

# KUL A-CDM TRAINING MATERIAL (AIRPORT)





# KUL A-CDM for Airport Operator

**T Systems**

Let's power  
higher performance

## History of global A-CDM developments

Firstly, implemented in Munich Airport in 2007 to improve the coordination and data sharing between the operational stakeholders relevant for the aircraft turnaround process with the aim to make the turnaround more predictable for all involved stakeholders.

ICAO has selected A-CDM to be a topic for their Global Air Navigation Plan's (GANP) Aviation System Block Upgrades (ASBU) to increase airport capacity at congested airports.

At the moment there are 33 fully implemented A-CDM airports in Europe and many more across the globe.



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## Why do we need KUL A-CDM?

KUL's main objective in implementing A-CDM is to achieve:

- Operational Efficiency
- Resource Optimisation
- Capacity Optimisation
- Improved Planning

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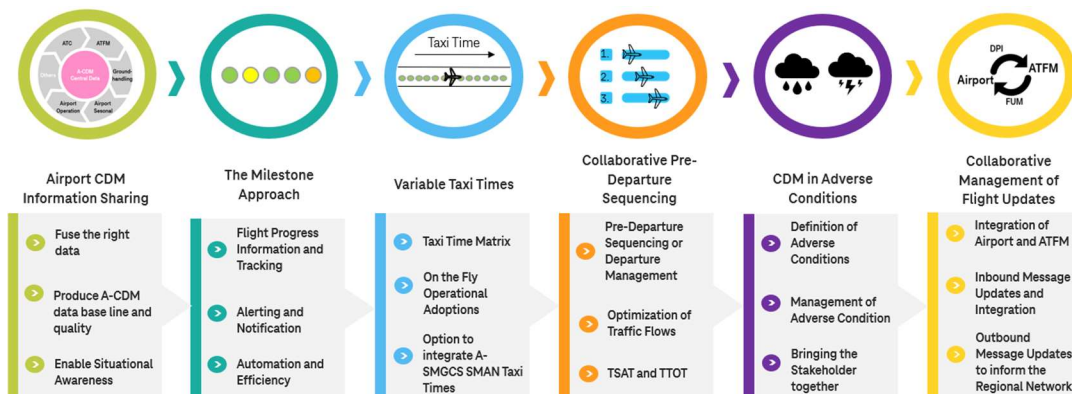
## Who are the stakeholders for our KUL A-CDM?



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## What is KUL A-CDM about : The six A-CDM Elements

These six A-CDM elements define the higher-level framework of an A-CDM implementation:



The A-CDM process focusses on the extended turnaround of an aircraft from its departure through the arrival and turnaround at KUL until its departure from KUL.

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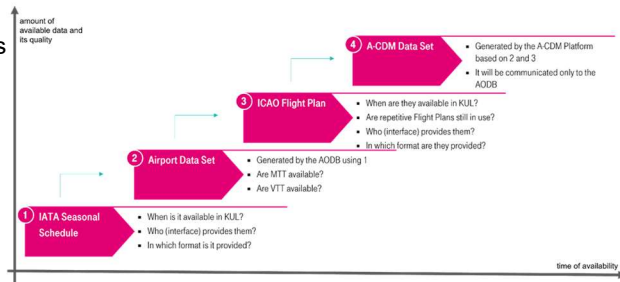
# Information Sharing

Within the Information Sharing element the data needed to run the successful and efficient A-CDM process is defined.

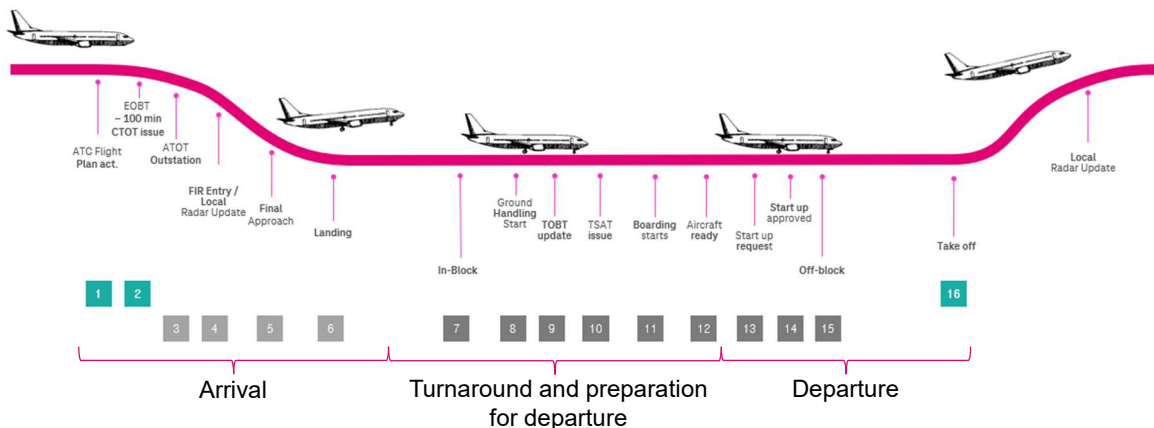
The sources of data are identified and agreements on the system-to-system integration and the data format are made.

Where possible and meaningful automatic data generation and exchanges between systems should be implemented.

In the end all A-CDM Stakeholders improve from this Information Sharing, as the data will be shared back with them for everyone's benefit.



# The Milestone Approach



The Milestone Approach defines a standard turn around process for aircrafts operating at KUL and can be followed by every aircraft operator.

