



Microsoft® Research

FacultySummit 2011

Cartagena, Colombia | May 18-20 | In partnership with COLCIENCIAS

Transforming Scholarly Communication
Overview of Recent Projects from Microsoft Research

Lee Dirks

Director, Education & Scholarly Communication
Microsoft Research | Connections

Dr. Camilo A. Acosta-Márquez

Director Centro de Robótica e Informática
Universidad Jorge Tadeo Lozano

Transforming Scholarly Communications

Overview of Recent Projects from Microsoft Research

Lee Dirks

Director, Education
& Scholarly Communication
Microsoft Research | Connections

Dr. Camilo A. Acosta-Márquez

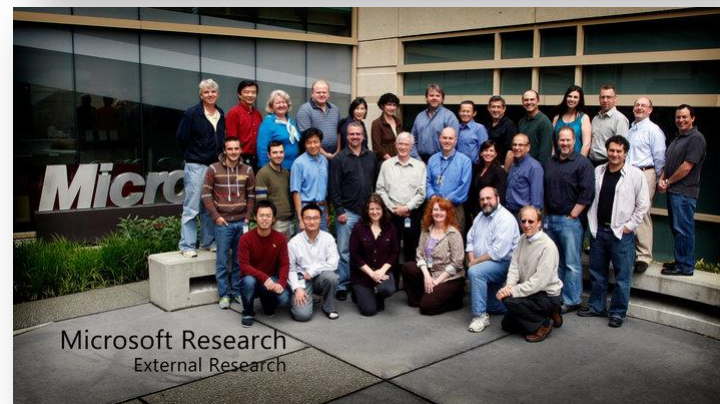
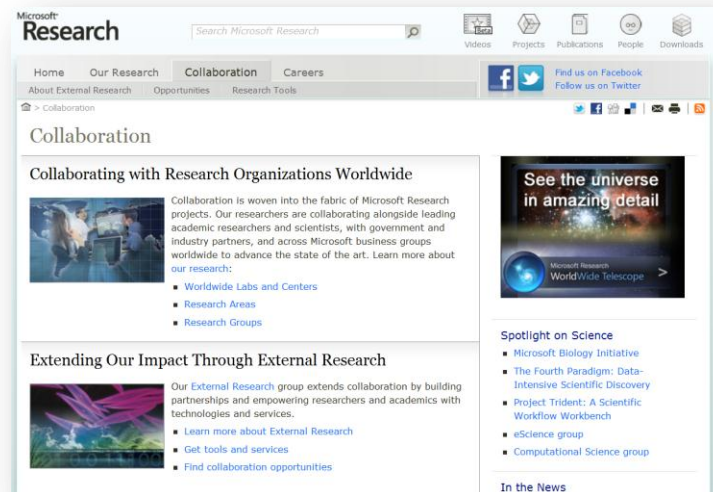
Director Centro de Robótica e Informática
Universidad Jorge Tadeo Lozano



Microsoft Research | Connections

Outreach. Collaboration. Innovation.

- Division within Microsoft Research focused on partnerships between academia, industry and government to advance computer science, education, and research in fields that rely heavily upon advanced computing
- Supporting groundbreaking research to help advance human potential and the wellbeing of our planet
- Developing advanced technologies and services to support every stage of the research process
- Microsoft Research Connections is committed to interoperability and to providing open access, open tools, and open technology



