Assessing and Increasing the Impact of Research at the National Institute of Standards and Technology

Susan Makar, Stacy Bruss, and Amanda Malanowski
NIST Information Services Office

SLA 2013 Annual Conference
The Next Generation Sci-Tech Librarian
June 10, 2013
Presentation Outline

• Overview of NIST and ISO

• Discussion of impact analyses
  – Lab-level
  – Institution as a whole

• Increasing the impact of NIST research

Note: The identification of any commercial product or trade name does not imply endorsement or recommendation by the National Institute of Standards and Technology.
National Institute of Standards and Technology

• Federal agency made up of about 3,000 science and technology researchers
• NIST promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology
• The Information Services Office supports and enhances research activities of the NIST scientific community through a comprehensive program of knowledge management
Assessing Impact Studies for the Labs

Impact Studies to Assess ISO Impact

Impact Studies for the Institution as a Whole
Impact Studies for the Labs

• Quantify impact of a report on its intended audience
• Calculate individual h-indexes for promotion packages
• Analyze division output over extended time periods for group h-index, citation counts, and more
Quantify Impact of a Report

• Technical Report published in 2004 targeted to practitioners in design, construction, and operation and maintenance

• Bibliometric analysis of scholarly publications and gray literature, full-text download analysis, and news, trade literature, and blog analysis
Quantify Impact of a Report

• Cited frequently in literature; downloaded even more frequently
• Impacted literature in subject fields and geography beyond intended audience
• News and trade literature show impact on practitioners in field

Locations of Citing Conference Papers
Analyze Division Outputs

• Engineering division wanted h-index values for 44 researchers
• H-index values ranged from 2 to 33
Impact Studies for the Institution as a Whole

- Identify NIST publications in “top tier” journals using Impact Factor rankings (NIST Balanced Score Card metric)
- Analyze outside NIST collaborators on NIST publications to assess NIST’s impact
- Study institutions utilizing or citing NIST patents to determine impact of patents
- Track detailed bibliometrics of NIST-published journal, *Journal of Research of the National Institute of Standards and Technology* to help guide editorial decisions
Publishing in “Top Tier” Journals

• Determined number of NIST authored papers published in high impact journals

• Used by NIST Management to assess the extent of NIST’s impact

Percentage of NIST Peer Reviewed Journal Articles Published in Top Tier Journals, 2007-2012
Collaborations with Outside Organizations

• Determined number of unique non-NIST co-authors and number of unique institutions collaborating with NIST
• Used by NIST Management to assess the extent of NIST’s impact
Collaborations with Outside Organizations

- Studied top countries and organizations with whom NIST collaborates
- Used data visualization tools to convey and demonstrate impact

Locations of Authors/Institutions
Collaborating on NIST Publications, 2008-2011
Increasing the Impact of NIST Research

- Help promote NIST conference with bibliometric analysis of past conferences
- Recommend journal and conference venues for publishing
  - Individual publications
  - Proactively for group, program, or division
- Highlight NIST research through various venues such as Wikipedia and NIST Digital Archives
Increasing Impact through Wikipedia

- Adding references and links in Wikipedia to *Journal of Research of NIST* papers
- Tracking downloads and citing before and after links added to Wikipedia
Increasing Impact through the NIST Digital Archives

- Presents images of NIST Museum artifacts and full-text NIST publications
- Showcases scientific instruments from the NIST Museum and photos from the NIST Archives
Increasing the Impact of NIST Research

• Conduct market analysis to help NIST determine future research directions

• Identify speakers and attendees for conferences to help increase conference attendance

• Conduct benchmark assessments or comparison analyses to assess the value of NIST and to learn from other institutions
Questions?