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A Sea Change is Coming to Patent Analytics – Brought to You by Big Data

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Managing Director – Patinformatics, LLC
International Conference for the Information Community (ICIC)
Vienna, Austria – 15 October 2013

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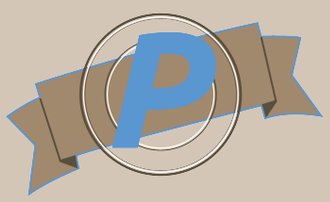
When I Submitted the Abstract

- Using IBM's Many Eyes for Generating Valuable Patent Analytics Insights
- I promise to show some examples of interesting visualizations using Many Eyes but…

- I predict a Sea Change in patent analysis, which based on the sophistication of this audience seems like a more interesting topic for discussion

When I Submitted the Abstract

- The abstract actually describes the What to Look for When Using Public PAIR talk I gave at the PIUG Annual Conference
- Some of that material is covered in the workshop for Wednesday but you can also find portions of it at the following links:
- http://www.patinformatics.com/presentations/
- http://www.patinformatics.com/blog/what-to-look-for-when-using-us-public-pair-an-infographic/



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So What is this Sea Change You Speak of?

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Big Data and the Field of Data Science

The Transformation has Already Started

- Patent information professionals have been working with big data for years, decades even, but didn't use a catchy phrase to describe what they were doing
- The universe of available patent documents, worldwide, is well over 80 million
- The small molecule universe is well over 70 million substances
- Biggest change in over a decade for analytics

New STN Platform – Built for Big Data

- Hadoop implements a computational paradigm named MapReduce, where the application is divided into many small fragments of work, each of which may be executed or re-executed on any node in the cluster. In addition, it provides a distributed file system that stores data on the compute nodes, providing very high aggregate bandwidth across the cluster. It enables applications to work with thousands of computation-independent computers and petabytes of data.