<http://research.microsoft.com/collaboration/>

Microsoft®

Research Connections



Natural User Interface



Earth, Energy and Environment



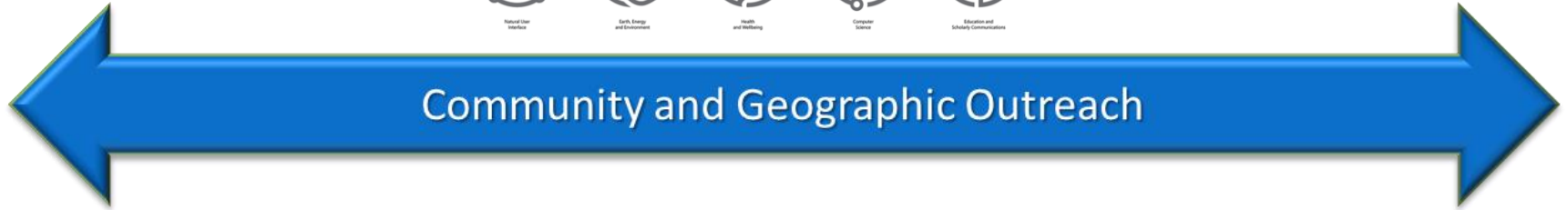
Health and Wellbeing



Computer Science



Education and Scholarly Communication



Community and Geographic Outreach

Core Computer Science



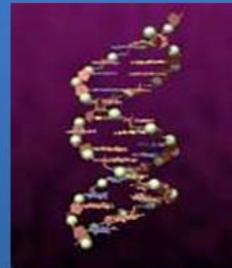
Earth, Energy and Environment



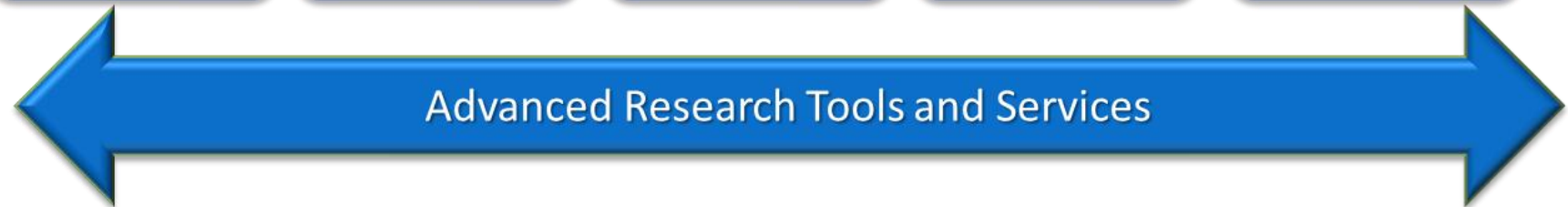
Education & Scholarly Communication



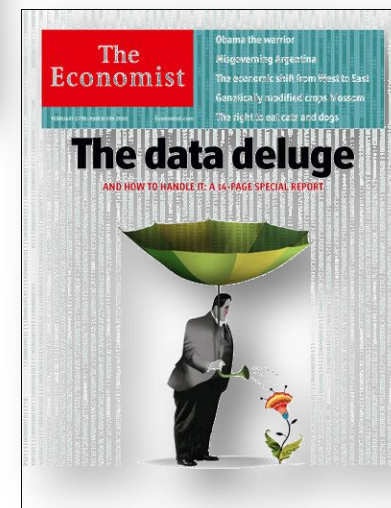
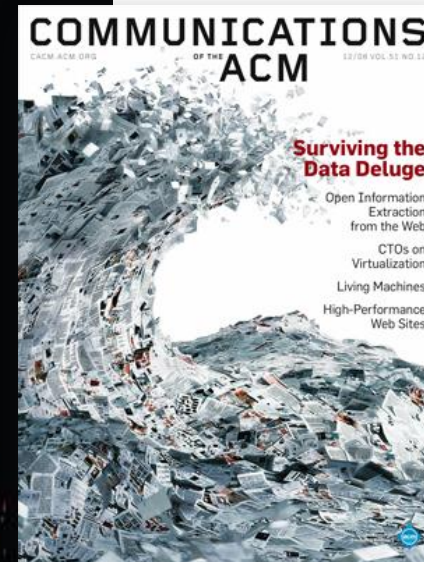
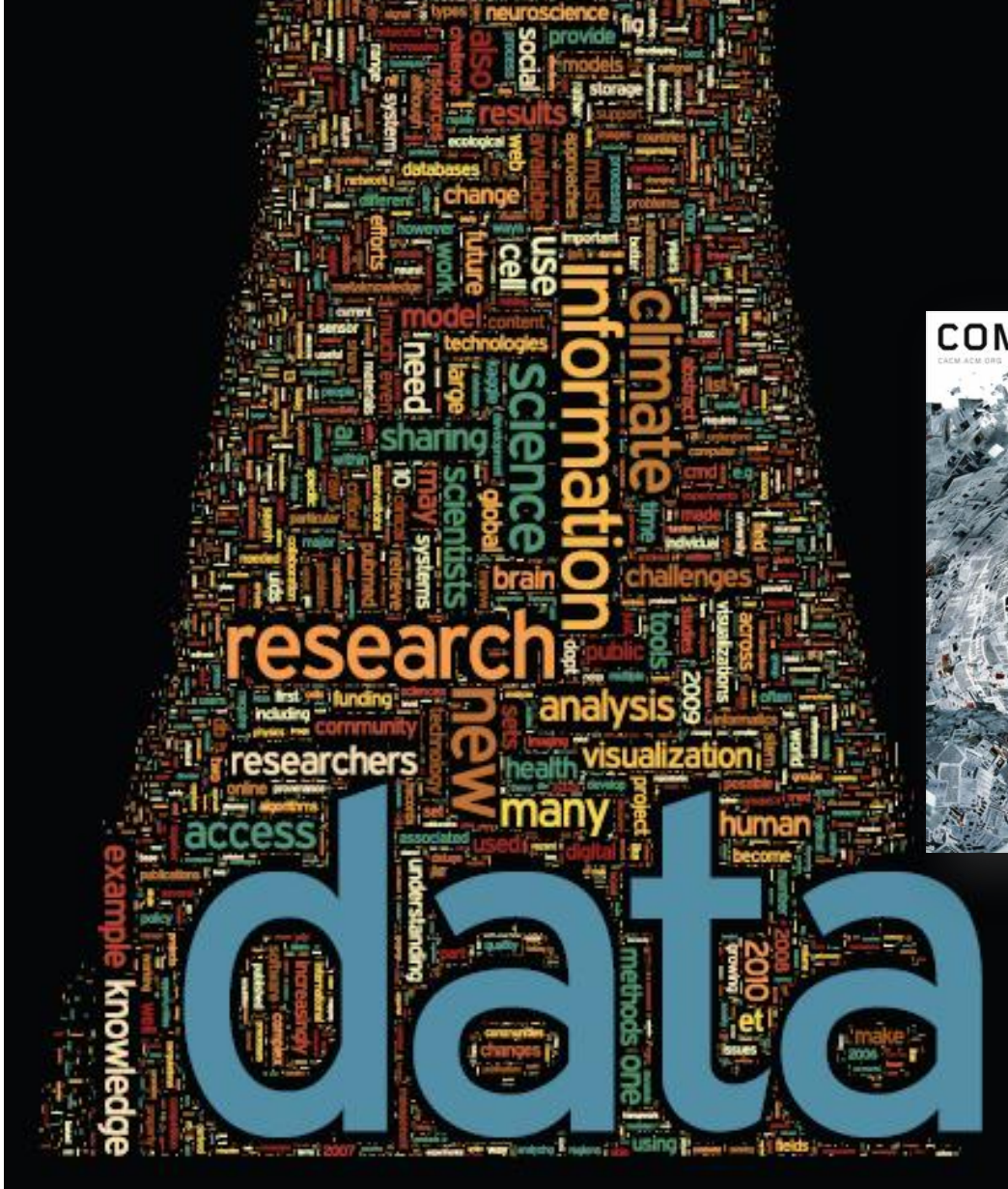
Health & Wellbeing



