



ICAO / ACI

OLS SYMPOSIUM 2021

Embracing change - OFS & OES
NEW CONCEPT

What to change?

There are gaps that must be addressed

The approach and methodology adopted must ensure the changes continue to meet users current and future needs

Making changes only when it is needed



Ways to address the gaps

Replace or modify existing OLS

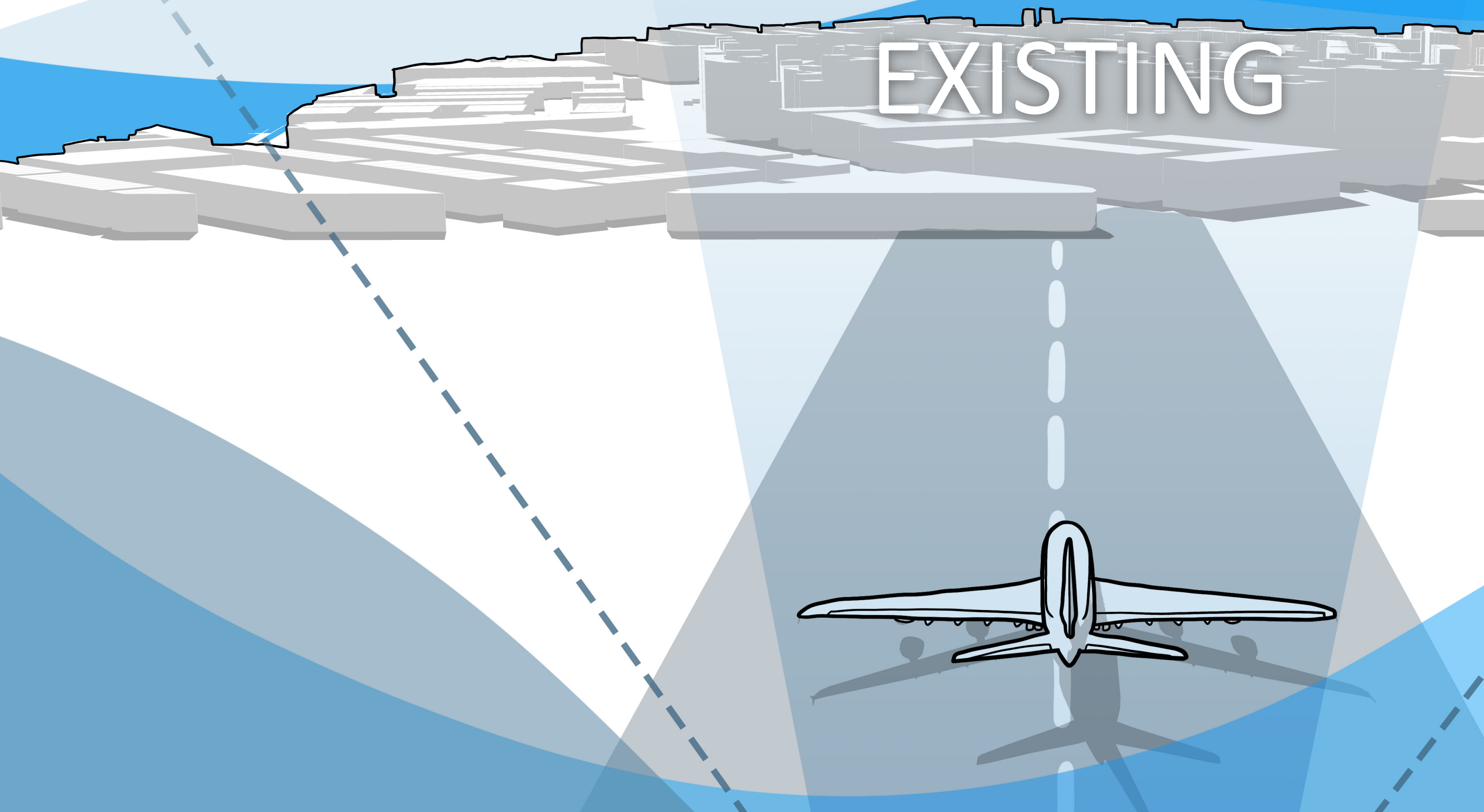
Modify existing OLS and supplementing them with additional surfaces



ways to address the gaps and trade-off.