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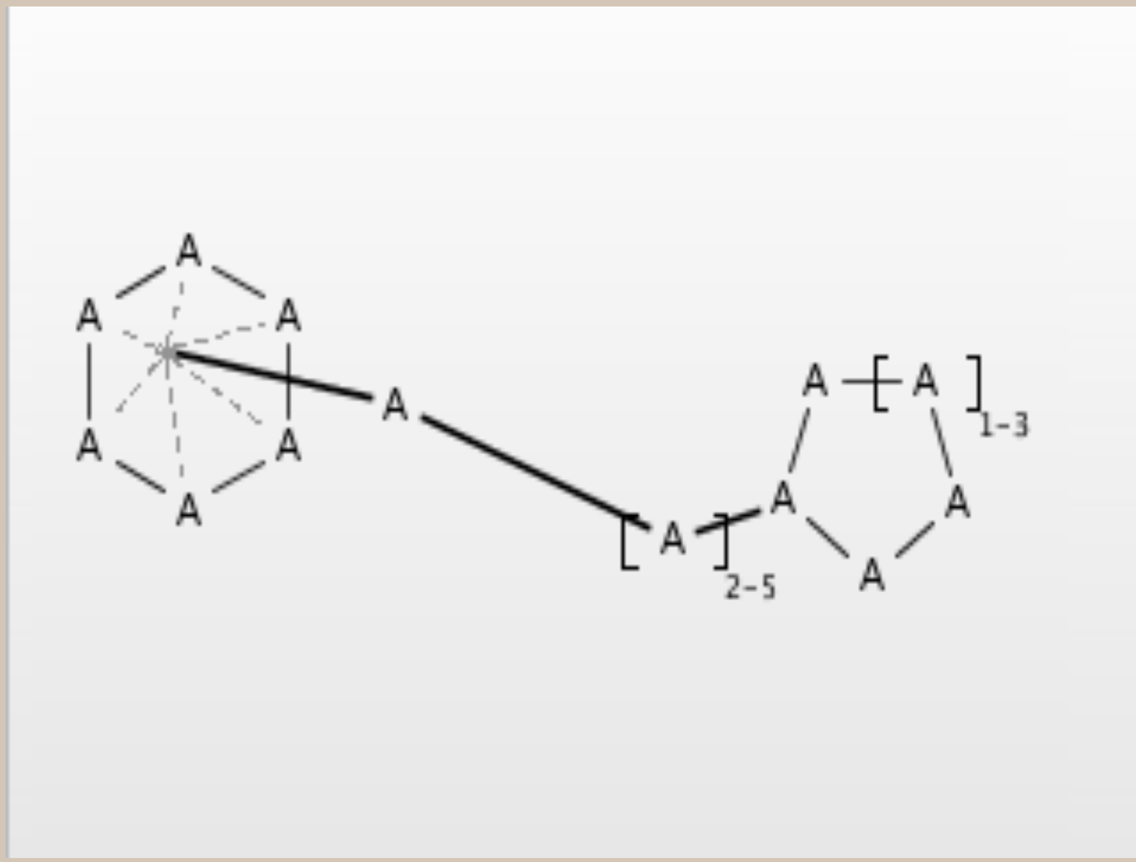
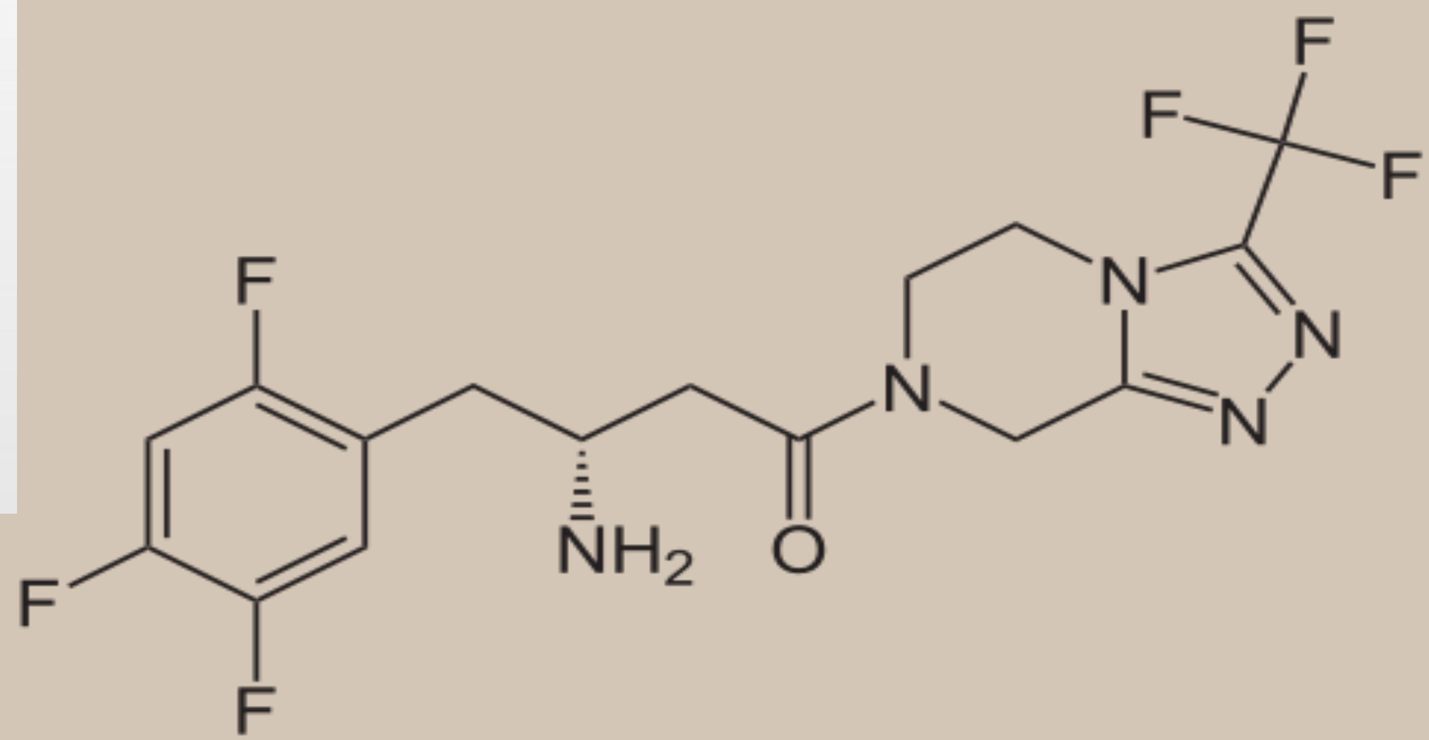
Hadoop Makes the Following Possible