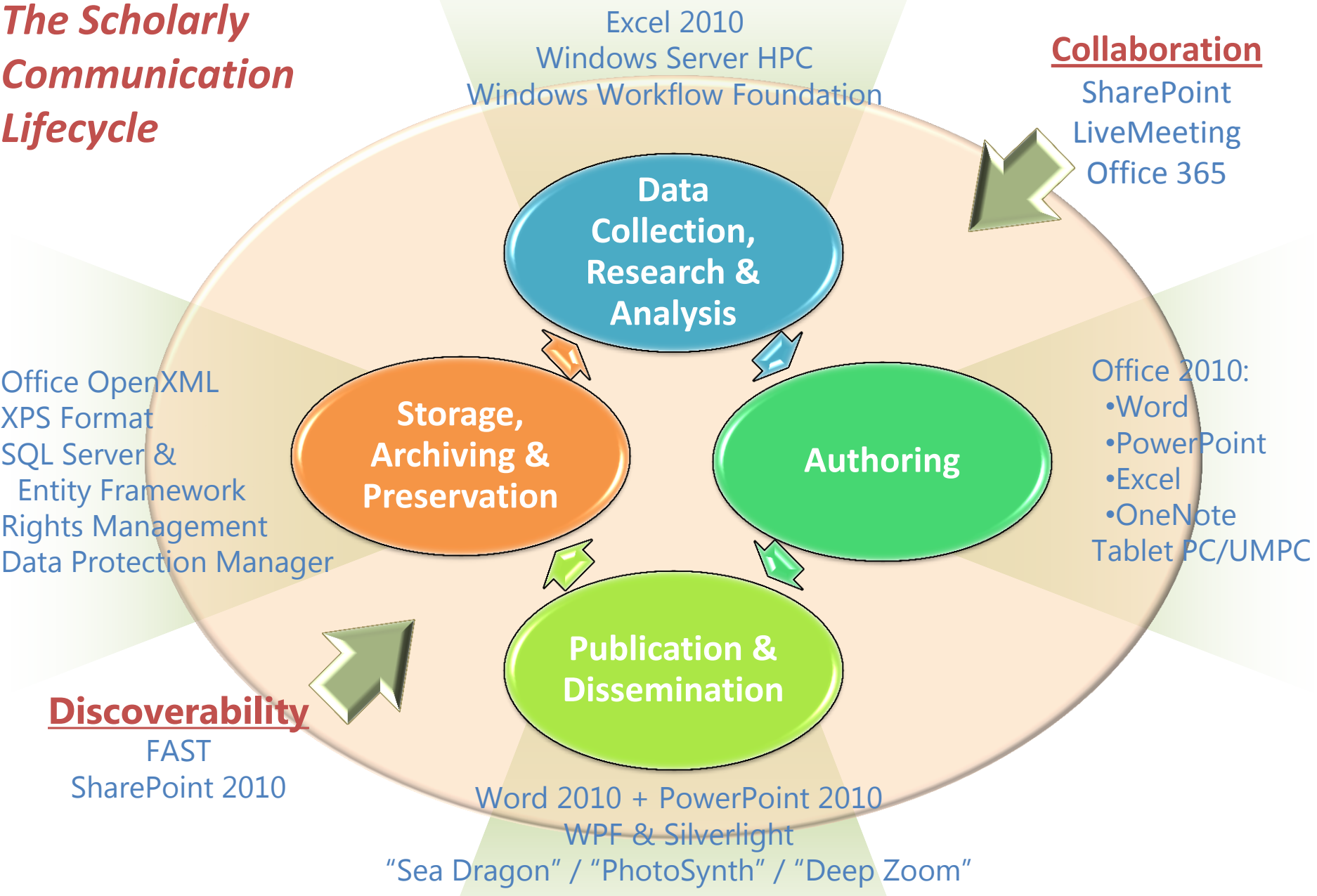
Natural User Interface



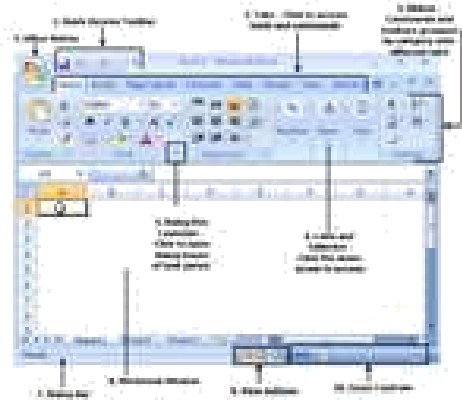
Advanced Research Tools and Services



The Scholarly Communication Lifecycle



Data Curation Add-in for Microsoft Excel



- **Microsoft Research, in partnership with [California Digital Library's Curation Center](#)**
 - Collaboration with **Trisha Cruse & John Kunze**
 - Part of the [DataONE](#) (an NSF DataNet Project)
- **Proposed functionality *under consideration*:**
 - **Support for versioning**, so that revision history and the original raw data can be easily protected and recovered,
 - **Standardized date/time stamps** so that researchers can easily determine when the data were created and last updated.
 - **A "workbook builder"** allowing researchers to select from globally shared standardized layouts for capturing data,
 - **Ability to export metadata in a standard format** (e.g., a DataCite citation or an EML document that describes the dataset(s) in a workbook) so that researchers can readily share their data,
 - **Ability to select from a globally shared vocabulary of terms for data descriptions** (e.g., column names), and as needed to add new terms to the globally shared vocabulary, to enable wide collaboration between researchers
 - **Ability to import term descriptions from the shared vocabulary and annotate them locally** to refine their definitions as used in the dataset,
 - **"Speed bumps" to discourage use of macros and customizations** that would impede interoperability of data imported from Excel into other applications, and
 - **Ability to deposit data and metadata directly into a data archive** to enable compliance with funding agency requirements to preserve and publish research data.

Project "Chem4Word" – Chemical Drawing in Word

Semantic chemistry for students and publishers



UNIVERSITY OF
CAMBRIDGE

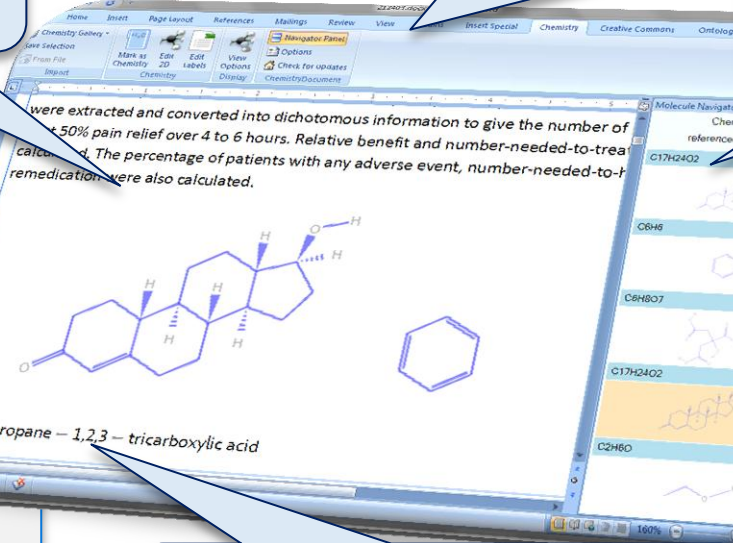
Intent: Recognizes chemical dictionary and ontology terms

Author/edit 1D and 2D chemistry.
Change chemical layout styles.

Relationships:
Navigate and link referenced chemistry

Data: Semantics stored in Chemistry Markup Language (CML)

```
<?xml version="1.0" ?>
<cml version="3" converter="org-synth-report"
xmlns="http://www.xml-cml.org/schema">
<molecule id="m1">