Should an aircraft operator decide to implement more milestones, then they should feed into the 16 A-CDM milestones or at least into the TOBT.

## Variable Taxi Times

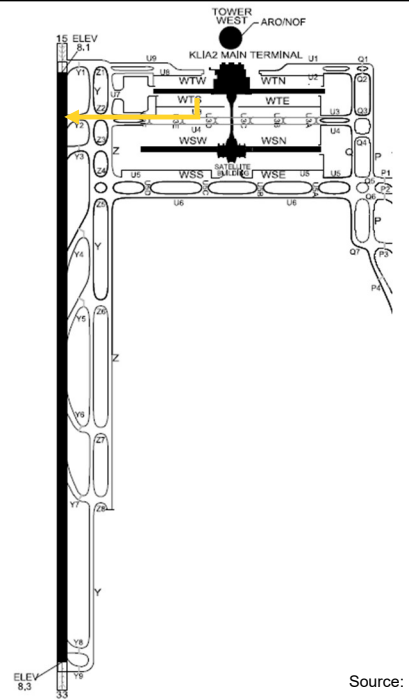
With Variable Taxi Times the In-Block Time and Take Off Time predictions can be improved massively for the benefits of Ground Handlers and ATC.

Variable Taxi Times are used as Master Data in ACIP and DMAN for the following automatic calculations:

Actual Landing Time + Estimated Taxi In Time = Estimated In Block Time

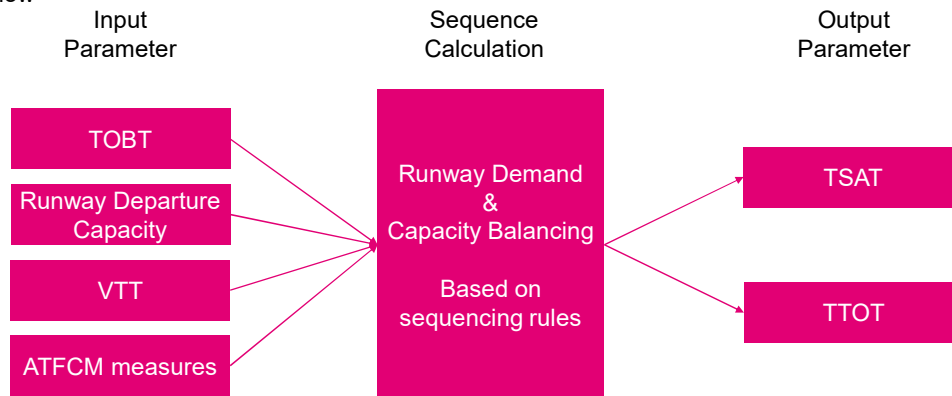
Target Off Block Time + Estimated Taxi Out Time = Target Take Off Time

RWY	Parking Stand	VTT [min]
33	K8	6
15	Q10	13



## Collaborative Pre-Departure Sequencing

Transitioning from „First-Come-First-Served“ to „Best-Planned-Best-Served“, while maintaining the best possible flow



## CDM in Adverse Conditions

The most dominant Adverse Conditions for Kuala Lumpur International Airport have been discussed and defined during the development of the Concept of Operations (ConOps) project phase and are documents in the ConOps Document.

The adverse conditions are defined as the followed:

- Thunderstorm
- Heavy rain
- Haze
- Floods
- Windshear



How and by whom those adverse conditions need to be managed will be explained in the detailed trainings for the respective stakeholders.

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## Collaborative Management of Flight Updates

The Collaborative Management of Flight Updates functions as the technical connection between the KUL A-CDM supporting IT system called ACIP and the Air Traffic Flow and Capacity Management (ATFCM) system managing the en-route flights within the Malaysian Airspace System as well as cross border.

**The data stream and data sets giving information into ACIP on arrival flights into KUL are called Flight Update Messages.**

**The data stream and data sets giving information into ATFCM on departing flights from KUL are called Flight Update Messages.**



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## Rational behind the A-CDM Timestamps

First Letter	Letter two and three	Last Letter
<p><b>S</b><u>Scheduled</u> Source: Airlines IATA schedules via airport Up to 6-month-old</p> <p><b>E</b><u>Estimated</u> Source: Airlines ICAO Flight Plans via CAAM Up to 6-days-old</p> <p><b>T</b><u>Target</u> Source: Airlines/Ground Handling Up to 90 minutes old</p> <p><b>C</b><u>Calculated</u> Source: ATC Up to 100 minutes old</p> <p><b>A</b><u>Actual</u> Source: Various 100% quality</p>	<ul style="list-style-type: none"> <li>• <b>LD</b> = <b>L</b>an<b>D</b>ed</li> <li>• <b>IB</b> = <b>I</b>n-<b>B</b>lock</li> <li>• <b>OB</b> = <b>O</b>ff-<b>B</b>lock</li> <li>• <b>RD</b> = <b>R</b>ea<b>D</b>y</li> <li>• <b>SR</b> = <b>S</b>tart-up <b>R</b>equest</li> <li>• <b>SA</b> = <b>S</b>tart-up <b>A</b>pproval</li> <li>• <b>TO</b> = <b>T</b>ake-<b>O</b>ff</li> </ul> <p>Examples:</p> <p>ALDT = Actual LanDing Time EIBT = Estimated In Block Time TOBT = Target Off Block Time TTOT = Target Take Off Time</p>	<p>Just <b>T</b> for <b>T</b>ime</p>

