

Railway Applications Section of INFORMS

Policies and Procedures Manual

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As referenced in the Railway Applications Section (RAS) bylaws, RAS shall maintain this Policies and Procedures Manual which governs the administration of prizes, competitions, and other activities.

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1. Distinguished Member Award

1.1. Purpose

The Railway Applications Section (RAS) is able to serve our profession through the contributions of volunteers. Although contributions from everyone are appreciated, some volunteers' contributions have far-reaching impact. Their impact has had a profound influence on RAS's direction and inspires others to follow in their footsteps. The RAS Distinguished Member Award ("DM Award") is given to recognize such individuals.

1.2. Eligibility

The DM Award is given to long-time contributors and supporters of RAS. Eligibility requires:

- RAS membership for 10 or more years
- Contributions to the theory or practice of OR/analytics for railways
- Contributions to RAS in at least three of the following areas:
 - Elected RAS Officer
 - Assisted in different non-elected RAS activities, including but not limited to: cluster chair, roundtable chair, newsletter editor, award committee, etc.
 - Served as RAS session chair, presenter, or invited speaker
 - Supported RAS programs either by leading or sponsoring
- Contributions to RAS and the profession shall be of a long-lasting nature

1.3. Committee

The DM Award Committee shall be chaired by the Immediate Past Chair of RAS. If the Immediate Past RAS Chair is unavailable to serve, then the current RAS Chair will select a replacement DM Award Committee Chair. The DM Award Committee Chair shall be responsible for appointing new members to the Committee, and the appointments must be approved by the RAS Chair. The Committee will be composed of 5 to 7 members, all of whom must be current members of RAS.

The Committee Chair is suggested to recruit the previous five award winners to serve on the committee. The Committee Chair may supplement this group as needed, and should attempt to include at least one (1) officer, one (1) industry professional, and one (1) academic representative.

The Committee shall not have more than one member who belongs to the same organization, except in the following cases:

1. The Immediate Past RAS Chair and the current RAS chair belong to the same organization.

2. A member of the committee changes organizations to that of another committee member during the nomination and selection process.

Appointment to the DM Award Committee is for two years. Terms shall be staggered so that approximately half of the committee changes each year and the other half remains for continuity. New DM Award Committee members shall be selected and approved by July 1. In the event that a committee member backs out, the Committee Chair will work to find a suitable replacement.

1.4. Nomination Process and Timeline

All timelines included in this document are suggestions, but the Committee Chair will attempt to adhere to these suggestions.

On or before July 1, the RAS Secretary will make a general call for nominations for the DM Award to the members of RAS. Any current RAS member can make a nomination, including self-nominations. Committee members can also make nominations.

All DM Award nominations must specify:

- Who is nominating (name, affiliation, and contact information)
- Who is being nominated (name, affiliation, and contact information)
- Nomination letter body
 - Why is this person worthy of this award?
 - Why are their contributions long-lasting?
- A list of contributions to RAS:
 - Elected RAS positions held
 - RAS volunteer efforts
 - History of RAS membership
 - RAS presentations/roundtables/sessions
 - Other RAS contributions
- Any contributions to the theory or practice of OR/analytics for railways

Each nominating person will be notified by the Committee Chair that the nomination was received. The nominees will not be notified that they are being considered, and the full list of nominees will not be known outside of the DM Award Committee.

The nomination process will end by August 1, at which time the DM Award Committee will consider all nominees. A final decision of the committee will be made by September 1. At most one award will be given per year. The Committee may opt to not give an award if there are no suitable candidates.

If the DM Award Committee selects a recipient, that recipient will be notified in early September and encouraged, if possible, to attend the INFORMS Annual Meeting to receive the DM Award in person.

The name of the DM Award recipient will only be known to the DM Award Committee members, the current RAS officers, the recipient, and INFORMS staff until it is publicly announced at the INFORMS Annual Meeting. The time and location of the announcement is up to the DM Award Committee, but it will typically be done during the RAS Business Meeting.