Revise the existing OLS dimensions to account for flight procedures

A. Make it wider



- over conservative

- limit more areas from being developed

- one dimension may not fit all runways due to variability of operations

ways to address the gaps and trade-off.

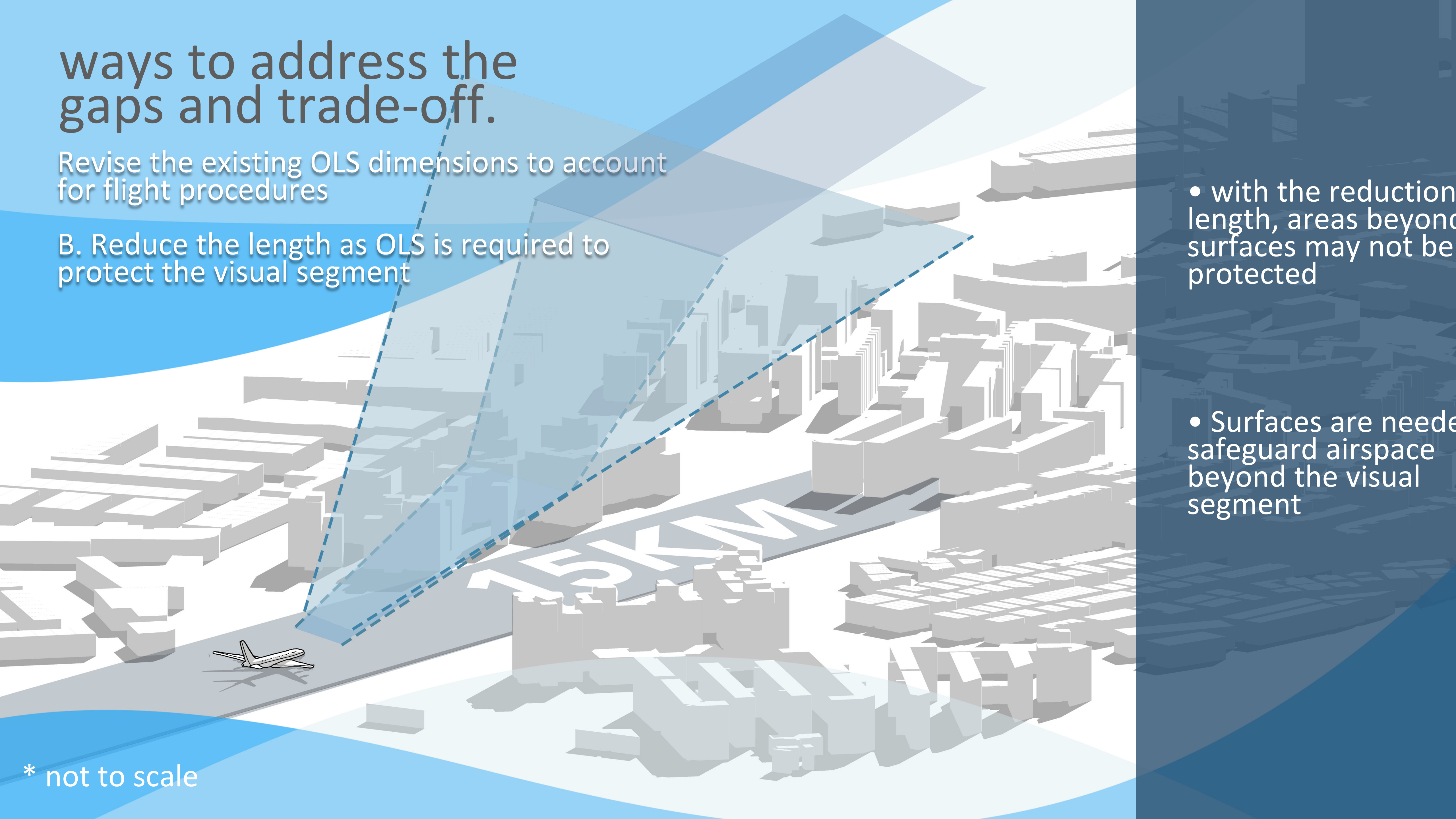
Revise the existing OLS dimensions to account for flight procedures

B. Reduce the length as OLS is required to protect the visual segment

- with the reduction length, areas beyond surfaces may not be protected

- Surfaces are needed to safeguard airspace beyond the visual segment

* not to scale



ways to address the gaps and trade-off.

