

PENGENALAN PENGURUSAN ASET MENYELURUH (PAM) 2021

Ir. SHAHRULNIZAM BIN SALIHIN

Isi Kandungan



□ Sesi 1:

1. **Pengenalan Pengurusan Aset Menyeluruh (PAM)**
2. **Pengenalan Tatacara Pengurusan Aset Tak Alih (TPATA)**
3. **Akses Laman Sesawang JKPAK**

□ Sesi 2:

1. **Pengenalan Kontrak FM**

Objektif Kursus



- Memberi pendedahan dan pengenalan kepada peserta mengenai:
 - ▣ Pengurusan Aset Menyeluruh (PAM)
 - ▣ Tatacara Pengurusan Aset Tak Alih (TPATA)
 - ▣ Pengenalan kepada Kontrak FM
 - ▣ Pengenalan kepada Laman Sesawang JPAK

Pengenalan Pengurusan Aset Manyeluruh (PAM)

Kronologi

TAHUN	PERKARA	CATATAN
2007	Konvensyen NAFAM yang pertama (<i>National Asset & Facilities Management</i>)	Jawatankuasa Pengurusan Aset Kerajaan (JPAK) diwujudkan
2009	Konvensyen NAFAM yang kedua	Dasar dan Manual dilancarkan: 1. Dasar Pengurusan Aset Kerajaan (DPAK) 2. Manual Pengurusan Aset Menyeluruh (MPAM)
2012	TPATA (Tatacara Pengurusan Aset Tak Alih)	Tatacara dikeluarkan

NAFAM 2007



Akibat & Masalah



The original spot of the cornice that fell (circled) at the top of the state assembly building. (Inset) Tan Cheng Liang (centre) taking a closer look at the fallen cornice.

Parliament roof in bad condition, says Samy Vellu

NST 18-05-07

By V. Vasudevan
news@nst.com.my

KUALA LUMPUR: Very bad.

That is how Works Minister Datuk Seri Samy Vellu described the condition of the roof of Parliament House after inspecting it for about 45 minutes with Public Works Department technicians yesterday.

"As an architect, I can tell you it is very bad. I don't want to hide anything from you. There is a lot of work to be done here," he said at a press conference in the lobby of parliament.

He said the repairs would involve re-laying concrete slabs, waterproofing the roof and installing concealed ceiling equipment for heat protection.

"The plastic pipes will have to be replaced with rivet A steel iron pipes."

The damaged pipes had resulted in water flowing off the roof.

Samy Vellu said there was a pile of rubbish, mainly construction waste, on the roof and this had to be removed.

He said there were leaks in five places.

"These could increase to 10 or 15 in the future if nothing is done now."

Asked why the renovation on the building earlier had not looked at wa-

terproofing the roof, he said the contract did not provide for this.

The interior restoration and renovation were carried out in 2005 and it cost RM990 million.

He inspected the roof leaks in the building following heavy rain on May 10.

The last time this happened was in April 2005.

He said everyone was to be blamed for the leakage.

"The Public Works Department is in charge of public buildings. They should have acted and advised the government to carry out repairs."

"The parliament maintenance crew also appears to have been negligent."

He said a paper on the maintenance work and repair costs would be submitted to the cabinet.

"After this repairs, I want to make sure there will be no more such complaints for the next 20 or 30 years."

Minister in the Prime Minister's Department Datuk Seri Nazri Aziz said parliament did not have the technical staff to do maintenance.

"We need the expertise of the PWD and I hope the Works Ministry will assign an engineer or technician to Parliament House."



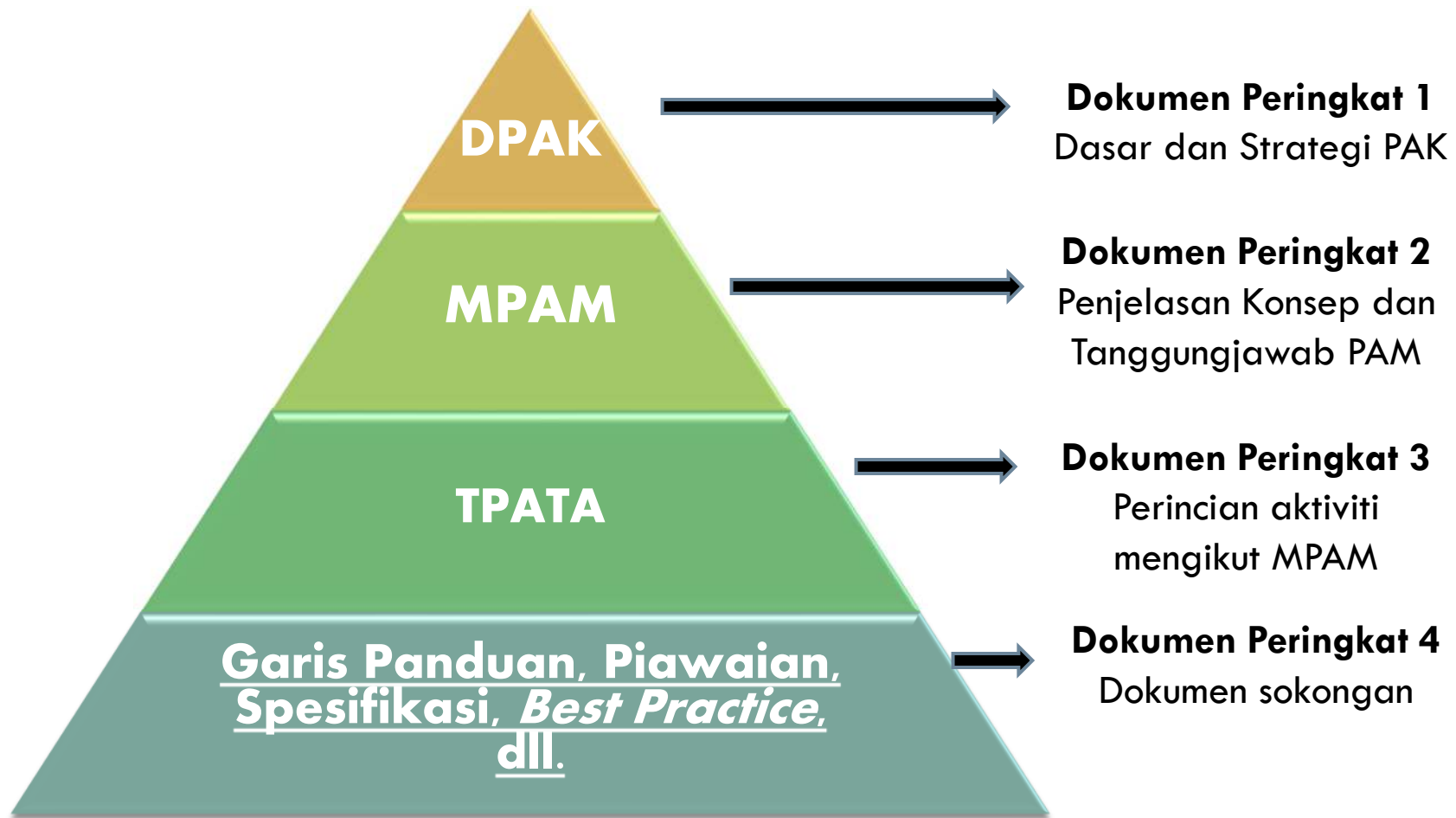
A worker clears a puddle caused by a leak in the roof of Parliament House yesterday. — NST picture by Irfan Adiffin

NAFAM 2009



**Majlis Pelancaran
Dasar Pengurusan
Aset Kerajaan di
PICC, Putrajaya pada
31 Mac 2009**

Struktur Dokumentasi



Dokumentasi & Aplikasi



Dasar Pengurusan Aset Kerajaan (DPAK)



Pekeliling Am Bil 1 Tahun 2009 - MPAM



Pekeliling Am Bil 2 Tahun 2012 - TPATA

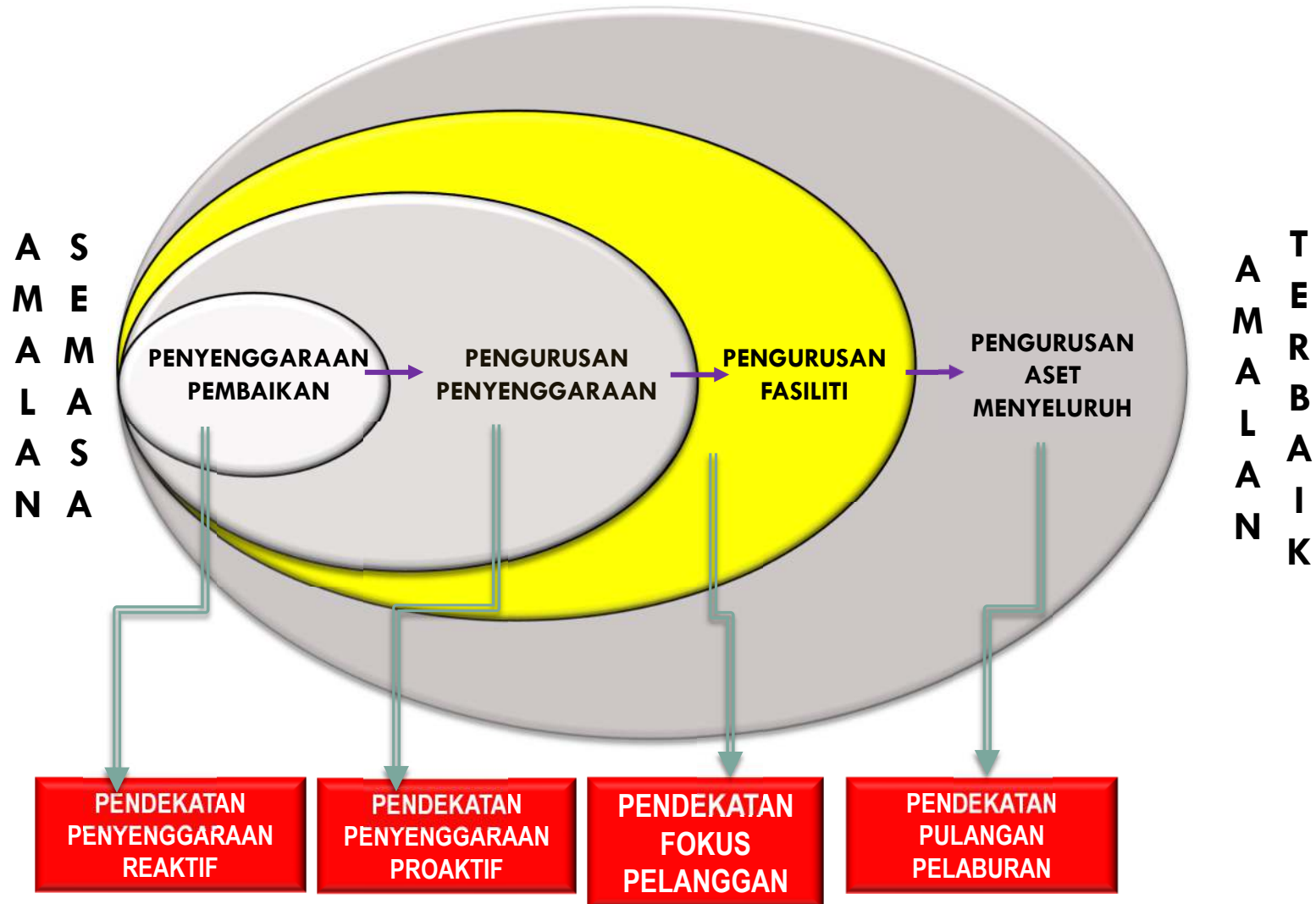


Pekeliling Am Bil 3 Tahun 2012 - SKATA



**Sistem Pengurusan Aset Tak Alih
(mySPATA)**

Pendekatan Baru



Definisi Aset

- Harta benda atau apa-apa yang **bernilai untuk dimiliki**, sama ada berbentuk **semasa** atau **bukan semasa**



- Manual Pengurusan Aset Menyeluruh (MPAM 2009)

Aset VS Fasilitas



Aset VS Fasilitas



Aset VS Fasilitas



Aset VS Fasilitas



Definisi Aset Tak Alih

- Aset yang kekal dan **tidak boleh dialih dari tempatnya** iaitu tanah, infrastruktur dan bangunan



- Manual Pengurusan Aset Menyeluruh (MPAM 2009)