1.5. Conflict of Interest

Since the Committee will be selected prior to any nominations being received, and since the nominees are long-time RAS members who will likely be well-known, it is not necessary for a Committee member to recuse themselves if they know or work with a nominee.

Anyone is eligible to be nominated. However, to avoid conflicts of interest, current members of the award committee are not eligible to be considered for the DM Award. In the event that a committee member is nominated, they will be notified and given the option to either turn down the nomination or withdraw from their committee duties in order to have their nomination considered by the committee.

1.6. Award

The DM Award will consist of a plaque containing the name of the award and the recipient's name and organization. Additional wording (such as a brief description of contributions) is optional.

A press release will be prepared and submitted to OR/MS Today, given to the INFORMS Marketing Department for distribution, and sent to railroad industry publications. The railroad industry publications will help to raise awareness of the DM Award beyond INFORMS membership.

1.7. Revoking the Award

Revoking the DM Award from a former recipient is a serious undertaking that hopefully will never be necessary. However, if a past recipient has exhibited conduct that is detrimental to RAS or the field of OR/analytics for railways, then the following procedure shall be followed.

- A complaint shall be registered to the current RAS Chair, which is signed by a minimum of three (3) prior DM Award winners. In the event that the RAS Chair is the subject of the complaint,
 - The Vice Chair shall be contacted directly.
 - All of the following steps shall be followed by the Vice Chair rather than the Chair.
- In the event that a current RAS officer is the subject of the complaint (including the RAS Chair), that officer will be excluded from all investigations and deliberations described below.

- Upon receipt of the complaint, the RAS Chair will notify the other elected RAS officers, and launch an investigation into the charges, including but not limited to:
 - Verification of the claim
 - Discussion with the accusers
 - Other interviews as deemed necessary
- At the start of the investigation, the subject of the complaint (“accused”) will be notified in writing by the Chair, and given an opportunity to defend the charges and state why the DM Award should not be revoked.
- Upon completion of the investigation, the current RAS elected officers will vote whether to revoke the DM Award. A unanimous vote is required to revoke.
- The Chair will notify the accused and the accusers of the results.
- This shall not be a public process. Care will be taken to limit any details related to this process from being publicly released to prevent embarrassment to the individuals involved.

2. Student Paper Competition and Awards

2.1. Purpose

The Student Paper Awards are presented for original student research papers in operations research, decision making, and analytics on topics related to railway applications. The Student Paper Competition is intended to stimulate interest by OR/MS/Analytics graduate and undergraduate students in railway applications, and to encourage students to pursue an education in rail-related fields. The methodologies of OR/MS include mathematical programming, simulation, analytics, data analysis, and scientific management.

2.2. Frequency of the Competition

The Student Paper Competition shall be conducted annually.

2.3. Eligibility

In order for a paper to be considered for the Student Paper Awards:

- The paper must be written by one or more graduate or undergraduate students who is/are enrolled in an academic institution at any time during the year ending on the submission deadline.
- The student(s) must be the primary author(s) and the content must be at least 80% attributable to the student author(s), while one or more advisors may appear as co-authors of a paper.
- Award recipients must travel to the INFORMS Annual Meeting, usually held in the fall in the United States, at their own expense and give a presentation on their paper. Recipients will receive instructions on when and how to attend. Failure to present disqualifies the recipient and the award is re-allocated.
- The paper must represent original research (not literature reviews) and not have been previously published in a peer-reviewed journal, book, or published conference proceeding.
- The paper is expected to follow a general structure and length suitable for journal publication. The judges may reject papers that are excessively long or inappropriately formatted.
- The paper must be written in English, may not exceed 40 pages in length, and should be double-spaced.

The judges reserve the right to reject papers at an early stage in the competition due to irrelevant subject matter or fundamental errors in composition. Advisors of submitted papers

may be contacted to verify this information. In the event of any disagreement over the enforcement of the rules, the decision of the judges is final.