Revise the existing OLS dimensions to account for flight procedures

C. Based on data, it is possible to raise the slope of surfaces such as the approach surface



- some flight procedures have obstacle assessment surfaces with lower slopes.
- These procedures will not be protected (shaded area)

- There is a need to have surfaces below the OLS

* not to scale

There is a need to review the concept, *not just* the surfaces only

There is a need for limiting surfaces which are necessary for safe operations to the runway, supplemented by additional surfaces that are tied to the flight procedures/ operations at the aerodrome



Revamping how
we view OLS.

Protecting the necessary or required
airspace

Adequacy and proportionality of the
dimensions

Flexibility to adapt the surfaces

Future-proof



Principles applied in
developing the new
concept

Changes to be expected

New concept of airspace protection

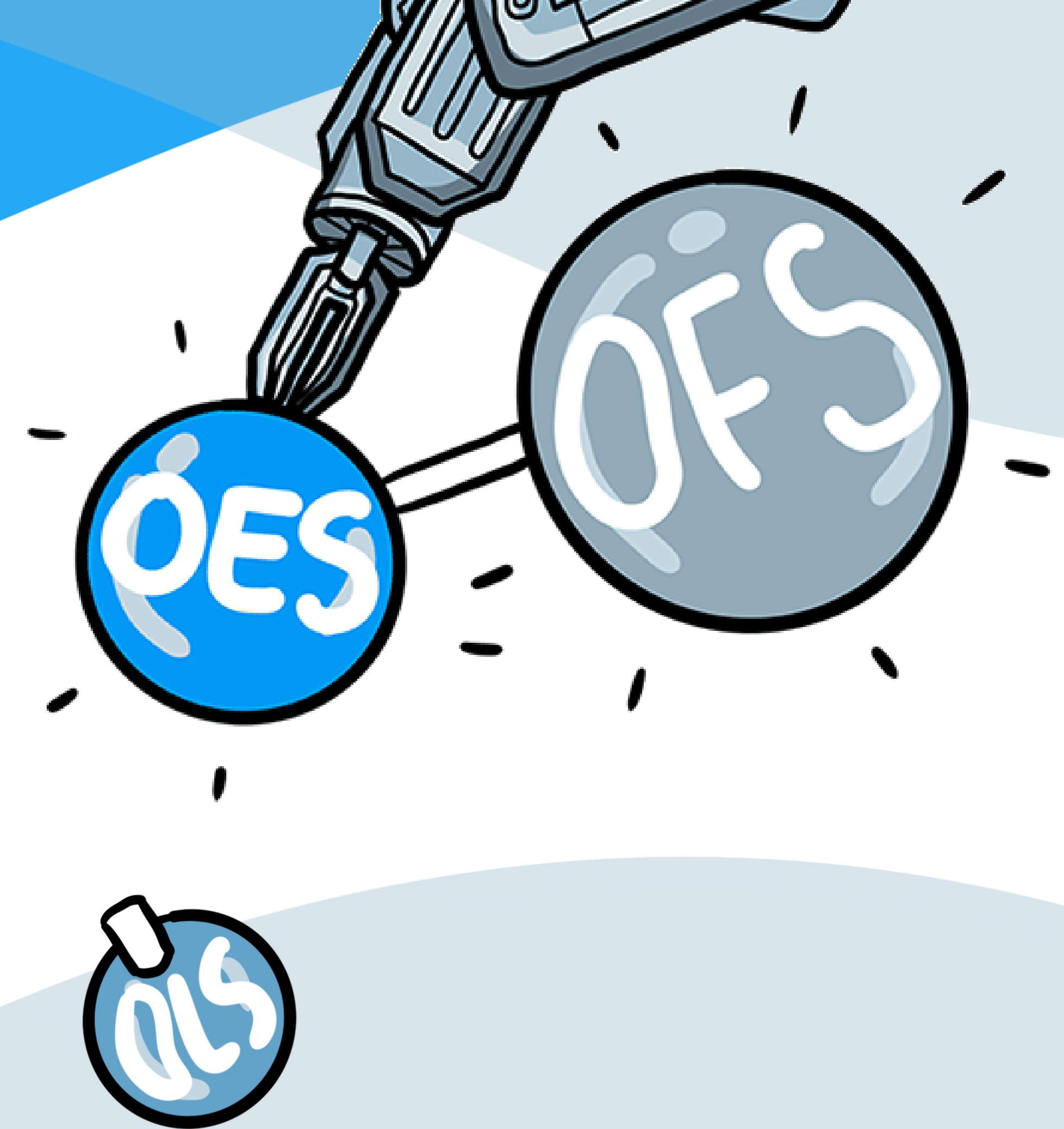
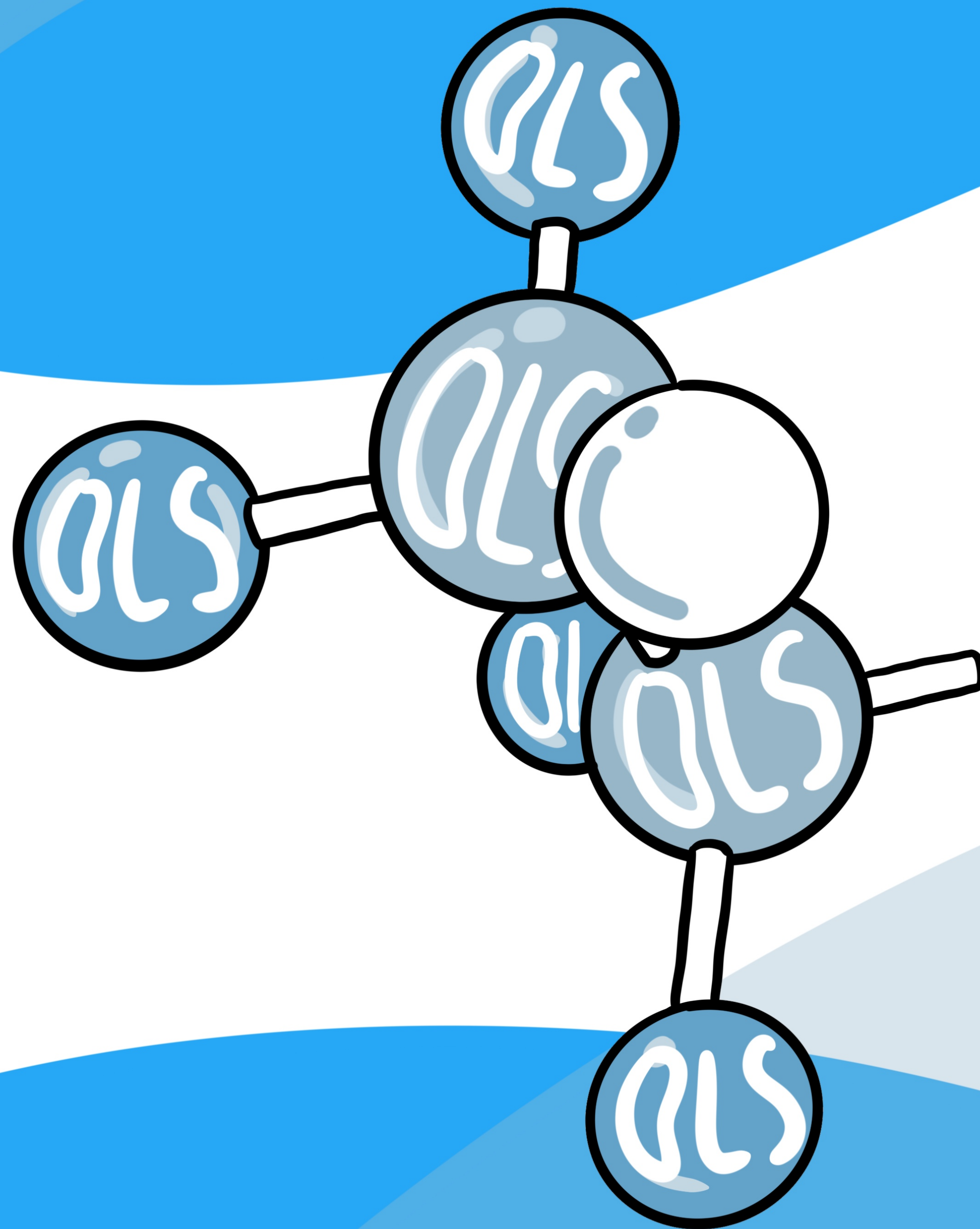
Reviewing the dimensions and applicability of existing OLS