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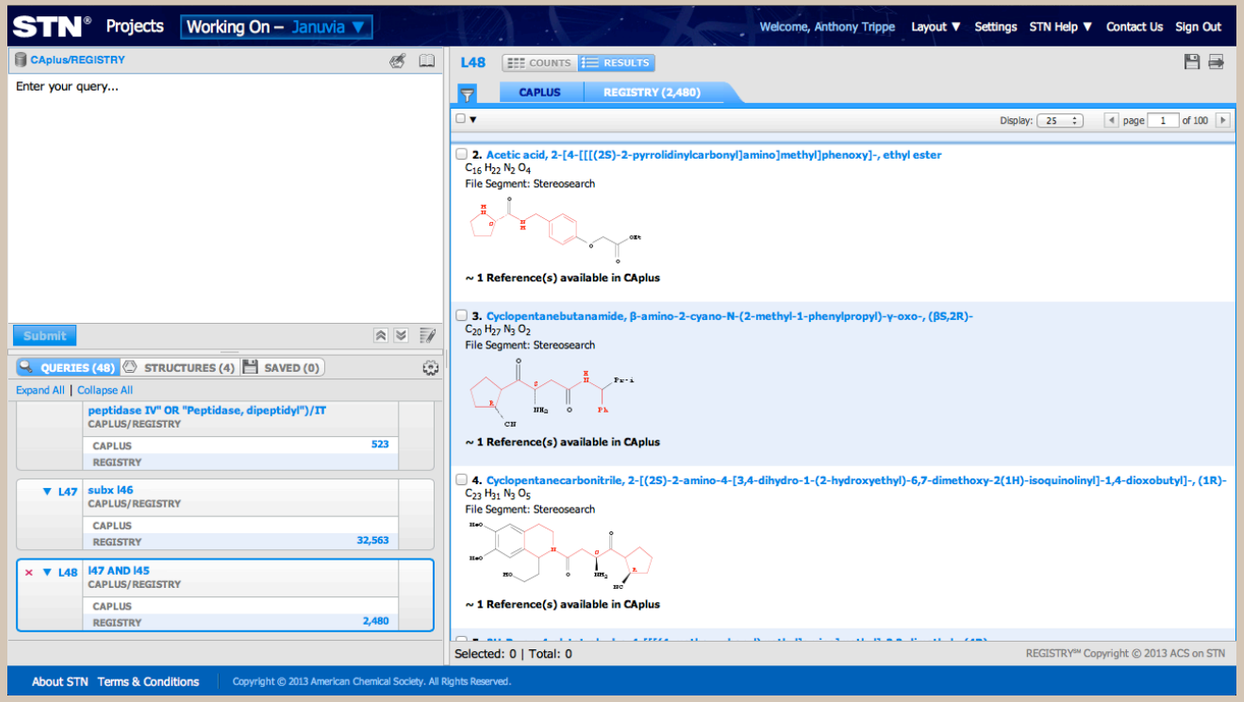