2.4. Submission

The competition should be formally announced in the spring through INFORMS and RAS social media. Students may submit papers any time after the competition announcement up to the deadline.

A paper submission must include:

- First page: paper title, authors' name(s) and affiliation(s). Student contact information and supervisor name, affiliation, and contact information.
- Second page: paper title and abstract (max 300 words).
- Third page through the final page: paper title and the main text.

Submissions can be collected via a dedicated email address or an online submission system, as arranged by the chair.

2.5. Evaluation Criteria

The chair shall organize the paper review process, evaluation, and final selection of winning papers. The judges shall perform a double-blind review.

The papers are graded on a scale between 1 and 5 (5 is the best) on the following six criteria:

- the problem novelty,
- methodology,
- results and conclusions,
- scientific contribution,
- contribution to practice,
- presentation/grammar/structure.

In addition, judges are asked to provide a more detailed summary and comments to the papers.

The review process consists of two rounds. In the 1st review round (lasting about one month), each paper receives at least four reviews. The chair evaluates the received feedback on papers and makes an initial ranking. Additional clarifications may be requested from judges at this stage. The chair makes a short list of the top papers for additional review. In the 2nd review round (which should last about one week), judges are asked to evaluate all shortlisted papers.

Each judge is expected to review 3 to 4 papers in the initial review round (Round 1), and to make a final review of the shortlisted papers (Round 2).

First, second, and third place winners will be selected and these entrants will be notified to present their papers at the INFORMS Annual Meeting. Transportation and registration for the conference must be funded and arranged by the participants.

The decision of the judges as to winners is final.

2.6. Awards

Three Student Paper Awards may be given to the top three papers from the competition. The awards traditionally consist of a monetary prize and a plaque. The monetary prize will be shared among the top winners as determined by the committee. The plaques shall contain the name of the award and the recipient's name and organization. Additional wording (such as a brief description of contributions or the paper title) is optional.

As a point of reference, the award amounts for the 2019 competition were \$1,000 for the first prize, \$500 for the second prize, and \$250 for the third prize.

The first prize paper (or even the second prize and third prize papers) will be invited for a fast-track submission to a high-level scientific journal such as Transportation Science or Networks, at the judges' discretion. The paper is expected to go through the journal's refereeing procedure, but it will receive an expedited refereeing process.

2.7. Committee

The Student Paper Competition committee shall consist of a chair (or co-chairs) and competition judges. The chair or co-chairs are selected by the RAS officers before the competition is announced, typically before February.

Judges (as many as are deemed necessary) are selected by the chair with the support and approval of current RAS officers and are typically well-known experts from academia and practice representing academic institutions and railway-related organizations worldwide. It is common to select 8-12 judges, some of which are newly recruited and some of which are returning judges. The chair also serves as a judge.

With the support and approval of the RAS elected officers, the committee shall be responsible for:

- The creation of documents to advertise the competition,
- Advertisement of the competition,
- The collection of participant submissions,
- The judging of submissions and selection of finalists and winners.

Should the student paper competition chair fail to meet his/her responsibilities such that the quality or integrity of the competition would be significantly compromised for participants, the individual may be replaced with a vote by a majority of the RAS elected officer committee.

Should any regular member of the committee fail to meet their responsibilities or be unable to meet their responsibilities for any reason, they shall be replaced and/or removed from the committee by a majority vote of the committee and chair.

2.8. Conflict of Interest

Since the chair and committee may be selected prior to any submissions being received, a committee member must divulge any potential conflict of interest based on current or past personal, professional, research, or other relationship with a competitor after submissions are received, or at any time a committee member becomes aware that such a conflict exists. The committee chair (with support from the RAS elected officers) will decide whether the member should be recused. Committee members may also recuse themselves.

