Up-Line Perkhidmatan 99% (Aplikasi, Infra & Operasi)
- Kemudahan ICT 100% mengikut   standard kemudahan ICT
- Keselamatan ICT 98%

5. EKOSISTEM DIGITAL KEUSAHAWANAN
- Penjimatan 75% mengikut sasaran tahunan
- Sasaran penjanaan tahunan >= 80%

PROGRAM *ATTACHMENT* DAN *AMBASSADOR* Di PTJ

Perlaksanaan Staf Attachment & Ambassador

- Mula dilaksanakan bermula pada Oktober 2015 melibatkan staf di semua peringkat.
- Tempoh masa Attachment/Ambassador adalah maksima 1 tahun pada sesuatu tempat
- Pemilihan staf adalah berdasarkan keperluan semasa university atau PTJ.
- Tujuan utama untuk memberi perkhidmatan terbaik kepada pelanggan/PTJ.
- Penempatan staf adalah sepenuh masa di PTJ yang ditempatkan.
- Penilaian prestasi staf dinilai oleh Pegawai Penilai Pertama dari PTJ dan Pegawai Penilai Kedua dari CICT.

Perkhidmatan Teras CICT Dalam Sistem Penyampaian Perkhidmatan

Kemudahan
- Studio Multimedia
- Product Software
- Dewan Komputer
- Email
- UTM Cloud Storage
- Hotspot WIFI
- ICT Profesional Certificate Program

Pengurusan
- Kecekapan Pengurusan (Birokrasi)
- Pengurusan Pelestarian
- Governance

Infrastruktur
- Data Center
- Internet- WIFI
- Keselamatan
- Pangkalan Data

Sokongan Teknikal
- Polisi ICT
- Multimedia
- Web Portal
- Khidmat Pelanggan

Sistem Penyampaian Prestasi Tinggi CICT

Pengurusan & pembangunan Aplikasi
- Back Office
- Perkhidmatan Atas Talian
- Laman Web/Portal
- Inisiatif Tanpa Kertas
- PTJ
- Pengajaran & Pembelajaran

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

Pendaftaran Staf Baru

Staf Baru	PSM PTJ	CICT
MULA	PSM DAFTAR STAF BARU KE DALAM UTMHR UNTUK DAPATKAN NO PEKERJA	ID /AKAUN STAF DIJANA OLEH PIHAK CICT
STAF BARU LAPOR DIRI DI PTJ	PERLANTIKAN DILULUSKAN?	DIMAKLUMKAN SEMULA KEPADA PSM PTJ
	PSM MOHON AKAUN DARI CICT (UTMHR)	
TAMAT	PSM MAKLUMKAN KEPADA STAF BARU	

BIL	ID/ AKAUN	CATATAN	Default Password
1	UTMID/ ACID	ID untuk akses portal MyUTM, Hotspot@UTM & Virtual Private Network (VPN)	Generik
2	Emel	Emel rasmi UTM xxx@utm.my	nokp
3	UTMHR	Sistem Aplikasi	password
4	UTMFin	Sistem Kewangan Universiti	abc123
5	iHadir	Sistem Kehadiran & Cuti	No pekerja

UTMID/ ACID

HOW TO RESET YOUR ID

✓ Login to https://acid.utm.my
✓ Check UTMID and Reset Your ACID password

Please follow the instructions below to retrieve your ACID account

For lecturer and staff please insert your **staff no.**
For student please insert your **matric no.**

Submit

e.g: BE030999

PORTAL MYUTM

Interface

UTM SOFTWARE CENTER

SOFTWARE DOWNLOAD

Virtual Private Network (VPN)

To access UTM intranet services from outside UTM campus

http://vpn.utm.my

Note:

Use UTMID to login

Virtual Private Network (VPN)

