# EIGENFACTOR® METRICS IN JCR WEB

## FREQUENTLY ASKED QUESTIONS

eigenFACTOR.org

RANKING AND MAPPING SCIENTIFIC KNOWLEDGE

### WHAT WAS THE MOTIVATION FOR CREATING THE *EIGENFACTOR*® ALGORITHM?

Prof. Carl Bergstrom and his colleagues at the University of Washington have a long interest in helping the scholarly community develop quantitative metrics to assist in making the difficult decisions about journals.

In order to measure the importance of a journal to the scientific community, they created the *Eigenfactor* Metrics, which are designed to reflect the prestige and influence of scholarly journals. The theory behind *Eigenfactor* Metrics is that a single citation from a high-quality journal may hold more value than multiple citations from more peripheral publications. With a dataset maintained over several decades, Thomson Reuters *Journal Citation Reports*® (*JCR*®) provide the perfect starting point for building on the concept of journal "influence".

### HOW DOES THE *EIGENFACTOR* ALGORITHM WORK?

The *Eigenfactor* algorithm uses the citation matrices such as those from the *Journal Citation Reports* Citing Journal Lists. This rich and complex set of journal-to-journal relationships is used in an iterative calculation of citation exchange. The result is a ranking of journals that not only reflects citation count, but embeds information about the *JCR* citation network and provides a complementary measure to citation ranking.

For specific information on the *Eigenfactor* algorithm, visit www.Eigenfactor.org/methods.htm

### HOW DOES THE *EIGENFACTOR*® *SCORE* COMPARE WITH THOMSON REUTERS IMPACT FACTOR?

The *Eigenfactor* Score and Impact Factor proceed from the same underlying data, but they measure different aspects of journal citation influence. While the *Eigenfactor* algorithm measures total citation volume, the creators of the *Eigenfactor* view the Impact Factor as a measure of prestige. For example, says Professor Bergstrom, "The *Eigenfactor* Score answers the question: how valuable is it to have Nature in your library? Impact Factor answers the question: how prestigious is having one article in Nature?"

As with Impact Factor, the *Eigenfactor* Score cannot be applied carelessly/incautiously, but needs to be used in context. *Eigenfactor* Scores can correct, to some degree, for the difference in citation patterns that are seen within large, complex subject areas that include several clusters of journals with a more specific focus. For example, within the Economics field there can be subtopics such as econometrics, development economics, market theory, as well as the application of economics to particular areas of study, such as agricultural economics.

### WHAT IS THE *ARTICLE INFLUENCE*™ SCORE?

After introducing the *Eigenfactor* Score, its creators answered the research community's interest in article-prestige rankings by developing the *Article Influence* measure. The *Article Influence* Score determines the average influence of each of a

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journal's articles over the first five years after its publication. (This measure is roughly analogous to the Journal Impact Factor in that it is a ratio of a journal's citation influence to the size of the journal's article contribution.) To calculate the *Article Influence* score, the *Eigenfactor* score of a journal is divided by the number of articles in the journal, normalized so that the average paper in *Journal Citation Reports* would have an *Article Influence* Score of one.

### WHAT IS THE *EIGENFACTOR* PROJECT'S RELATIONSHIP WITH THOMSON REUTERS?

The *Eigenfactor* Metrics were developed from *JCR* data with permission from Thomson Reuters.*The Eigenfactor Score and the Article Influence Score* were first implemented within the Thomson Reuters 2007 *Journal Citation Reports* in *JCR Web*, and have been updated with each annual release of the *Journal Citation Reports*. By incorporating these new metrics into the *JCR*, Thomson Reuters expands its robust suite of tools for customers to use when evaluating and ranking journals.

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