ICAO GLOBAL AVIATION TRAINING

NO COUNTRY LEFT BEHIND

Operational Benefits for AIDC Implementation

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Theory of Constraints

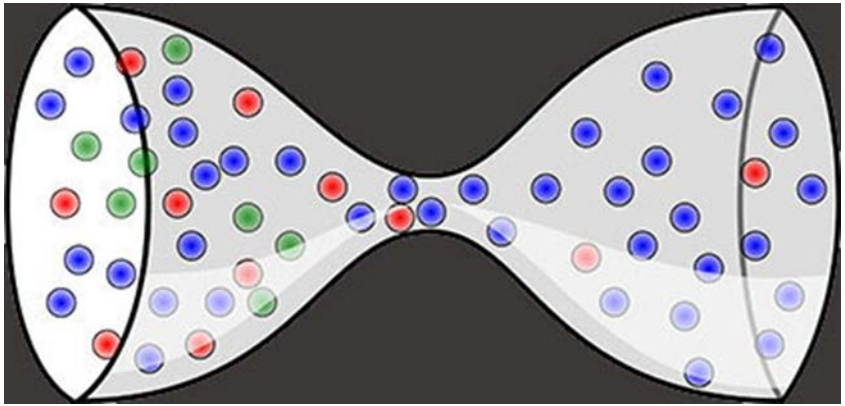
The Theory of Constraints is a methodology for identifying the most important limiting factor (i.e. constraint) that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting factor.

It is often referred to as a bottleneck.

Every complex system, including service processes, consists of multiple linked activities, one of which acts as a constraint upon the entire system; total process throughput can only be improved when the constraint is improved.

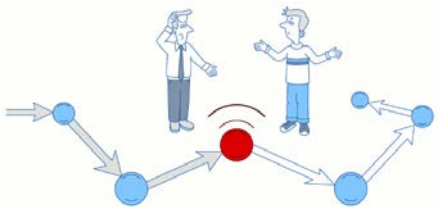
Spending time optimizing non-constraints will not provide significant benefits; only improvements to the constraint will enhance the system.

TOC seeks to provide precise and sustained focus on improving the current constraint until it no longer limits throughput, at which point the focus moves to the next constraint.



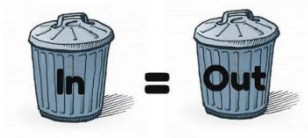
Background

Actual Constraints



ATC1: A/C…estimates 5LNC at FL360
ATC 2: FL380 approved
ATC1: Thanks

[redacted]



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AIDC Benefits

Safety Benefits

- Automatic coordination.
- Data accuracy and integrity.
- Actual flight plan information.
- Reduction in the coordination errors.
- Enhanced conflict detection.

Operational Benefits

- Enhanced system capacity.
- Optimized airspace usage.
- Reduced Coordination Workload.
- Improved planning functions.
- Automatic use of actual flight plan data for multiple systems.

Limitations

- Relies on the available information for coordination.
- Beware of changes may affect further coordination.
- CPL updates (e.g. estimates) without controller awareness.
- Last minute coordination changes.

Be aware that

- Error reduction ≠ zero error.
- Introduction of new type of errors.
- Proper implementation is key to achieve expected results.
- Other part of the ANS system needs to be improved.
- Lack of flexibility is also an issue.
- Human-Machine Interface may require a new way of operation

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THANK YOU