Virtual Private Network (VPN)
List of System
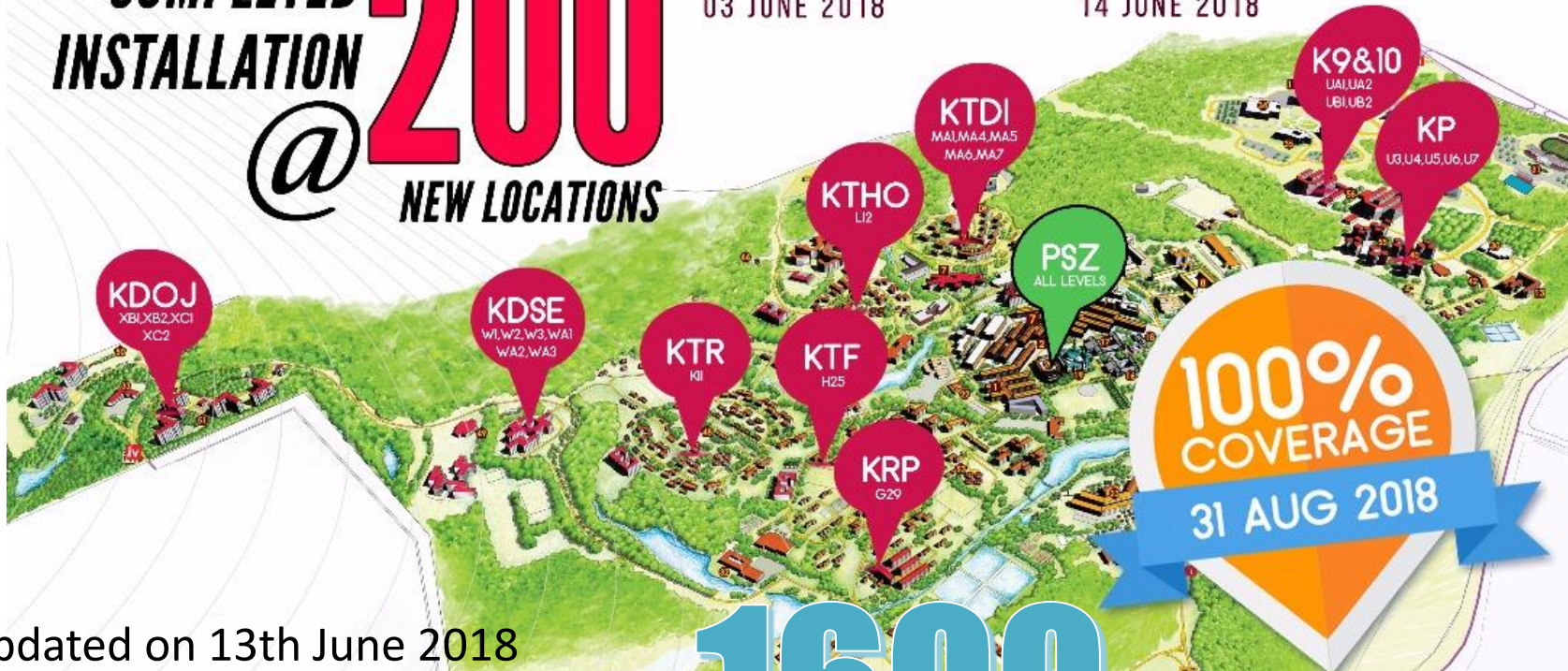
Updated on 13th June 2018

HPC Infrastruktur (hpc.utm.my)

High Performance Computing(HPC)

What is HPC?

HPC - refers to the **practice of aggregating computing power** in a way that delivers **much higher performance** than one could get out of a typical desktop computer or workstation in order **to solve large problems in science, engineering, or business and performing research activities** through computer modelling, simulation and analysis.

HPC uses supercomputers and computer clusters for solving complex computational problems. HPC technology focuses on using parallel processing algorithms and systems.

Performance
Quality
Speed
Efficiency
Cost

UTM HPC Network Diagram......

UTM HPC
Grid Computing

Laptops

Clusters

Databases

PC's

Supercomputers

Supercomputers

Kelulusan Spesifikasi Teknikal Bagi Perolehan ICT

Bagi Perolehan ICT, spesifikasi teknikal hendaklah disemak dan diluluskan oleh Jawatankuasa Teknikal Perolehan ICT Universiti sebelum sesuatu sebutharga dipelawa.

CICT adalah urusetia jawatankuasa ini dan di Pengerusikan oleh Pengarah CICT. Keahlian jawatankusa ini adalah dikalangan Pegawai Teknologi Maklumat Kanan dan Pengurus Teknologi Maklumat Fakulti.
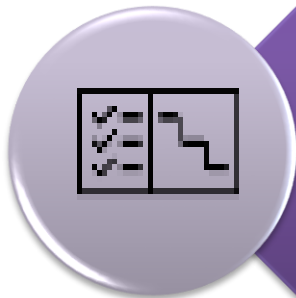
Salinan minit mesyuarat yang telah disahkan oleh CICT hendaklah disertakan bersekali semasa permohonan sebutharga dibuat.

Had Kuasa Rundingan Terus perolehan ICT

Jenis Perolehan	Nilai (RM)	Kuasa Melulus
Perisian Khusus	Sehingga RM50,000	Pengarah CICT
Perisian Umum		
Pangkalan data, Jurnal dan Maklumat Atas Talian		
Pelanjutan Kontrak Penyelenggaraan & Menaiktaraf Bagi Perkhidmatan ICT dan Perkhidmatan Internet	Sehingga RM200,000	

Permohonan yang memerlukan kelulusan Pengarah CICT hendaklah menghantar dokumen lengkap ke Unit Perolehan Universiti, Pejabat Bendahari. Unit Perolehan Universiti akan mendapatkan kelulusan daripada Pengarah CICT.