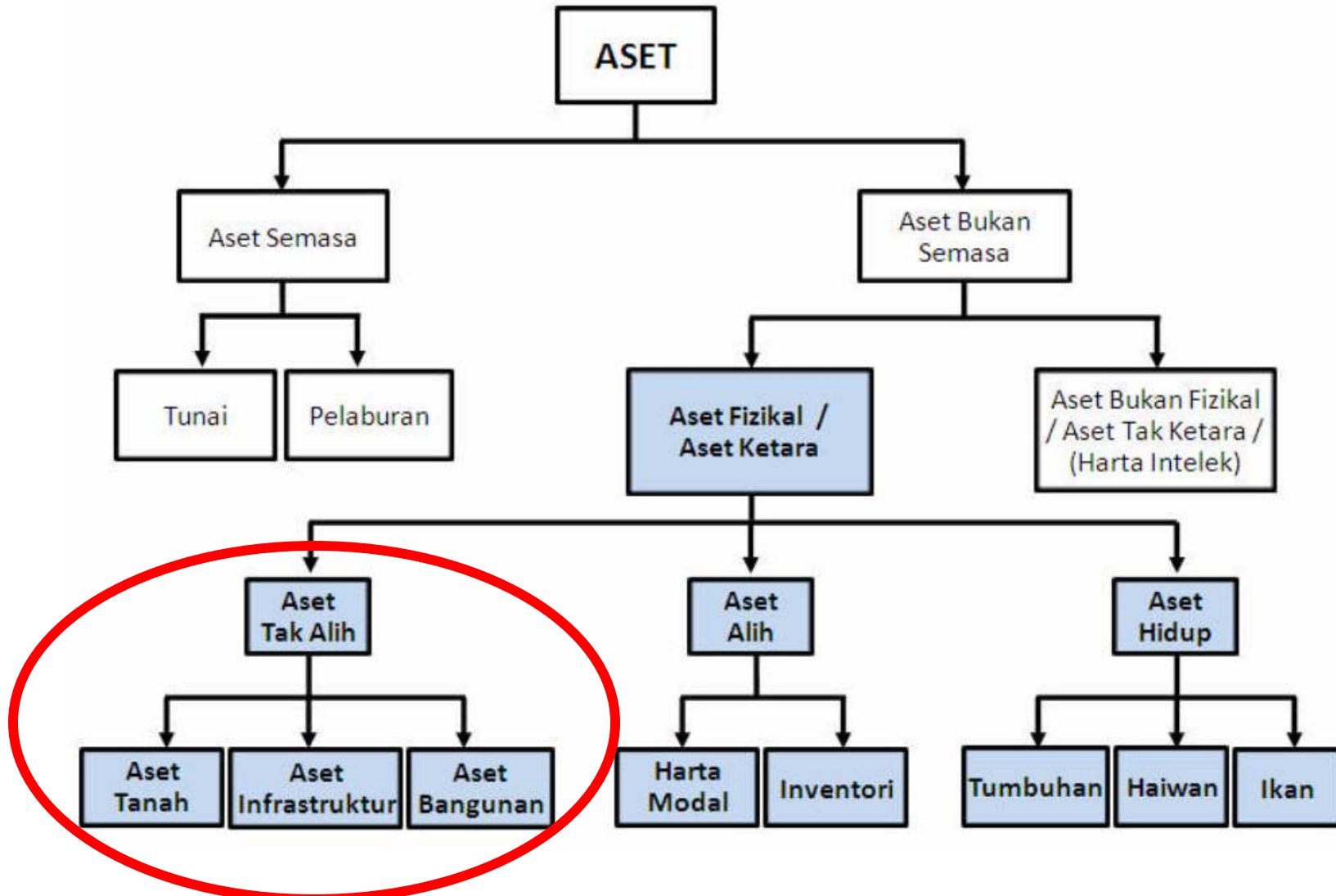
Aset VS Fasilitas



**ASET TAK ALIH
KERAJAAN**

**FASILITI
UNTUK RAKYAT**

Klasifikasi dan Jenis Aset



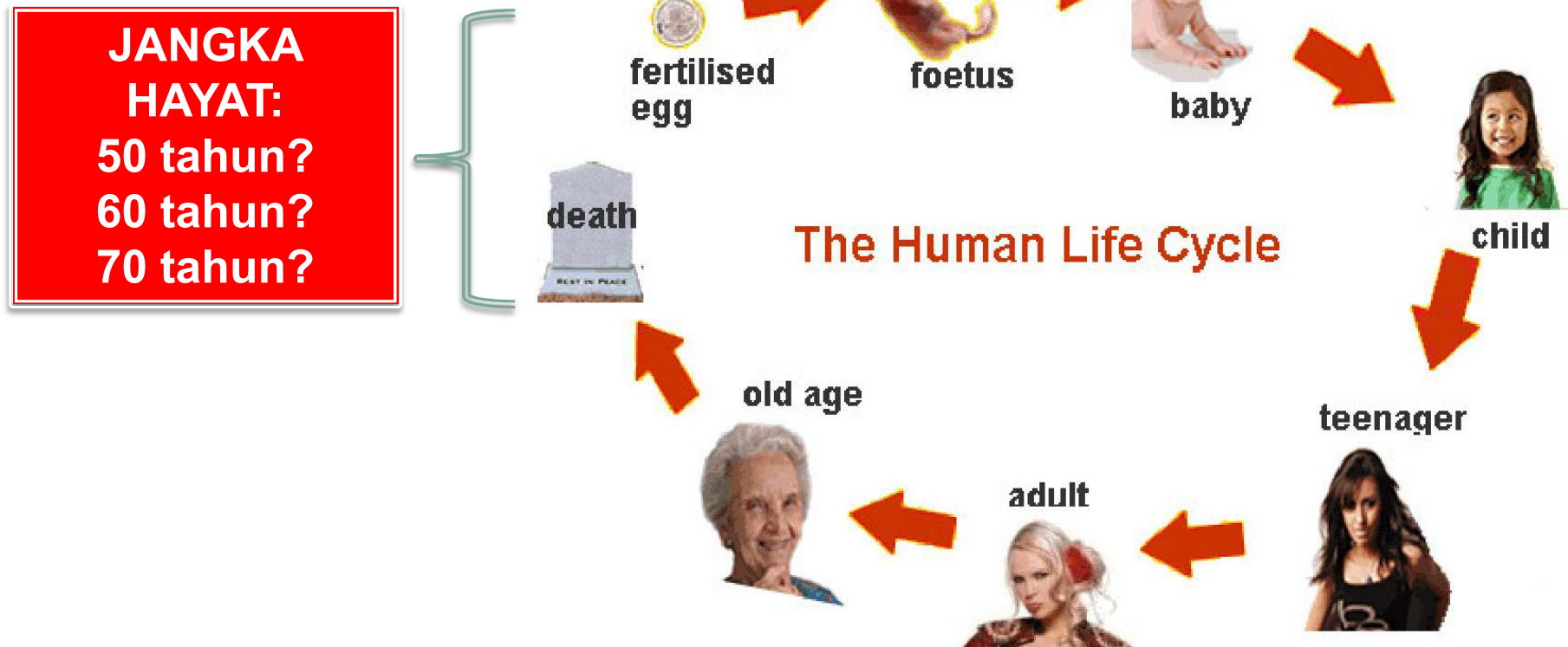
Terminologi Hayat Aset



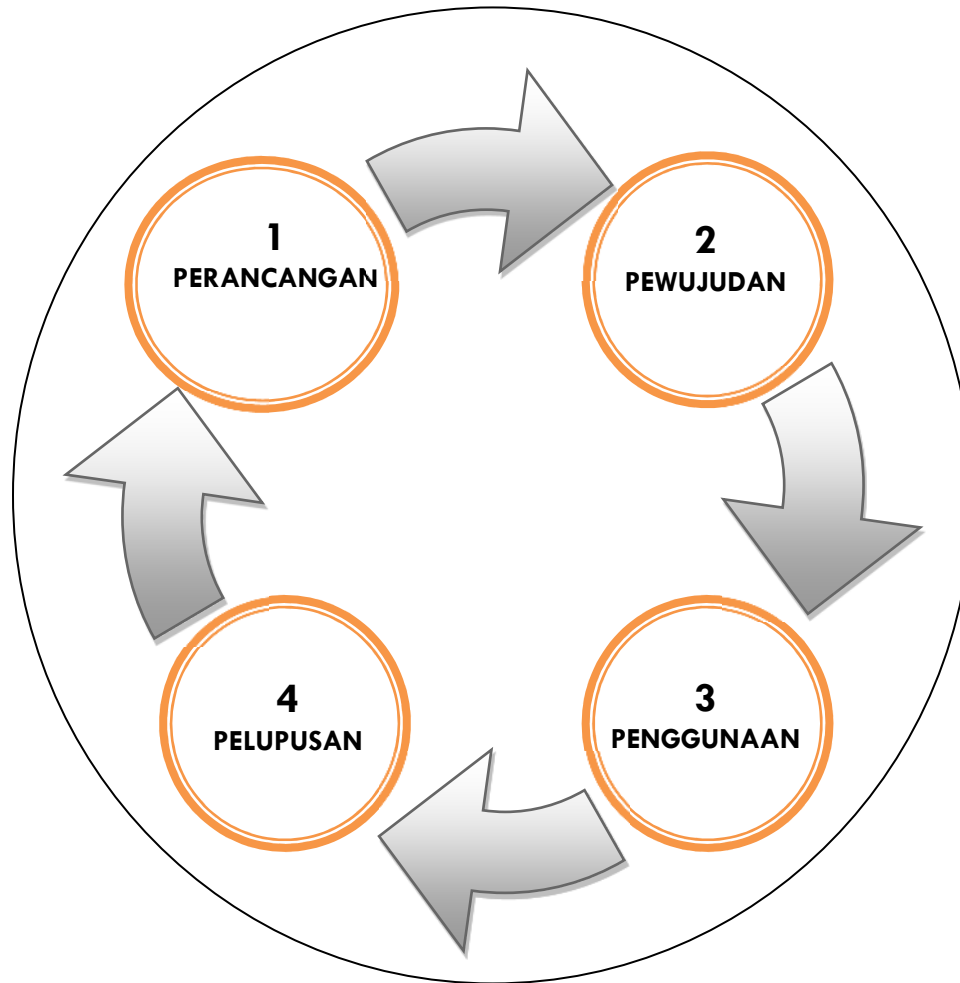
Hayat Aset mempunyai
2 terminologi:

- **Kitar Hayat (Life Cycle)**
- **Jangka Hayat (Life Span)**

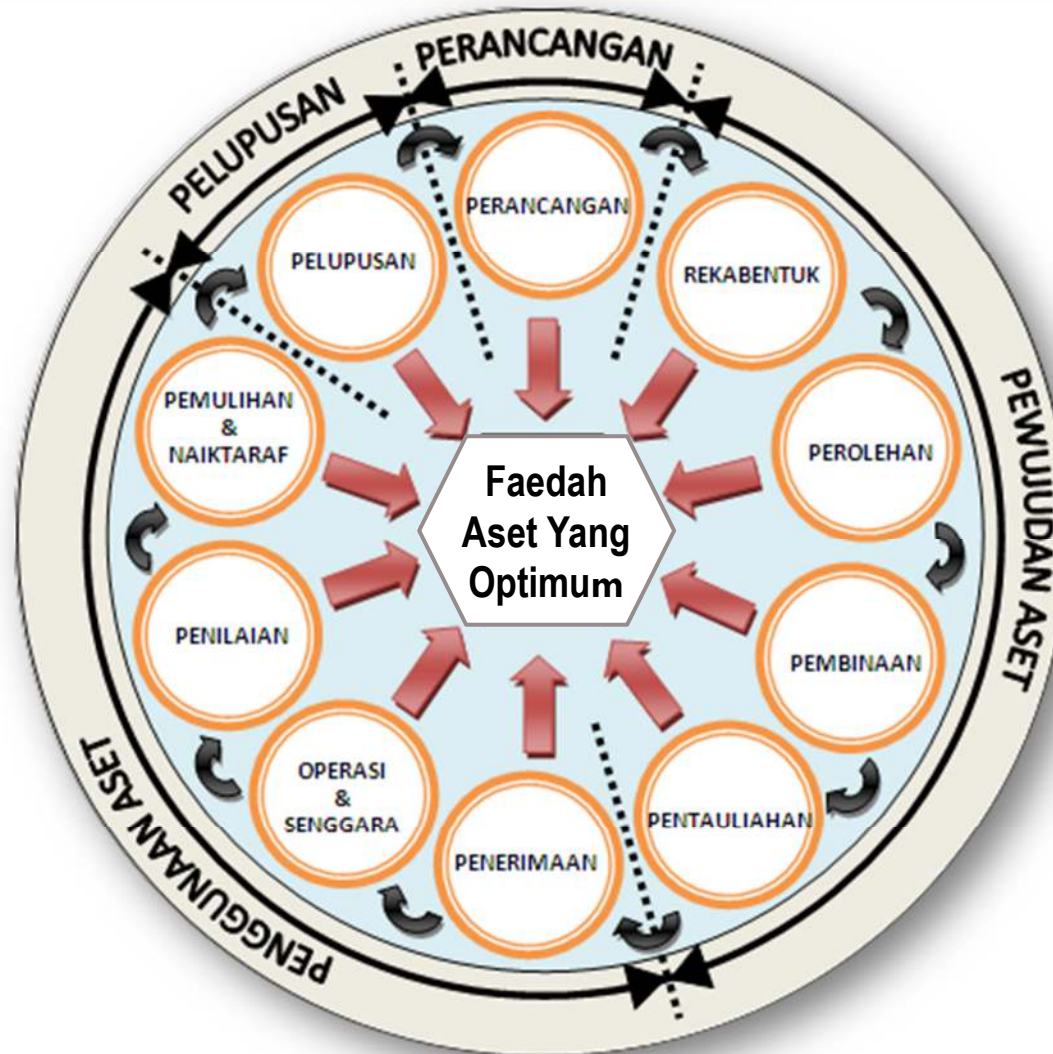
Analogi Mudah



Kitar Hayat Aset - Asas



Kitar Hayat Aset – Aset Tak Alih



Kitar Hayat Aset – Aset Tak Alih

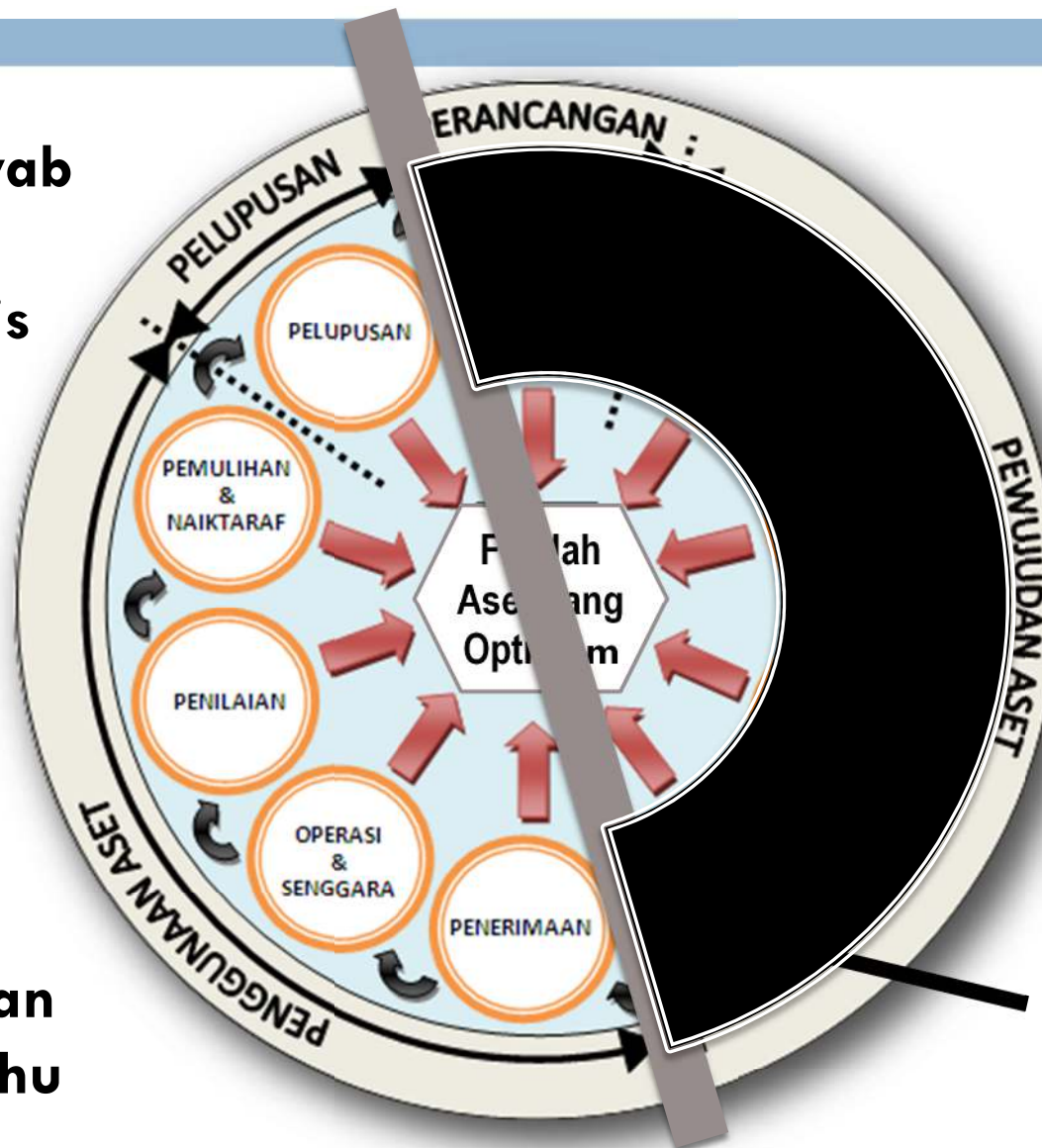
**Tanggungjawab
pelanggan /
pemilik premis**

**Projek
Pembinaan**

**JKR:
HOPT,
HODT, SO,
Wakil tapak
dsb.**

**Ada 5 Fasa
Penyenggaraan
yang perlu tahu**

**JKR serah
projek kpd
pelanggan**



Jangka Hayat Aset

Maklumat Jangka Hayat diperlukan sebagai panduan:

- **Pemilihan aset**
- **Merancang penyenggaraan**
- **Merancang bajet secara strategik (LCC)**

Jangka Hayat Aset

- Dokumen Rujukan:
 - ▣ **Piawaian JKR bagi Jangka Hayat Aset Infrastruktur dan Aset Kejuruteraan**
 - ▣ Boleh download di: ipak.jkr.gov.my



Jangka Hayat Aset Elektrik

- Aset Elektrik dibahagi kepada 4 kategori:

1. **Medium Voltage**
2. **Electrical Installation in Buildings; Low Voltage**
3. **Loji/Jentera**
4. **Electrical Engineering Plant**

- *Rujuk: Lampiran B, Bil 1 4.0: Kemudahan Elektrik, Piawaian JKR bagi Jangka Hayat Aset Infrastruktur dan Aset Kejuruteraan*

JH Aset Elektrik: **Medium Voltage**

Bil	Aset Tak Alih	Tahun
1	Rangkaian Pengagihan Elektrik	20-30
2	MV Main supply switchgear and distribution equipment	20-30
3	Transformer (dry type)	20-30
4	Transformer (oil type)	20-30
5	Main cables (permanent installation)	20-30

JH Aset Elektrik: Low Voltage

Bil	Aset Tak Alih	Tahun
1	MSB/SSB/DB/Submain Cabling/Wiring	20-30
2	Lighting Installation (internal)	15-20
3	Lighting Installation (external)	10-30
4	Uninterrupted Power Supply System	5-20
5	Electrical Water Heater	5-15

JH Aset Elektrik: Loji/Jentera

Bil	Aset Tak Alih	Tahun
1	Janakuasa Tunggusedia	20-30
2	Oil Storage Tank	20-30

JH Aset Elektrik: **Electrical Generating Plant**

Bil	Aset Tak Alih	Tahun
1	Control & Instrumentation	15-30
2	Automatic Main Failure Switchboard	15-30
3	Battery Support (nickel alkaline batteries and chargers)	5-15

Jangka Hayat Aset Tak Alih Elektrik

□ Contoh Gambar:

**Suis Gear
Panel (Metal
Enclosed
Switchgear)
berusia lebih
30 tahun**



Jangka Hayat Aset Tak Alih Elektrik

□ Contoh Gambar:

**SSB
berusia 40
tahun**



Jangka Hayat Aset Tak Alih Elektrik

□ Contoh Gambar:

**SSB berusia
lebih 30
tahun**



Jangka Hayat Aset Tak Alih Elektrik

□ Contoh Gambar:

**DB berusia
lebih 30
tahun**



Jangka Hayat Aset Tak Alih Elektrik

□ Contoh Gambar:

**DB berusia
lebih 20
tahun**



Jangka Hayat Aset Tak Alih Elektrik

□ Contoh Gambar:

**Suis berusia
lebih 30
tahun**

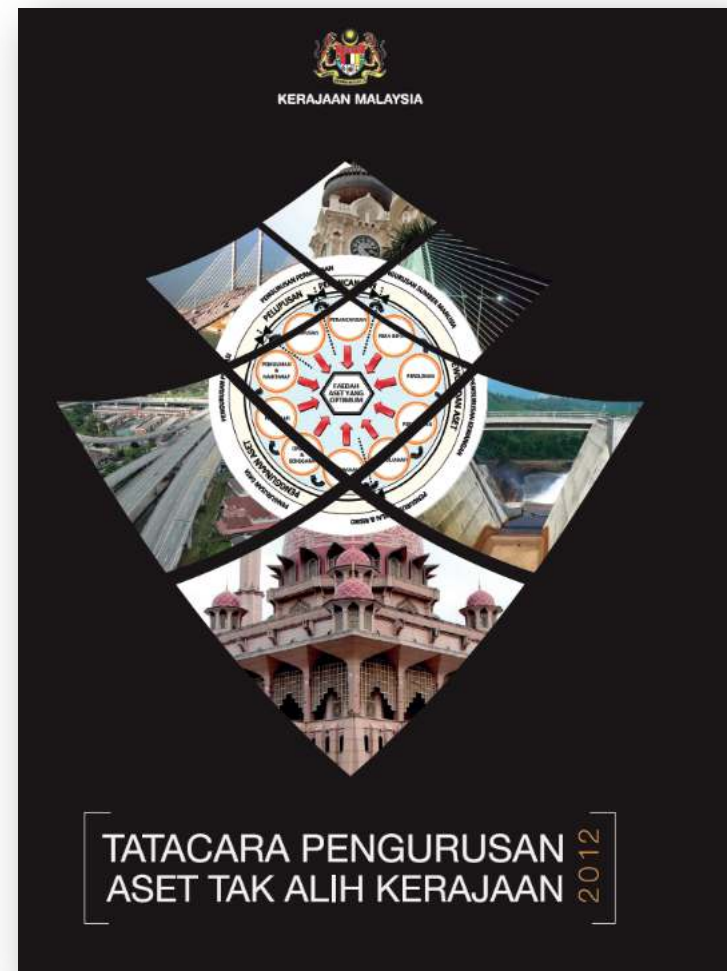




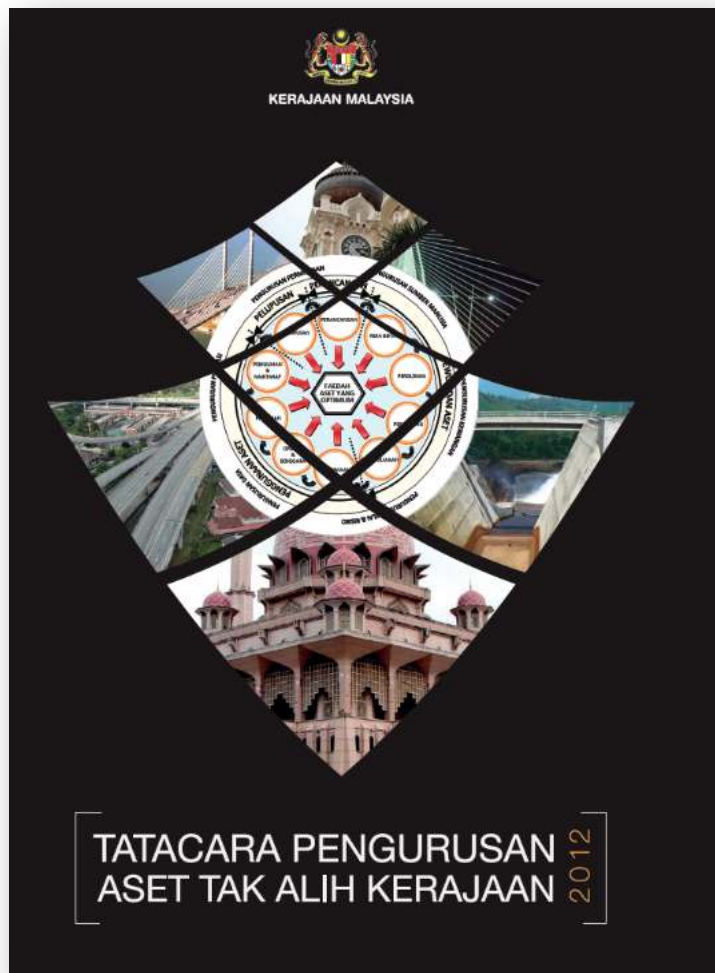
BAB-2

Pengenalan TPATA

**JABATAN PERDANA MENTERI
MALAYSIA**
21 Jun, 2012



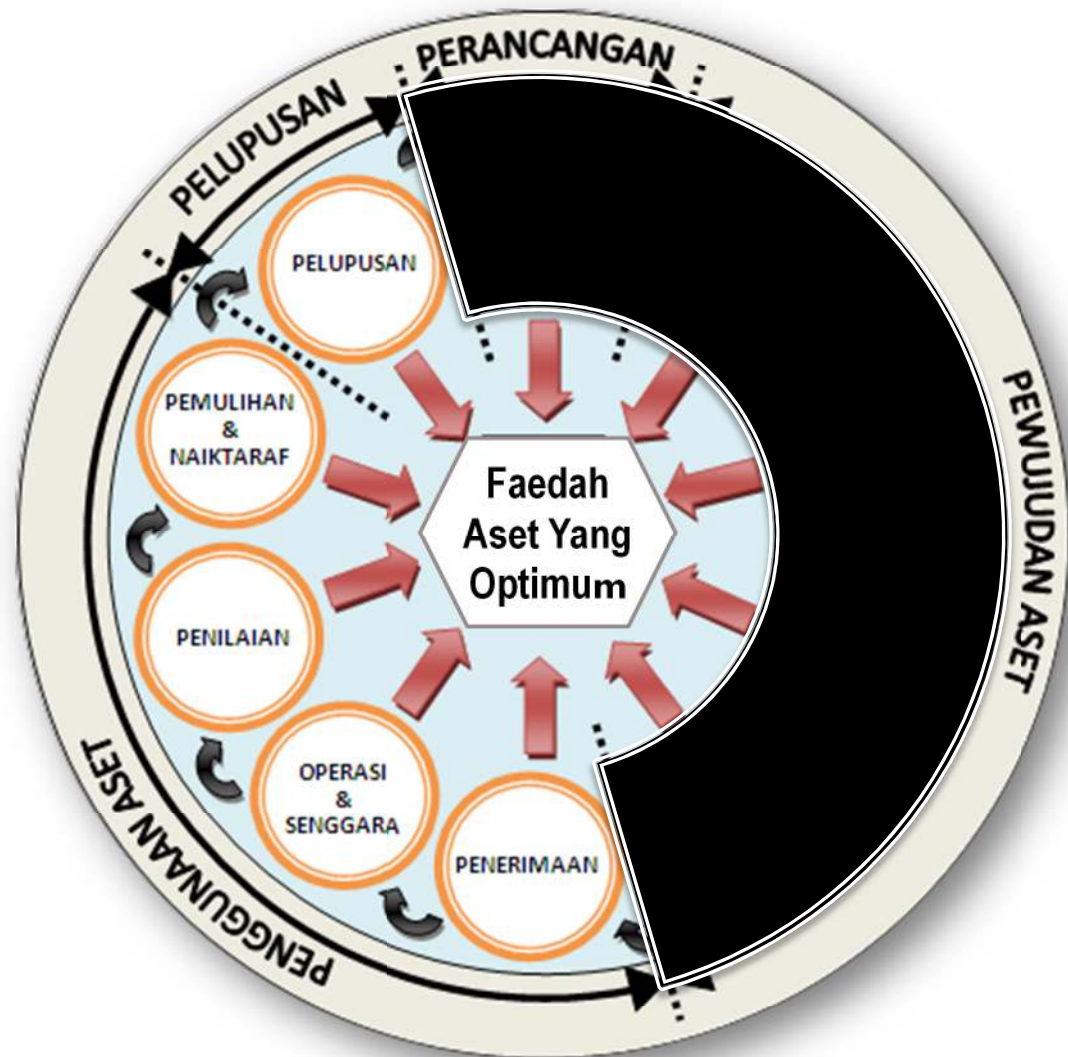
Pengenalan TPATA



- Sebagai **arahan kepada semua kementerian/jabatan** di dalam menguruskan Aset Tak Alih
- **Mempunyai pelbagai borang** untuk digunakan semasa melaksana aktiviti pengurusan aset

Skop TPATA

Skop TPATA
bermula dari
Fasa Penerimaan
sehingga **Fasa
Pelupusan**



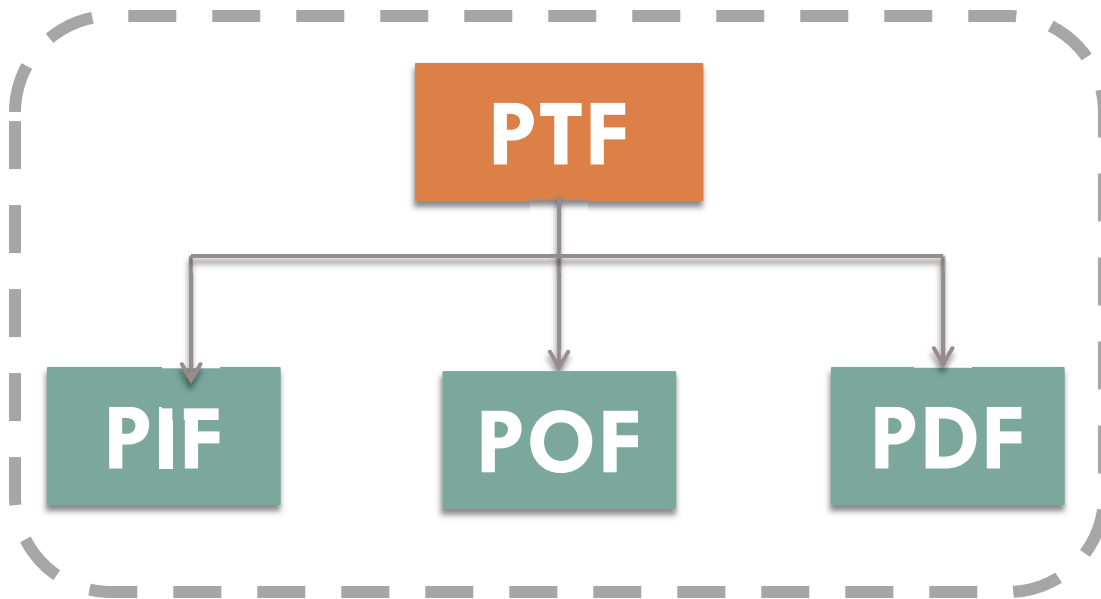
Kandungan TPATA



TPATA di peringkat fasa penggunaan dan pelupusan ini meliputi;

- Bab A : Pendahuluan;
- Bab B : Perancangan Strategi Pengurusan Aset;
- Bab C : Penerimaan dan Pendaftaran Aset;
- Bab D : Operasi dan Penyenggaraan Aset;
- Bab E : Penilaian Keadaan dan Prestasi Aset;
- Bab F : Pemulihan, Ubah Suai dan Naik Taraf Aset;
- Bab G : Pelupusan Aset; dan
- Bab H : Kehilangan dan Hapus Kira Aset.

Struktur Tadbir Urus UPF - Umum

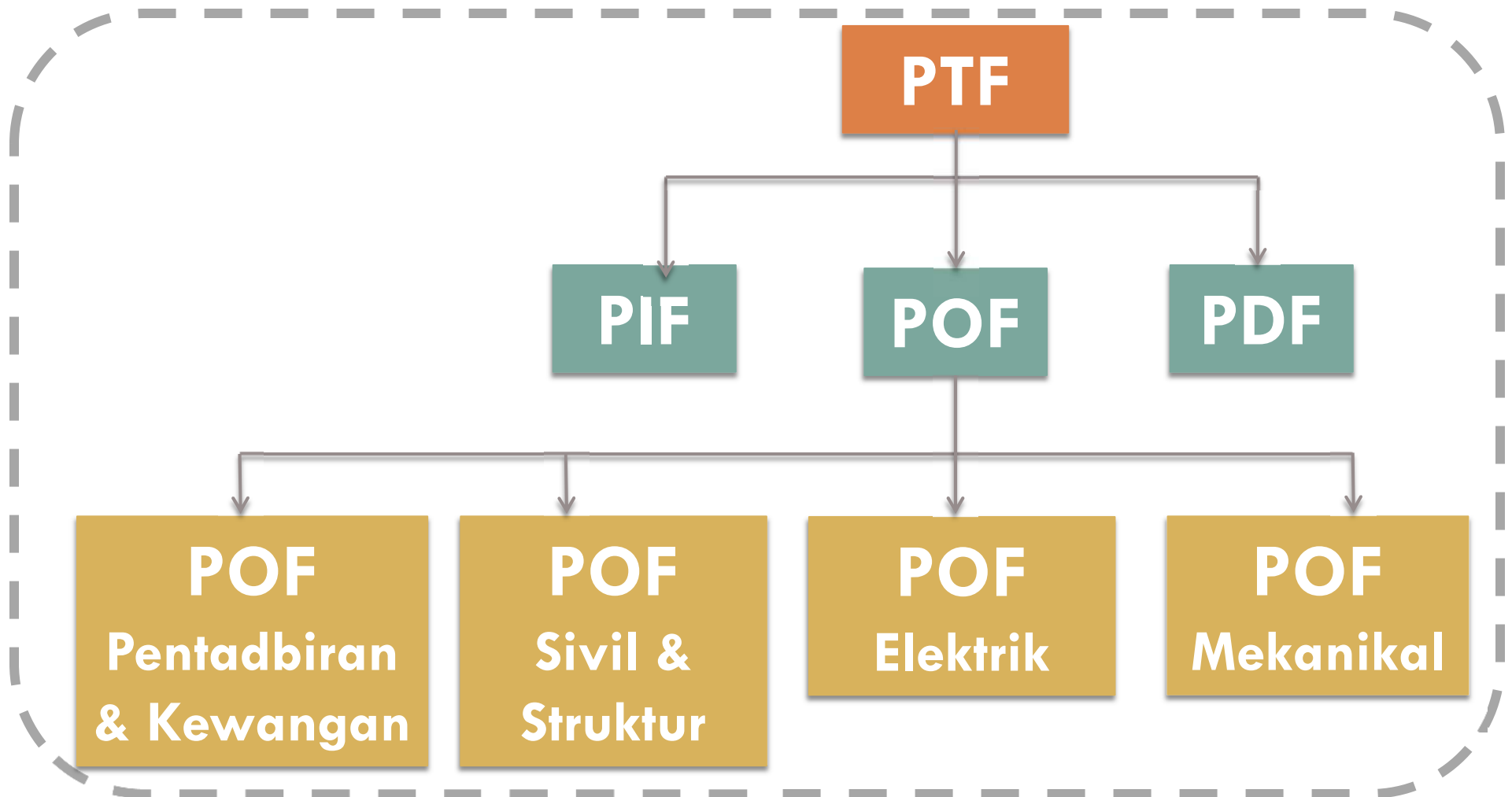


PTF – Pegawai Teknikal Fasilitas
PIF – Pegawai Inspektorat Fasilitas
PDF – Pegawai Data Fasilitas
POF – Pegawai Operasi Fasilitas

Unit Pengurusan Fasilitas (UPF)

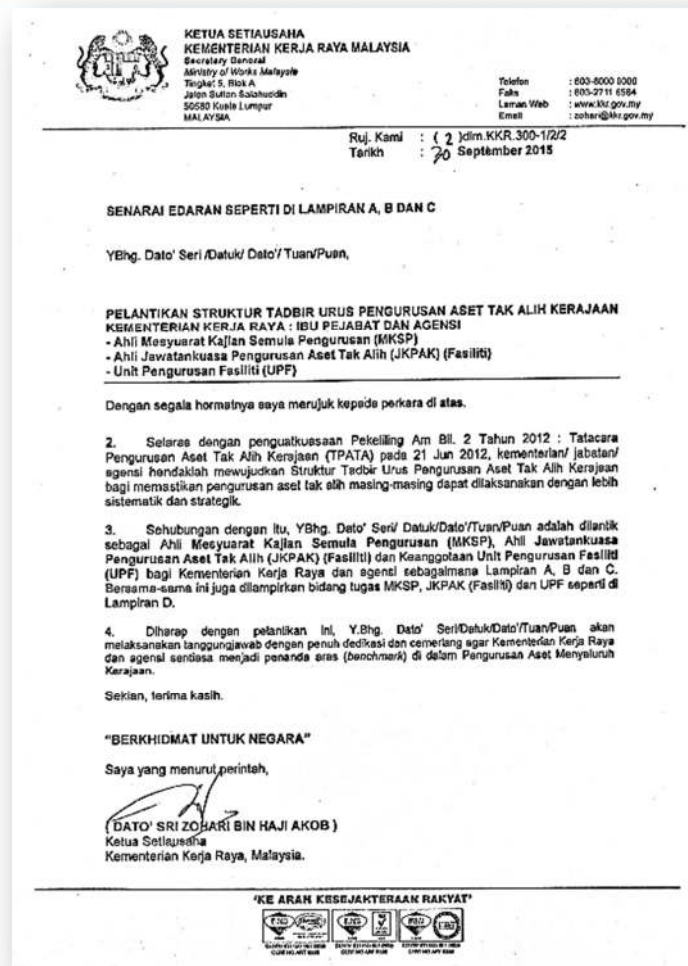
Struktur Tadbir Urus UPF - Umum

Contoh Struktur UPF (Asas)



Surat Lantikan UPF

- Surat Lantikan Struktur Tadbir Urus Pengurusan Aset Tak Alih Kerajaan Kementerian Kerja Raya Malaysia bertarikh **30 September 2015**



UPF Jabatan Kerja Raya

KEANGGOTAAN FUNGSI UNIT PENGURUSAN FASILITI (UPF) (JABATAN KERJA RAYA – PERINGKAT JABATAN)

Bil.	Peranan	Tanggungjawab
1.	PTF Jabatan	Pengarah Kanan Cawangan Perancangan Aset Bersepadu
2.	PIF Jabatan (Aset Bangunan)	Pengarah Cawangan Senggara Fasiliti Bangunan
3.	PIF Jabatan (Aset Jalan)	Pengarah Cawangan Senggara Fasiliti Jalan
4.	PIF Jabatan (Aset Cerun)	Pengarah Cawangan Kejuruteraan Cerun
5.	POF Jabatan (Aset Bangunan)	Pengarah Cawangan Senggara Fasiliti Bangunan
6.	POF Jabatan (Aset Jalan)	Pengarah Cawangan Senggara Fasiliti Jalan
7.	POF Jabatan (Aset Cerun)	Pengarah Cawangan Kejuruteraan Cerun
8.	PDF Jabatan	Pengarah Bahagian Perundingan Pengurusan Aset

UPF Jabatan Kerja Raya

(JABATAN KERJA RAYA - PERINGKAT NEGERI)