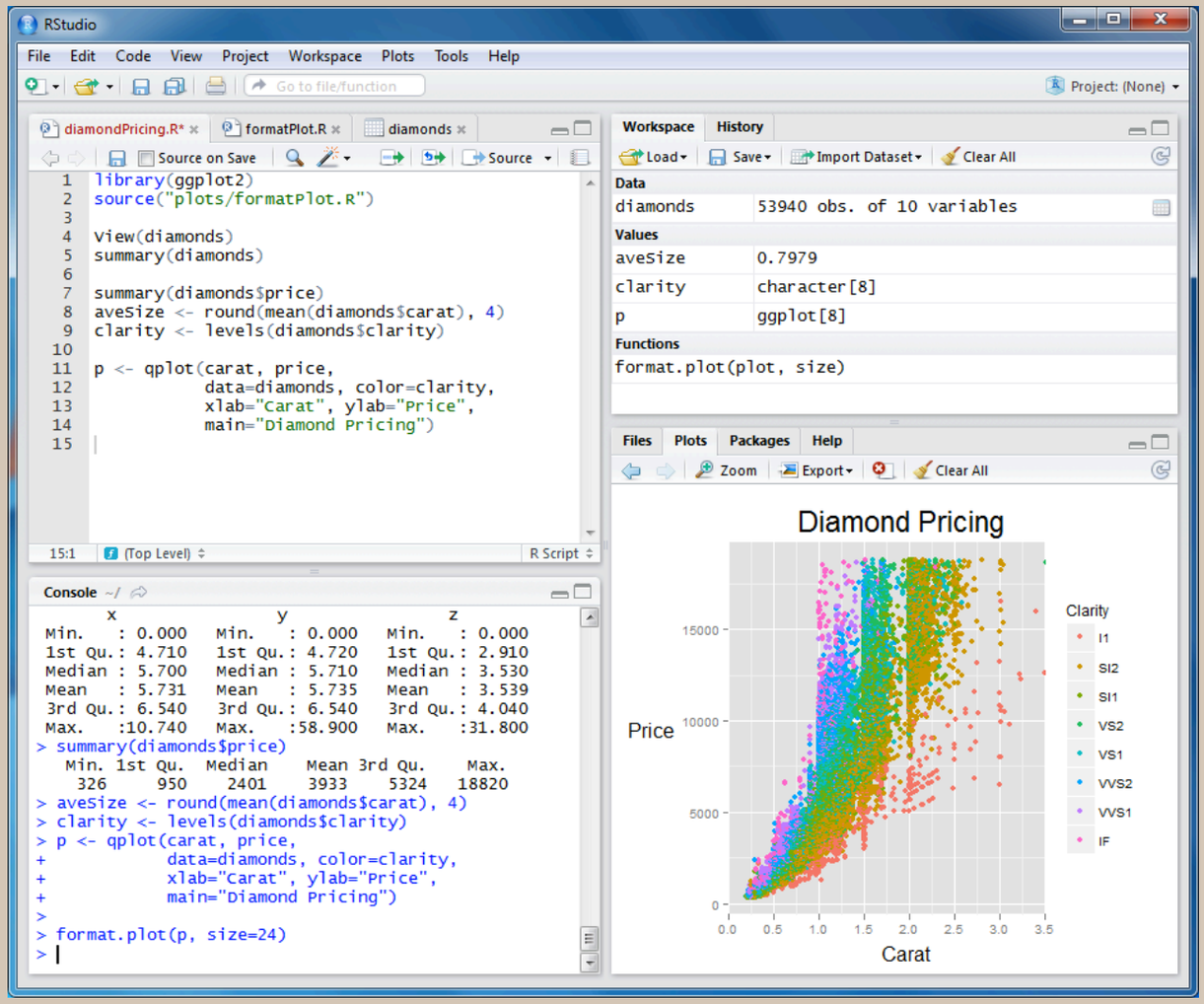
How Many of You Have Heard of R?