UTM UNIVERSITI TEKNOLOGI MALAYSIA

Gallerium CICT Aras 2, D07, CICT

Lawatan, sila hubungi Pejabat Am CICT 07-5532627

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

5

Program Sijil Eksekutif Pendidikan Tinggi

Pencapaian CICT
&
Perancangan Akan Datang

Pusat Teknologi Maklumat & Komunikasi

SUMBANGAN TERHADAP *RATING & RESEARCH UNIVERSITY* DALAM
PENGURUSAN DATA UNIVERSITI & *BUSINESS INTELLIGENCE*

1. Intake PG SRAD
2. Enrolmen PG SRAD
3. Analisa Keputusan Peperiksaan UG –UGS
4. Analisa Keputusan Graduan UG - UGS
5. Kemasukan UG & PG – MyMOHES
6. Enrolmen UG & PG MyMO
7. Kemasukan UG & PG – AIMS(Semasa)
8. Enrolmen UG & PG - AIMS(Semasa)
9. UG & PG I

1. Pengajaran
2. Penyelidikan & Penyeliaan
3. Perkhidmatan
4. Pengurusan
5. Perundingan

1) Maklumat Asas Staf(Maklumat asas,Skim jawatan,Mengikut negara,Mengikut negeri lahir,Rumusan jawatan)
2) Maklumat Perkhidmatan (Tempoh berkhidmat,Cohort umur,Belum sah jawatan,Staf lapor diri)
3) Pendidikan (Kelulusan akademik)
4) Meninggalkan Perkhidmatan (Unjuran persaraan)
5) Perjawatan (Lantikan staf baru, Naik pangkat, Staf akademik mohon naik pangkat)
6) Perubatan (Maklumat klinik panel)
7) Latihan
8) eLPPT

BI PELAJAR

BI BEBAN AKADE

BI STAF

1. Perspektif
2. Strategik Objektif
3. KAI Owner
4. KAI

BI KAI UTM

BI KEWANGAN

1. Belanja Keseluruhan
2. Jenis Belanja
3. Belanja Operasi
4. Belanja Emolumen
5. Belanja Overhead
6. Hasil Keseluruhan
7. Hasil Yuran
8. Hasil Warganegara

MyRA

SETARA

MyMoheS

QS-Ranking

THES

MKPI /KPI HEAD LINE

HRMIS

TRACER STUDY

AD HOC

6 SETARA-2017

STARS RATED FOR EXCELLENCE 2017

Penarafan 5 Bintang

SUMBANGAN TERHADAP *RATING & RESEARCH UNIVERSITY* DALAM
PENGURUSAN DATA UNIVERSITI & *BUSINESS INTELLIGENCE*

UTM Global Rankings

- Ranked #21 — QS WORLD UNIVERSITY RANKINGS TOP 50 UNDER 50
- Ranked #100 — THE BRICS & EMERGING ECONOMIES RANKINGS
- Ranked #90 in Engineering & Technology — QS WORLD UNIVERSITY RANKINGS by faculty
- 6 Subjects in Top 100 — QS WORLD UNIVERSITY RANKINGS by subject
  - Architecture/Built Environment
  - Computer Science & Info Systems
  - Chemical Engineering
  - Civil & Structural Engineering
  - Electrical & Electronics Engineering
  - Mechanical Engineering
- Ranked #253 — QS WORLD UNIVERSITY RANKINGS
- Ranked #50 for Engineering — BEST GLOBAL UNIVERSITIES US News 2016
- 5 Stars Overall Rating — QS STARS RATED FOR EXCELLENCE 2017
- Ranked #49 — QS UNIVERSITY RANKINGS ASIA
- Highest joint rank in Malaysia at 121-130 — THE WORLD UNIVERSITY RANKINGS 2017 TOP 200 ASIA

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

Pencapaian KAI 2017

Strategik Objektif mengikut Perspektif

Bil	Perspektif	Bilangan Strategik Objektif	Strategic Objective	Bil KAI
1	Pihak Berkepentingan (Stakeholders)	2	S1. Excellent Products & Services S2. Comprehensive Strategic Branding program	2 3
2	Proses Dalaman (Internal Process)	3	P1. Enculturation of High Performance Delivery P2. Strengthening Implementation of Corporate Governance & Standard Compliance P3. Enculturation ICT Innovative Business Practices	1 2 1
3	Pembelajaran dan Peningkatan (Learning and Growth)	3	L1. Outstanding Staff with Holistic Values L2. Knowledge and Technology Asset L3. Conducive Working Environment	4 2 2
4	Kewangan (Financial)	3	F1. Prudent Financial Management F2. Diversified Income Base F3. Unlocking Asset	1 6 1
	JUMLAH	11		25

