Deciding to use an exchange model

This page helps the service architect decide whether or not to use an existing information exchange model.

Introduction

The activities undertaken in the design step of the Service Orientation Process include the definition of the service (interface, service operations and information service payload). This activity leads, among other things, to the **service payload** (the logical representation of the information exchanged by the service interface operations).

The Get into SWIM presentations included advice on how to perform this activity. One of the key decisions to be taken is whether to:

- reuse an existing information exchange model,
- develop a new model from scratch, or
- derive a model from the AIRM.

This page expands on that presentation to give more advice to the service architect.
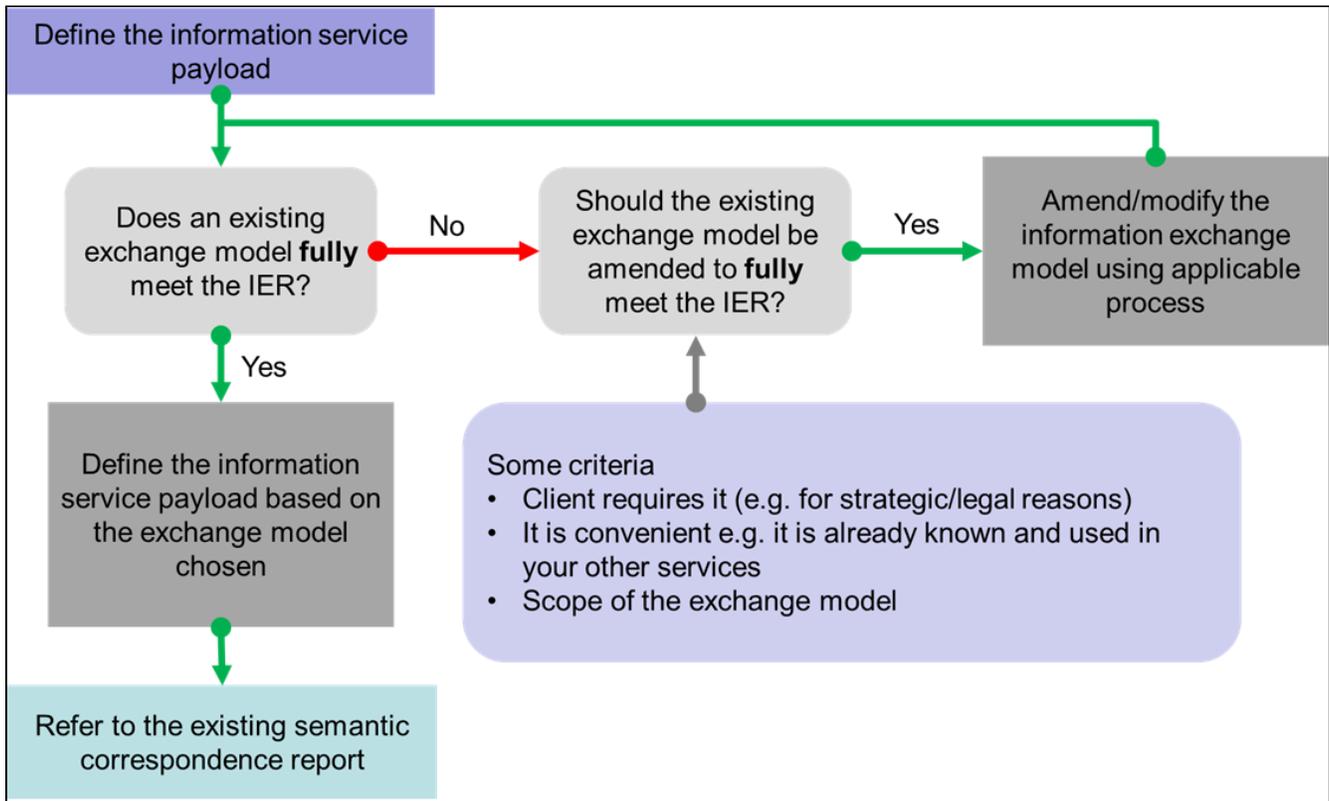
Decision tree

> ⓘ **Reuse**
>
> Making use of the work of others means you work less and the overall service ecosystem is more coherent

The following diagram outlines the questions to be taken into account.

Reuse of an exchange model

"Does an existing information exchange model fully meet the information exchange requirements (IER) that the service seeks to satisfy?"

Existing standardised information exchange models include:

- Aeronautical Information Exchange Model (AIXM)
- Flight Information Exchange Model (FIXM)
- Weather Information Exchange Model (WXXM)
- ICAO Meteorological Information Exchange Model (IWXXM)
- Aerodrome Mapping Exchange Model (AMXM)

They are agreed and published by a particular community of interest. There may be multiple versions of an exchange model e.g. IWXXM 1.1 was used by the SESAR programme but a v2.1 is now available and v3 is in pre-operations.

The exchange models listed above relate to three ICAO business domains (aeronautical, weather and flight information).

> ⚠️ There is another question to be asked here: Do I need more than one information exchange model in the service? This is addressed at Using multiple exchange models together.

If the chosen exchange model (or models) is sufficient, the information service payload can be defined based on it.