Enhancing and supplementing existing OLS

Introducing the Aeroplane Design Group (ADG)



OFS & OES strengthens the current OLS



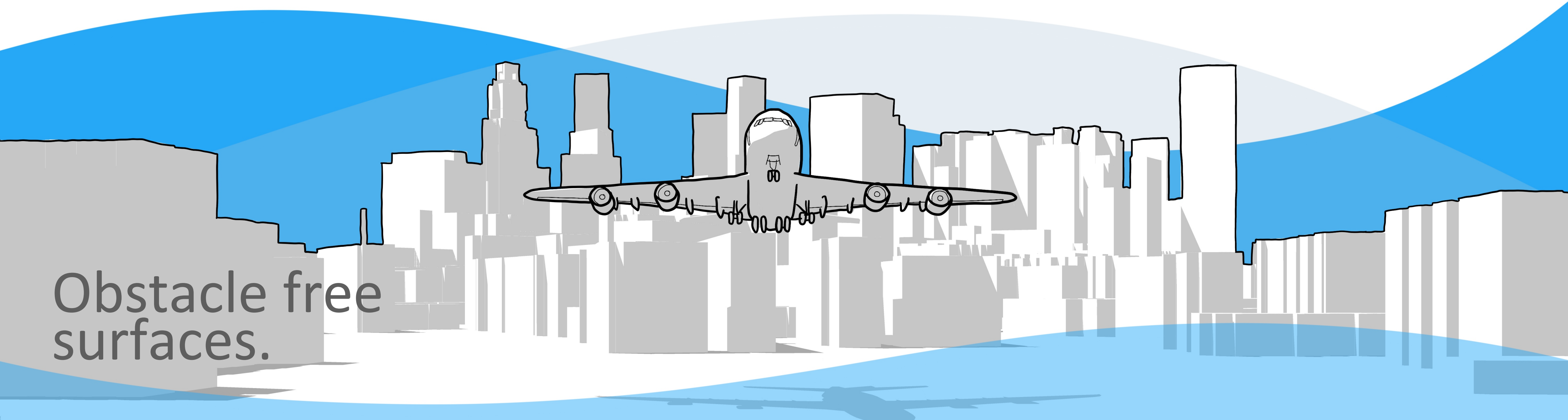
Introducing Obstacle Free Surfaces (OFS)
Evaluation Surfaces (OES)

In airspaces closer to the runway, obstacles are limited to provide an obstacle free airspace

Airspace below and beyond the visual phase, obstacles may exist but they would have been assessed and accounted for

In this new concept, no obstacles will be left 'unnoticed'

Obstacle free
surfaces.