ACHIEVEMENT DETAILS

Security Incident
- 2017 : 98%
- 2016 : 95%
- 2015 : 98.75%

3% Penurunan Insiden

Availability
- 2017 :98.6%
- 2016 : 99.8%
- 2015 : 99.7%

1.2 %

Customer Satisfaction
- 2017 :83.94%
- 2016 : 81%

2.94 %

Support Service
- 2017 : 99%
- 2016 : 97%
- 2015 : 91.53%

2 %

L2.3: Peratus Pencapaian Keseluruhan Piawaian ICT

TARGET **ACHIEVEMENT**

2017 | 80% | 87.73%
2016 | 96% | 93.17%
2015 | 94 % | 91 %
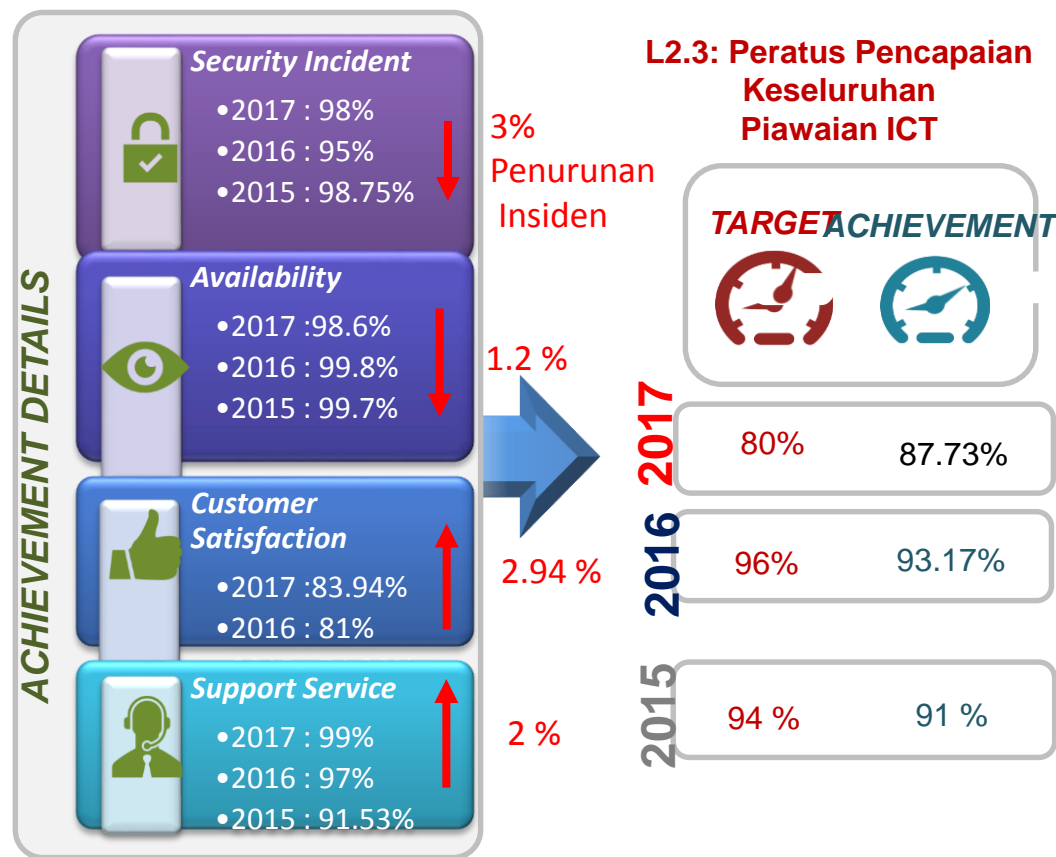
PENGIKTIRAFAN

Persijilan Rekabentuk Datacenter Tier3
1 Disember 2017

Anugerah UTMFin SAGA Compliance (AG)
22 November 2017

Integrasi antara sistem

Kawalan Capaian Pengguna

Impak Pensijilan SAGA

UTMFin – produk inovasi yang diiktiraf oleh Akauntan Negara

Keselamatan Data Terjamin

Senamrobik Perdana

- **2015 & 2016 : PTJ Paling Aktif**
- **2017: PTJ Paling Gempak, PTJ Paling Ceria**

ive ● I n n o v a t i v e ● C o h e s i v e ● T e c h n o p r e n e u r

PUSAT DATA BAHARU UTM

IPT PERTAMA DI MALAYSIA

Persijilan Rekabentuk Datacenter Tier3 Dianugerahkan pada 1 Disember 2017

KEMUDAHAN DI DALAM PUSAT DATA BAHARU UTM

STRATEGI

Design certified (TIA-942 Tier 3 - 2017)