It's Coming!

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How Many of You are Using OpenRefine?

Extensions: Freebase

ows records Show: 5 **10** 25 50 rows « first ‹ previous **1 - 10** next › last »

Publication Num	Title	Title - DWPI	Citing Patents	Count of Citing	Citing Pat 1st As	Citing References Details - Patents
US8442695B2	Auto-adaptable energy management apparatus	Auto-adaptable energy management apparatus for managing e.g. energy production for residential customers through energy management user interface of network device, has processor creating personalized schedule	US20120130513A1 | US8375118B2	2	VERIZON PATENT & LICENSING INC | VERIZON PATENT &	7 (Pre-search),2010-11-amp; LICENSING INC | aminer),2010-11-amp; LICENSING INC
US8428782B2	Energy management system and method	Temperature control apparatus for home energy management system has processor which deploys current set-point stored within memory which stores temperature set-	US20120179547A1 | US20120023225A1 | US20120047092A1 | US20120063334A1 | US20120116597A1 | US20120130513A1 |		GEN ELECTRIC | GEN ELECTRIC | VERIZON PATENT & LICENSING INC | NAT UNIV TSINGHUA | ALLURE ENERGY INC | NEST LABS INC | VERIZON PATENT & LICENSING INC |	US20120179547A1,US, ,7 (Pre-search),2011-01-06,GEN ELECTRIC | US20120023225A1,US, ,7 (Pre-search),2009-07-20, | US20120047092A1,US, ,7 (Pre-search),2010-08-17, | US20120063334A1,US, ,7 (Pre-search),2010-10-21,GEN ELECTRIC | US20120116597A1,US, ,7 (Pre-search),2010-11-09,GEN ELECTRIC | US20120130513A1,US, ,7 (Pre-search),2010-11-18,VERIZON PATENT & LICENSING INC | US20120166010A1,US, ,7 (Pre-search),2010-12-28,NAT UNIV TSINGHUA | US8024073B2,US, ,0 (Examiner),2009-08-21,ALLURE ENERGY INC | US8280536B1,US, ,1

Facet ▸
Text filter
Edit cells ▸
Edit column ▸
Transpose ▸
Sort...
View ▸
Reconcile ▸

Transform...
Common transforms ▸
Fill down
Blank down
Split multi-valued cells...
Join multi-valued cells...
Cluster and edit...

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How Many of You are Using OpenRefine?

- Clean up data fields
- Split multi-value cells
- Split into several columns
- Count string length
- Determine how many times an item occurs in a cell
- Many, many more uses for manipulating data