In the majority of cases, a full recusal will not be necessary. Note that a partial recusal of duties may occur such as in the case that a committee member may be disallowed from judging or providing input on only those submissions with which there is a conflict of interest for that member. In the case of a faculty advisor presiding on the judging committee, that faculty member shall recuse himself/herself from reviewing their student's work, with other judges being responsible for analyzing and ranking the submission. The entire panel of judges shall be responsible for the determination of the finalists and eventual placement of winners.

No judge including the committee chair may not be an author on any papers that are entered into the competition.

2.9. Assessment Process and Timeline

A suggested timeline of the Student Paper Competition is as follows:

- Early in the calendar year, a chair is selected for the competition.
- In early March, the competition is formally announced through INFORMS and RAS social media.
- Soon thereafter, the judging committee is selected.
- Soon thereafter, the judging committee meets to finalize evaluation criteria.
- By late June, final paper submissions are due (the deadline is typically extended to July 15).
- As submissions arrive, the committee checks for validity of the submissions and asks for updates if needed.
- In July, reviewers are assigned and Round 1 of judging takes place.
- In late July, the committee meets to summarize the reviews and initial grading. The committee makes a short list of top papers.
- Soon thereafter, Round 2 of judging takes place. Additional reviews of top papers are conducted, and judges share their reviews.
- In August, judges meet to select the winners.
- After deliberation, the chair informs the winners and confirms their participation at the INFORMS Annual Meeting. If a winner cannot confirm, judges must reevaluate to determine if another paper should be placed in the rankings.

- Once the top 3 winners are finalized, the names of the award recipients will be publicly announced in the INFORMS RAS Newsletter and social media before the INFORMS Annual Meeting.
- In late October or early November, the three winning papers are presented at the dedicated INFORMS RAS Student Paper Award Session at the INFORMS Annual Meeting. The time and location of the official announcement and presentation of the Award plaques is up to the Award Committee.

3. Problem Solving Competition

3.1. Purpose

The Railway Applications Section (RAS) strives to promote interest in rail problems and to attract new talent to the rail industry. The problem solving competition serves that interest by formulating a problem with practical relevance to freight and passenger rail and theoretical relevance to the academic community.

3.2. Frequency of the Competition

The problem solving competition should be conducted annually, but the elected RAS officer committee can choose not to conduct the competition in any given year. Reasons that the RAS officers may choose to cancel the competition include, but are not limited to: failure to select an appropriate problem subject for the competition, failure to find appropriate leadership to administer the competition, failure of the competition oversight committee to compile and distribute competition materials in a timely manner, lack of registered participants at the beginning of the competition, and lack of funding for the competition.

3.3. Selection of the Problem

All effort shall be made to select a problem topic for the competition prior to February of the year of the competition.

The competition chair, problem owner, and problem solving oversight committee shall be responsible for determining the selection of the problem, subject to the approval of the RAS elected officers. While RAS does not want to impose restrictions on the type of problem that is selected, certain problems are inherently better suited for this type of competition. When selecting the problem, the problems should strive to meet the following attributes of a “good” problem:

- A problem that is of timely interest to the rail industry (passenger or freight in any country).
- A problem that provides ample opportunity for participants to learn about core rail concepts, industry applications, and pressing matters in the field.
- A problem of substantial difficulty so that its solution is considered of significant contribution to the industry.
- A problem that is an “open” unsolved problem but whose foundational knowledge is understood and available for reference.
- A problem that encourages a wide range of techniques and application styles.

- A problem that is open-ended enough to encourage creative thinking and additional investigation.
- A problem that is dissimilar enough to previous competition problems to provide variety to the problem pool.
- A problem with a data set that is understandable (well-labeled, relevant attributes) in a reasonable amount of time, easy to provide via electronic means, and reasonably free of unrelated problem “noise” so as not to cause undo confusion in its interpretation.

3.4. Eligibility

The problem solving competition is open to practitioners of operations research and management science who are interested in solving problems in the railroad domain using Operations Research and Analytics tools. In order to promote wide interest and achieve solutions of practical import, there are relatively few restrictions on participant eligibility with the exception of the following:

- Members of the problem solving judging committee are ineligible to participate.
- Current RAS elected leaders are ineligible to participate.
- Any employee of an organization that provides funding for the competition or is a sponsor of RAS INFORMS is ineligible to participate.

