

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

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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
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**Impact
Studies for
the Labs**



**Impact Studies to Assess
ISO Impact**



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



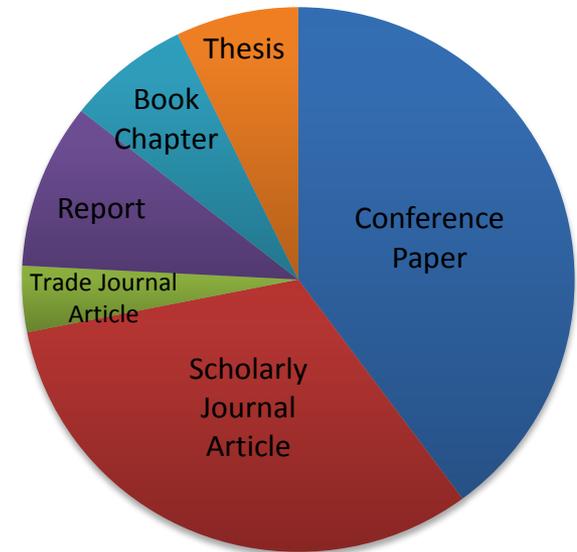
Impact Studies for the Labs



- 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
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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



Types of Citing Publications

Quantify Impact of a Report

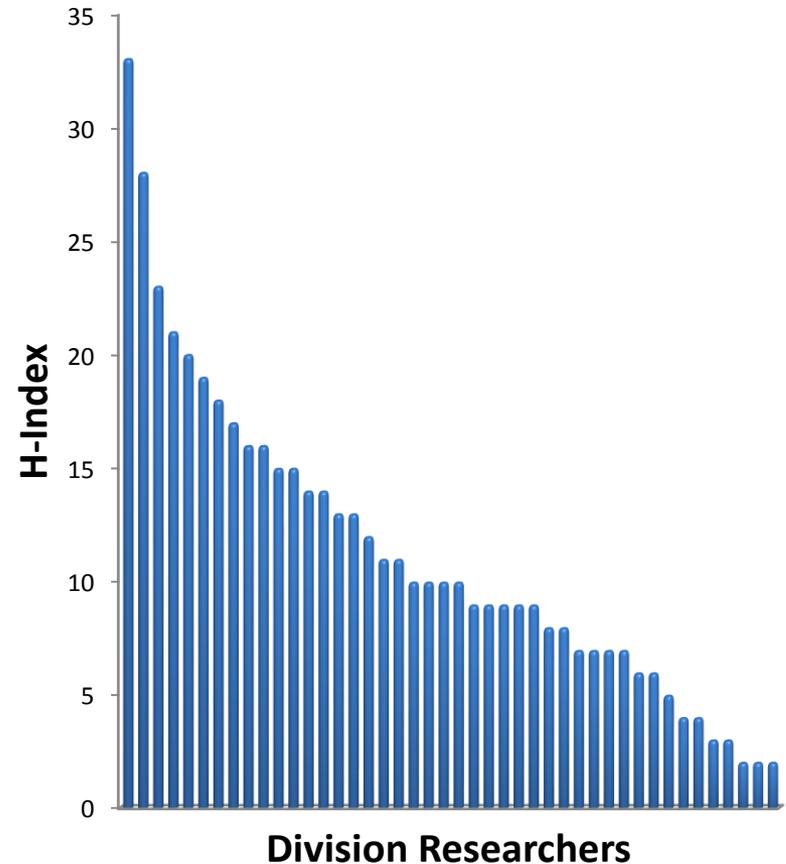
- Cited frequently in literature; downloaded even more frequently
- Impacted literature in subject fields and geography beyond intended audience
- News and trade literature show impact on practitioners in field



