



International Academy, Research, and Industry Association

Challenges in Knowledge Sharing

Panel Discussion

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International Academy, Research, and Industry Association

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Brian Thoms, California State University, Channel Islands, USA

Dan Tamir, Texas State University, USASA

October 12, 2015

Dan Tamir, Associate Professor, Computer Science, Texas State University

- **Education:**

- BS & MS-EE (BGU), PhD-CS (FSU)

- **Professional experience:**

- Florida Tech, Motorola/Freescale, TX State

- **Areas of Interest:**

- Incremental classification of Big Data
- Power-aware scheduling,
- Data Compression,
- Usability

Aspects of Knowledge and Knowledge Sharing

- Representation Mechanisms
- Formalisms
- Standards
- Quality Assurance
- Ethics/Legal aspects
- Knowledge vs. Information vs. Data
 - Knowledge engineering
 - Data mining
 - Data analytics
 - Patterns / pattern recognition
 - Knowledge is power
- Knowledge vs. Belief vs. Values
- Applications

Panel Discussion Topics

1) knowledge vs. information vs. data - Dan

2) Knowledge representation

A Knowledge management perspective of
requirements engineering - Hermann

3) Crowdsourcing and collaborative social
networks - Brian

4) Quality assurance of published knowledge -
Dieter

Knowledge; information; data; belief

- Formalism (good news)
 - Data - Results of measurements
 - Self Information - $I = \log\left(\frac{1}{P(j)}\right)$
 - Surprise, no-news = good news
 - Knowledge
 - Result of sound deduction
 - Result of “sound” empirics
- Belief – Seeing is believing?
 - Implication and other fallacies
- Limitation of the formalism (Bad news)
 - The theory of absurd – absurdism
 - The conflict between the human tendency to seek inherent value and meaning in life and the human inability to find any.

Crowdsourcing and Collaborative Social Networks

Panel Member – Dr. Brian Thoms

Affiliation – California State University, Channel Islands

TMI (1)

- “Information consumes the attention of its recipients; a wealth of information creates a poverty of attention and a need to allocate that attention amongst the overabundance of information sources that might consume it.”
Herbert Simon(1971)

TMI (2)