<atomArray>
<atom id="a1" elementType="C" x2="-"
2.9149999618530273" y2="0.7699999809265137" />
<atom id="a2" elementType="C" x2="-"
1.5813208400249916" y2="1.5399999809265137" />
<atom id="a3" elementType="O" x2="-"
0.24764171819695613" y2="0.7699999809265137" />
<atom id="a4" elementType="O" x2="-"
1.5813208400249912" y2="3.0799999809265137" />
<atom id="a5" elementType="H" x2="-4.248679083681063"
y2="-0.7700000190734864" />
<atom id="a6" elementType="H" x2="-2.914999961853028"
y2="-0.7700000190734864" />
<atom id="a7" elementType="H" x2="-4.248679083681063"
y2="-1.907348645691087E-8" />
<atom id="a8" elementType="H" x2="1.0860374036310796"
y2="1.5399999809265132" />
</atomArray>
<bondArray>
<bond atomRefs2="a1 a2" order="1" />
<bond atomRefs2="a2 a3" order="1" />
<bond atomRefs2="a2 a4" order="2" />
<bond atomRefs2="a1 a5" order="1" />
<bond atomRefs2="a1 a6" order="1" />
<bond atomRefs2="a1 a7" order="1" />
<bond atomRefs2="a3 a8" order="1" />
</bondArray>
</molecule>
</cml>
```



Intelligence: Verifies validity of authored chemistry

The New York Times Personal Tech
By J. D. BIERSDORFER
Published: April 7, 2010

TIP OF THE WEEK Chemistry students and teachers might want to check out the new Chem4Word add-on for Microsoft Word. The free software, which was developed by Microsoft Research and the Unilever Centre for Molecular Science Informatics at the University of Cambridge, allows Word users to insert chemical symbols, formulas and even 2-D models of molecules into documents. Chem4Word works with Word 2007 and the current beta version of Word 2010, and is listed as a beta version itself at bit.ly/riK33 — where more information and a demonstration video are also available for scientists, aspiring scientists and those who have chemistry papers due soon. **J. D. BIERSDORFER**

THE CHRONICLE

of Higher Education.

Wired Campus

Quickwire: Microsoft Word Goes Chemical

February 2, 2011, 2:50 pm
By Josh Fischman

Chem4Word, a free, open-source plug-in that lets authors draw intricate chemical structures—and store information about molecules—within their Word documents, has been released by Microsoft Research (the company's unit that collaborates with universities), the University of Cambridge, and the Outercurve Foundation.