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



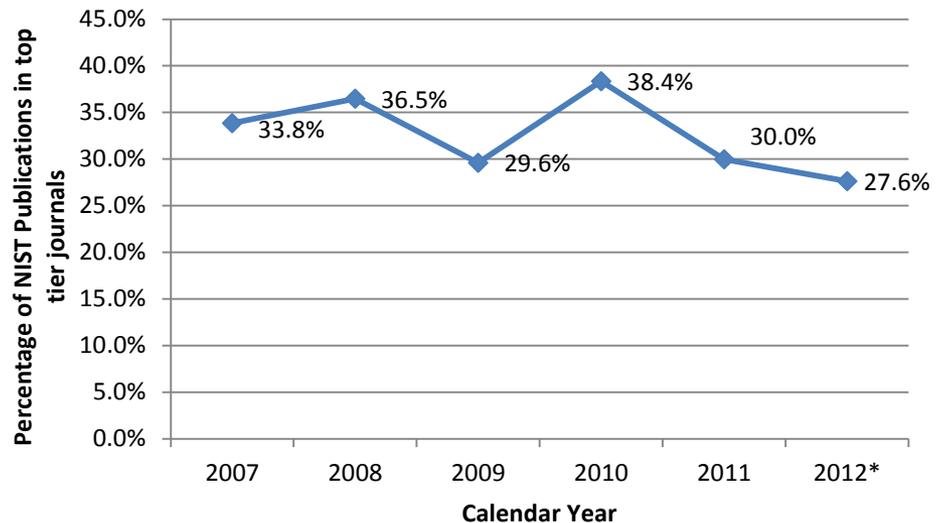
Impact Studies for the Institution as a Whole



- 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
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Publishing in “Top Tier” Journals

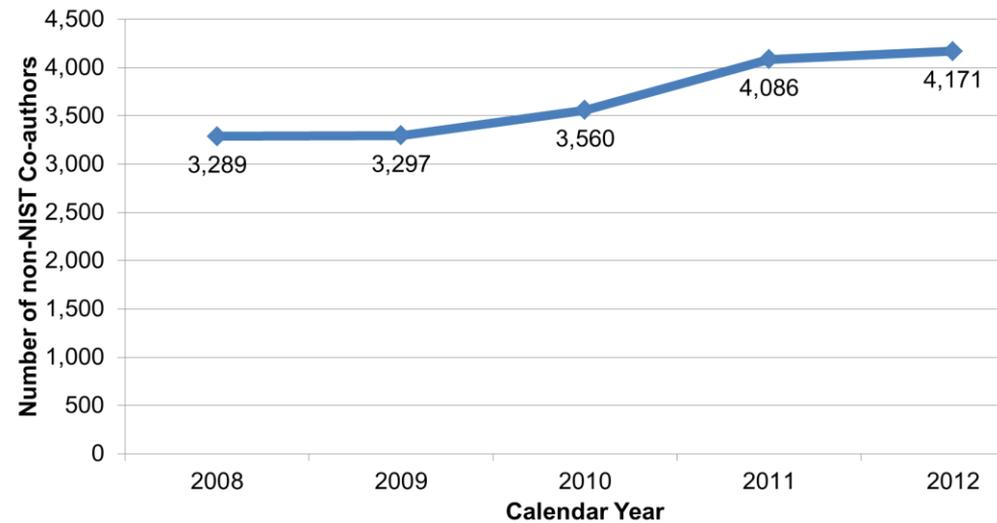
- Determined number of NIST authored papers published in high impact journals
- Used by NIST Management to assess the extent of NIST’s impact