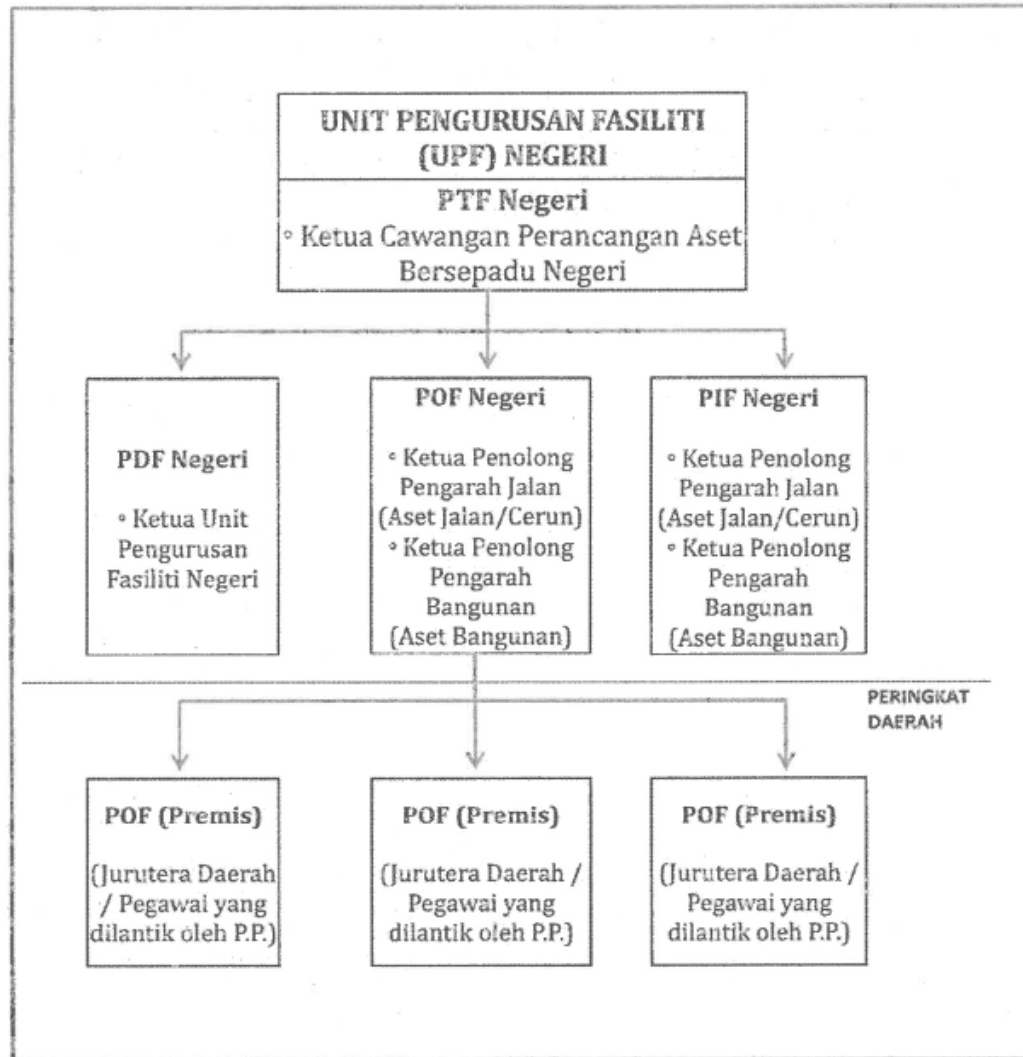
BIL	Peranan	Tanggungjawab
1.	PTF Negeri	Ketua Cawangan Perancangan Aset Bersepadu Negeri
2.	PIF Negeri	Ketua Penolong Pengarah Jalan (Aset Jalan/Cerun) Ketua Penolong Pengarah Bangunan (Aset Bangunan)
3.	POF Negeri	Ketua Penolong Pengarah Jalan (Aset Jalan/Cerun) Ketua Penolong Pengarah Bangunan (Aset Bangunan)
4.	PDF Negeri	Ketua Unit Pengurusan Fasiliti Negeri

(JABATAN KERJA RAYA - PERINGKAT PREMIS)

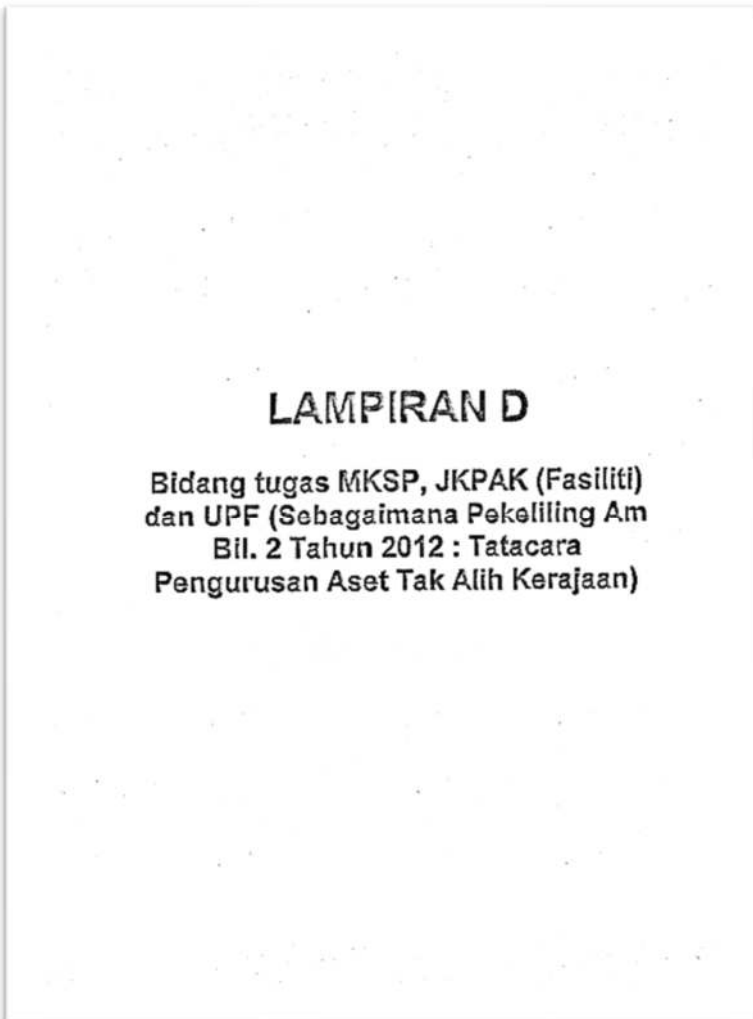
BIL	Peranan	Tanggungjawab
1.	POF (Premis)	Jurutera Daerah / Pegawai yang dilantik oleh Pegawai Penguasa

UPF Peringkat Negeri

KEANGGOTAAN UNIT PENGURUSAN FASILITI (UPF) PERINGKAT NEGERI



Peranan & Tanggungjawab UPF



Rujukan:
Lampiran D, Surat Lantikan
Struktur Tadbir Urus Pengurusan
Aset Tak Alih Kerajaan
Kementerian Kerja Raya
Malaysia bertarikh **30
September 2015**

Peranan PTF Negeri

- c) PTF di peringkat negeri dan daerah (PTF (Neg./Daerah))
 - i) Melaksanakan aktiviti setiap fasa dalam kitaran hayat aset tak alih berdasarkan DPAK, MPAM dan tatacara-tatacara yang berkaitan;
 - ii) Mengemukakan laporan-laporan teknikal, kos dan maklumat pengurusan dalam aktiviti PATA (bangunan & infrastruktur) kepada PTF Jabatan/ Agensi;
 - iii) Menyedia keperluan sumber dan pembangunan kompetensi organisasi; dan
 - iv) Menugas dan menyelia pegawai-pegawai bawahan seperti PDF Negeri, PIF Negeri dan POF mengikut tatacara yang ditetapkan.

Peranan PDF Negeri

c) PDF di peringkat negeri (PDF(Neg.))

- i) Melaksanakan pengurusan penerimaan dan daftar aset;
- ii) Mengemaskini maklumat dan data daftar aset berdasarkan tatacara dan aplikasi sistem PATA yang ditetapkan; dan
- iii) Menyediakan pelaporan terhadap maklumat pendaftaran, perancangan, perbelanjaan, aktiviti operasi dan penyenggaraan serta pelupusan aset.

HUBUNGKAIT UPF DENGAN SPB



- JKR.PK(O)06D Pendaftaran Aset
- JKR.PK(O)07 Operasi & Penyenggaraan Aset

**PENGENALAN
KEPADA LAMAN
SESAWANG
JPAK**

Pengenalan



- Alamat untuk mengakses portal rasmi JPAK:

<http://jpak.jkr.gov.my/>

Portal Rasmi JPAK

**PORTAL RASMI**
JAWATANKUASA PENGURUSAN ASET KERAJAAN (JPAK)
Awal, Hadapi, Amalan & Tanggungjawab Bersama

Isnin, 25 January 2021 | 11 Jamadil Akhir 1442

Kata Kunci Carian...

UTAMA → MENGENAI JPAK → DIREKTORI → HUBUNGI KAMI → SOALAN LAZIM → DOKUMENTASI



FUNDAMENTALS IN ASSET MANAGEMENT COURSE

14 October 2019 (Monday)

CREaTE, ALOE GAJAH, MELAKA

RM 1,000.00
per peserta (bermaksud penuh)
RM900.00 per peserta
if register before 12 Sept 2019
OR if register more than 1 person

PENGUMUMAN

Tiada pengumuman buat masa ini...

AKTIVITI

10/08/2020 - 12/08/2020
MESYUARAT PERINTIS DAN SIMULASI TATACARA PENGURUSAN ASET TAK ALIH KERAJAAN (TPATA) BAGI KATEGORI ASET BANGUNAN (EDISI KEMAS KINI) BIL. 1/2020



Dokumen Pengurusan Aset Kerajaan



Program Pembangunan Kompetensi



Pendaftaran Surat Arahan/Garis Panduan/Manual Pengguna



mySPATA



Ucapan, Artikel, Keratan Akhbar & Jurnal

BUDAYA PENYENGKARAAN



mySPATA Statistik

Akan datang
Coming Soon

BERITA



FUNDAMENTALS IN ASSET MANAGEMENT COURSE

14 October 2019 (Monday)

CREaTE, ALOE GAJAH, MELAKA

RM 1,000.00
per peserta (bermaksud penuh)
RM900.00 per peserta
if register before 12 Sept 2019
OR if register more than 1 person

FUNDAMENTALS IN ASSET MANAGEMENT COURSE

TEMPAHAN KURSUS



SISTEM TEMPAHAN KURSUS JPAK

Untuk pengguna berdaftar

UNDIAN AWAM

Adakah Anda mengetahui mengenai JPAK?

☒ Ya
☐ Tidak

UNDI **LIHAT KEPUTUSAN**

HUBUNGI KAMI



Urus Setia JPAK,
Araas 1, Blok C Lama,
Ibu Pejabat JKR Malaysia
Jalan Sultan Salahuddin 60682,
Kuala Lumpur.

jpak@jkr.gov.my

03-2640-7503

PAUTAN AGENSI



MEDIA SOSIAL



PENGUNJUNG

Pengunjung atas talian: 56

Pengunjung minggu ini: 412

Jumlah Pengunjung: 215888

Portal Rasmi JPAK

UTAMA

▼ MENGENAI JPAK

▼ DIREKTORI

HUBUNGI KAMI

▼ SOALAN LAZIM

▼ DOKUMENTASI



Twitter
Urusetia JPAK

Ikuti Kami di **Twitter** bagi Perkongsian
Aktiviti serta Perkembangan terkini
Urusetia JPAK

PENGUMUMAN

Tiada pengumuman buat masa ini...

AKTIVITI

10/08/2020 - 12/08/2020

MESYUARAT PERINTIS DAN SIMULASI
TATACARA PENGURUSAN ASET TAK ALIH
KERAJAAN (TPATA) BAGI KATEGORI ASET
BANGUNAN (EDISI KEMAS KINI) BIL.1/2020



Dokumentasi Pengurusan Aset Kerajaan



Program Pembangunan Kompetensi



Pekeliling/Surat Arahan/Garis
Panduan/Manual Pengguna

mySPATA

mySPATA



Ucapan, Artikel, Keratan Akhbar & Jurnal

BUDAYA PENYENGKARAAN

BERITA

TEMPAHAN KURSUS



Portal Rasmi JPAK

[UTAMA](#) [MENGENAI JPAK](#) [DIREKTORI](#) [HUBUNGI KAMI](#) [SOALAN LAZIM](#) [DOKUMENTASI](#)

Dokumentasi

- Dokumentasi Pengurusan Aset Kerajaan
- Program Pembangunan Kompetensi
- Pekeliling/Surat Arahan/Garis Panduan/Manual Pengguna
- mySPATA
- Ucapan, Artikel, Keratan Akhbar & Jurnal

Utama > Dokumentasi > Dokumentasi Pengurusan Aset Kerajaan

Tahun :
Semua

Bulan:
Semua

Kata Kunci

CARI

PAPAR SEMUA

No.	Tajuk	Hits	Tarikh	Muat turun
1	BUKU PANDUAN PENYEDIAAN JADUAL HARGA KONTRAK PENGURUSAN FASILITI DAN PENYENGGARAAN	133	4 August 2020	
2	Pekeliling Am Bil. 1 Tahun 2018: Sistem Kod Aset Tidak Alih (SKATA) Versi 2.0	1014	9 April 2018	
3	Sistem Kod Aset Tak Alih (SKATA) Versi 2.0	131	9 April 2018	
4	Pekeliling Am Bil. 2 Tahun 2012: Tatacara Pengurusan Aset Tak Alih Kerajaan (TPATA)	2553	21 June 2012	
5	Pekeliling Am Bil. 1 Tahun 2009: Manual Pengurusan Aset Menyeluruh (MPAM)	795	27 March 2009	
6	Dasar Pengurusan Aset Kerajaan (DPAK) 2009	820	27 March 2009	
7	Pekeliling Am Bil.5 Tahun 2009: Tatacara Pengurusan Stor Kerajaan	241	20 February 2009	
8	Pekeliling Am Bil. 6 Tahun 2008: Tatacara Pengurusan Aset Hidup Kerajaan	230	2 April 2008	
9	Pekeliling Am Bil. 5 Tahun 2007: Tatacara Pengurusan Aset Alih Kerajaan (TPA)	547	2 March 2007	

Portal Rasmi JPAK

UTAMA ▾ MENGENAI JPAK ▾ DIREKTORI HUBUNGI KAMI ▾ SOALAN LAZIM ▾ DOKUMENTASI

Dokumentasi

- ▶ Dokumentasi Pengurusan Aset Kerajaan
- ▶ Program Pembangunan Kompetensi
- ▶ **Pekeliling/Surat Arahan/Garis Panduan/Manual Pengguna**
- ▶ mySPATA
- ▶ Ucapan, Artikel, Keratan Akhbar & Jurnal

Utama > Dokumentasi > Pekeliling/Surat Arahan/Garis Panduan/Manual Pengguna

Tahun :	Semua ▾	Bulan:	Semua ▾	Kata Kunci	CARI	PAPAR SEMUA
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No.	Tajuk	Hits	Tarikh	Muat turun
1	SURAT EDARAN BUKU PANDUAN PENYEDIAAN JADUAL HARGA KONTRAK PENGURUSAN FASILITI DAN PENYENGGARAAN	74	4 August 2020	
2	Garis Panduan Pengurusan Operasi dan Penyenggaraan (GPOP)	209	6 September 2019	
3	GARIS PANDUAN PENYENGGARAAN BERJADUAL BANGUNAN KERAJAAN	335	12 July 2019	
4	FACILITY MANAGEMENT PLAN (FMP) CONTENT CHECKLIST	209	10 May 2019	
5	SURAT ARAHAN KPKR BIL.7/2019 - PEMAKAIAN DOKUMEN TECHNICAL SPECIFICATION FOR BUILDING FACILITY MANAGEMENT & MAINTENANCE DAN DOKUMEN PERFORMANCE REQUIREMENT FOR BUILDING FACILITY MANAGEMENT & MAINTENANCE DALAM KONTRAK PENGURUSAN FASILITI DAN PENYENGGARAAN	173	13 March 2019	
6	APPENDIX 7A - TECHNICAL SPECIFICATION FOR BUILDING FACILITY MANAGEMENT & MAINTENANCE	146	13 March 2019	
7	SURAT ARAHAN KPKR BIL.9/2017 - JKR COMPUTERISED MAINTENANCE MANAGEMENT SYSTEM (CMMS) SPECIFICATIONS	119	13 March 2019	
8	LAMPIRAN 7A1 - ADDENDUM TO TECHNICAL SPECIFICATIONS FOR BUILDING FACILITY MANAGEMENT & MAINTENANCE	145	13 March 2019	
9	APPENDIX 7B - PERFORMANCE REQUIREMENT FOR BUILDING FACILITY	141	13 March 2019	

GARIS PANDUAN

- **Antara Garis Panduan Elektrik yang boleh dirujuk:**
 - **Garis Panduan Kebolehsenggaraan Bilik Suis**
 - **Garis Panduan Jangka Hayat Aset - Piawai JKR Bagi Jangka Hayat Aset Infrastruktur dan Aset Kejuruteraan**
 - **GARIS PANDUAN PENYENGGARAAN BERJADUAL BANGUNAN KERAJAAN**