Pusat Data dengan infrastruktur redundun dimana penyelenggaraan ke atas peralatan dapat dilaksanakan tanpa mengganggu perkhidmatan ICT yang lain

Operation Certified (ISMS + TIA 942 - 2018)

IMPAK

24 x 7 x 365 ICT Application Services, reduce downtime, proper maintainance

Business opportunity, Cloud services, Hosting services especially in southern region

Green Technology

Longer lifetime for ICT equipments

This is to certify that the design documents for the data center of

UTM Data Centre

located at

Centre for Information & Communication Technology (CICT)
Universiti Teknologi Malaysia
81310 Johor Bahru
Johor, Malaysia

has been independently assessed and found to conform to the requirements of:

ANSI/TIA-942:2017

Rated 3

since 01-Dec-2017

for the following scope(s):

Architecture:	Mechanical:	Electrical:	Telecom:
Rated 3	Rated 3	Rated 3	Rated 3

CERTIFICATE NUMBER: 6020171712010010
This certificate is valid from 01-Dec-17 until 30-Nov-18
Extension is subject to terms and conditions.

Philip Sy
Certification Manager

Network Room

Server Room

Genset

Computer Room Air Conditioning System

DCIM (Data Center Infrastructure Monitoring

PENERAJU PERKHIDMATAN *VIDEO STREAMING, CONFERENCING* DAN MONTAJ

Total Video Performance

Peak Live Viewers	105	
Minutes Viewed	18,376	
Video Views	16,820	
10-Second Views	8,517	
Video Average Watch Time	0:35	
Audience and Engagement		

2017

LIVE

11 events
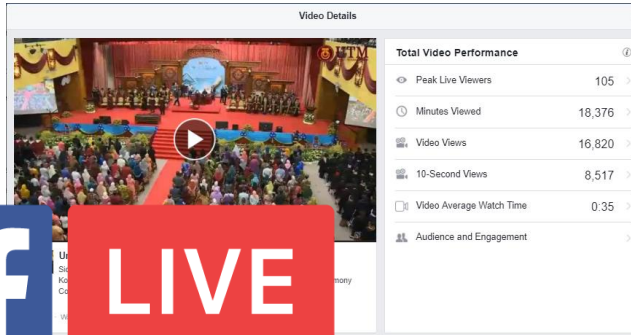
142, 562 viewers. Reach more audience.

Global worldwide view

High Definition video quality

Integration with video system

MultiCameraProduction & VC

Sumber rujukan VC

Permohonan Online di laman web CICT

Sumber Bilik VC UTM

Pusat Mobile VC (Phone dan laptop)

Multipoint Conference Unit (Pusat VC berbilang lokasi)

lifesize

Rakaman sesi VC

Menyokong Education 4.0

Kelestarian kewangan
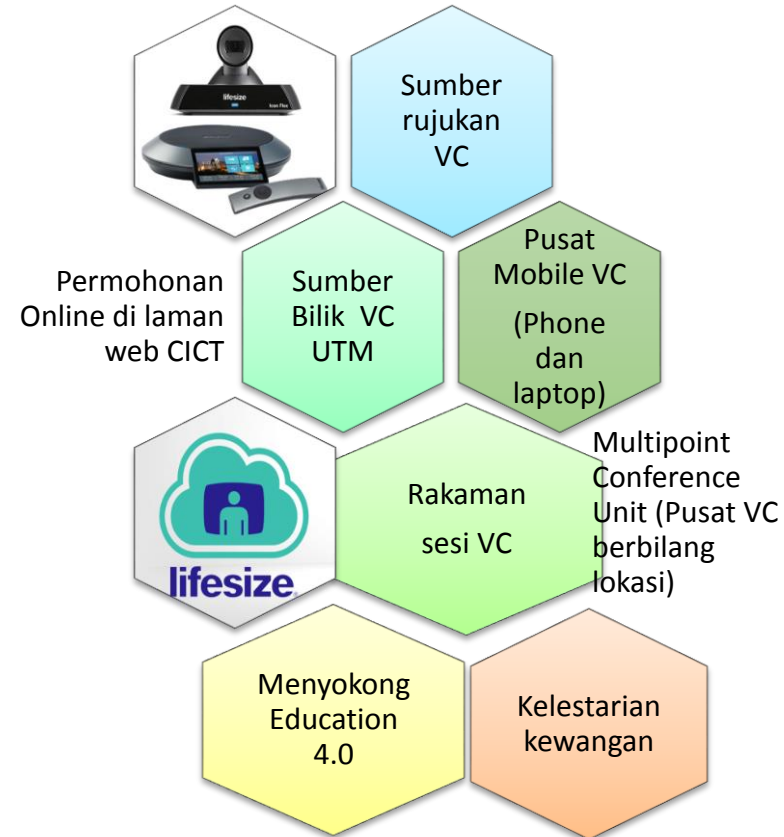
PERKHIDMATAN *VIDEO CONFERENCING*

