Guidelines for Operations Research Referees

1 Accepting a Review Request

Please quickly read the abstract of the paper and familiarize yourself with the topic of the submission. If you would like to see the entire paper before agreeing to review, then ask the Associate Editor. If you do not feel comfortable reviewing the submission, please let the Associate Editor know as soon as possible. If you cannot meet the requested timeline, please let the Associate Editor know when you can have the review ready. Please be available to communicate with your Associate Editor during the review process. Please remember that this is important for the reputation of the journal to provide authors with timely and quality reviews, and that your review efforts are very much noticed and appreciated.

2 Reading the Paper and Forming an Opinion

Below are guidelines for what to keep in mind for the first round review. Later round reviews should be structured in accordance with how the authors respond to the concerns raised in your review.

1. Read the introduction of the paper, identify the research question, and ask yourself why we should care about the question. Spend time to understand what results you like and what are aspects you find dissatisfying. What is theoretically interesting about the work? What is empirically interesting about the work? Do the results have relevance and potential impact beyond the academic community?

2. Carefully read the model and critically judge whether the model actually delivers what was promised in the introduction. As stated by Box: "All models are wrong but some are useful". The point is not to nitpick the modeling assumptions but instead to decide how helpful the model is with respect to the research questions at hand.

3. With respect to technical material, try to understand what is the exact statement of the theorems (and again critically compare them with what was promised in the introduction and related work to detect any overclaiming).

4. With respect to proofs, try to understand the high-level ideas. Think constructively about how the proofs can be better communicated. It is the responsibility of the authors to make the proofs accessible. If some steps are not clear, please try to understand what is not clear so that you can provide concrete suggestions for improvement to the authors. Eventually, the paper needs to communicate its main technical insights in an easy-to-follow manner. An appendix should be used to verify steps but not to communicate important technical insights.

5. With respect to empirical work, try to understand how important the empirical work is for the paper. Also note whether or not the authors have made their code and data available. You are not required to replicate the authors results, or comment on the code quality of the authors. However, if your recommendation for the paper will be based largely on the empirical work, then you should flag this to your Associate Editor. The Associate Editor, in consultation with the Area Editor, may then recommend that the paper also be passed to the Data, Software, and Computation Area for review.

3 Writing the Review

The structure below is a starting point for your review.

1. Section 1 (Summary): Summarize the model and contributions of the paper succinctly, and in accordance with the paper. The purpose is to make sure we are all on the same page about what is done in the paper and what is the claimed contribution.

2. Section 2 (Evaluation): Any paper published in OR should have a *claim to fame* (some insight that deserves to be amplified to the journal's readership). What is this idea? What are the major concerns? Is addressing the major concerns plausible? You will not want to finish writing this Section until you finish writing your detailed comments (see Recommendation Section below).

3. Section 3 (Detailed comments): This is the most important part of the review. Try to identify the main concerns you have about the paper and explain each concern. Also determine whether addressing the concerns is plausible, and try to provide the authors a pointer for how to address them. Sometimes you will be able to identify a definite concern, but not know how to address the concern, and that is OK – not all concerns can be addressed without writing a different paper. Particular points to check are as follows:

    - Motivation: Is the research question interesting? Is the result interesting? No model can capture everything, but if the main message of the paper becomes vacuous without an important unrealistic assumption, this would be useful to point out.
    - Comparison to related work: Does the result already exist in the literature? Does other work exist that the authors should discuss, and why? (Please avoid requests for self-citations unless absolutely necessary.)
    - Assumptions made: Does the paper make assumptions that trivialize the problem, or remove the interesting part of the problem? Are the assumptions appropriate for representing the problem?
    - Correctness: You should spend time going over any proofs. Is there an issue with correctness? Is there an intuitive reason why the result should not hold (without some hidden assumption)? It is not your responsibility to fix correctness issues, but you should be convinced of the soundness of the high-level approach.
    - Empirical: Is the empirical work adequate to support the conclusions? If there is no empirical work, should there be (for example, to show results are generalizable beyond specific modeling assumptions required for proofs)?
    - Presentation: Are the ideas clearly presented? If you are not able to follow the proofs, please point out which steps are not clear so that the authors can address them in a revision. The paper should provide a clear idea of why the results hold in the main body (and it should be easy to find additional steps in the appendix). If this is not the case, this is a very valid concern.

- Extensions: Generally, refrain from making extensions a prerequisite for acceptance; we evaluate the paper that we are given. That said, if there is a plausible extension that would address an important limitation and would change your perception of the paper, it would be useful to note it.

Please remember that we generally discourage reviewers from raising new concerns after the first round. In the first round, try to be as detailed as possible. If all points raised in the first round are appropriately addressed, the paper should move to minor revision in the second round (and a minor revision is an implicit contract of acceptance). It can happen that, in the second round, one realizes an issue due to the updated presentation, but it is useful to try to streamline the process for the authors.

4. Section 4 (Minor comments and typos): While reading, please make note of any typo or small presentation comments and add those in this section of the review. You are not required to spot typos but, if you do, there is no reason not to let the authors know.

5. Section 5 (Additional): This is for anything else you want to say, that you do not feel fits in the structure of the above Sections.

4 Recommendation

Once you finish the review, please revisit Section 2 of the review and make a recommendation. Please be detailed in your review to help us make a more informed decision. A non-detailed review with a positive or negative recommendation is not useful to the editorial team. A positive recommendation should come with a clear identification of what is the cool insight on which you based this recommendation (and you should think about the Area Editor statement when deciding what are cool insights for the Area). A negative recommendation should come with a clear explanation of the methodological / modeling / motivation concerns that led to it. If there are issues that need addressing before publishing but you view those as addressable, please recommend major or minor revision (depending on the extent of the issues and their difficulty). If you do not see a path forward, please recommend rejection. The reject-and-resubmit recommendation is reserved for the Associate and Area Editors. Your job is to decide whether or not the ideas in the paper are good enough to be above the bar for publication in OPRE, and whether or not the concerns are addressable.

5 Uploading the Review

If you upload a PDF for your review, it is useful to add a neutral title like *Review for MNSO (manuscript number of the submission) by XYZ (replace by arbitrary capital letters).* This makes it easier to refer to your review. Please name your review file *reviewMNSNOXYZ.* Upload your review file and make it visible to both editors and authors.

6 Confidential Comments to the Associate Editor (AE)

When you upload your review in ScholarOne, there is also a box for confidential comments to the AE. This box provides a way for you to tell the AE anything you would like, that does not make sense to put in your report. For example, how strongly do you feel about your recommendation? Which parts of your assessment are you most confident about? Do you feel the paper should be referred to the Data, Software and Computation Area for review?