<http://chronicle.com/blogs/wiredcampus/quickwire-microsoft-word-goes-chemical/29423>

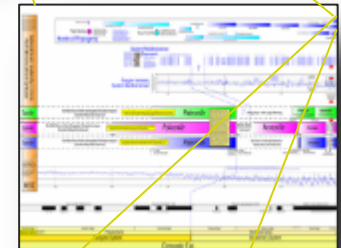
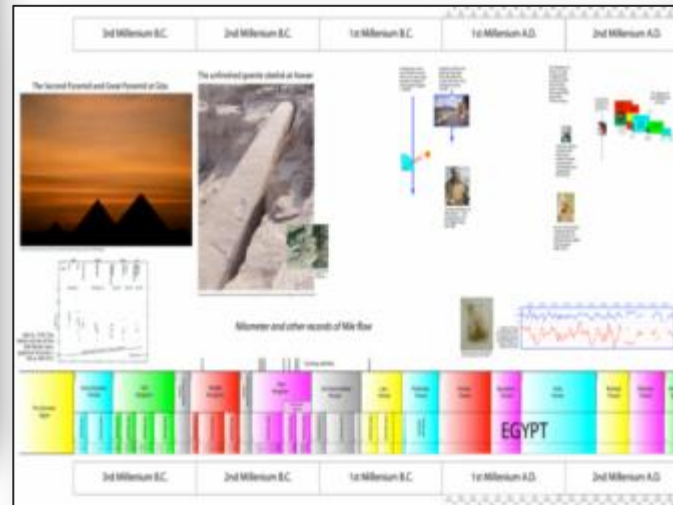
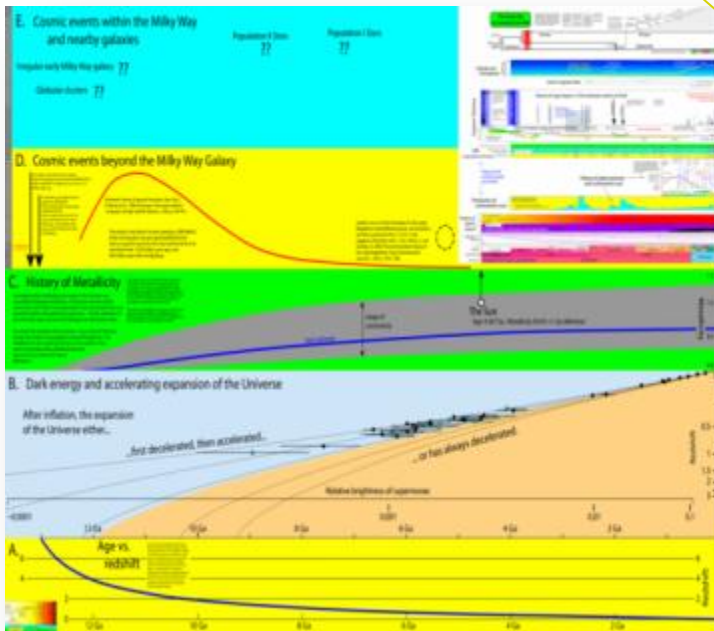
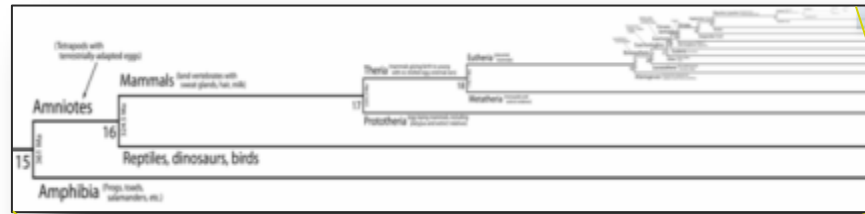
V1.0 now available (binary and open source)
<http://research.microsoft.com/chem4word/>