PENGENALAN KONTRAK FM

Organisasi FM



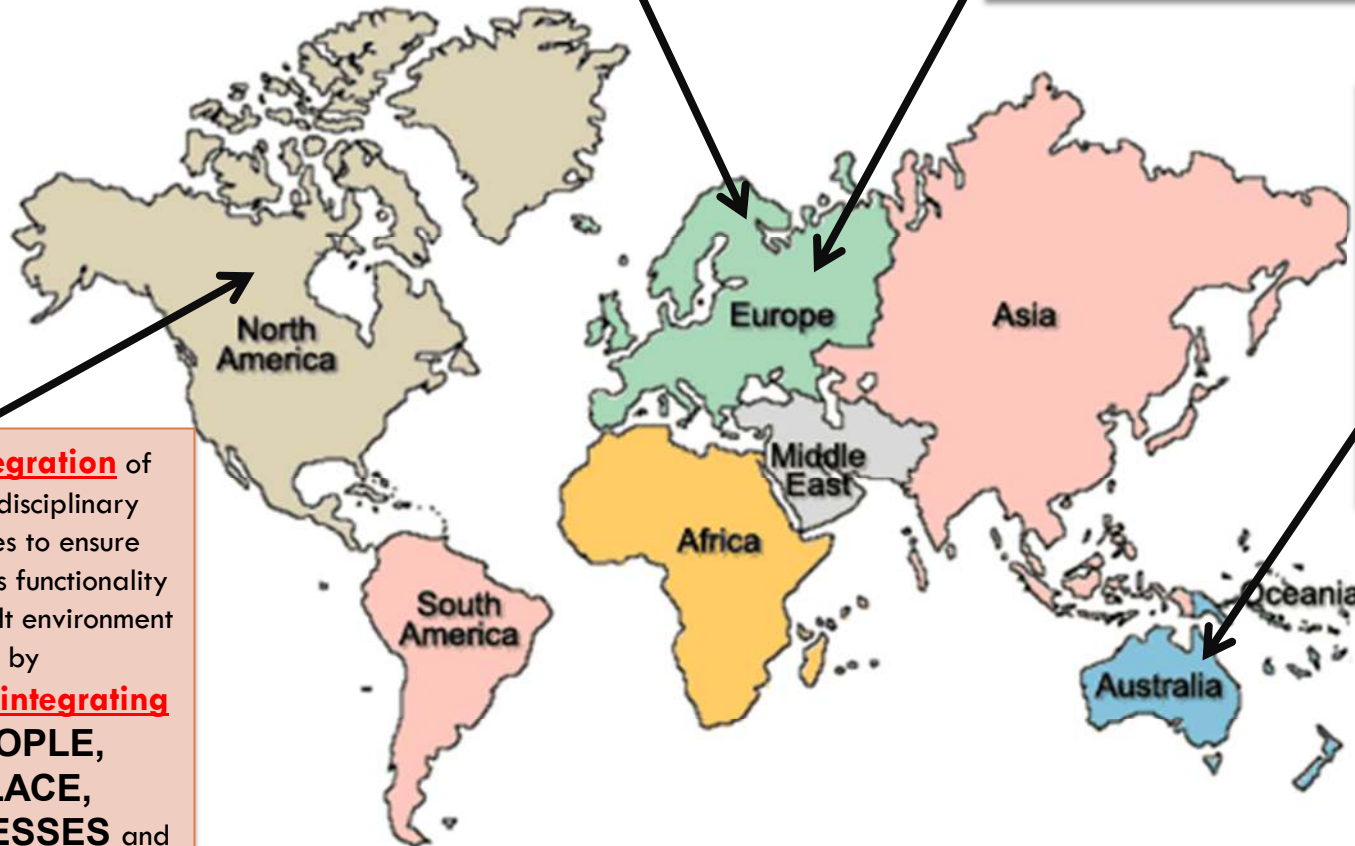
Definisi FM

The **integration** of multi-disciplinary activities within the built environment and the management of their impact upon **PEOPLE** and the workPLACE
- BIFM

The **integration** of processes within an organisation to maintain and develop the agreed services which **support and improve** the effectiveness of its **primary activities** - European standard

A business practice that optimises **PEOPLE, PROCESS, assets** and the work environment to **support** the delivery of an organisation's business objectives - **FMA**

The **integration** of multi - disciplinary activities to ensure continuous functionality of the built environment by **linking/integrating PEOPLE, PLACE, PROCESSES** and available technology
- IFMA



Definisi FM

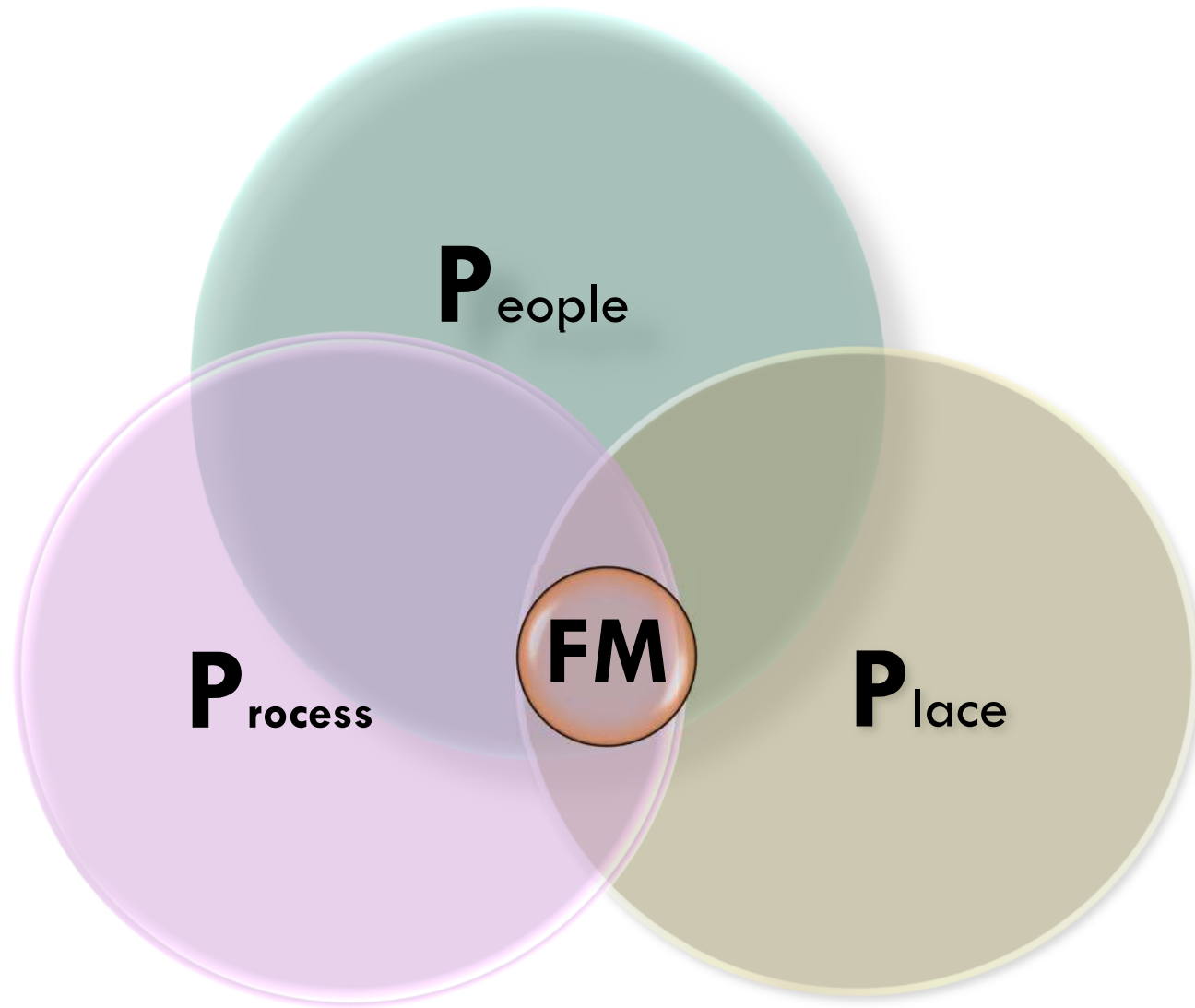


“

The Management of **Multi-Disciplinary Activities** to Ensure Continuous Functionality of The Built Environment by **Linking and Integrating People, Place, Processes And Technology**

”

- CIDB, Malaysia



***T**_{ECHNOLOGY}

Pengenalan Kontrak FM

- FM adalah singkatan perkataan “**Facilities Management**” atau “**Pengurusan Fasiliti**”
- Satu **konsep pengurusan** yang melibatkan **pelbagai aktiviti** dan memberi fokus kepada **Kepuasan Pelanggan**
- Konsep ini diadaptasi ke dalam pelaksanaan kontrak penyenggaraan JKR dan menjadi “**PWD FM Contract**”

Falsafah FM Kontrak



- Konsep Kontrak:
 - ▣ *Performance Based / Output Based*
 - ▣ *Single Point Responsibility*
- Fokus kepada **kepuasan pelanggan** dan **prestasi perkhidmatan** kontraktor
- Melibatkan **pelbagai disiplin** (kejuruteraan dan pengurusan)

Konsep Performance Based

DINYATAKAN
DALAM
SPESIFIKASI

“ Never tell people **how** to do things. Tell them **what** to do and they will surprise you with their ingenuity ”

- George S. Patton

Dokumen Asas Kontrak FM



□ **4 Dokumen Utama:**

- Borang Kontrak FM - PWD FM 2008/PWD FM 2016
- Technical Specification for FM Services
- Key Performance Indicator (KPI)
- Ascertained Performance Deduction (APD)

CONTOH : Technical Spec FM 2008

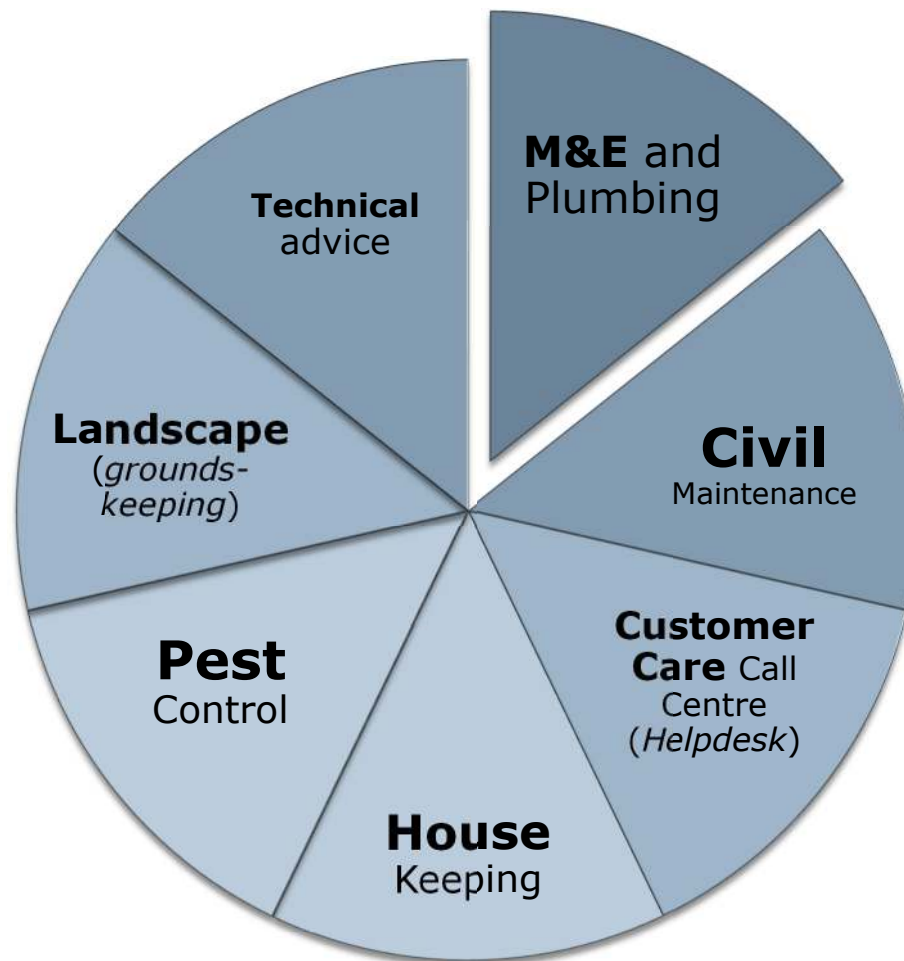
- Dijelaskan di dalam “*Technical Specification for FM Services*”



Skop Pengurusan di Tech Spec

- 
- | | |
|---|---|
| 1. Facilities Management (FM) | 12. Procurement Management; |
| 2. Mobilization and Demobilization Management; | 13. Inventory Management; |
| 3. Transition Management; | 14. Operation and Maintenance Management; |
| 4. Financial Management; | 15. Information Systems Management; |
| 5. Utilities Management; | 16. Management Review and Reporting; |
| 6. Quality Management; | 17. Warranty Management; |
| 7. Risk Management; | 18. Energy Management and Conservation; |
| 8. Health, Safety and Environmental Management; | 19. Waste and Redundant Materials; |
| 9. Human Resource Management; | 20. Technical Library; |
| 10. Customer Care Management; | 21. Security Management; |
| 11. Incident Response and Disaster Recovery Management (IRDRM); | 22. Event Management; |
| | 23. Asset Condition Appraisal. |

Skop Perkhidmatan di Tech Spec



TRANSITION PERIOD (FASA PERALIHAN)

Transition Period

- Perbezaan Kontrak FM dan Kontrak Pembinaan adalah **TRANSITION PERIOD**.

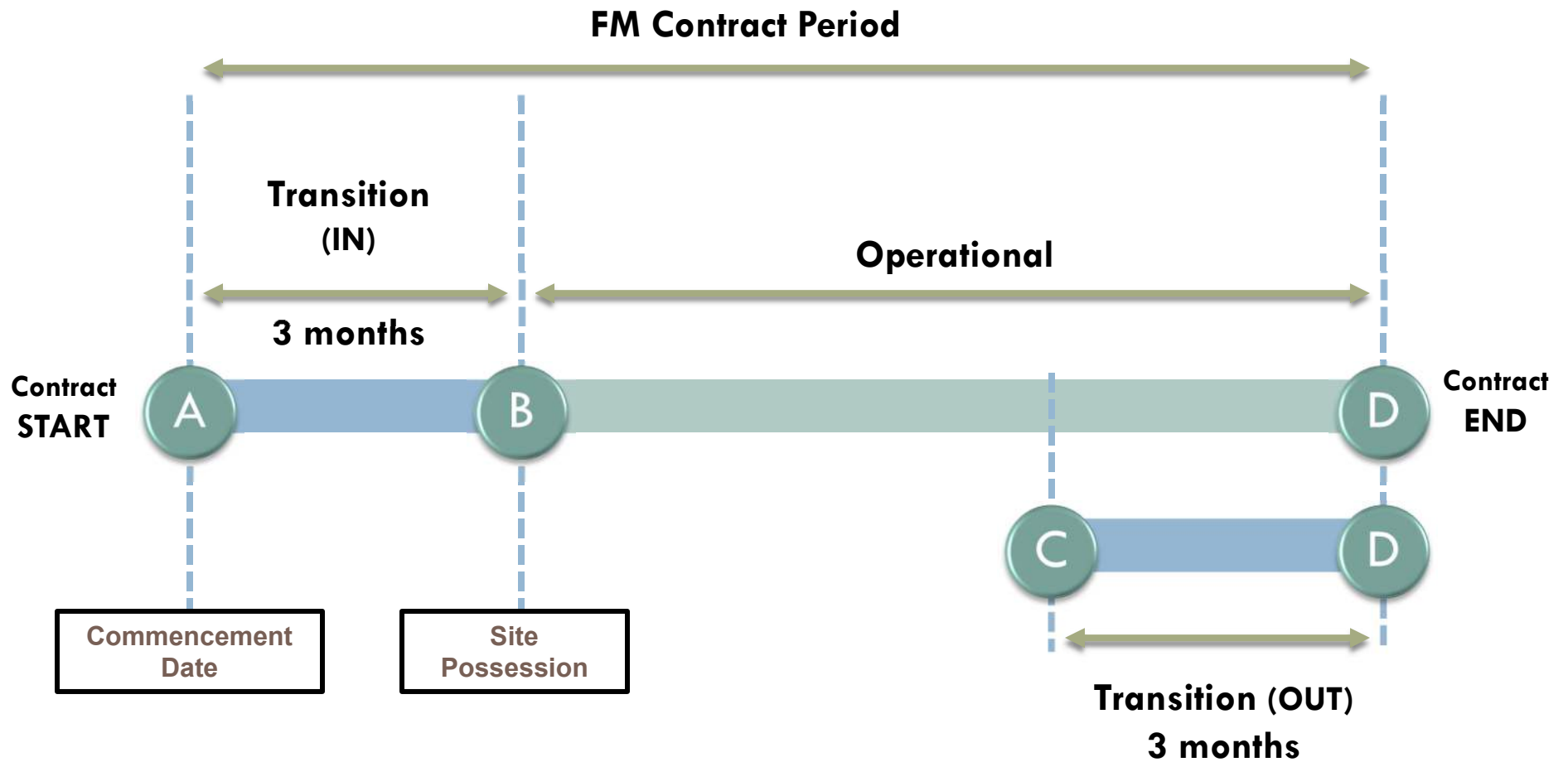
- Apa itu **Transition Period**?
 - Transition Period adalah **Fasa Peralihan** berlaku sebelum Kontraktor FM memulakan perkhidmatan dan sebelum Kontraktor FM menamatkan perkhidmatan.
 - **Peralihan** diantara Kontraktor FM lama dan Kontraktor FM yang baru.
 - **Fasa Familiarisasi** oleh Kontraktor baru.