> ⊘ **Semantic correspondence**
>
> This approach means that the service architect will **not** need to redo the semantic correspondence required in order to prove AIRM conformance in line with SWIM-SERV-022 Information definition and SWIM-SERV-023 AIRM conformance.

Should the existing exchange model be amended to fully meet the information exchange requirements (IER)?

It could be that the exchange model does not cover the information exchange requirements. The service architect should then consider if it is best to amend the exchange model.

It may be best to amend it if, e.g.:

- the service architect's client requires it (e.g. for strategic/legal reasons)
- it is convenient e.g. it is already known and used in your other services
- the IER are within the scope of the exchange model and it would be beneficial to amend the exchange model accordingly.

If the decision is to amend the exchange model, the applicable processes will need to be followed. For example, a change request to AIXM or FIXM will need to be raised.
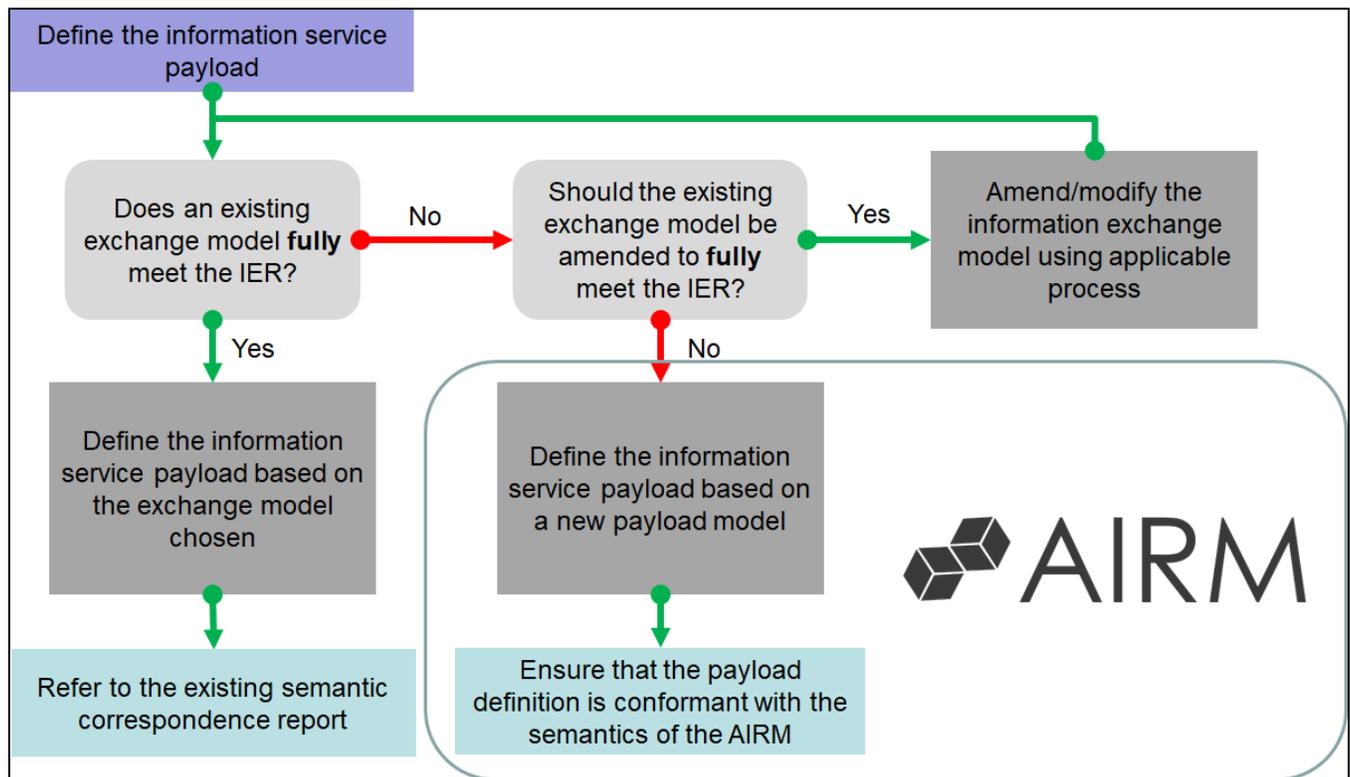
> ✅ **Semantic correspondence**
>
> This approach means that the owner of the exchange model will need to update the semantic correspondence required in order to prove AIRM conformance in line with SWIM-SERV-022 Information definition and SWIM-SERV-023 AIRM conformance.

Create a new model

Sometime the decision will be to not use an exchange model even as amended. In that case, a new model will need to be developed.

> ✅ **Semantic correspondence**
>
> This approach means that the service architect will need to ensure that the semantic correspondence required in order to prove AIRM conformance in line with SWIM-SERV-022 Information definition and SWIM-SERV-023 AIRM conformance has been completed.

There are two options for creating a new model:

- derive a model from the AIRM. This approach means that the semantic correspondence is "in-built" making the new model "conformant by design". In other words, there is no need to perform a mapping exercise.
- start with a blank piece of paper. This approach will mean that the service architect has to perform the semantic correspondence exercise.

Resources

- Get into SWIM presentations - see "3b Design Payload"