Project 'Big Time' @ Cal-Berkeley

A "zoomable" timescale platform

See the demo live at
www.chronozoomtimescale.org

Watch the video at
<http://bit.ly/alvarez97>



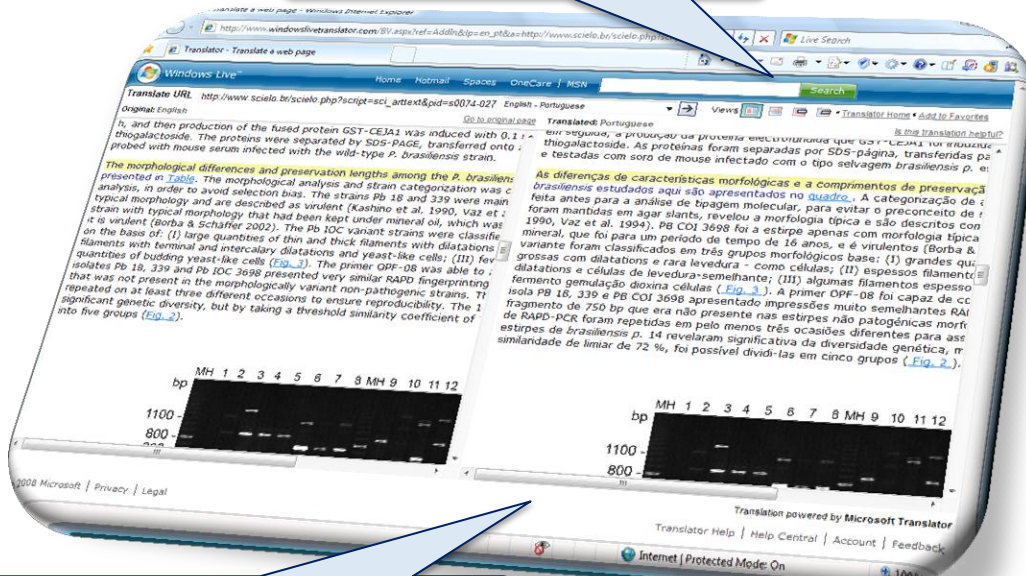
Microsoft Translator

Your website/content in 30 languages



<http://worldwidescience.org>

Query-time translation

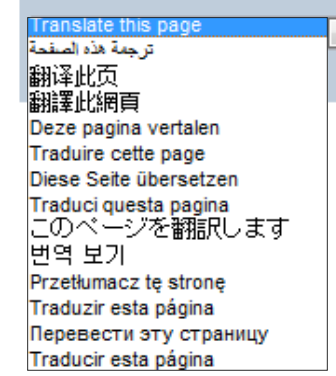


Bilingual side-by-side viewer



Embeddable widget

Your viewers will see this



<http://www.microsofttranslator.com/AddIn.aspx>
<http://www.microsofttranslator.com/dev/ajax/>

Research Information Centre (RIC) Project

Virtual Research Environment (VRE) Toolkit for SharePoint

TRINITY COLLEGE DUBLIN
COLÁISTE NA TRÍÓNÓIDE, BAILE ÁTHA CLIATH

THE UNIVERSITY OF DUBLIN

Research Information Centre

Help | Contact Us | Feedback | Library Search | Search

Welcome Mike Chance | Log Out

Home

Projects Overview

Name	Role	Activity	Discussion
Oliver Cromwell	[Avatar]	ARC_S...	No Discussion Started
Product 2	[Avatar]	No Activity Performed	No Discussion Started
Product 3	[Avatar]	No Activity Performed	No Discussion Started
Product 4	[Avatar]	No Activity Performed	No Discussion Started
Product 5	[Avatar]	No Activity Performed	No Discussion Started
Product 6	[Avatar]	No Activity Performed	No Discussion Started
Product 7	[Avatar]	No Activity Performed	No Discussion Started

Feedback Alerts

Feedback Requests

Name	Project	Requested By	Received On	Feedback
ARC_SEC2.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback
ARC_SEC2.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback
ARC_CV.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback
ARC_SEC1.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback
ARC_CV.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback
ARC_SEC2.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback
ARC_CV.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback
ARC_SEC1.doc	Oliver Cromwell	Jan Holloway	12/04/2010 15:34:28	Provide Feedback

Feedback Received

There are no items to show in this view

Powered by Microsoft Office © Sharepoint © Server 2007 ©

Collaborative environment for research groups

Personal site for each researcher and project site for each project

Document management, federated search, social networking, real-time communication, blogs, wikis



Project Overview:
<http://research.microsoft.com/ric/>
<http://research.microsoft.com/vre/>

Version 1.1 (Open Source under Ms-PL):
<http://ric.codeplex.com/>

ScienceCinema

Project MAVIS: powerful audio-visual search

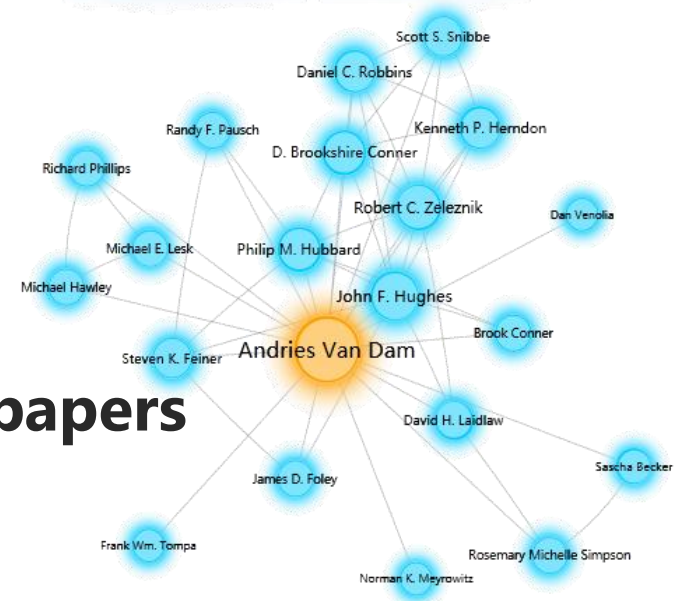
- Indexing automatic transcripts as text
 - Automatic transcription accuracy is only 50-80%
- MAVIS techniques
 - Word-level **lattice** indexing
 - Index word alternatives – robust to recognizer errors
 - 50-140% accuracy improvement
 - Index timing – navigate to exact point in video
 - Vocabulary Adaptation
 - Use NLP and Bing Search to expand word dictionary
 - Automatic keywords to expose to search engines
 - Enables discovery of speech content through search engines
 - Bi-product of vocabulary adaptation
- Department of Energy's Office of Scientific & Technical Information
 - 1,000 hours of AV content currently available
- See <http://research.microsoft.com/mavis>



