

Evidence Dossier

The role of the evidence dossier is explained in the document “Pre-elicitation”, and we provide here some more details and guidance on preparing a dossier.

What is an evidence dossier?

A dossier summarises the available evidence relating to the quantity, or quantities, of interest (QoIs) for which probability distributions are to be elicited in a SHELF workshop. If the wider context demands more than one workshop, there should be a separate dossier for each workshop.

It is prepared by the project team, possibly with additional input from the experts who are to take part in the workshop, in advance of the workshop. It is then available in the workshop as a formal body of evidence to aid the experts in making their judgements.

The importance of the dossier

Although it is not one of the essential components of SHELF (as described in the “SHELF Overview” document), there are at least three reasons why the use of an evidence dossier is strongly recommended.

1. The final elicited distribution should be firmly based on the available evidence. As far as possible, no material, relevant evidence should be overlooked. The process described here for developing the dossier is designed to make it a comprehensive, but usable, summary of what is known to the project team and the experts.
2. The SHELF workshop involves the discussion of experts’ differences of opinion regarding a QoI, resulting in a “consensus” distribution. The process is made more difficult if the experts’ initial opinions differ not just because they interpret and weight the evidence differently but also because they do not all have access to all the relevant evidence. The evidence dossier is a mechanism for ensuring that all the experts are making their judgements on the basis of the same body of evidence.
3. Psychological research has identified a source of judgement bias known as the *availability heuristic*, whereby people make judgements based on the evidence that they can quickly bring to mind, and so they ignore less memorable evidence. If they later bring more data to mind, it may be selectively accessed to support opinions based originally on the readily available evidence. The evidence dossier is reviewed at the start of the SHELF workshop,

and referred to throughout, to ensure that all the most important evidence is fresh in the experts' minds.

Developing the dossier

The recommended process (see the “Pre-elicitation” document) for developing the evidence dossier begins with the project team writing a draft based on their own researches. This is then circulated to the experts as part of the pre-elicitation briefing, with a request for them to supply additional evidence. The project team then revise the dossier in the light of any additional evidence, before it is presented in the workshop.

It is important that experts comply with the request for additional evidence. If new evidence is revealed in the workshop that is not included in the dossier, then it should be treated with suspicion unless (a) there is a good reason for it not having been mentioned before, and (b) the primary publication (or at least a full citation) is provided.

Evidence

What evidence should be included in the dossier? The most useful evidence is of high quality (from a well-designed and -conducted, large study) and relates directly to the QoI. However, this ideal is rarely achievable, principally because if such evidence were available there may be no need for elicitation.

Indirect evidence relates to a quantity that is similar to, or related to, the QoI. For instance, the QoI might be a failure rate for a new component (of a structure, a piece of equipment, etc.); there are no data yet for this component but there is evidence available on similar components. In general, indirect data relate to quantities that differ from the QoI in one of more respects. For example:

- Different (but related) species, chemical, structure, ...
- From a different region, age, mixture composition, ...
- Different time (historic data), season, ...

Good quality indirect evidence is often the most valuable for the dossier.

However, available evidence is often of poorer quality than we would like, either because of defects in study design, inadequate sample size or the possibility of biases. Such data may still be valuable in the absence of better evidence.

Ideally, evidence should be quantitative, although qualitative evidence may also be useful, particularly when the evidence base is weak. Estimates should wherever possible be accompanied by measures of their accuracy (such as standard deviations or 90% intervals).

Writing the dossier

The dossier should begin with an introduction that reviews the wider context for the elicitation, describes the QoIs and explains their importance to the wider context.

In general, the evidence should be *summarised*. It is important that the dossier is not too long, because the evidence within it needs to be readily accessible for reference during the workshop. If there are numerous items of evidence, summarising them in tabular form is recommended, and it may be advisable to omit the more indirect, poorer quality items.

Indirect evidence and poorer quality evidence should be clearly flagged. For indirect evidence, the relationship between the relevant QoI and the quantity that is informed by that item should be stated. For poorer quality evidence, the deficiencies and potential biases should be set out. This is particularly important when the evidence base overall is weak, because psychological research shows that when there are only a few items of evidence experts tend to latch onto these and ignore any deficiencies or indirect relationships to the QoI. Since it is rare to have high quality direct data, experts will always need to use their judgement in evaluating and interpreting the evidence.

The dossier should end with a full list of references. Ideally, all of these should be accessible during the workshop, either electronically or in hard copy, in case the experts need more detail than the dossier provides.

Sample dossier

See the SHELF document “Sample Evidence Dossier”.