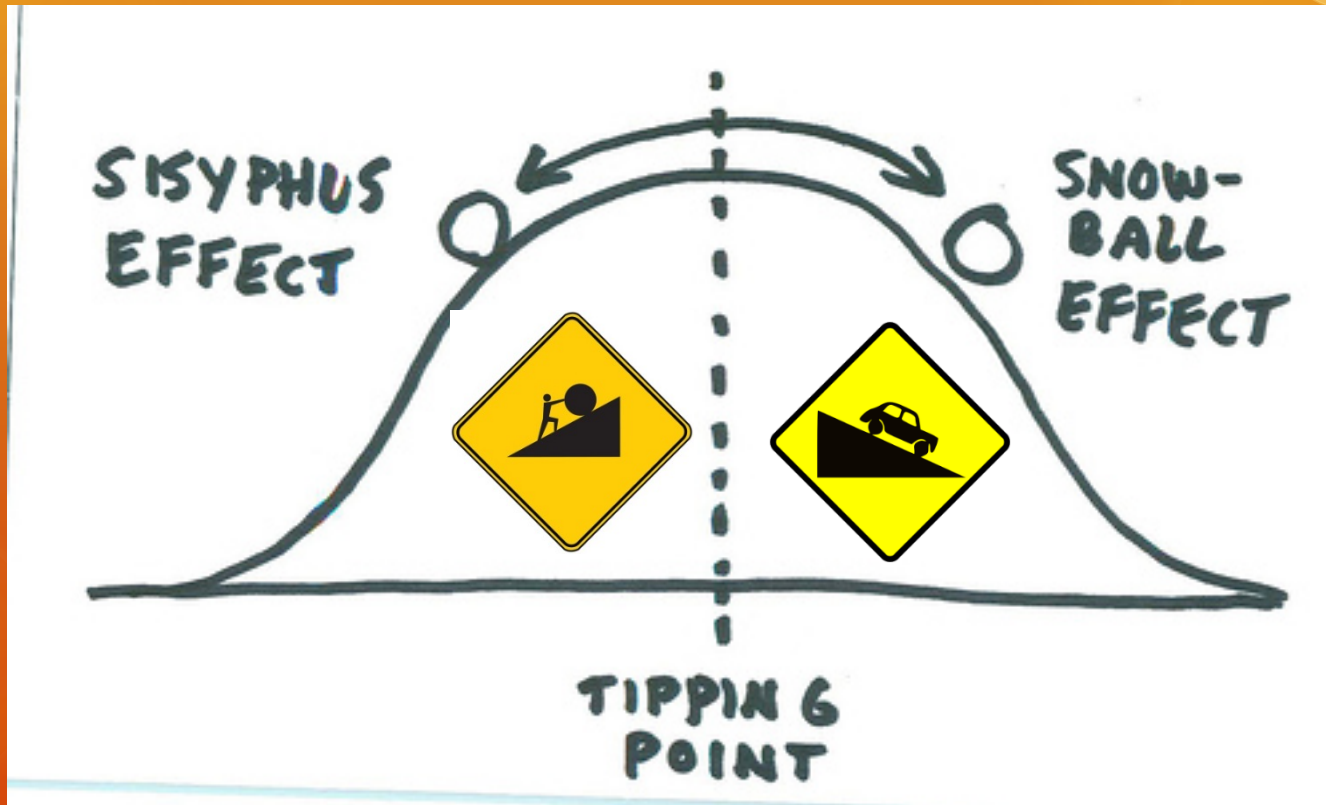
Bad News

- ❑ Too much information
- ❑ Too many tools
- ❑ Cannot simply throw technology at the problem
- ❑ Identifying the right solution takes resources

Good News

- ❑ Peer Recommender Systems
- ❑ News Aggregators
- ❑ Learning Algorithms
- ❑ System Design Improvements

Brrrrr. The Cold Start Problem



Cold Start (2)

Bad News

- ❑ If you build it, there is no guarantee they will come
- ❑ When they come, there is no guarantee they will participate
- ❑ When they participate, there is no guarantee that what they produce is of any value

Good News

- ❑ Not everyone needs a niche community
- ❑ Large-scale communities through Linked-In, Facebook, WordPress, Media-wiki, etc. thrive.
- ❑ Active community members facilitate knowledge construction and help to establish community expectations

I think, therefore, I am... I think.



Identity Online (2)

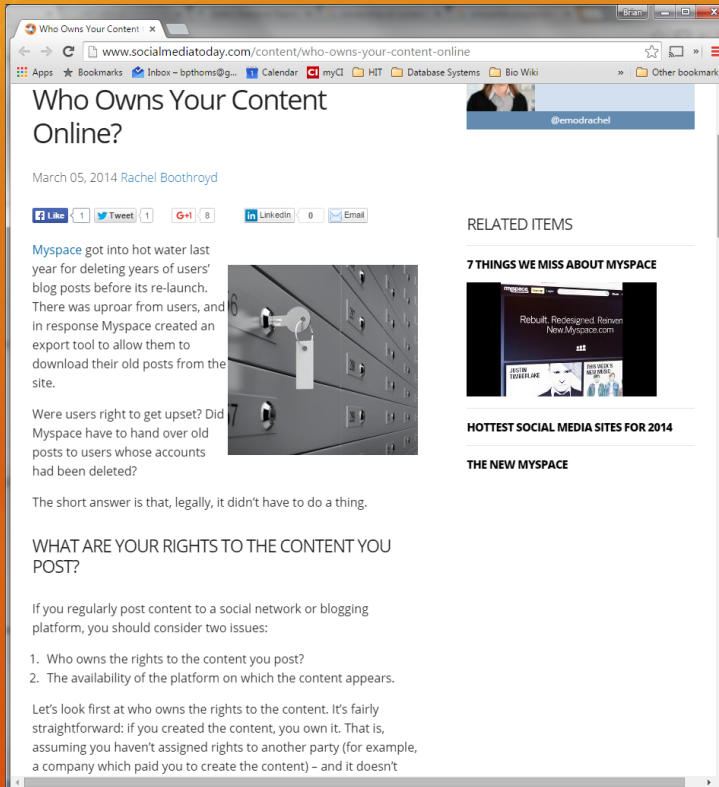
Bad News

- ❑ Many challenges to creating an online identity
- ❑ Gatekeepers.
- ❑ Finding a signal through the noise.

Good News

- ❑ The purpose of online community is to facilitate identity.
- ❑ Gatekeepers can also be a good thing.