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## KUL A-CDM Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
ACGT	Actual Commence of Ground Handling Time	CTOT	Calculated Take Off Time
AEGT	Actual End of Gate Time	EIBT	Estimated In-Block Time
AIBT	Actual In-Block Time	ELDT	Estimated Landing Time
ALDT	Actual Landing Time	EOBT	Estimated Off-Block Time
AOBT	Actual Off-Block Time	ETOT	Estimated Take Off Time
ARDT	Actual Ready Time	EXIT	Estimated Taxi-In Time
ASAT	Actual Start Up Approval Time	EXOT	Estimated Taxi-Out Time
ASBT	Actual Start Boarding Time	SIBT	Scheduled In-Block Time
ASRT	Actual Start Up Request Time Air Traffic Control	SOBT	Scheduled Off-Block Time
ATOT	Actual Take Off Time	TOBT	Target Off-Block Time
		TSAT	Target Start Up Approval Time
		TTOT	Target Take Off Time

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## Main actions of the operational stakeholders

### Airlines

- Maintain Flight Plans (ICAO and IATA) up-to-date
- Manage the TOBT for every of their flights, if not delegated to Ground Handling

### Ground Handling

- Manage the TOBT on behalf of the airlines, if delegated to them

### Airport Operations

- **Manage the Flight Plan Matching**
- **Supervise the KUL A-CDM Process**

### Local Air Traffic Control

- Manage Start Up Process based on TSAT
- Manage Runway utilization by use of Departure Manager System



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## Process Description

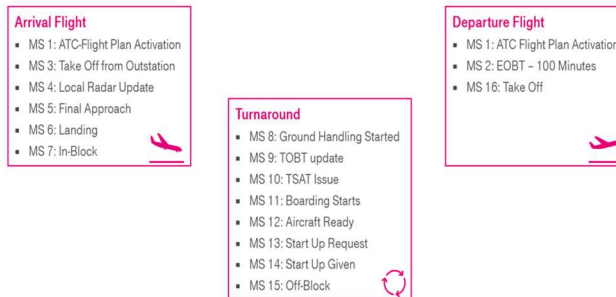


# Happy Flight

Definition of a Happy Flight:

1. is a flight, which planning data is 100% matching throughout the whole operational process
2. Is a flight, that is not impacted by any operational disruptions (e.g., a delay in fueling)
3. The initial (first) TOBT will be generated automatically by ACIP as EOBT = TOBT to reduce unneeded workload

If you have a perfectly smooth-running turnaround you need to do nothing on top of what you do today!



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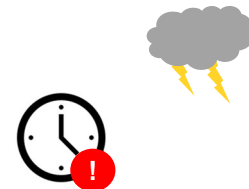
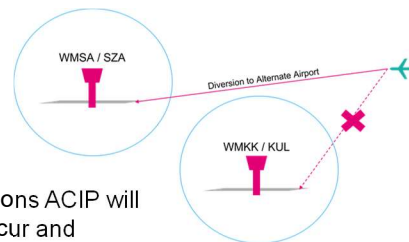
# Unfortunately, that is not the normal case...

How do we have to intervene if any Problems occur?

To support the KUL A-CDM stakeholders in their day-to-day operations ACIP will inform and alert if process variation based on the available data occur and inform on the steps to be taken to resolve the issue.

In the following slides the operational cases will be explained which impact KUL A-CDM operations. The cause of the disruption will be explained together with the reaction of ACIP.

In the end the solution to solve the topic will be given and explained.



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## Let's start in the Beginning of the Process...



Our current time 120 minutes before EOBT

We got the IATA Flight Schedule 120 minutes ago.

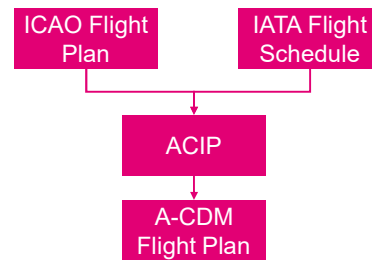
And we know which departure is linked to the arrival flight.

So, what happens next:

ACIP receives an ICAO Flight Plan and fully automatic matches the already available IATA Flight Schedule with the ICAO Flight Plan.

If there are no discrepancies in information, the Milestone is fully automatically generated and activated in the ACIP.

If the matching process detects a data discrepancy both flight plans are given to the data clearing function for manual correction.



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## No matching between IATA and ICAO Flight Plan



### Issue

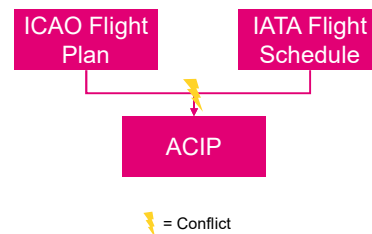
no IATA Flight Schedule is available, or the IATA Flight Schedule has already been matched with an ICAO Flight Plan

### How will ACIP notify you?

In the A-CDM Clearing Screen the ICAO Flight Plan is highlighted.

### Solution / Action

1. MA(S) FO A-CDM SE will recognize the unmatching/unlinked Flight Schedule/ Flight Plan and send the Alert CDM01 and the request to correct the data to the airline responsible person.
2. Afterwards the correct data will be manually entered into FIMS.



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# Slot Discrepancies



## Issue

IATA Flight Schedule and ICAO Flight Plan are available for a flight, but the times for SOBT and EOBT are not equal.