<http://www.osti.gov/sciencecinema>

Microsoft Research – Academic Search Beta

<http://academic.research.microsoft.com>



- **Powerful search tool for academic papers**
- **From MSR Asia Lab (Beijing)**
 - For researchers, by researchers
- **Historically focused on Computer Science**
 - Now targeting all academic fields/domains
- **Key functionality includes**
 - Find top papers in a domain
 - Easily search the top papers, authors, conferences, and journals for a topic
 - See details about a specific paper, author, conference or journal
 - Quickly find relationships between authors (with Visual Explorer)
 - Get a related Bing Answer
 - Public API currently in testing

Project Garibaldi

Large Art Display on a Surface (LADS)

A digital humanities tool for accessing large or fragile objects – for research and/or teaching purposes

The Garibaldi Panorama: a 140 year old scroll / painting that is almost five feet tall, nearly the length of a football field, and printed on both sides.

Surface application in use at the British Library and the Harvard-Smithsonian Astrophysics Library

Currently on display at the 'Growing Knowledge' exhibit at The British Library

Unique functionality:

- Two screens for work and display running off Surface. The Surface screen contains navigation and additional information. The vertical screen removes the clutter, and is synchronized with the scrolling of the Surface screen used for sharing.
- Hovering a hand over an information hot spot in the image opens a menu that lets you access additional related documents, videos, etc.
- Flicking a document to the top of the Surface display will make it visible on the vertical display. Multiple documents, videos, etc. can be interacted with in this fashion. Web browser for external content with gesture support.
- Magnification lens via object interaction. Lens movement and sizing is duplicated onto large vertical display.
- IR-Light pen for notation and pen based gestures for moving and erasing notes.

Project overview:

<http://dl.lib.brown.edu/garibaldi/about.html>



BROWN



Smithsonian



Zentity – Semantically-enabled repository software

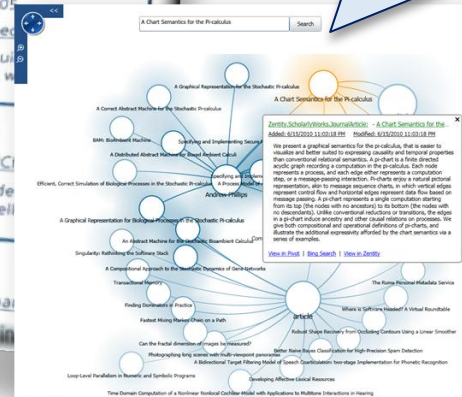
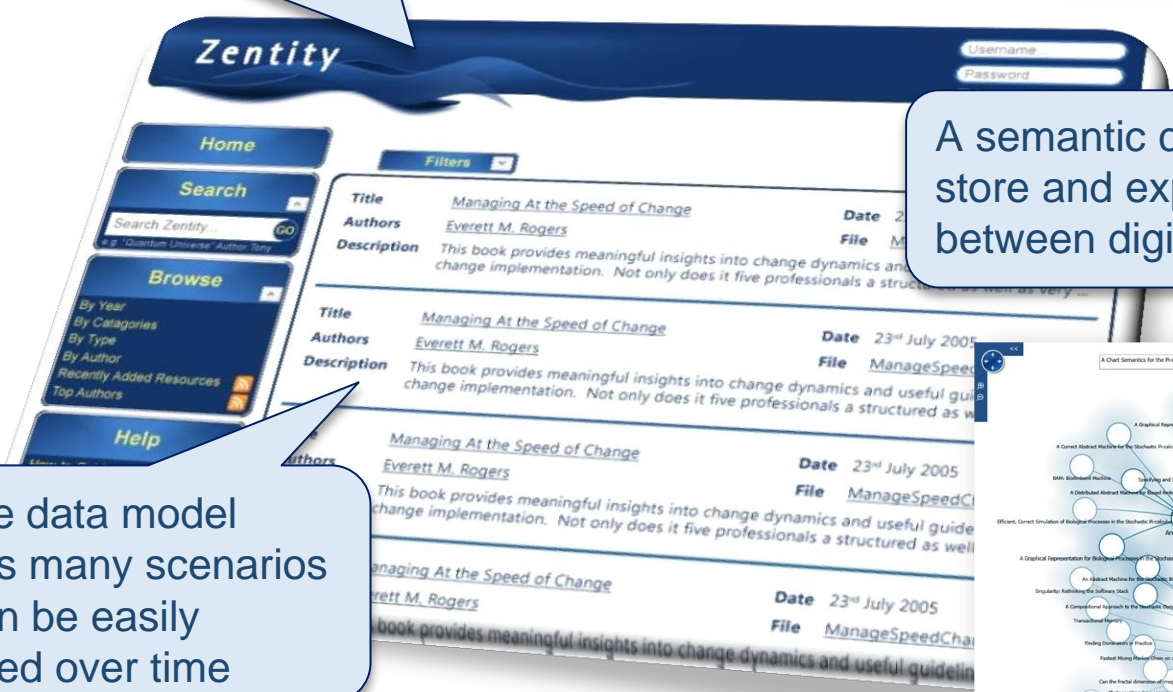
Built on top of SQL Server & Entity Framework

Default web UI with CSS support and custom ASP.Net controls



A semantic computing platform to store and expose relationships between digital assets