DIGITAL @ LIFESTYLE - Industrial Revolution 4.0
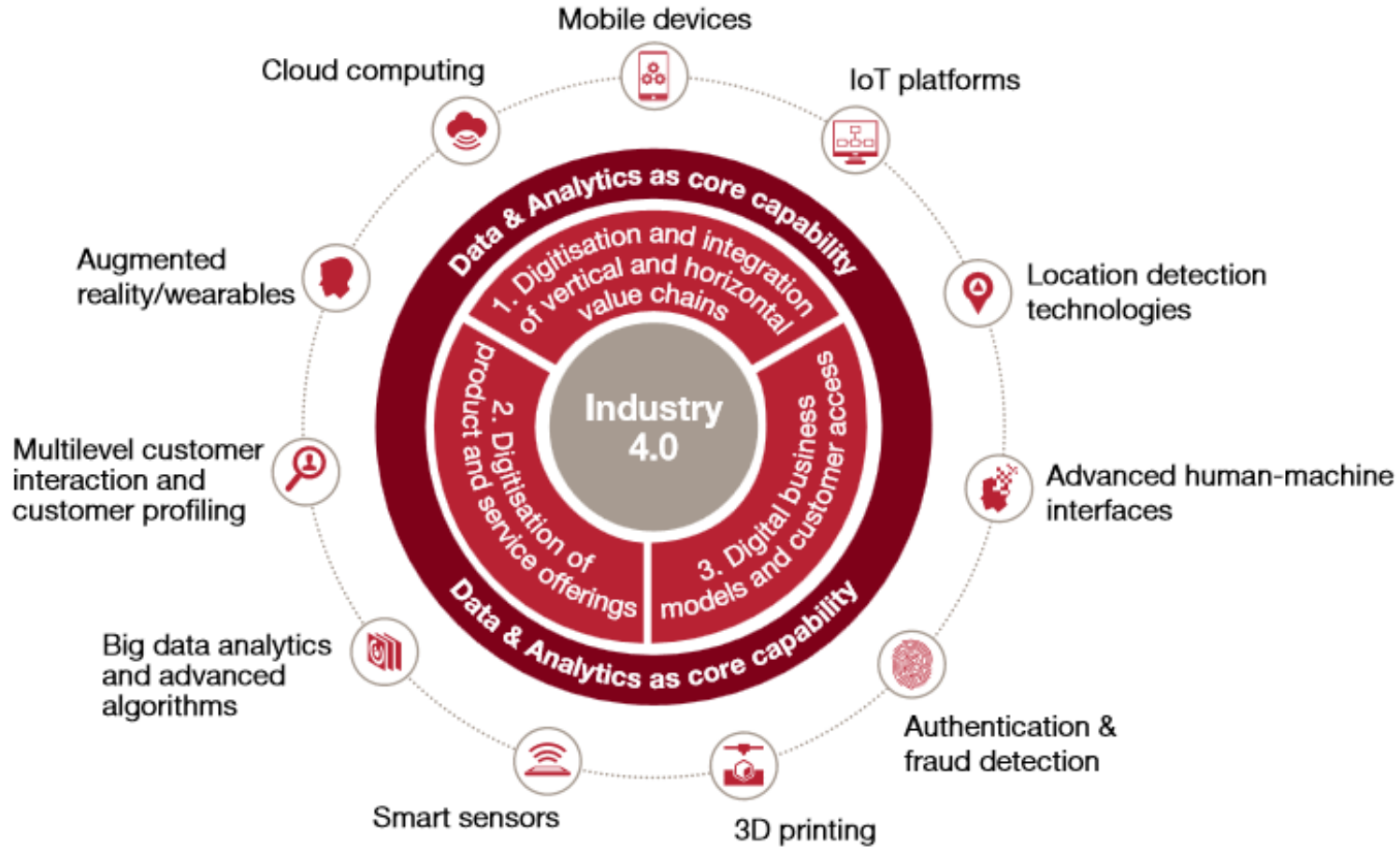
UTM DIGITAL @ LIFESTYLE Timeline
(Digital Waves)