(e.g. SOBT 1200 and EOBT 1215)

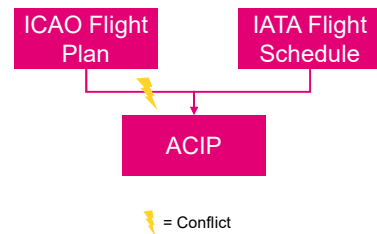
## How will ACIP notify you

Alert CDM02 is automatically generated by ACIP

## Solution / Action

1. The request to correct the data to the airline responsible person will be sent by ACIP.
2. Airline responsible persons are obliged to react to the alerts and contact Airport Operator/MA(S) FO A-CDM SE to give corrected/valid data.

These correction may be provided via DataPower.



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# Aircraft Discrepancies



## Issue

IATA Flight Schedule and ICAO Flight Plan are available for a flight, but the aircraft types given by the flight plans are not equal.

(e.g. IATA says 320 and ICAO A321)

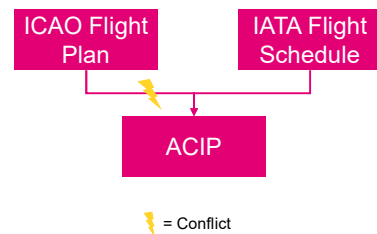
## How will ACIP notify you

Alert CDM03 is automatically generated by ACIP

## Solution / Action

1. The request to correct the data to the airline responsible person will be sent by ACIP.
2. Airline responsible persons are obliged to react to the alerts and contact Airport Operator/MA(S) FO A-CDM SE to give corrected/valid data.

These correction may be provided via DataPower.



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# Registration Discrepancies



## Issue

IATA Flight Schedule and ICAO Flight Plan are available for a flight, but the aircraft registration given by the flight plans are not equal.

(e.g. IATA 9M-AGU and ICAO 9M-RCH)

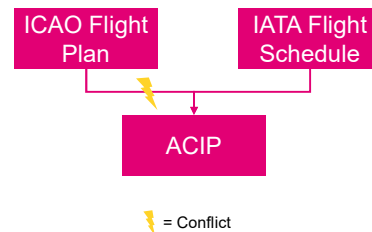
## How will ACIP notify you

Alert CDM04 is automatically generated by ACIP

## Solution / Action

1. The request to correct the data to the airline responsible person will be sent by ACIP.
2. Airline responsible persons are obliged to react to the alerts and contact Airport Operator/MA(S) FO A-CDM SE to give corrected/valid data.

These correction may be provided via DataPower.



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# Destination Discrepancies



## Issue

IATA Flight Schedule and ICAO Flight Plan are available for a flight, but this first destination airport by the flight plans are not equal.

(e.g. IATA says WSSS and ICAO WSSI)

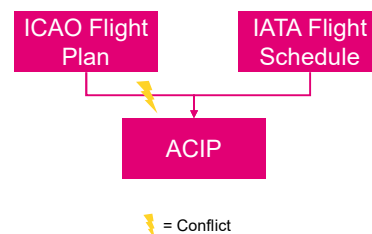
## How will ACIP notify you

Alert CDM05 is automatically generated by ACIP

## Solution / Action

1. The request to correct the data to the airline responsible person will be sent by ACIP.
2. Airline responsible persons are obliged to react to the alerts and contact Airport Operator/MA(S) A-CDM SE to give corrected/valid data.

These correction may be provided via DataPower.



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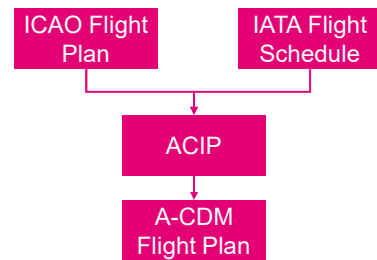
## How to fix this



If all discrepancies are cleared, the ACIP links the A-CDM Flight Plan and activates it.

The status "ATC Flight Plan Activation" is set by the ACIP.

Setting the "ATC Flight Plan Activation" milestone leads to an automatic generation of the E-DPI for departure flights and is sent to the ATC-System by the ACIP.



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## Let's remember the Six Elements

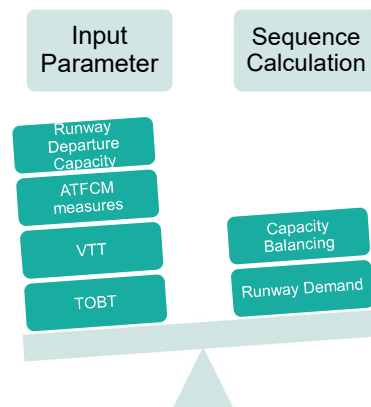


One of the six elements of A-CDM is the Collaborative Pre-Departure Sequencing

So, if we run into the situation that: Runway Demand > Runway Capacity

Solution must be that ATFCM assigns the Calculated Take Off Time (CTOT) to departing aircrafts

The System sends automatically a T-DPI t message to the ATC-System



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## Track the Process



The tracking of the A-CDM Process starts as soon as the “take off from outstation” information has been received for the arrival part of the aircraft rotation.

ACIP receives the ATOTout from ATC including the Estimated Landing Time (ELDT)

That means: Cancelling of the flight is not possible anymore

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## No Take-off from Outstation



### Issue

No Take Off from Outstation has been received at 15 minutes before SIBT

### How will ACIP notify you

Alert CDM06 is automatically generated by ACIP

### Solution / Action

1. The request to correct the data is send to the airline responsible person.
2. The airline responsible person will contact the MA(S) FO A-CDM SE to give the valid data.
3. After receiving the data – you have to manually enter the ATOTout into ACIP, if the aircraft has departed.