Flexible data model enables many scenarios and can be easily extended over time



Binary & Source Code (Version 2.0): <http://research.microsoft.com/zentity/>

demo

Proyecto RITA | Repositorio Tadeísta

Zentity 2.0 implementation

Dr. Camilo A. Acosta-Márquez

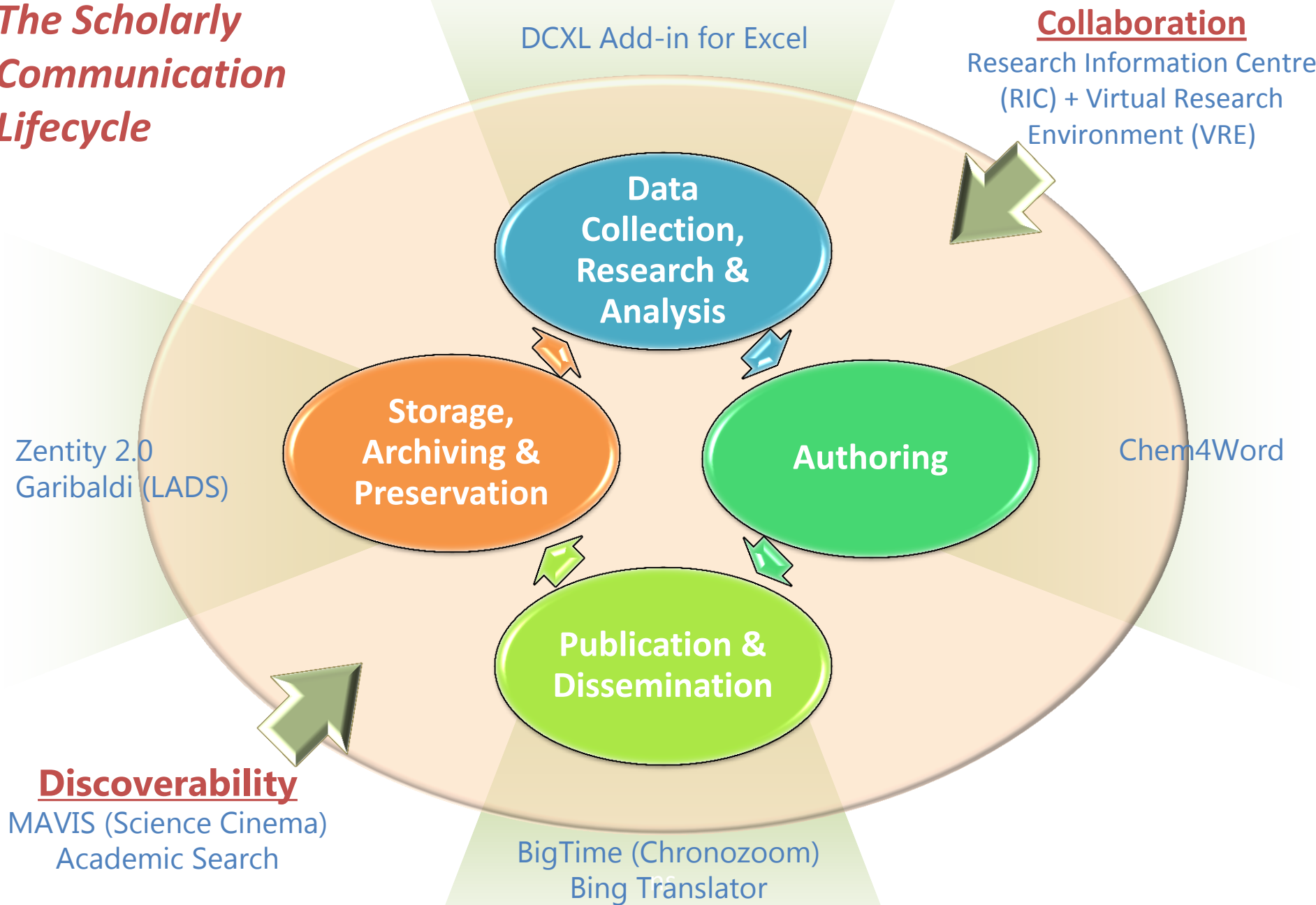
Director Centro de Robótica e Informática

Universidad Jorge Tadeo Lozano (Bogotá, Colombia)



**Servers are the
new shelves.**

The Scholarly Communication Lifecycle



How to *engage* with Microsoft Research Connections

- **Tell us more about your projects, your workflows, your issues. We're *always* in "requirements gathering mode"**
 - Email us at scholar@microsoft.com with questions and ideas
 - Especially if you are already utilizing Microsoft technologies
- **Download our add-ins and try them, and then *give us feedback!***
 - Let us know if we can facilitate a connection with the appropriate product group(s)
- **Follow announcements via our [RSS feed](#) or via our [Facebook](#) group**

Thank you!



Lee Dirks

Education & Scholarly Communication
Microsoft Research | Connections

ldirks@microsoft.com or scholar@microsoft.com

URL – <http://www.microsoft.com/scholarlycomm/>

Facebook: [Scholarly Communication at Microsoft](#)

Thank you!



UNIVERSIDAD DE BOGOTÁ
JORGE TADEO LOZANO

Dr. Camilo A. Acosta-Márquez PhD

Research Fellow Rehabilitation Robotics

Director Centro de Robótica e Informática | Universidad Jorge Tadeo Lozano
Coordinador Académico RUMBO (Red Universitaria Metropolitana de Bogotá)
Proyecto RITA, Repositorio Tadeísta

camilo.acosta@utadeo.edu.co

Microsoft®

Research Connections