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REPRESENTATIVE EXAMPLES OF RE-APPLIED TECHNIQUES

Big Data is Concerned with the Same Things We Are

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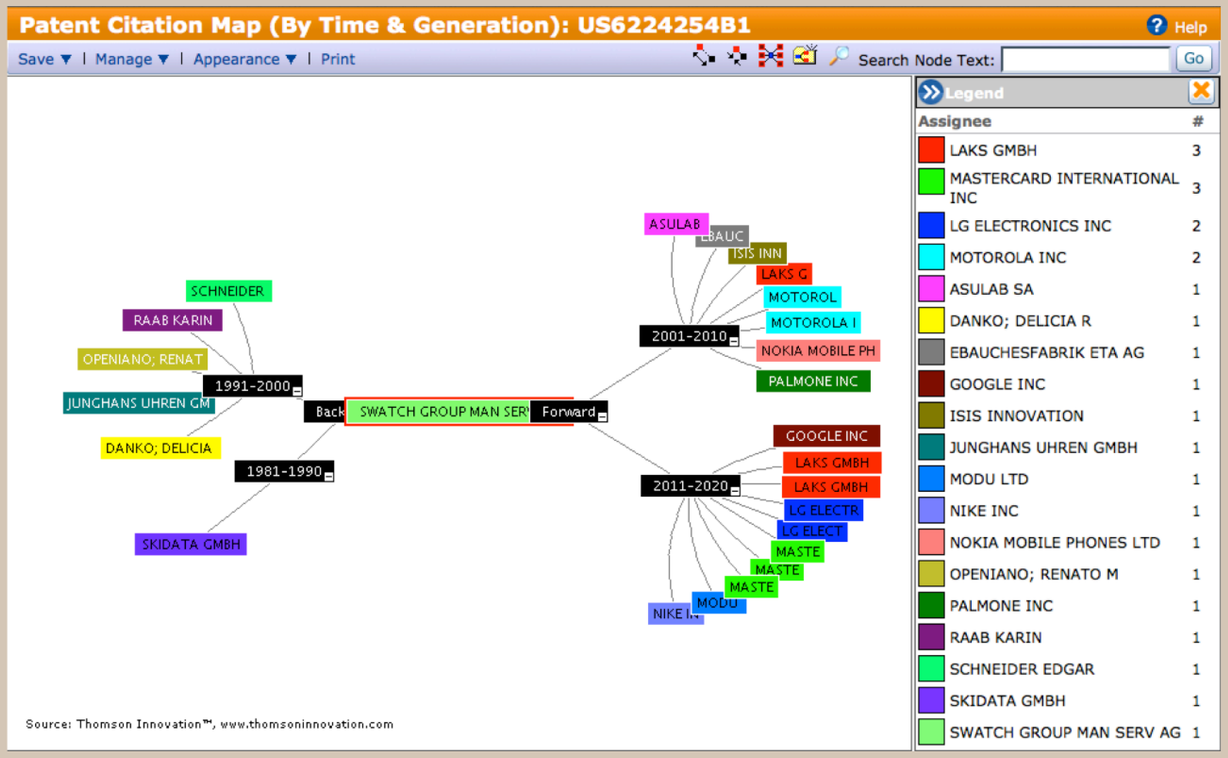
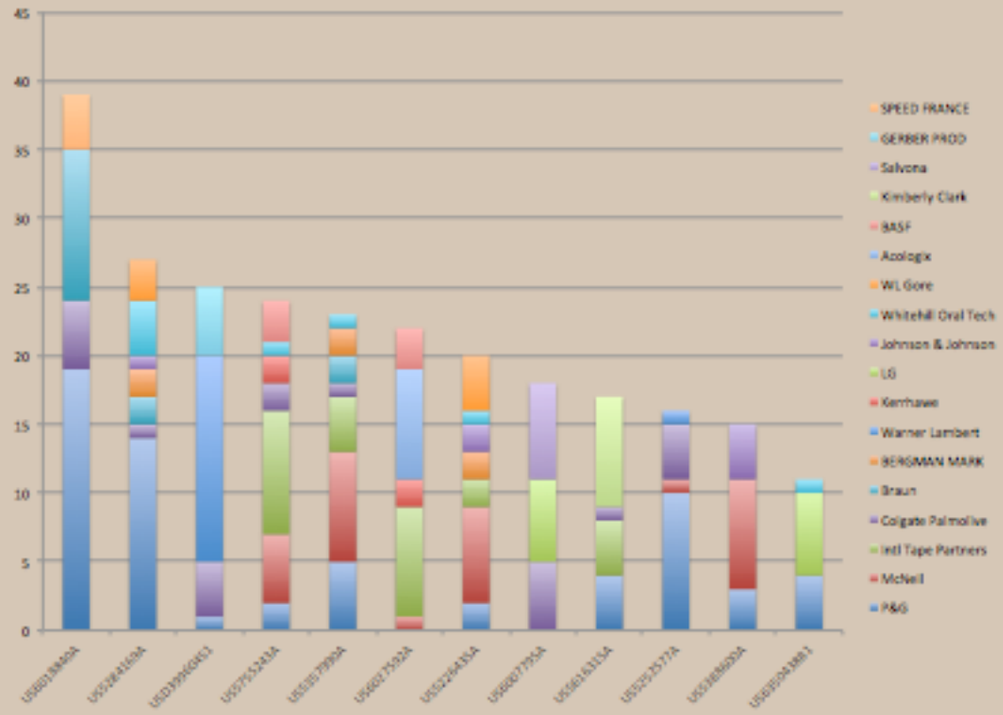
Traditional Citation Analysis