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## How the Arrival affects the Departure



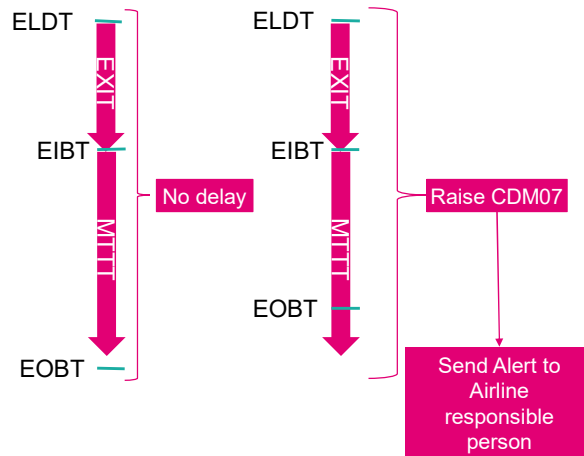
ACIP verifies, if there is a delay in the linked departure flight resulting from new ELDT.

If no Target Off Block Time (TOBT) for the linked departure flight is yet set:

ACIP validates if  $EIBT + MTTT + 10 \text{ mins}$  will exceed the Estimated Off Block Time (EOBT)

$(EOBT < EIBT + MTTT)$

ACIP validates if the departure flight have a chance to go Off Block in time. If not, the CDM07 will be generated by ACIP and send to the Airline and/or TOBT responsible person who must update the ICAO Flight Plan for the departure flight.



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## How the Arrival affects the Departure

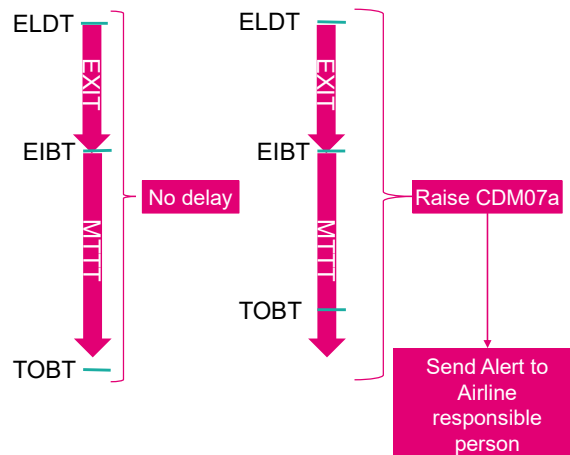


If a Target Off Block Time (TOBT) for the linked departure flight is yet set:

ACIP validates if  $EIBT + MTTT + 5 \text{ mins}$  will exceed the Target Off Block Time (TOBT)

$(TOBT < EIBT + MTTT)$

ACIP validates if the departure flight have a chance to go Off Block in time. If not, the CDM07a will be generated by ACIP and send to the Airline and/or TOBT responsible person who must update the ICAO Flight Plan for the departure flight.

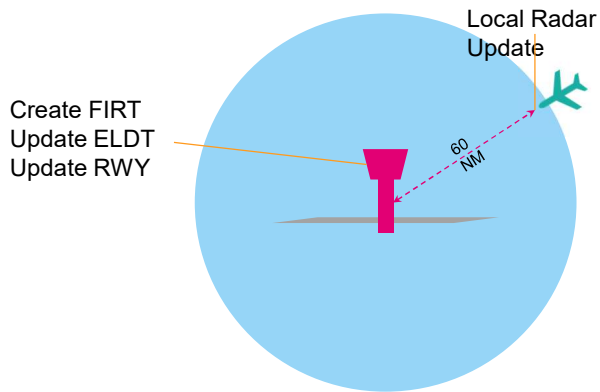


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# Local Radar Update



If the aircraft enters the FIR 60 NM range, the AMAN will generate a timestamp and provide the timestamp of FIRT, the ELDT and the assigned runway to ACIP.

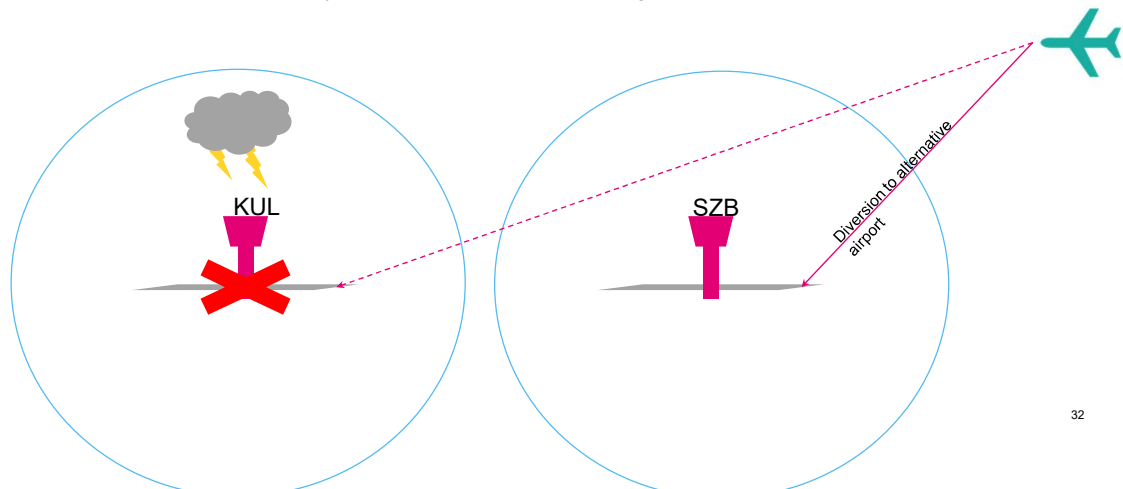


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# Diversion



At this point of the process the flight can still get diverted  
As soon as the diversion is confirmed you must set the diversion flag into FIMS