At least one member of each finalist team must be available to present the team’s approach and results at the INFORMS Annual Meeting for the year of the competition.

RAS strongly encourages academic faculty and student participation, and advertisement of the competition is often directed to reflect this objective.

3.5. Team Registration

Participants may participate as single individuals or in teams up to five (5) members.

Participation in the RAS Problem Solving Competition requires registration. Every team must register by the due date to participate in the competition. Registration will be completed via the competition email provided by the competition organizer by the deadline given in the competition statement. The registration must include:

- Name, email, organization, and position for each team member.

After receipt of a team registration email, the competition organizers will confirm the team’s successful registration and eligibility via an email response to the team.

3.6. Oversight Committee

The oversight committee shall be comprised of a chair and as many committee members as deemed necessary by the chair. No member of the committee may have a conflict of interest (direct/indirect involvement with research or work) with any competition entrant.

With the support and approval of the RAS elected officers, this committee shall be responsible for:

- The selection of the problem,
- The creation of problem description documents,
- The dissemination of the problem,
- The promotion and advertisement of the competition,
- The oversight of the team registration process,
- The creation and dissemination of the problem dataset,
- The collection of, response to, and publication of participant communications, questions and answers,
- The collection of participant submissions,
- The judging of submissions and selection of finalists and winners.

At least one member of the committee must be the “problem owner.” The problem owner is an individual from the group from whom the rail problem originated. This individual will provide a thorough description of the problem, answer questions from judges and participants, conduct analysis and assist the chair in guiding the judging process.

Remaining members of the oversight committee are chosen by the committee chair and problem owner with the support and approval of current RAS officers.

Likewise, members of the oversight committee may NOT help or guide any participating team.

Should the problem solving competition chair or the problem owner fail to meet their responsibilities such that the quality or integrity of the competition would be significantly compromised for participants, either or both individuals may be replaced with a vote by a majority of the RAS elected officer committee.

Should any regular member of the oversight committee fail to meet their responsibilities or be unable to meet their responsibilities for any reason, they shall be replaced and/or removed from the committee based on the agreement of a majority of the oversight committee, chair, and problem owner.

3.7. Problem Competition and Data Sets

The relevant problem description and data sets shall be published on the RAS website in a timely manner for completion of the competition by participants.

Datasets and problem descriptions provided for the competition shall be freely available for use to the public during and after the competition for academic and professional research.

Previous years' problem solving competition data and information shall remain posted on the RAS website and shall remain available to the public for academic and industry research. Use of the datasets and problem descriptions should be appropriately cited in publications when referenced.

3.8. Evaluation Criteria

The evaluation criteria shall be determined by the oversight committee and published in the final draft of the competition information.

While it is recognized that each year's problem (and thus how solutions are judged) will vary, a few general items shall typically be considered in the evaluation criteria:

- Feasibility of the proposed solution (either in terms of gap to feasibility, or the solution's ability to satisfy certain required constraints),
- The quality of the solution in terms of its objective function value,
- The tractability of the solution approach,
- The implementation quality of the approach,
- The practical usability/reproducibility of the solution approach,
- Computational time of the proposed solution approach,
- The generalizability of the solution approach,
- The quality of the paper describing the solution approach including clarity, content, etc.,
- The quality of the presentation, to be given by three finalist teams at a Rail Applications Section session during the INFORMS Annual Meeting for the year of the competition. (Attendance and presentation by at least one person from each finalist team is required.)

Three finalists will be selected to present their solutions at the INFORMS Annual Meeting. Transportation and registration for the conference must be funded and arranged by the participants. The ranking of the finalists will be made at the INFORMS Annual Meeting by members of the oversight committee in attendance. Note that being among the finalists and presenting at the Annual Meeting does not guarantee a finalist will receive first, second or third place.