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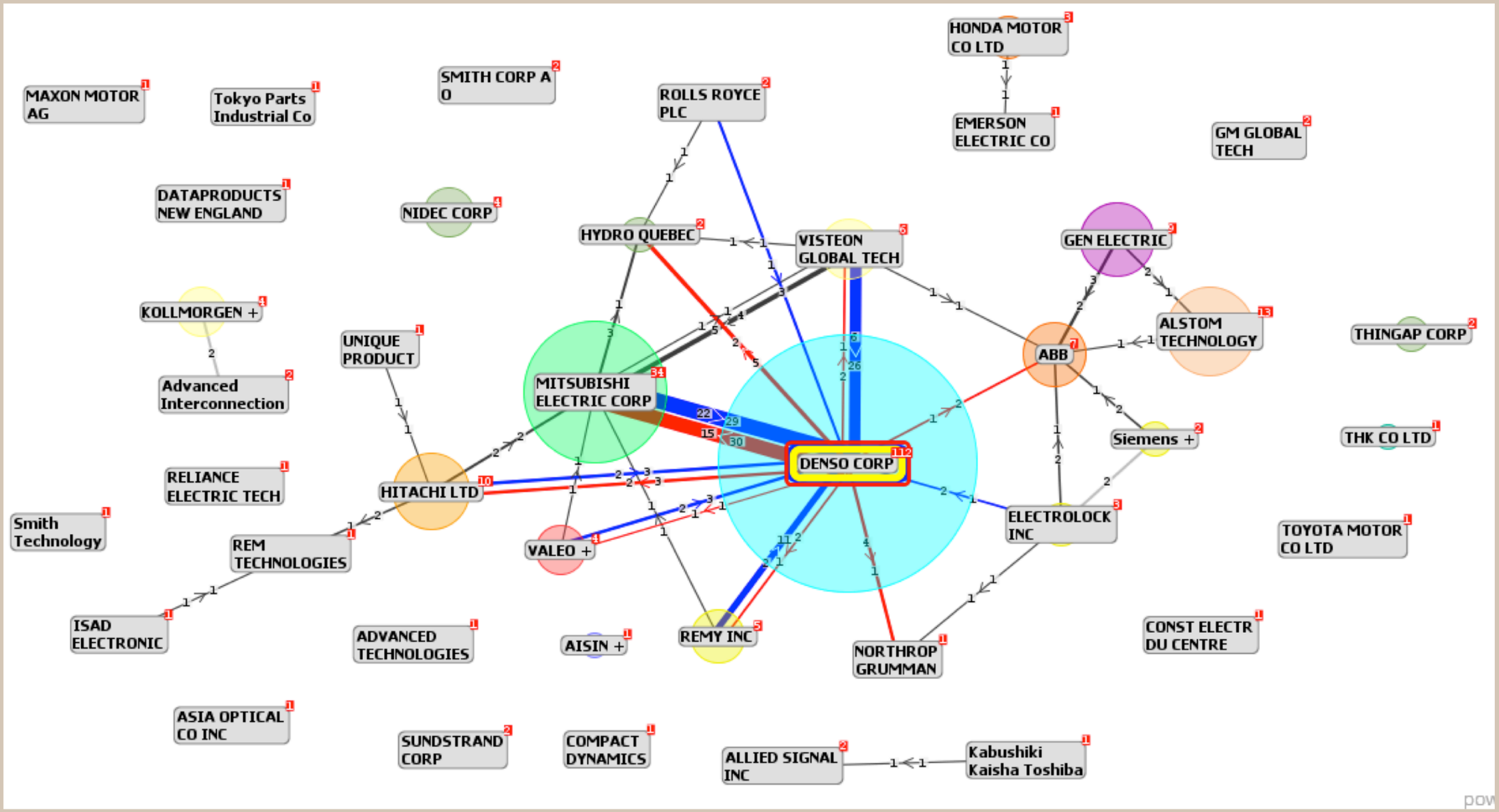
Next Generation Citation Analysis



Tools to Help with Network Analysis

- TouchGraph – http://www.touchgraph.com/navigator

- Cytoscape – http://www.cytoscape.org

- Sci2 – https://sci2.cns.iu.edu/user/index.php

- Also available in commercial tools such as Orbit.com, Relecura and Intellixir

Tools to Visualize and Analyze Text Data

- Many Eyes – http://www-958.ibm.com/software/data/cognos/manyeyes/page/Visualization_Options.html
- Jigsaw – http://www.cc.gatech.edu/gvu/ii/jigsaw/
- Sci2 – https://sci2.cns.iu.edu/user/index.php
- Weka - http://www.cs.waikato.ac.nz/ml/weka/
- R - http://tm.r-forge.r-project.org
- Commercial patent tools also available as well

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Network Diagrams – Family Trees

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Word Tree – Claims Analysis

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Word Tree – Claims Analysis

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Tag Clouds – Hedge & Synonym Discovery

Conclusions

- The advent of Big Data and Data Science is creating an environment for growth that has not been seen in more than a decade

- Data structures and algorithms for dealing with very large data collections will be directly applicable to the analysis of scientific literature

- Looking for methods outside of our areas of expertise can provide new means for providing insight and value to our own data and analysis