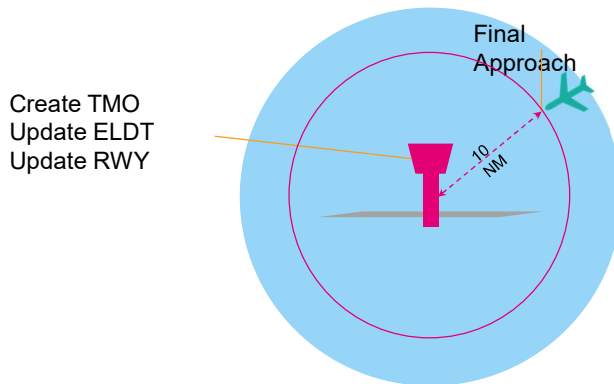
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## Final Approach



For the arriving aircraft crossing Final Approach, the Ten-Miles-Out timestamp will be generated.

The aircraft that crossed the Final Approach Fix will either land at the airport within a few minutes or perform a missed approach procedure



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## Missing Approach



Missed Approach can happen if for instance the PIC needs to perform a “Go-Around”.

ATC will flag this flight in FDPS and the MA(S) FO Duty Executive/Airport Operator takes note of this and inform the concerned stakeholders.

The AMAN calculates a new ELDT and provide it to ACIP.

Again, ACIP verifies if there is a delay in the linked departure flight resulting from new ELDT.

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## No Stand/Bay



### Issue

If the flight do not have a stand/bay assigned, 10 minutes before ELDT.  
So, the taxi time is not known and the aircraft could block the airside.

### How will ACIP notify you

Alert CDM32 is automatically generated by ACIP

### Solution / Action

1. The alert is sent to the MA(S) FO Duty Executive and MA(S) FO A-CDM SE to advise the MA(S) FO GAS Planner of the responsible area to allocate an aircraft stand/bay in the GAS immediately.

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## What Actions are needed to Land...



In the happy case: The Actual Landing Time (ALDT) is automatically received by ATC



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## No Landing Time



### Issue

If ALDT is not received by the ATC FDP at 5 minutes after ELDT

### How will ACIP notify you

CDM22 Alert is automatically generated by ACIP 6 minutes after ELDT

### Solution / Action

1. The Alert is sent to Lumpur Tower Supervisor, MA(S) FO A-CDM SE and MA(S) FO Duty Executive.
2. The MA(S) FO Duty Executive will ask Lumpur Tower for the correct ALDT and manually key in the ALDT into FIMS if the aircraft is landed.

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## Last steps for arrival...



The In-Block Timestamp is the end of the taxi-in process and the earliest starting point for the ground handling and turnaround procedures



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## No In-Block Time



### Issue

If no automatic generated AIBT is provided by the A-SMGCS, the ATC Ground Controller shall key in the AIBT into FDPS and the AIBT is sent to the ACIP.

If no AIBT is provided 5 minutes after EIBT.

### How will ACIP notify you

Alert CDM33 is automatically generated by ACIP

### Solution / Action

1. send to MA(S) FO A-CDM SE and MA(S) FO Duty Executive to manually key in the AIBT within ACIP.

Note: The EIBT is calculated by the System (ELDT + EXIT = EIBT). If this Alert is generated often the Taxi In Times have to be revised.

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## How the Arrival affects the Departure



After receiving the AIBT, ACIP automatically verifies afterwards if a delay of the linked departure is resulting.

If no Target Off Block Time (TOBT) for the linked departure flight is yet set:

ACIP validates if  $EIBT + MTTT + 10 \text{ mins}$  will exceed the Estimated Off Block Time (EOBT)

$(EOBT < EIBT + MTTT)$

If a Target Off Block Time (TOBT) for the linked departure flight is yet set:

ACIP validates if  $EIBT + MTTT + 5 \text{ mins}$  will exceed the Target Off Block Time (TOBT)

$(TOBT < EIBT + MTTT)$

ACIP validates if the departure flight have a chance to go Off Block in time. If not, the CDM07 / CDM07a will be generated by ACIP and send to the Airline and/or TOBT responsible person who must update the ICAO Flight Plan for the departure flight.

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## Definition of TOBT and what it is used for

The Target Off Block Time (TOBT) is the central time of the A-CDM process for which all relevant stakeholders should do their best possible to achieve it.

Even though if everyone was trying their best and the TOBT cannot be achieved, then the TOBT responsible person shall update it as soon as possible.

To keep the A-CDM process as stable and fair as possible for the benefit of all stakeholders involved, multiple rules for TOBT updates have been defined and documented in this chapter and all stakeholders are requested to follow them.



Note: Low quality TOBT will directly impact TSAT and TTOT and therefore the performance of your runway!