The decision of the judges in selecting winners is final.

3.9. Awards

Three Problem Solving Competition Awards may be given to the top three participating teams from the competition. The awards traditionally consist of a monetary prize and a plaque. The monetary prize will be shared among the top winners as determined by the committee. The plaques shall contain the name of the award and the recipient's name and organization. Additional wording (such as a brief description of contributions or the title of the submission) is optional. All effort shall be made to present these awards at the annual meeting upon selection of the award winners to avoid additional costs to RAS.

A monetary prize has been traditionally given for the competition. The amount allocated by RAS for the prize pool of the competition is determined by the available funding and financial status of RAS. As a point of reference, the prize money for the 2019 competition was \$2,000 for first place, \$1,000 for second place, and \$750 for third place. Coordination with INFORMS staff to disperse prize money is required.

A press release announcing competition winners will be prepared and submitted to OR/MS Today, given to the INFORMS Marketing Department for distribution, and sent to railroad industry publications. The railroad industry publications will help to raise awareness of the problem solving competition beyond INFORMS membership.

3.10. Publication

RAS strongly encourages participants to publish results of the competition in any relevant forum.

Use of the datasets and problem descriptions should be appropriately cited in publications with attribution to the RAS organization when referenced.

To encourage the winning team to publish, the oversight committee will do the following:

1. Give the winning team information on how to submit an article to Networks if they choose. Note that all conventions and standards for the journal must be followed. Ideally they should submit within 4 months of the annual meeting.
2. Send an email to the Networks editor letting him/her know who the winner is so they know to flag the submission.

3.11. Application Process and Timeline

On or before December 1, the RAS Chair shall identify a committee chair. With the support of the RAS leadership and RAS membership volunteers, the committee chair will strive to accomplish tasks no later than these deadlines:

1. Feb 1. Identify a problem of interest and a problem owner.
2. March 1. With problem owner, generate a problem statement and sample data set
3. March 15. Prepare preliminary problem statement. Complete problem description (at least first/summary draft) and accompanying data (if any)
4. March 15. With the help of RAS leadership and membership volunteers, begin circulation of (preliminary) problem statement to potential competitors. This begins the "registration" stage for competitors.
5. April 30. Complete final problem statement; complete data set, and scoring methodology.
6. May 31. Close out registration phase.

7. June 1-June 30. Question and answer phase. Competitors ask questions, receive answers from problem owner and committee as appropriate. Correspondence managed by Chair.
8. June 30-July 31. Quiet phase.
9. August 1-31. Solution evaluation phase.
10. September 1 Finalists identified. Top three (four if necessary and deemed appropriate at the discretion of the Chair) competitors are identified.
11. September 1-10. Finalist acceptance phase. Finalists confirm their acceptance of the award, which includes agreement that at least one member of the team commits to attending and presenting at the INFORMS Annual Meeting.
12. October 1. Final paper describing approach and solution submitted to judging team.
13. Fall conference. Each team presents and a second round of evaluation is conducted by judges, based on these presentations.
14. INFORMS Annual Meeting. Teams are awarded prizes of first through third.
15. Post-conference. Teams opting to submit a paper for publication can do so.

Should the problem solving committee fail to meet deadlines such that the administration and completion of the competition would be significantly compromised for participants, the RAS elected officers reserve the right to cancel the competition prior to the final registration date for the teams.

3.12. Conflict of Interest

Since the chair, problem owner, and oversight committee may be selected prior to any participant registrations being received, a committee member must divulge any potential conflict of interest based on current or past personal, professional, or research relationship with a competitor after competitors are announced, or at any time a committee member becomes aware that such a conflict exists. The committee chair (with support from the RAS elected officers) will decide on whether the member should be recused, or committee members can recuse themselves. Note that a partial recusal of duties may occur for a particular member of the oversight committee by their being disallowed from judging or providing input on only those submissions with which there is a conflict of interest.