1st Wave

2016
- Internet
- Web, Portal
- HR Management
- Financial Management
- Academic Management
- Facility Management
- Medical Management
- Activities Management
- E-Learning (Phase 1)

2nd Wave

2017
- Mobile Internet
- Staf & Student Profiling
- BI Reporting
- Facility Mngnt Operation
- Community Information & Announcements
- Online Learning /MOOC/Blended Learning
- New Academia Learning Initiatives
- Video Conferencing
- Digital Signage

3rd Wave

2018-2019
- Internet of Thing
- Data Analytic
- Bus Tracking System
- E-Wallet
- Attendance Clock-In
- E-Healthcare
- Data Science
- Self Learning
- BYOD

4th Wave

2020
- AI and Robotic
- Knowledge and Man-Machine Collaboration

On-line Services

New Industrial Revolution High Impact Projects

UTM SMART CAMPUS

5 Pencapaian & Perancangan

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

ICT Innovation

Mobile Apps

Social Media

CROWDFUNDING

BigData

Blockchain

How Crowdsourcing Works in 6 Easy Steps
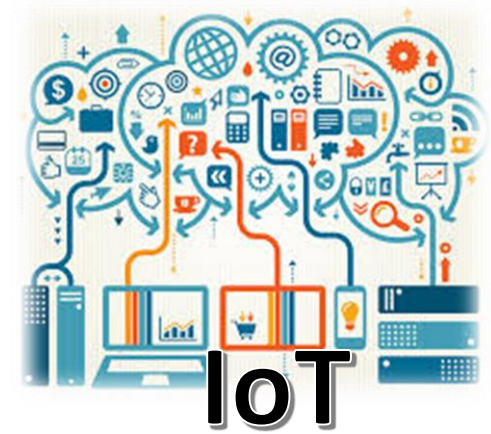
1. Company has a problem
2. Company broadcasts the problem online
3. The online "crowd" submits solutions
4. The crowd & company vet solutions jointly
5. Company rewards winning solivers
6. Company & community profits

From http://www.ebizq.net/blogs/enterprise

CLOUD

IoT

Creative ● **I**nnovative ● **C**ohesive ● **T**echnopreneur

The 9 Pillars of IR4.0

ECO-SISTEM DIGITAL MEMACU PENCAPAIAN KFA PGU3

Existing Information Systems

- HR Management
- Financial Management
- Academic Management
- Asset/Facilities Management
- Data Management

Collaboration and Migration

Digital Transformation

- Digital Workstyle
- Digital Communication
- Digital Application
- Digital Learning
- Digital Services
- Digital Business
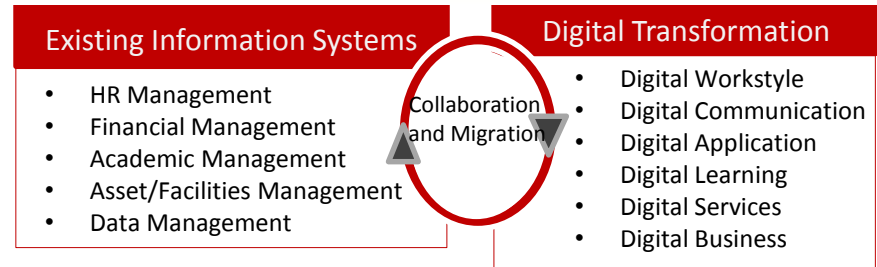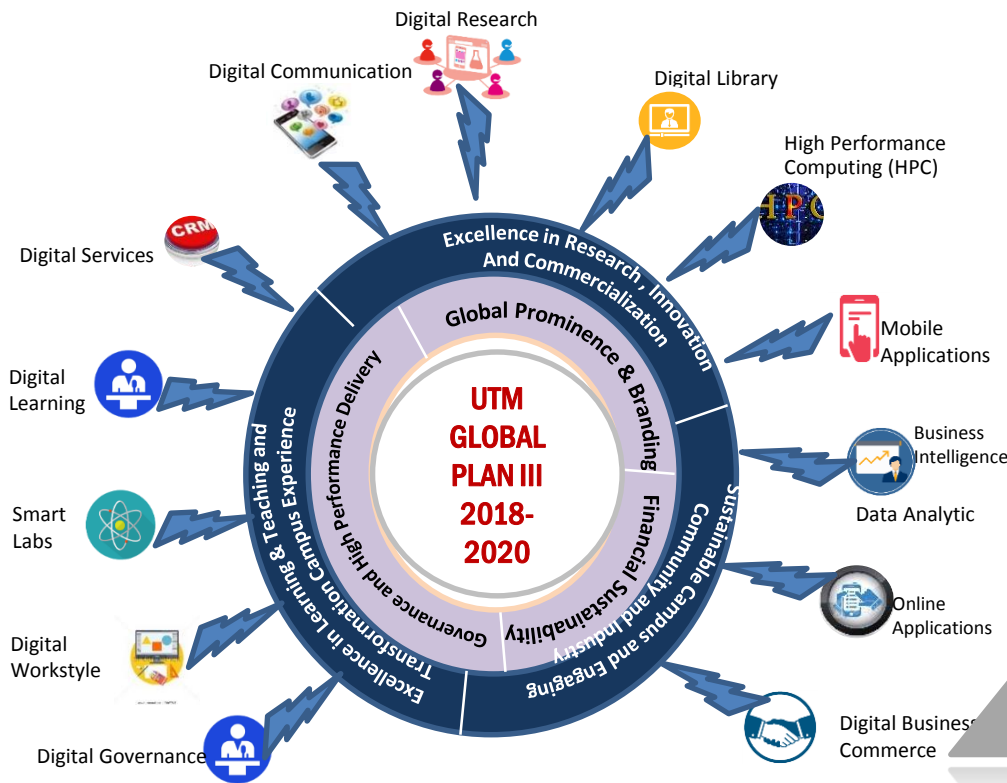
Industrial and University Revolution 4.0