Transition Period

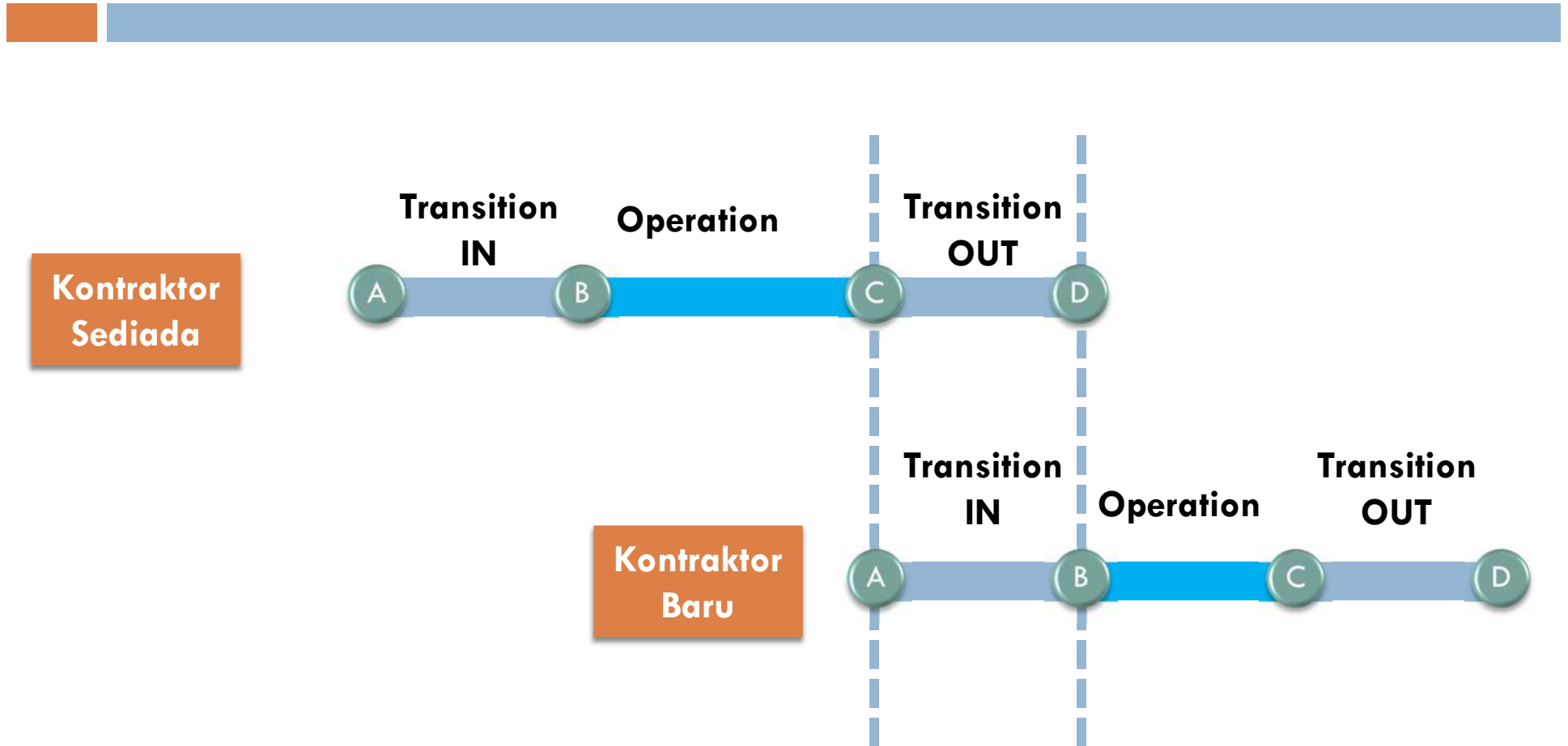


**Passing
Baton
Concept**

FM Timeline

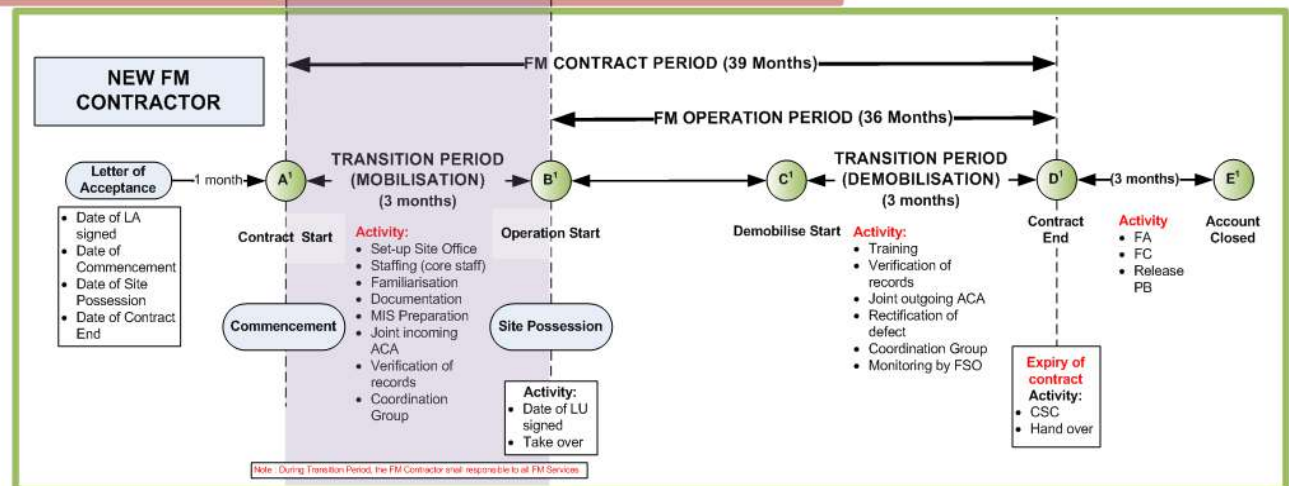
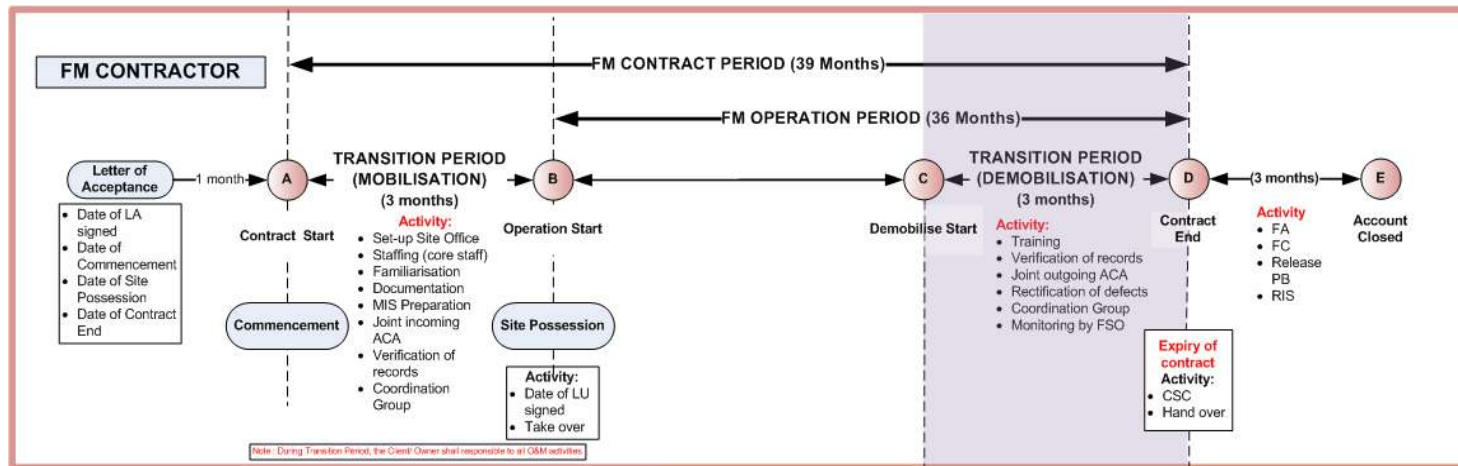


FM Timeline





FM Timeline



Skop Penyenggaraan Elektrik

Skop Penyenggaraan Elektrik

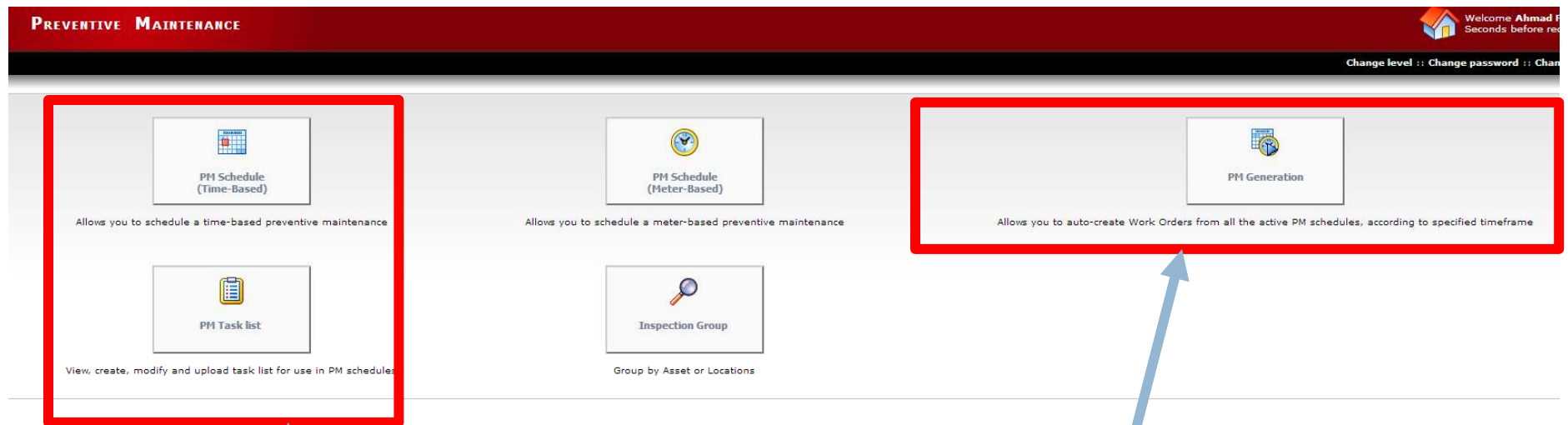


- Melaksana **Penyenggaraan Berjadual** (Routine Inspection, Planned Preventive Maintenance etc.)
- Mematuhi **keperluan perundangan**, peraturan dan codes of practice.
- Memastikan sistem **beroperasi dengan cekap, berkesan dan tiada gangguan.**
- Memastikan **keselamatan** kepada pengguna.
- Memastikan tugas harian **pengguna tidak terganggu** (interrupted or disturbed)

Penyenggaraan Berjadual Elektrik

- Kontraktor FM perlu sediakan Jadual Penyenggaraan Elektrik
- Garis Panduan Penyenggaraan Berjadual Bangunan Kerajaan adalah **panduan** kepada Kontraktor FM
- Istilah yang sering digunakan adalah:
 - **PPM – Planned Preventive Maintenance**
 - **RI – Routine Inspection**
- Jadual yang telah disahkan perlu dimasukkan ke dalam CMMS

Jadual Penyenggaraan di CMMS



PPM scheduled

**Auto Create Work
Order from PPM
scheduled**

Contoh PPM Elektrik

**Tarikh laksana
PPM**

ATTACHMENT 3

SCHEDULE OF PPM ACTIVITY (ELECTRICAL)
PUSAT LATIHAN JABATAN PERDANA MENTERI

SYSTEM	EQUIPMENT	FREQ	2017											
			Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
ELECTRICAL	MAIN SWITCH BOARD (MSB)	1M	2	2	2	2	2	2	2	2	2	2	2	2
		6M						2						2
		Y												2
	SUB-SWITCH BOARD (SSB)	2Y												2
		1M	2	2	2	2	2	2	2	2	2	2	2	2
		6M						2						2
	DISTRIBUTION BOARD (DB)	Y												2
		1M	2	2	2	2	2	2	2	2	2	2	2	2
		6M						2						2
	LV ROOM	Y												2
		1M	1	1	1	1	1	1	1	1	1	1	1	1
		Y												1
	LUMINERIES / SWITCHES / SWITCH SOCKET OUTLET	1M	8	8	8	8	8	8	8	8	8	8	8	8
		3M			8			8			8			8
		6M						8						8
	OUTDOOR LIGHTING	1M	1	1	1	1	1	1	1	1	1	1	1	1
		6M						1						1
		1M	1	1	1	1	1	1	1	1	1	1	1	1
	FAN (WALL FAN, VENTILATION & EXHAUST)	6M						1						1
		Y												1
		1M	3	3	3	3	3	3	3	3	3	3	3	3
	AIR CIRCUIT BREAKER (ACB)	6M						3						3
		Y												3
		1M	1	1	1	1	1	1	1	1	1	1	1	1
	STAND-BY GENERATOR SET	3M			1			1			1		1	1
		6M						1						1
		Y												1
	EARTHING SYSTEM	1M	1	1	1	1	1	1	1	1	1	1	1	1
		Y												1
		1M	1	1	1	1	1	1	1	1	1	1	1	1
	LIGHTNING PROTECTION SYSTEM	6M						1						1
		Y												1
		1M	1	1	1	1	1	1	1	1	1	1	1	1
	SURGE PROTECTION DEVICE (SPD)	1M	1	1	1	1	1	1	1	1	1	1	1	1
	FIREMAN SWITCH	6M						1						1
	STRUCTURE CABLING SYSTEM	1M	1	1	1	1	1	1	1	1	1	1	1	1
	PA SYSTEM	1M	6	6	6	6	6	6	6	6	6	6	6	6
	AUDIO & VIDEO SYSTEM	1M	6	6	6	6	6	6	6	6	6	6	6	6
	CONFERENCE SYSTEM	1M	1	1	1	1	1	1	1	1	1	1	1	1
	PABX	1M	1	1	1	1	1	1	1	1	1	1	1	1
		6M						1						1
	SECURITY, CCTV, AND ACCESS CARD SYSTEM	1M	1	1	1	1	1	1	1	1	1	1	1	1
INSPECTION OF ELECTRICAL ABOVE CEILING	6M						1						1	
MCCB	Y												1	
RCD	M	1	1	1	1	1	1	1	1	1	1	1	1	
	Y												1	
SMATV	M	1	1	1	1	1	1	1	1	1	1	1	1	
LOW VOLTAGE DISTRIBUTION SYSTEM	Y												1	
TOTAL			42	42	51	42	42	75	42	42	51	42	92	

Contoh RI Elektrik

ATTACHMENT 6

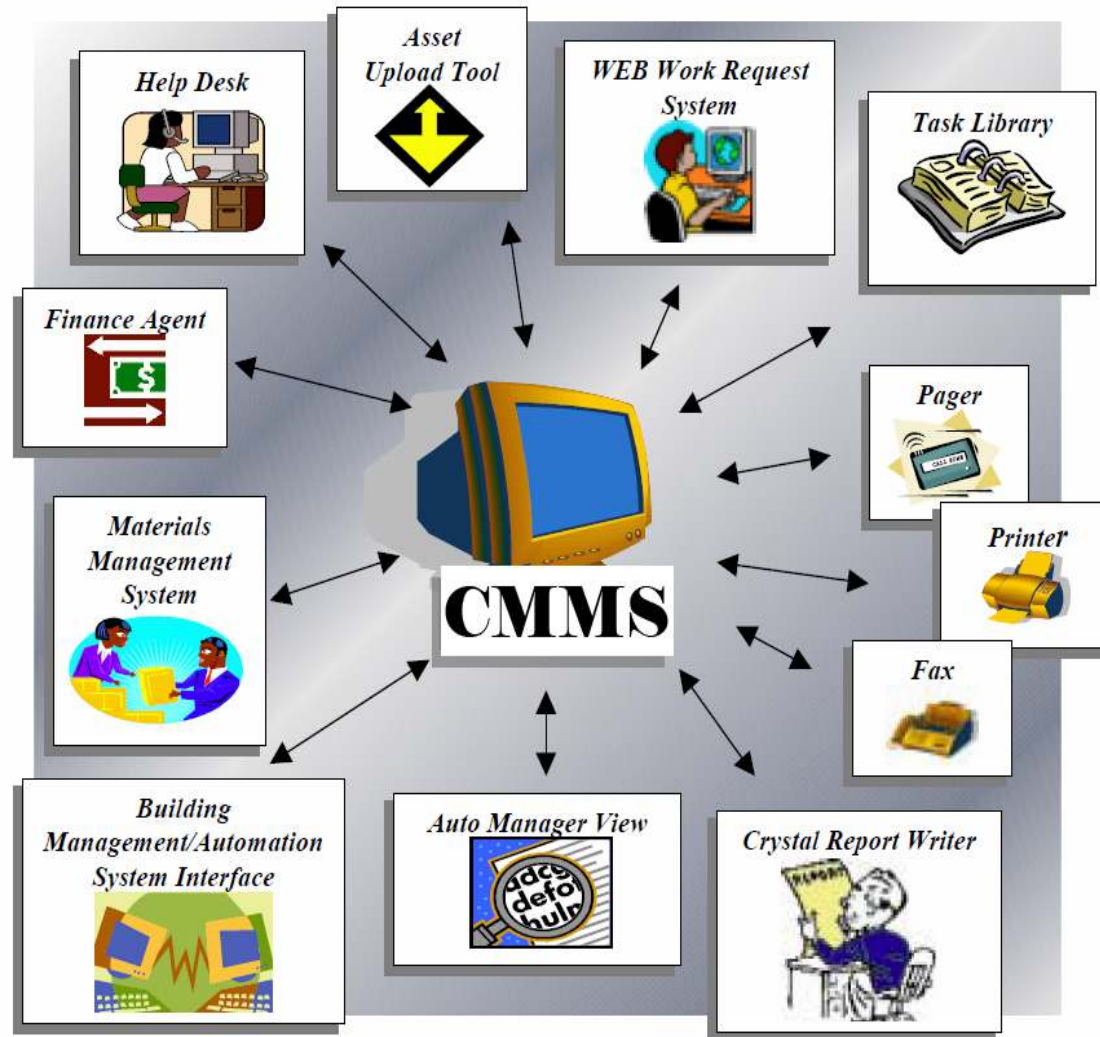
SUMMARY OF RI ACTIVITY (ELECTRICAL)

PUSAT LATIHAN JADATAN PERDANA MENTERI

SYSTEM	ITEM / MATERIAL	TYPE	2014																	
			2013			2012			2011			2010			2009			2008		
			DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL
ELECTRICAL	MAIN SWITCH BOARD (MSB)	D	19		19	19		19	21		21	22		22	20		20	21		21
	W		4	4		4	4		4	4		4	5		4	4		4	4	
	SUB-SWITCH BOARDS (SSB)	D	19		19	19		19	21		21	22		22	20		20	21		21
	W		4	4		4	4		4	4		4	5		4	4		4	4	
	LV ROOM	W		4	4		4	4		4	4		4	5		4	4		4	4
	MATRYMATV	W		4	4		4	4		4	4		4	5		4	4		4	4
	WELLUM SIGN	W		4	4		4	4		4	4		4	5		4	4		4	4
	EMERGENCY LIGHT	W		4	4		4	4		4	4		4	5		4	4		4	4
	ELECTRICAL RISER	W		4	4		4	4		4	4		4	5		4	4		4	4
	LUMINAIRES, SWITCHES & SWITCH SOCKET OUTLETS	D	19		19	19		19	21		21	22		22	20		20	21		21
	W		4	4		4	4		4	4		4	5		4	4		4	4	
	GENERATOR SET	W		4	4		4	4		4	4		4	5		4	4		4	4
	AUDIO & VIDEO SYSTEM	D	19		19	19		19	21		21	22		22	20		20	21		21
	W		4	4		4	4		4	4		4	5		4	4		4	4	
	OUTDOOR LIGHTING	D	19		19	19		19	21		21	22		22	20		20	21		21
	W		4	4		4	4		4	4		4	5		4	4		4	4	
	PARK	D	19		19	19		19	21		21	22		22	20		20	21		21
	CCTV SYSTEM	D	19		19	19		19	21		21	22		22	20		20	21		21
	CARD ACCESS SYSTEM	D	19		19	19		19	21		21	22		22	20		20	21		21
	PA SYSTEM	D	19		19	19		19	21		21	22		22	20		20	21		21
TOTAL					111			111			123			123			120			121