**Percentage of NIST Peer Reviewed Journal
Articles Published in Top Tier Journals,
2007-2012**

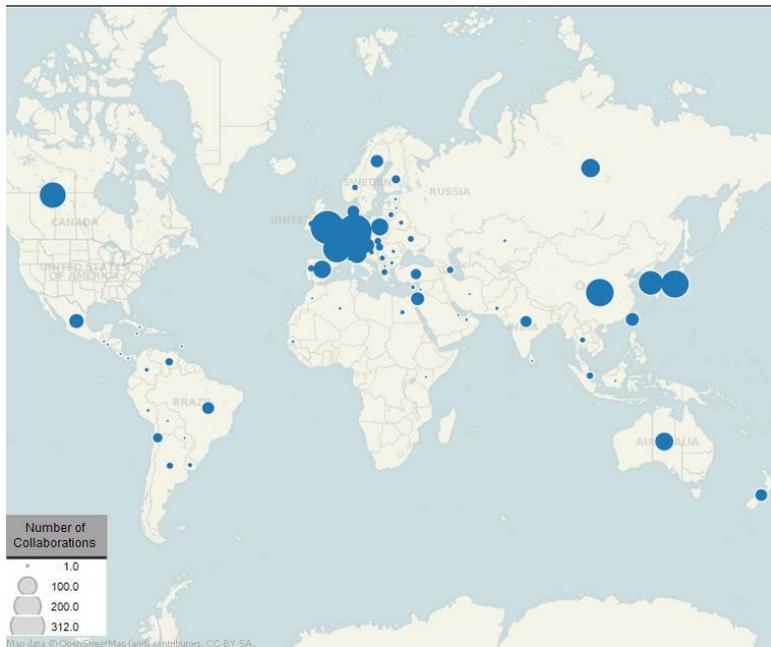
Collaborations with Outside Organizations

- 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



Number of Outside Organizations Co-authoring on NIST Publications, 2008-2012

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**



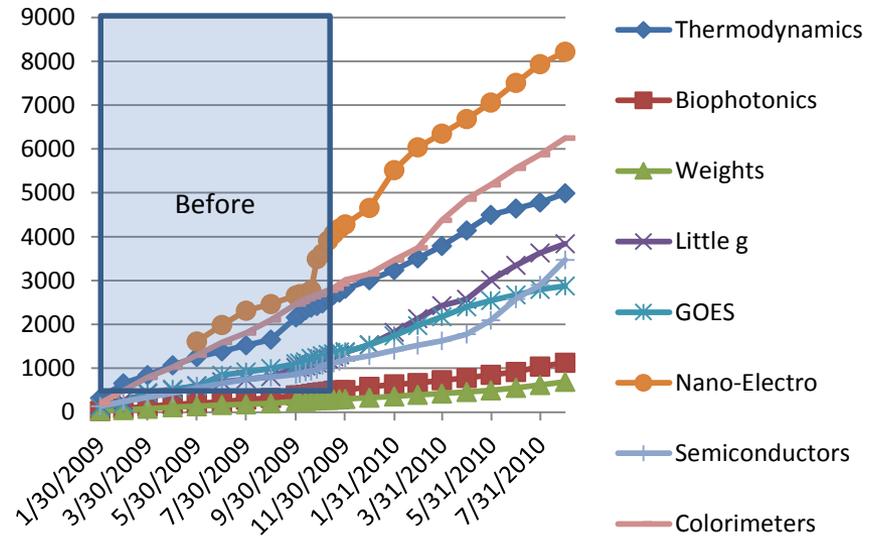


Increasing the Impact of NIST Research

- 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
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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



Downloads Before and After Linking to Wikipedia

Increasing Impact through the NIST Digital Archives

The screenshot shows the NIST Digital Archives website. At the top, the header reads "NIST Digital Archives" and "Digital Collections of the National Institute of Standards and Technology". Below this is a navigation bar with links for "Home", "About", "Browse All", "NIST Virtual Library", and "NIST Virtual Museum". A search bar is located below the navigation bar. The main content area is titled "NIST Digital Archives" and features a section for "All Collections". This section includes three collection cards: "HELP IDENTIFY THESE MUSEUM ITEMS", "NBS-Bulletin", and "NBS Scientific Papers". Each card provides a brief description and a "more..." link. To the right of the collection cards is a sidebar titled "About the collections" which contains a note about a library consortium site and a description of the NIST Digital Archives (NDA) content, including scientific instruments and publications. At the bottom of the sidebar, there is a section for "Browse these suggested topics".

NIST Digital Archives (NDA) web site

- 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
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Questions?