| Mobile | Analytics | IoT | AI | ... |

Cloud
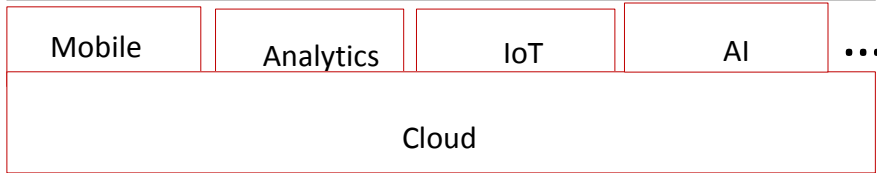
UTM Digital Campus Platform

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

CICT SEBAGAI *DIGITAL @ LIFESTYLE KEY ENABLERS*

UTM SMART CAMPUS FRAMEWORK

PPPM(PT)

PGU 2 and 3 (HIGH PERFORMANCE DELIVERY)

UTM SMART CAMPUS

Digital Policies	Smart Campus Policies

Digital Services
- e-Healthcare
- HPC Research Facilities for Scientific Applications
- Admin Apllications UTMHR, UTMFin, UTMACAD, UTMFAS, CRM
- e-Transportation
- Smart Office

Digital Infostructure
- New Academia Learning Initiatives (Webinar, Mobile Learning)
- Business Intelligence

Digital Infrastructure
- Secured Network Infrastructure
- Tier-3 Data Centre
- Gigabits Network
- HPC

Devices
- Intelligence devices to delivers digital contents in a user-friendly manner
- Powerful consumer devices will access, process and present digital content and interact with the digital and physical world

Network
- Communication and information info structure to support user access
- User will be able to seamlessly connect with and have and access to whatever information they want.

Applications
- Easy accessible multimedia content for diversified user applications
- Content will play a key role in satisfying people's information needs and entertainment expectations
- Media content and context will be created, consumed and shared by anyone

CICT SEBAGAI *DIGITAL @ LIFESTYLE KEY ENABLERS - TOTAL CAMPUS EXPERIENCE*

- Sustainable Campus, Infrastructure, Information and Communications Technology (ICT) System, and Community Engagement & Industrial Network.
- Total Campus Experience
- High Performance Delivery
- Financial Sustainability

High Performance Comp

Smart Labs And Classroom

Research

Digital Communication

Video Conferencing

HealthCare System

Enforce System

Digital Library

Innovation

Smart Office

IoT Enablers

Mobile Application

Cashless Payment

Digital Learning

Online Learning

e-Governance

Asset &Facilities

BI & Analysis

Digital Workstyle

Digital Services

Transportation

Smart Monitoring   **Secured Network**   **Gigabytes Network And WiFi**   **Digital Storage and Cloud**   **Tier 3 Data Center**

DIGITAL INFRASTRUCTURE

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r

UTM 4.0 Towards IR4.0

Terima Kasih

Oleh

PUSAT TEKNOLOGI MAKLUMAT DAN KOMUNIKASI
(CICT)

Slide di cict.utm.my <Get Help> <Sijil Eksekutif Pendidikan Tinggi>

C r e a t i v e ● **I** n n o v a t i v e ● **C** o h e s i v e ● **T** e c h n o p r e n e u r