SYSTEM	ELEMEN	TYPE	2014																		
			2013			2012			2011			2010			2009			2008			
			DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	DAY	WEEK	TOTAL	
ELECTRICAL	MAIN SWITCH BOARD (MSB)	D	20		20	21		21	20		20	21		21	20		20	22		22	
	W		5	5		4	4		4	4		4	5	5		4	4		5	5	
	SUB-SWITCH BOARDS (SSB)	D	20		20	21		21	20		20	21		21	20		20	22		22	
	W		5	5		4	4		4	4		4	5	5		4	4		5	5	
	LV ROOM	W		5	5		4	4		4	4		4	5	5		4	4		5	5
	MATRYMATV	W		5	5		4	4		4	4		4	5	5		4	4		5	5
	WELLUM SIGN	W		5	5		4	4		4	4		4	5	5		4	4		5	5
	EMERGENCY LIGHT	W		5	5		4	4		4	4		4	5	5		4	4		5	5
	ELECTRICAL RISER	W		5	5		4	4		4	4		4	5	5		4	4		5	5
	LUMINAIRES, SWITCHES & SWITCH SOCKET OUTLETS	D	20		20	21		21	20		20	21		21	20		20	22		22	
	W		5	5		4	4		4	4		4	5	5		4	4		5	5	
	GEN ERATOR SET	W		5	5		4	4		4	4		4	5	5		4	4		5	5
	AUDIO & VIDEO SYSTEM	D	20		20	21		21	20		20	21		21	20		20	22		22	
	W		5	5		4	4		4	4		4	5	5		4	4		5	5	
	OUTDOOR LIGHTING	D	20		20	21		21	20		20	21		21	20		20	22		22	
	W		5	5		4	4		4	4		4	5	5		4	4		5	5	
	PABX	D	20		20	21		21	20		20	21		21	20		20	22		22	
	CCTV SYSTEM	D	20		20	21		21	20		20	21		21	20		20	22		22	
	CARD ACCESS SYSTEM	D	20		20	21		21	20		20	21		21	20		20	22		22	
	PA SYSTEM	D	20		20	21		21	20		20	21		21	20		20	22		22	
TOTAL					122			122			123			123			120			121	

Computerised Maintenance Management System (CMMS)



Contoh CMMS

CMMS

www.cworkseasy.com/stagno/modules/main/main_screen.php?frame=

Apps Astro Awani Berita Harian Celcom CIMB Clicks e-Filing e-PenyataGaji Gmail Hot FM JKR KOSMO! KWSP MAS Online Maxis Mayt

DASHBOARD

open request: 0 :: Open Reservation: 0

Site: STAGNOTECH SDN BHD All

Legend: Unavailable Pending Complete

Assigned **Today** This month This year Outstanding Notifications

Activity					
Tasks	Total	Open	Close / Complete	Cancel	Status
Work Requests	0	0	0	0	
Work Orders	4	0	4	0	100.00%
PM Schedules	48	47	1	0	97.92% 2.08%

Summary					
Tasks	Total	Open	Close / Complete	Cancel	Status
Mechanical	0	0	0	0	
Electrical	0	0	0	0	
Civil	0	0	0	0	
Instrument	0	0	0	0	
Biomedical	0	0	0	0	
Pest Control	0	0	0	0	
Grounds	0	0	0	0	
Custodial	0	0	0	0	
Linen & Laundry	0	0	0	0	
Others	0	0	0	0	

Home

Work Request

Work Order

Asset

Location

CMMS



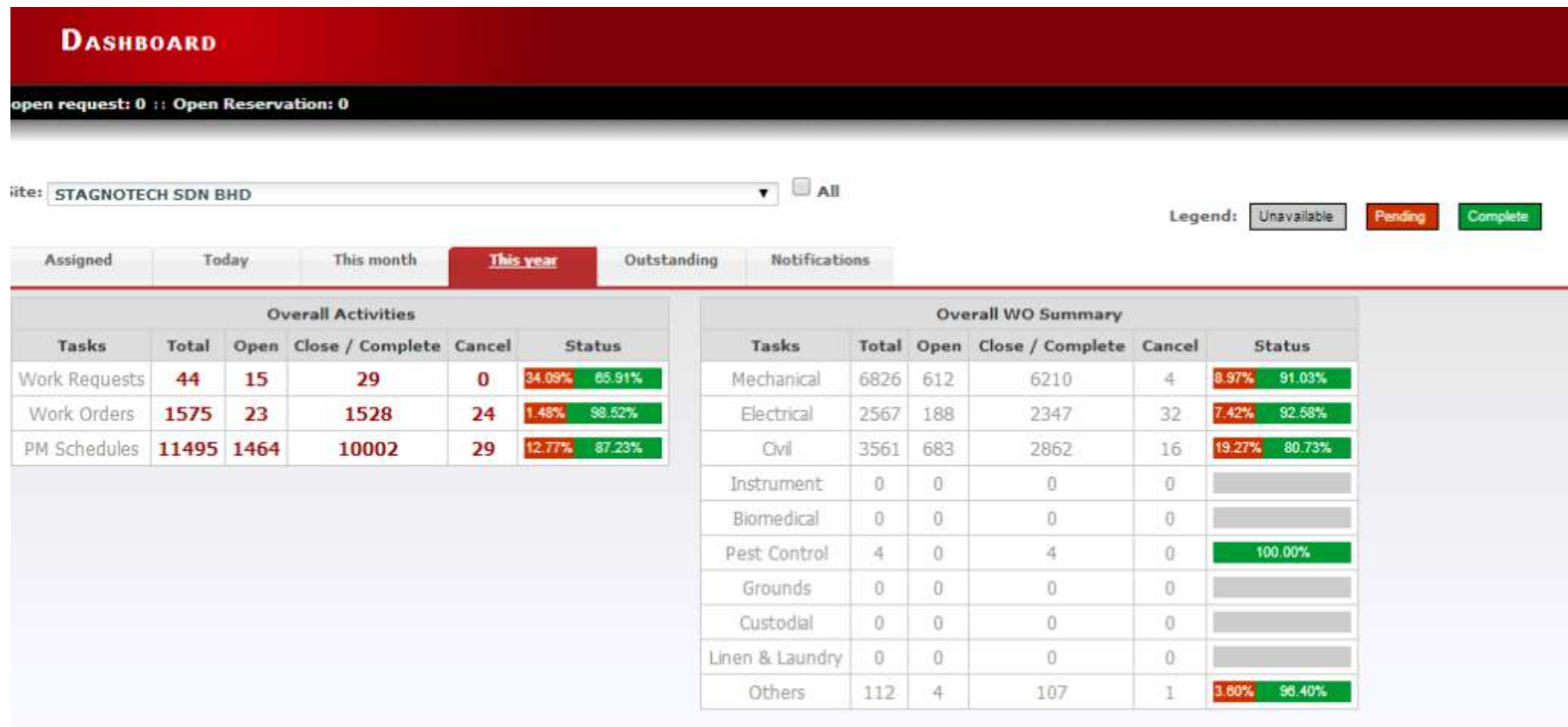
Apa CMMS boleh buat?

- ❑ Jadual Penyenggaraan (PPM,RI)
- ❑ Inventori Senarai Aset
- ❑ Rekod setiap aktiviti penyenggaraan
- ❑ Rekod setiap aduan
- ❑ Update Lukisan
- ❑ dll.

Work Order

- **Bila Work Order dikeluarkan?**
 - Aktiviti Penyenggaraan Berjadual (RI, PPM)
 - Complaint
 - Work Request
- Work Order akan dikeluarkan dan direkodkan menggunakan CMMS.
- Wakil S.O Elektrik boleh memantau status perkhidmatan menggunakan CMMS.

Contoh Work Order di CMMS



Contoh Work Order di CMMS

CMMS CMMS

www.cworkseasy.com/stagno/modules/wo/WOPrintForm.pm.php?page_type=0&sitecode=STBA&wo1=PMSTBA14010556&wo2=

Generating... done

Work Order

WorkOrder No :	PMSTBA14010556	Work Trade :	Civil
Work Status :	Open	Work Type :	Preventive
Compliant Type :	Non-Compliant	Work Priority :	Normal
Received by :	Mohd Shukri Bin Alias	Assigned To :	
Received Date / Time:	7 August 2014 01:41	Requester:	
Required Date / Time:		Phone Number:	
		External Requester:	
PM Target Start Date:	22 August 2014	Pm Target End Date:	28 August 2014
Problem Description:	WALLS LEVEL 1 ANNEX	Note to Technician(Location):	
Notes To Technician(Asset):		Feedback form:	-
Failure Code:	-	Task Number:	WL-M
Corrective action:	-	Location Number:	L1ANX
Asset Number:	WL-1ANX	Location Name:	LEVEL 1 ANNEX
Asset Name:	WALLS LEVEL 1 ANNEX		
Supplier/Contractor:			
Cause Description:			
Action Taken:			
Prevention Taken:			
CSR Notes:			

Parts Details

Part No	Part Description	Issue Type (D/ I)	UoM	Qty Used	Qty Returned

** d = Direct Issue , i = Inventory

Labour Details

Employee Name	Employee No	Start Date / Time	End Date / Time	Normal	OT1	OT2	OT3

Date and Time work was started:

Date and Time work was completed:

Notes:

Contoh Work Order
yang telah diprint
dari CMMS untuk
aktiviti PPM - MSB

NETmain		WORK ORDER																									
Workorder No.	PMJPM14000301	Work Trade	Electrical																								
Work Status	Open	Work Type	Preventive																								
		Work Priority	Normal																								
Received by		Assigned to	Sujainan																								
Received Date / Time	5 May 2014 11:30	Requester	Admin.																								
Required Date / Time		Phone Number	03-2016292																								
PM Target Start Date	3 May 2014	PM Target End Date	5 May 2014																								
Problem Description	Preventive - JPMPM0172 - MAIN SWITCH BOARD (MSB) -monthly																										
Failure Code	-	Task Number	E-003																								
Asset Number		Location Number	JPM-G																								
Asset Name		Location Name	GENERAL																								
Supplier/Contractor																											
Parts Details																											
Part No	Part Description	Issue Type (D/ I)	UoM	Qty Used	Qty Returned																						
-																											
** D = Direct Issue , I = Inventory																											
Labour Details																											
Employee Name	Employee No	Start Date / Time	End Date / Time	Normal	OT1	OT2	OT3																				
Sujainan	002	5 mei 2014 8:00 am	5 mei 2014 8:25 am	✓																							
Date and Time work was started		Date	5 mei 2014	Time	8:00 am																						
Date and Time work was completed		Date	5 mei 2014	Time	8:25 am																						
Notes :																											
<table border="1"> <thead> <tr> <th colspan="4">Certification of Work Completion</th> </tr> </thead> <tbody> <tr> <td colspan="2">Name and Signature of Technician /Engineer</td> <td colspan="2">Name and Signature of Requester/Supervisor</td> </tr> <tr> <td colspan="2">SUJAINAN BIN DOLLAH CHARGE MAN LV P.T. 4-B-0231-2008</td> <td colspan="2">NOOR MUNIRA IBRAHIM FACILITY MANAGER</td> </tr> <tr> <td>Date 5 mei 2014</td> <td>Time 8:25 am</td> <td>Date 14/5/14</td> <td>Time 5''</td> </tr> <tr> <td colspan="4">Please rate our services 1- 1. Poor 2. Fair 3. Good 4. Very Good 5. Excellent</td> </tr> </tbody> </table>								Certification of Work Completion				Name and Signature of Technician /Engineer		Name and Signature of Requester/Supervisor		SUJAINAN BIN DOLLAH CHARGE MAN LV P.T. 4-B-0231-2008		NOOR MUNIRA IBRAHIM FACILITY MANAGER		Date 5 mei 2014	Time 8:25 am	Date 14/5/14	Time 5''	Please rate our services 1- 1. Poor 2. Fair 3. Good 4. Very Good 5. Excellent			
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Name and Signature of Technician /Engineer		Name and Signature of Requester/Supervisor																									
SUJAINAN BIN DOLLAH CHARGE MAN LV P.T. 4-B-0231-2008		NOOR MUNIRA IBRAHIM FACILITY MANAGER																									
Date 5 mei 2014	Time 8:25 am	Date 14/5/14	Time 5''																								
Please rate our services 1- 1. Poor 2. Fair 3. Good 4. Very Good 5. Excellent																											

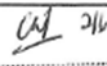
Contoh Checklist yang lebih terperinci bagi aktiviti PPM - MSB



KENANGAN EMAS SDN. BHD.

Preventive Maintenance Checklist

Government Building, Pusat Latihan Jabatan Perdana Menteri, W.P.Kuala Lumpur.

ELECTRICAL		MAIN SWITCH BOARD (MSB)					
PPM Frequency		6M / Y / 2Y			FOR MONTH OF		Mei 2014
Maintenance Frequency (MONTHLY)		MSB-N			MSB-E		
Item	MAIN SWITCH BOARD	YES	NO	N/A	YES	NO	N/A
2.1	Check all indicator light, selector switches, voltmeter, ammeter, power factor meter etc – replace if faulty	✓			✓		
2.2	Check and retighten all screws, contactors, termination etc.	✓			✓		
2.3	Check condition of cables for burn marks, insulation leakage and abnormal conditions	✓			✓		
2.4	Check copper busbars and ensure that is in good condition.	✓			✓		
2.5	Check capacitor Bank conditions	✓			✓		
2.6	Check contactors, capacitors etc. Change when required	✓			✓		
2.7	Check P.F. meter and ensure p.f is better than 0.85 lagging	✓			✓		
2.8	Retighten all cables, cable box cable terminations and other related connections	✓			✓		
Maintenance Frequency (MONTHLY)		MSB-N			MSB-E		
Item	MAIN SWITCH BOARD	YES	NO	N/A	YES	NO	N/A
2.9	Check earthing system and all terminations, connections etc.						
2.10	Record readings for maximum current, voltage, power factor, etc into the log book and take necessary action						
Maintenance Frequency (YEARLY)		MSB-N			MSB-E		
Item	MAIN SWITCH BOARD	YES	NO	N/A	YES	NO	N/A
2.11	Check and do load balancing. Balance to $\pm 5\%$ of load						
Maintenance Frequency (2 YEARLY)		MSB-N			MSB-E		
Item	MAIN SWITCH BOARD	YES	NO	N/A	YES	NO	N/A
2.12	Ensure cable insulation, cable terminations and other related connection in good condition. Repair /tighten /replace as required.						
2.13	Testing, calibration and resetting, all earth fault and overcurrent relays inclusive of current transformers, voltage transformers etc.						
B) Spared Parts Used							
C) Verification							
Work Done By :  Signature : Date : 5 Mei 2014. SULAIMAN BIN DOLLAH CHARGEMAN LV PI-T-4-B-0231-2008		Checked By :  Signature : SITI ALISA ZAHARIN Date : PENOLONG PEGAWAI TADBIR JABATAN PERDANA MENTERI		Verified By : Signature : Date : NOOR MUNIRA IBRAHIM FACILITY MANAGER 14/5/14			

Contoh Work Order
yang telah diprint
dari CMMS untuk
aktiviti PPM - SSB

NETmain		WORK ORDER																													
Workorder No.	PMJPM14000310	Work Trade	Electrical																												
Work Status	Open	Work Type	Preventive																												
		Work Priority	Normal																												
Received by		Assigned to	Sulaiman																												
Received Date / Time	5 May 2014 11:30	Requester	Admin																												
Required Date / Time		Phone Number	03-21416292																												
PM Target Start Date	7 May 2014	PM Target End Date	9 May 2014																												
Problem Description	Preventive - JPMPM0160 - SUB-SWITCH BOARDS (SSB-monthly)																														
Failure Code	-	Task Number	EL-004																												
Asset Number		Location Number	JPM-G																												
Asset Name		Location Name	GENERAL																												
Supplier/Contractor																															
Parts Details																															
Part No	Part Description	Issue Type (D/I)	UoM	Qty Used	Qty Returned																										
-																															
** D = Direct Issue , I = Inventory																															
Labour Details																															
Employee Name	Employee No	Start Date / Time	End Date / Time	Normal	OT1	OT2	OT3																								
Sulaiman	002	9 Mei 2014	9 Mei 2014	✓																											
		10:30 am	11:25 am																												
Date and Time work was started		Date	9 Mei 2014	Time	10:30 am																										
Date and Time work was completed		Date	9 Mei 2014	Time	11:25 am																										
Notes :																															
<table border="1"> <thead> <tr> <th colspan="4">Certification of Work Completion</th> </tr> <tr> <th colspan="2">Name and Signature of Technician /Engineer</th> <th colspan="2">Name and Signature of Requester/Supervisor</th> </tr> </thead> <tbody> <tr> <td>SULAIMAN BIN DOLLAH</td> <td>Signature</td> <td>NOOR MUNIRA IBRAHIM</td> <td>Signature</td> </tr> <tr> <td>CHARGEMAN LV</td> <td></td> <td>FACILITY MANAGER</td> <td></td> </tr> <tr> <td>PM 1400031006</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Date 9 Mei 2014</td> <td>Time 11:25 am</td> <td>Date 14/5/14</td> <td>Time 17^u</td> </tr> </tbody> </table>								Certification of Work Completion				Name and Signature of Technician /Engineer		Name and Signature of Requester/Supervisor		SULAIMAN BIN DOLLAH	Signature	NOOR MUNIRA IBRAHIM	Signature	CHARGEMAN LV		FACILITY MANAGER		PM 1400031006				Date 9 Mei 2014	Time 11:25 am	Date 14/5/14	Time 17 ^u
Certification of Work Completion																															
Name and Signature of Technician /Engineer		Name and Signature of Requester/Supervisor																													
SULAIMAN BIN DOLLAH	Signature	NOOR MUNIRA IBRAHIM	Signature																												
CHARGEMAN LV		FACILITY MANAGER																													
PM 1400031006																															
Date 9 Mei 2014	Time 11:25 am	Date 14/5/14	Time 17 ^u																												
Please rate our services :- 1. Poor 2. Fair 3. Good 4. Very Good 5. Excellent																															