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## Turnaround



The normal turnaround process, the ground handling starts directly with "In-Block".

For flights that have longer parking time before their departure leg starts, there can be a time gap between In-Block and Ground Handling Start

The ground handling might be affected by weather or changes of it.

### How will ACIP notify you

Not, but the sky or the weather forecast will tell you

### Solution / Action

1. The stakeholders shall inform the TOBT responsible person about the effect immediately that the TOBT can be updated.

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## TOBT prior to TSAT



ACIP automatically generates a TOBT at **EOBT – 90 minutes** for every flight.

If  $EIBT + MTTT \leq EOBT$  or  $AIBT + MTTT \leq EOBT$  then the **automatically generated TOBT = EOBT**

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## No automatically generated TOBT



ACIP automatically generates a TOBT at **EOBT – 90 minutes** for every flight.

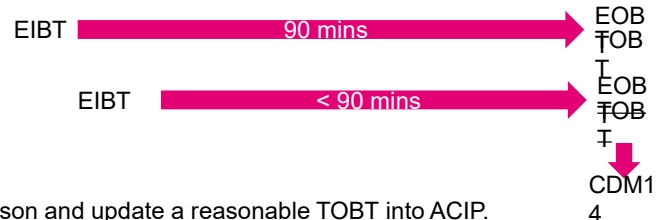
If  $EIBT + MTTT \leq EOBT$  or  $AIBT + MTTT \leq EOBT$  then the automatically generated TOBT = EOBT

### Issue

If an automatic TOBT generation is not possible

### How will ACIP notify you

CDM14 Alert is automatically generated



### Solution / Action

1. This Alert is sent to the TOBT responsible person and update a reasonable TOBT into ACIP.
2. As soon as an intervention of the TOBT have to be done, the ACIP will set the TOBT Update Prior to TSAT milestone.
3. And the TOBT is distributed to the Ramp Display System (RDS)

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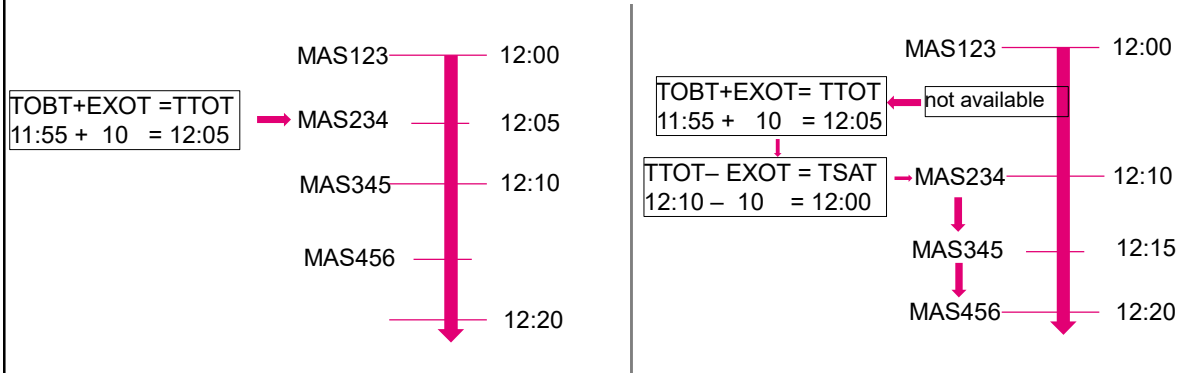


## What the TOBT is used for Pre-Departure Sequencing

TOBT is the commitment by the TOBT responsible person, that the aircraft will be ready at that time.

Based on that commitment CAAM's Departure Manager (DMAN) calculates TSAT and TTOT with the aim to enable aircrafts to taxi without further delay to the runways and take off.

As soon as the TSAT is available, it will be distributed to the RDS.



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## Boarding not started yet

The Actual Start Boarding Time (ASBT) has been entered by the Gate Agent into the Gate Application at the Gate/Lounge.

### Issue

Because it is unlikely that the TOBT can be achieved, if the boarding has not started at a defined time prior to TOBT (TOBT - 15 minutes).

### How will ACIP notify you

Alert CDM09 is automatically generated

### Solution / Action

1. ACIP send the Alert to the airline responsible person and TOBT responsible person to update the TOBT.
2. Before updating the TOBT the responsible operators and/or Gate Agent must be consulted if it was a mistake or if the TOBT have to be updated because of the missing start of boarding.

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## How to check that the aircraft is ready



The following criteria need to be fulfilled for an aircraft to be really ready to push:

- Ground Handling Operations finished and ready for push back
- Flight Deck procedures ready for push back
- Cabin procedure ready for push back

Because it is not practical to wait to get confirmation from all the stakeholders that they are ready, ACIP generates this timestamp automatically, 15 minutes after the Gate Agent entered the Actual End of Gate Time (AEGT) ACIP automatically sets Actual Ready Time (ARDT).

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## Is the aircraft really ready?



### Issue

ACIP checks if ARDT is available 5 minutes before TOBT. If AEGT has not been received by ACIP at that time to calculate the ARDT.

### How will ACIP notify you

Alert CDM11 is automatically generated

### Solution / Action

1. This Alert is sent to the TOBT responsible person.
2. The TOBT shall immediately updated, if necessary, to avoid further process disruptions. Or the Gate Agent needs to set the AEGT within the Gate Application immediately.

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## Start up request



### Issue

If the Actual Start-Up Request Time (ASRT) is not available within 6 minutes after TSAT.