Obstacles and terrain are to be maintained below these surfaces

Approach, Take-off Climb Surface, Transitional, Inner transitional, Inner approach and Balked landing are OFS



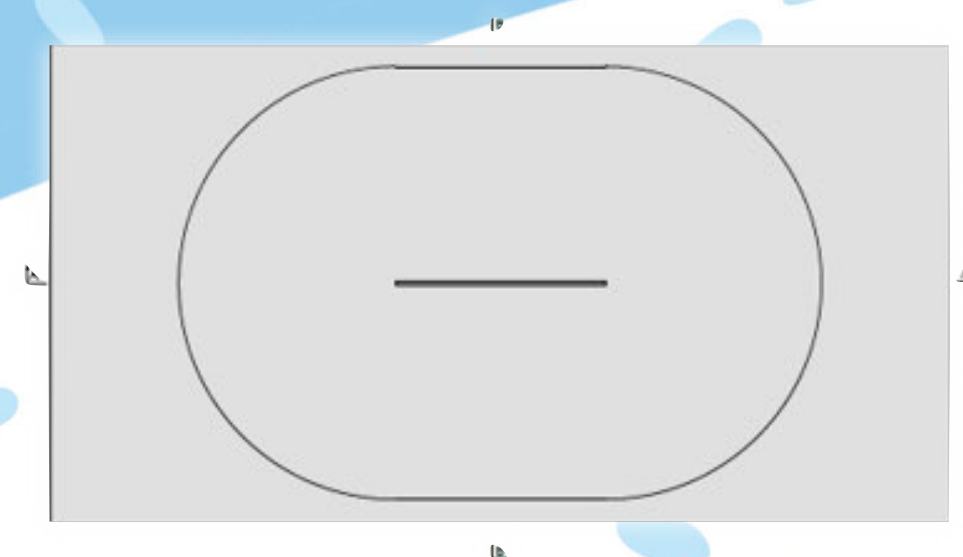
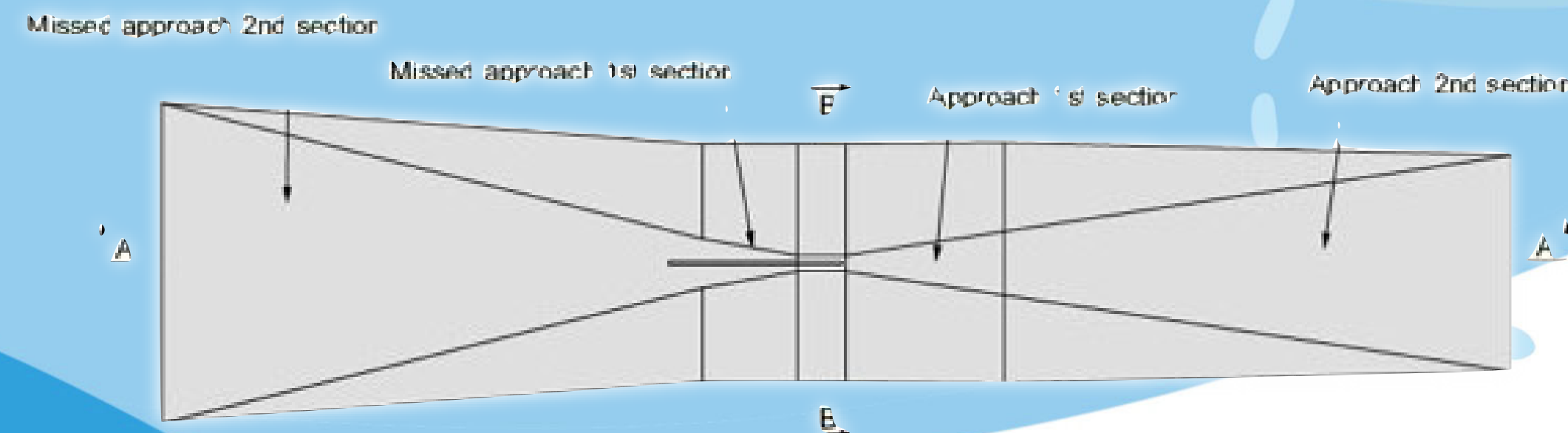
Obstacle free surfaces.

OES associated with approach, circling and departure operations will be established

Obstacles penetrating these surfaces trigger an aeronautical study

Obstacles are examined to assess its impact to flight operations

Precision approach, Non-precision approach & horizontal surface are examples of OES



Obstacle
evaluation
surfaces.