Contoh Checklist yang lebih terperinci bagi aktiviti PPM - SSB

ELECTRICAL		SUB-SWITCH BOARDS (SSB)												FOR MONTH OF		mei 2014.									
PPM Frequency	DATE	9 mei 2014			9 mei 2014			9 mei 2014			9 mei 2014			9 mei 2014			9 mei 2014								
Maintenance Frequency (MONTHLY)		SSB-EML			SSB-CSB			SSB-NSB			SSB-M			SSB-MB			SSB-EB			SSB-NM					
Item	SUB-SWITCH BOARD	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A			
2.1	Check all indicator light, selector switches, voltmeter, ammeter, power factor meter etc - replace if faulty	✓			✓			✓			✓			✓			✓			✓					
2.2	Check and retighten all screws, contactors, termination etc.	✓			✓			✓			✓			✓			✓			✓					
2.3	Check condition of cables for term marks, insulation leakage and other abnormal conditions	✓			✓			✓			✓			✓			✓			✓					
2.4	Check copper busbars and ensure that is in good condition.	✓			✓			✓			✓			✓			✓			✓					
2.5	Check capacitor bank conditions			✓			✓			✓			✓			✓			✓			✓			
2.6	Check contactors, capacitors etc. Change when required	✓			✓			✓			✓			✓			✓			✓					
2.7	Check P.F. meter and ensure p.f is better than 0.85 lagging	✓			✓			✓			✓			✓			✓			✓					
2.8	Retighten all cables, cable box cable terminations and other related connections	✓			✓			✓			✓			✓			✓			✓					
2.9	Check earthing system and all terminations, connections etc.	✓			✓			✓			✓			✓			✓			✓					
2.10	Record readings for maximum current, voltage, power factor, etc into the log book and take necessary action	✓			✓			✓			✓			✓			✓			✓					
Maintenance Frequency (YEARLY)		SSB-EML			SSB-CSB			SSB-NSB			SSB-M			SSB-MB			SSB-EB			SSB-NM					
Item	SUB-SWITCH BOARD	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A	YES	NO	N/A			
2.12	Check and do load balancing. Balance to $\pm 5\%$ of load																								
2.13	Testing, calibration and rearing, all earth fault and overcurrent relays inclusive of current transformers, voltage transformers etc.																								
B) Spared Parts Used		C) Verification																							
		Work Done By : SUI HARGEMAN BIN DALLAH				Work Done By : [Signature]				Work Done By : [Signature]				Work Done By : [Signature]				Work Done By : [Signature]				Work Done By : [Signature]			
		Signature : SUI HARGEMAN BIN DALLAH				Signature : [Signature]				Signature : [Signature]				Signature : [Signature]				Signature : [Signature]				Signature : [Signature]			
		Date : 27 Mei 2014				Date : 9 Mei 14				Date : 9 Mei 14				Date : 9 Mei 14				Date : 9 Mei 14				Date : 9 Mei 14			
REMARKS		C) Verification																							
		Checked By : [Signature]										Verified By : [Signature]													
		Signature : SUI HARGEMAN BIN DALLAH										Signature : NOOR MUNIR IBRAHIM													
		Date : 18/5/14										Date : 18/5/14													

Contoh Work Order
yang telah diprint
dari CMMS untuk
aktiviti PPM - Fittings

NETmain		WORK ORDER					
Workorder No.	PMJPM14000366	Work Trade	Electrical				
Work Status	Open	Work Type	Preventive				
		Work Priority	Normal				
Received by	ADMIN	Assigned to	MALIK BIN MAMAT ELECTRIC TECHNICIAN				
Received Date / Time	6 May 2014 18:06	Requester	ADMIN				
Required Date / Time		Phone Number	03-91416372				
PM Target Start Date	28 May 2014	PM Target End Date	30 May 2014				
Problem Description	Preventive - JPMPM0168 - LUMINERIES / SWITCHES / SWITCH SOCKET OUTLET-monthly						
Failure Code	-	Task Number	C-023				
Asset Number		Location Number	JPM-G				
Asset Name		Location Name	GENERAL				
Supplier/Contractor							
Parts Details							
Part No	Part Description	Issue Type (D/ I)	UoM	Qty Used	Qty Returned		
** D = Direct Issue , I = Inventory							
Labour Details							
Employee Name	Employee No	Start Date / Time	End Date / Time	Normal	OT1	OT2	OT3
MALIK BIN MAMAT	006	28 MAY 2014 1030 AM	28 MAY 2014 1230 PM	✓			
Date and Time work was started		Date	28 MAY 2014	Time	1030 AM		
Date and Time work was completed		Date	28 MAY 2014	Time	1230 PM		
Notes :							
system in good condition							
Certification of Work Completion							
Name and Signature of Technician /Engineer				Name and Signature of Requester/ Supervisor			
MALIK BIN MAMAT ELECTRIC TECHNICIAN PW-T-4-B-1032-2003				NOOR MUNIRA IBRAHIM FACILITY MANAGER			
Date / 8 MAY 2014		Time 1230 PM		Date 28/5/14		Time 1552	
Please rate our services : 1. Poor 2. Fair 3. Good 4. Very Good 5. Excellent							

Contoh Checklist yang lebih terperinci bagi aktiviti PPM - Fittings



KENANGAN EMAS SDN. BHD.

Preventive Maintenance Checklist

Government Building, Pusat Latihan Jabatan Perdana Menteri, W.P.Kuala Lumpur.

ELECTRICAL		LUMINERIES / SWITCHES / SWITCH SOCKET OUTLET				
PPM Frequency	1M / 3M / 6M / Y	FOR MONTH OF	MAY 2014			
Maintenance Frequency (1 MONTHLY)						
Item	LUMINAIRES (Including Fluorescent Luminaires, S.M. Type)	DATE: 28 MAY 2014	YES	NO	N/A	Remarks
1	Ensure that the tube/bulbs is in good condition		✓			Basement Floor
2	Ensure that no black mark or oil trace		✓			
3	Ensure that no burnt marks at both ends of the tube		✓			
4	Ensure that no noise generated from the ballasts - replace if necessary		✓			
5	Ensure that "KELUAR" sign is functioning.		✓			
6	Test emergency light fittings		✓			
Item	SWITCHES AND SWITCH SOCKETS OUTLETS		YES	NO	N/A	
7	Ensure no damage from visual inspection		✓			
Item	FANS		YES	NO	N/A	
8	Ensure continuous rotation/functionality. Ensure that no noise being generated - rectify if necessary.		✓			
9	Ensure that the exhaust fan is not blocked & auto louvres in working condition.		✓			
10	Check regulator and ensure that no noise generated during operation.		✓			
Maintenance Frequency (3 MONTHLY)						
Item	LUMINAIRES (Including Fluorescent Luminaires, S.M. Type)		YES	NO	N/A	Remarks
11	Open, clean and recondition of the light fittings e.g. lamp housing/casing, reflectors, louvres, diffusers, canopy, etc.					
12	Check conditions of components of light fittings eg. cable, lamp holder, lamps, control gear, starter, capacitor, ballast, etc.					
13	Retighten all connection, terminations etc.					
Item	FANS		YES	NO	N/A	
14	Check safety wire rope.					
15	Ensure that all bolts & nuts, connections, suspension rod, rubber mounting are in good condition. Retighten all connections, terminations etc. for the fan & regulator.					
16	Check and clean fan.					
Maintenance Frequency (6 MONTHLY)						
Item	SWITCHES AND SWITCH SOCKETS OUTLETS		YES	NO	N/A	Remarks
17	Open, clean and retighten all connections, termination etc.					
Maintenance Frequency (YEARLY)						
Item	FANS		YES	NO	N/A	Remarks
18	Test for insulation - and earthing.					
Verification						
Work done by: MALIK BIN MAMAT Date: ELECTRIC TECHNICIAN Signature: PW-T-4-B-1032-2008		Checked by: 246 Date: SITI ALISA ZAHARIN Signature: PENOLONG PEGAWAI TADBIR JABATAN PERDANA MENTERI		Verified by: NOOR MUNIRA IBRAHIM Date: 20/5/14 Signature: FACILITY MANAGER		
28 MAY 2014						

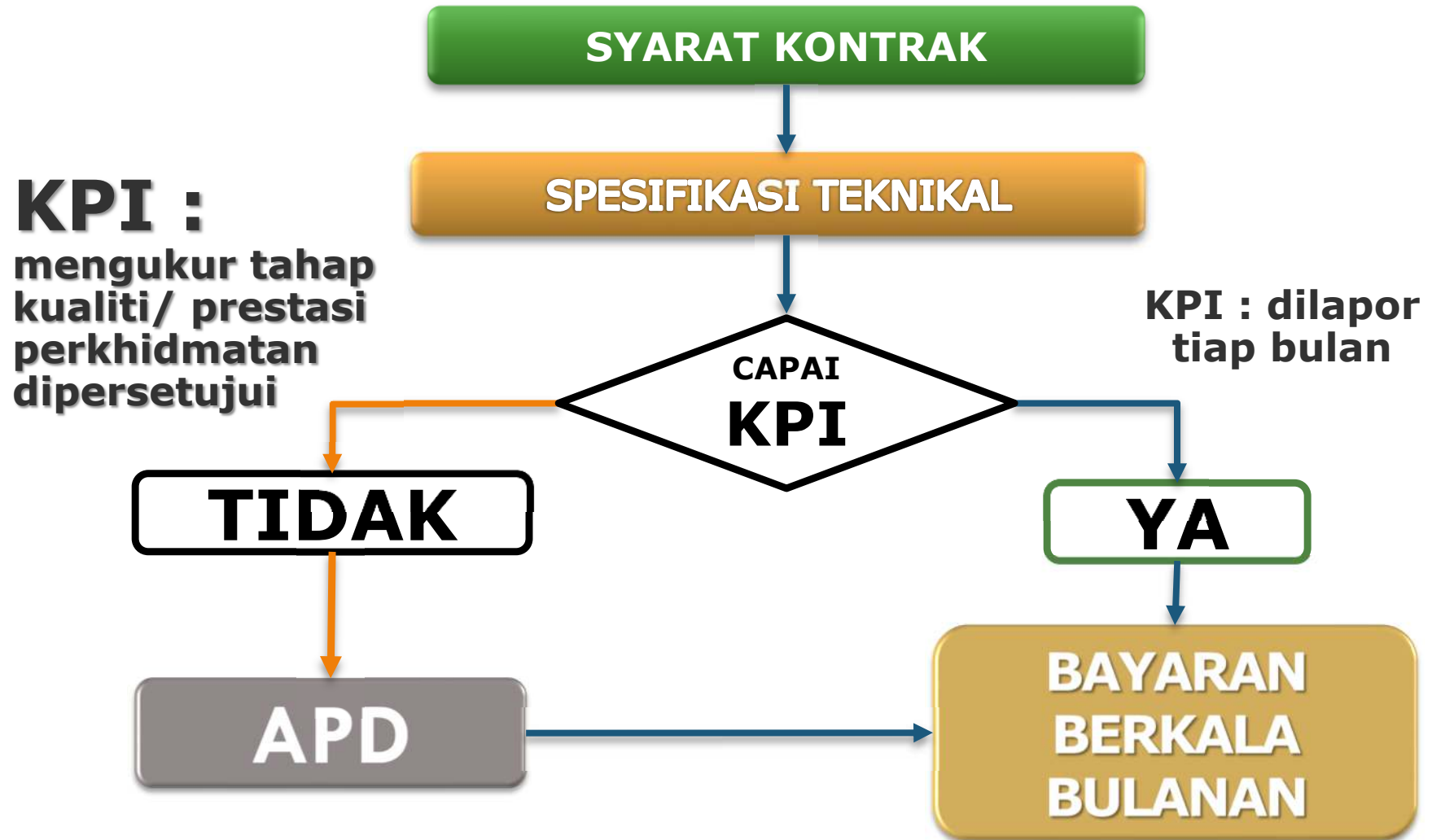
KPI



- Alat yang digunakan untuk mengukur prestasi:
 - ▣ **KPI – Key Performance Indicator**
 - ▣ **APD – Ascertained Performance Deduction**

- Kenapa perlu KPI?
 - ▣ Memastikan perkhidmatan yang diberi **mencapai tahap perkhidmatan** yang ditetapkan
 - ▣ Mengenalpasti **kelemahan** untuk penambahbaikan
 - ▣ Membolehkan Prestasi kontraktor diukur berdasarkan **fakta yang tepat**

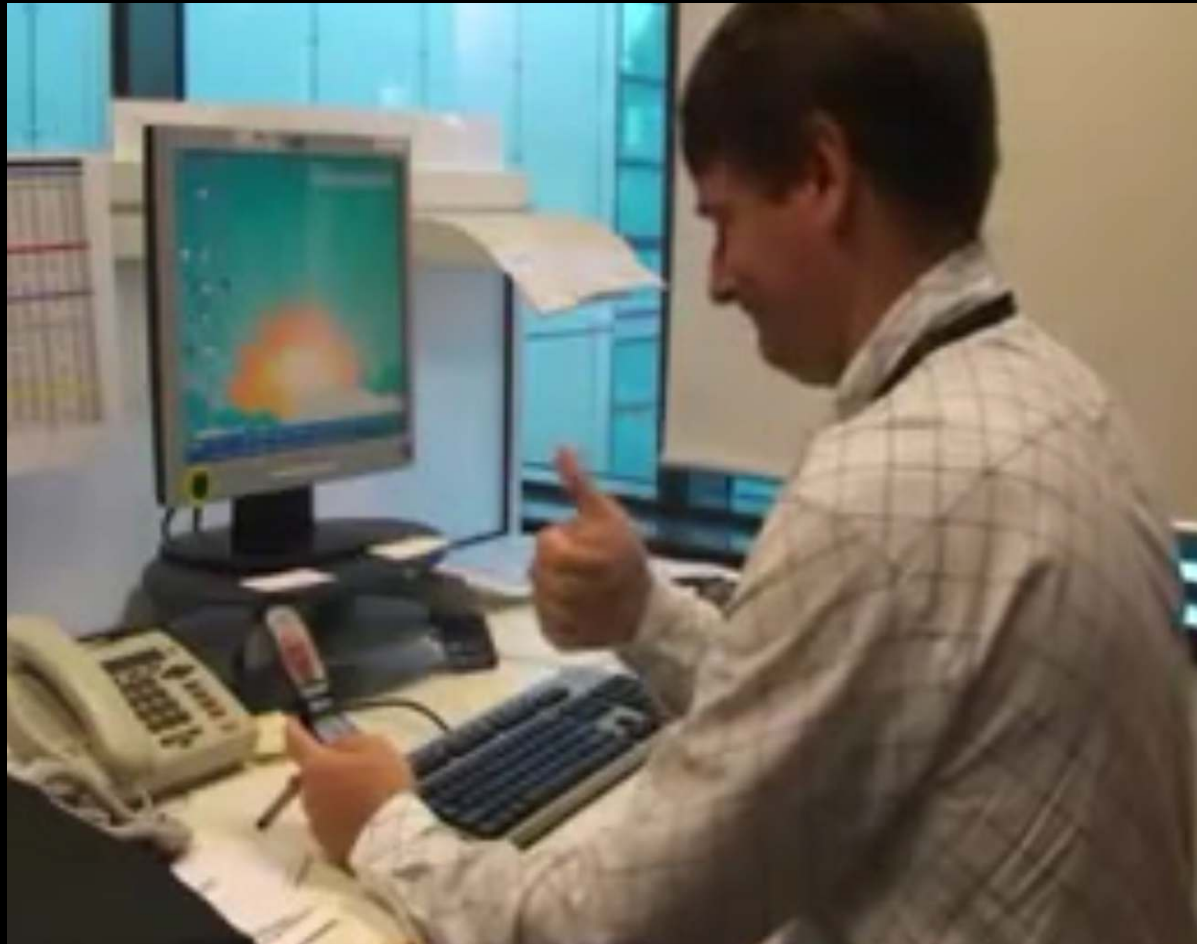
Hubungkait KPI dan APD



Beza Kontrak FM dan O&M

FM	O&M
Mempunyai Pelbagai Disiplin dalam 1 Kontrak (<i>1-point responsibility</i>)	1 Kontrak bagi 1 Disiplin
Berkonsepkan Performance Based	Berkonsepkan <i>Task / Activity Based</i>
Mempunyai pengurusan prestasi (KPI/APD)	Tiada pengurusan prestasi
Mempunyai Pelbagai Skop Perkhidmatan Pengurusan	Hanya Pengurusan berkaitan kerja Penyenggaraan
Fokus kepuasan pelanggan	Fokus aktiviti kerja
Mempunyai Transition Period	Tiada Transition Period

Kehidupan Seorang FM Manager



**ASET
NEGARA**

**FASILITI
RAKYAT**





Jasa Kepada Rakyat



**SEKIAN,
TERIMA
KASIH**