The Impact Factor – An Introduction
The Impact Factor, the number 1 ranking value for scientific journals, has become a substantial part of any journal development discussion between societies, editorial boards and publishers. Founded in the late 1950s by Eugene Garfield, and published since the 1960s by the Garfield established Institute for Scientific Information (ISI), the yearly Impact Factor developments are now part of Thomson Reuters/ISI.

Impact Factors for All? Selectivity and Success Factors
Naturally, ISI are very selective when it comes to including journals in their database. The sheer mass of scientific journal publications – it is estimated that there are around 20,000 English language journals – makes it especially challenging for new and start up journals to work on their ranking & reputation.

There is however, a number of ways how to climb the ISI ladder. ISI go through a lengthy evaluation process that generally takes a year, often longer, before accepting a journal. They evaluate the general quality of the articles (well written abstracts, accurate reference lists, high-quality figures), the quality of the editorial board and the quality of the authors that publish in the journal. The quality of editorial board members and authors is judged mainly by the number of their articles, and how well cited these articles are. Another major issue in the evaluation is the timeliness of publication. If a journal is not published on time it will most likely be rejected and has to wait two years before it can apply again for evaluation.

The Evaluation Process – Tips & Tricks for Societies and Editorial Boards
We at Springer can influence the evaluation process in a positive way through high quality articles and the continuous and on-time release of issues. However, that’s as far as leverage goes – the evaluation process and its consequent acceptance decisions are very much up to ISI who consequently pursue the idea of quality assessment independent of who publishes the journal.

The preparation for ISI evaluation requires a concerted effort by all parties involved: the society, the editorial board, the scientific editor, the publishing editor at Springer and the A & I group at Springer.

An extremely important selection criterion as mentioned above is the quality and reputation of the editorial board, therefore societies are requested to pay special attention to the process of choosing members for their journal’s editorial board.

How to be best prepared for the ISI evaluation process?

1. The editorial board should be looking at soliciting high quality authors to publish in their journal. Highly cited authors will consequently increase the chances of ISI evaluation.

2. The scientific editor responsible for the scientific quality of the articles and the selection of well-known, well-cited authors should ensure that the editorial quality of the articles is excellent. In particular please look out for well written abstracts, accurate reference lists, quality keywords, quality figures and graphs etc. Also, acceptance of enough high quality papers to ensure regular publication of the journal is important.

3. The publishing editor at Springer will also take responsibility for the editorial quality and timely publication (together with the scientific editor). The accuracy of reference lists is very important, since the Impact Factor calculations depend on these reference lists. Before submitting a journal for evaluation, the publishing editor should check the ISI database for citations to the journal and calculate an Impact Factor. The Impact Factor that is calculated will be significantly smaller than Impact Factors for journals in ISI, because citations between articles in your journal will not be in ISI. Those self-citations will considerably increase the Impact Factor. Once the internal evaluation of the journal shows that the chances for acceptance are reasonable, the publishing editor will prepare the application for evaluation by ISI and set up a print subscription for ISI for the evaluation process.
The Impact of Impact Factors (continued)

The Springer A & I group is responsible for connecting the journal with ISI and its procedures. The A & I group receives the application from the publishing editor and checks it for completeness and accuracy. When the application is complete, A & I will submit the journal to ISI for evaluation. A & I is in constant contact with ISI and will answer any questions ISI may have. ISI sends the status reports to the A & I group, however, not that frequently (1-2 times per year). These status reports are made available by A & I and results of the evaluation are passed on as soon as they become available.

Once the evaluation process is completed and the journal is accepted, the decision in which database to include the journal is taken by ISI. Journals can generally not apply for a specific database or category.

Once a journal is accepted, A & I continues to be the contact between the journal and ISI and handles for instance questions about Impact Factor calculations, questions about the categorization of articles, missing articles in ISI etc. We are happy to help with any enquiries you might have about your journal and ISI.

Calculation and Discussion

How Is the Impact Factor Calculated? The Impact Factor is basically the average number of citations counted in the Impact Factor year Y for articles published in the previous two years:

\[ IF(Y) = \frac{C_1 + C_2}{N_1 + N_2} \]

Citable articles are somewhat loosely defined. In general, they include original research articles and review articles. They may also include editorials, if the editorial contains a lengthy reference list.

The Impact Factor tradition has in the past given rise to some controversy mainly revolving around three issues: firstly the validity of the Impact Factor as a measure of journal quality, secondly the fact that the Impact Factor can be manipulated and thirdly the potential for misuse. The ongoing discussion is reflected in a number of articles, for example: http://www.mathunion.org/fileadmin/IMU/Report/CitationStatistics.pdf *
http://en.wikipedia.org/wiki/Impact_factor *

However, controversy has not been able to deter the Impact Factor from rising to the most important quality assessment tool in scientific journal publishing. It has to be noted that the value of the Impact Factor cannot be compared among different scientific disciplines. For instance Microbiology journals have, on average, much higher Impact Factors than Mathematics or Engineering journals. The citation patterns in these disciplines are entirely different therefore the numerical values of their Impact Factors also differ significantly and comparisons would not yield appropriate results.

Facts and Figures

- 933 Springer Journals included in 2007 Journal Citation Reports from Thomson Reuters/ISI
- Total Springer journal citations grew by 11.3% (above market average)
- 88% of Springer journals have higher citation counts in 2007 compared to 2006
- Majority of journals (61%) showed increases in Impact Factors across all subject areas

* The articles are employed to demonstrate the ongoing debate about ISI Impact Factors. Springer does not vouch for opinions or facts expressed in the articles.