### How will ACIP notify you

Alert CDM12a is automatically generated.

### Solution / Action

1. Send to Lumpur Delivery for immediate action.
2. If the Actual Start Approval Time (ASAT) is not set 9 minutes after the TSAT then ACIP automatically deletes the TOBT and TSAT and a new TOBT needs to be set by the TOBT responsible person. The TOBT deletion will be send to the DMAN who must re-sequence the flight.
3. Lumpur Ground shall decide whether to approve the Start Up or ask the PIC to update the TOBT.

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## Special Procedures

Now we want to describe special procedures under special conditions such as:

1. Adverse Conditions
2. Return to Stand/Bay
3. **Fallback procedure**

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## From Start up Approval to Take Off



Once Start Up has been requested, Lumpur Ground Controller shall approve Start Up as soon as the traffic situation allows it.



Afterwards the PIC requests the push back to vacate the aircraft stand / bay and the Systems sets the Off-Block Time



Once the aircraft has finished its taxiing by reaching the runway holding point the PIC shall contact Lumpur Tower to request take-off clearing.

The process is finished with the cleared take off, setting the ATOT and the take off of the aircraft.

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## Adverse Conditions

Adverse Conditions are all circumstances, which impact to the airport runway capacity, stand/bay or terminal capacity.

Adverse conditions at Kuala Lumpur International Airport are mainly caused by:

- Thunderstorms
- Heavy Rain
- Haze
- Floods
- Windshear



The airport operation has reduced capacity

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## Adverse Conditions

If the airport capacity, stand/bay or terminal capacity needs to be reduced, the adverse condition can be initiated by CAAM or MA(S) AOCC Duty Executive (Airport Operator) **to the stakeholders**

The MA(S) **FO ACDM SE** have to inform the main stakeholders by:

- a) Informing main stakeholders by email (fixed distribution list)

Airline Operator and Ground Handler will verify and update TOBT of their respective flights, if necessary.

**MA(S) FO Senior Executive will inform the stakeholder in case of substantial change of the airport capacity (runway, stand/bay, terminal) and the duration of the adverse condition.**

**When the airport capacity becomes resilient to normal operation, the MA(S) FO Senior Executive will inform all stakeholders immediately via email**

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## Return to Stand/Bay

If an aircraft or flight gets a technical or other problem after pushback and before take off which requires a return to a stand/bay then the A-CDM procedure is affected.

The aircraft returns to a stand/bay.

Airline and/or Ground Handler will work on solving the problem.

As soon as the problem is solved, the airline will notify CAAM by updating the ICAO flight plan or issuing a new ICAO flight plan, if the flight is more than 30 minutes compared with the previous ICAO flight plan (EOBT).

Within the new or revised ICAO flight plan, the flight will enter in the A-CDM process again, once the TOBT responsible person has updated the TOBT.

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## Fallback procedure

### Non A-CDM Procedure - Initiation

1. MA(S) FO A-CDM Senior Executive and Lumpur Tower Supervisor decide to suspend ACDM procedure
2. MA(S) FO A-CDM Senior Executive will inform all stakeholders that Non-A-CDM procedure is in place. Any TSAT information shall be ignored. Startup approval will be issued based on a Startup-Request call when aircraft is ready to pushback
3. Pilots should call Lumpur Ground to request Startup-Approval and Pushback Approval, when aircraft is ready to pushback.
4. MA(S) FO A-CDM Senior Executive will liaise with MA(S) Airside Duty Executive for the NOTAM issuance. Airside will submit NOTAM initiation form to CAAM AIS that the A-CDM process is suspended at KUL and CAAM will put an ATIS message to inform Pilots about the Non-ACDM procedure
5. MA(S) FO A-CDM Senior Executive will frequently (every 30/60 mins) update all stakeholders about the status of the Non-A-CDM procedure (will remain until, or return to normal A-CDM procedure)

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## Fallback procedure

### Non A-CDM Procedure

1. If a main system/constituent is not available and core services/functions of the ACIP can't be provided, the A-CDM procedure needs to be suspended, until the incident is solved, and the service/function has been recovered.
2. Non-A-CDM procedure mean, that the startup approval and pushback approval is issued under the conditions before KUL A-CDM was implemented.
3. This is also known as "first-come-first-served" procedure.

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## Fallback procedure

### Return to A-CDM procedure

If root cause for the Fallback procedure has been solved, the return to the normal A-CDM procedure can be initiated

1. MA(S) A-CDM SE and Lumpur Tower Supervisor will verify, if all necessary A-CDM systems and constituents are available and has been checked and decide to return to A-CDM procedure
2. MA(S) A-CDM Se will inform all stakeholders about the return to A-CDM procedure
3. TOBT responsible person need to update the TOBT as soon as possible
4. Airline/Ground Handlers should inform Pilots on company frequency
5. NOTAM will be canceled and ATIS message will be removed

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# Fallback procedure

## Business Impact Analysis

1. A business impact analysis related to the KUL A-CDM procedure only has been executed to determine the consequences of the non-availability of a A-CDM relevant system or constituent.
2. The ACIP is the main A-CDM platform, which provides A-CDM services and functions to support the A-CDM process, such as automatic TOBT calculation, Milestone calculation, generating and distribution of alerts and DPI message generation.
3. Depending on the impact and the criticality of an incident there are different options to use either an alternative way of using a A-CDM function/service (mainly providing TOBTs) or using a fallback procedure.

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