Thou Shalt Not Steal



Who Owns Your Content Online?

March 05, 2014 Rachel Boothroyd

Myspace got into hot water last year for deleting years of users' blog posts before its re-launch. There was uproar from users, and in response Myspace created an export tool to allow them to download their old posts from the site.

Were users right to get upset? Did Myspace have to hand over old posts to users whose accounts had been deleted?


The short answer is that, legally, it didn't have to do a thing.

WHAT ARE YOUR RIGHTS TO THE CONTENT YOU POST?

If you regularly post content to a social network or blogging platform, you should consider two issues:

1. Who owns the rights to the content you post?
2. The availability of the platform on which the content appears.

Let's look first at who owns the rights to the content. It's fairly straightforward: if you created the content, you own it. That is, assuming you haven't assigned rights to another party (for example, a company which paid you to create the content) - and it doesn't



NEW YORK

Intelligence / MEDIA

July 29, 2014 3:05 p.m.

Plagiarizing Wikipedia Is Still Plagiarism, at BuzzFeed or the New York Times

By Joe Coscarelli

The New York Times says it is "looking into" accusations that a recent article on the painter Piero di Cosimo lifted most of its first paragraph straight from Wikipedia. The similarities, in a piece by reporter Carol Vogel, were first pointed out by MediaBistro's FishbowlNY, and are of particular media interest following the firing of BuzzFeed's viral politics editor Benny Johnson for similar offenses (albeit at least 41 of them), which included plagiarism not only from Wikipedia but even flimsier sources like About.com and internet cesspool Yahoo! Answers. But with journalism living increasingly online, where prominent attribution via links is a vital part of the lexicon, and aggregation widely accepted so long as proper credit is given, the source of the words is irrelevant.

Here's Vogel's apparent offense from the Times:

Artists can be eccentric, but the quirks of the Italian Renaissance master Piero di Cosimo are legendary. He is said to have been terrified of thunderstorms and so pyrophobic that he rarely cooked his food, subsisting mostly on hard-boiled eggs that he prepared 50 at a time while heating glue for his art. He didn't clean his studio. He didn't trim the trees in his orchard. Giorgio Vasari, the Renaissance biographer, described Piero as living "more like a beast than a man."

Copyright and Ownership (2)

Bad News

- ❑ Countries with no explicit privacy laws.
- ❑ For most online software, privacy is determined by the application owners, not the individual.
- ❑ Content ownership may deter participants.
- ❑ Difficulty in identifying the 'true' owner of the content.

Good News

- ❑ Terms of service are in place to let the user know who owns information.
- ❑ P3P provide universal guidelines.
- ❑ Tools are available to catch plagiarism and theft.

Panel

„Challenges in Knowledge Sharing“

Quality assurance of published knowledge specifically how to measure the quality of professional conference and journal publications

Quality Assurance – Why?

- Science generates new knowledge
→ contributes to overall knowledge pool
- Future science builds on previous results

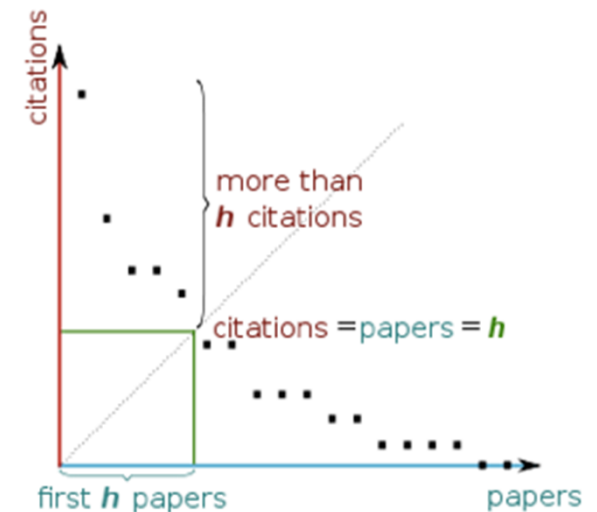
Isaac Newton, :

*“If I have seen further
it is by standing on
the shoulders of giants.”*



Need for Publications?

- Documentation of scientific progress
- Essential for scientific career paths
 - Curriculum Vitae
 - Publication List
 - h-index
 - Citations
- Important for research grants
- Quality over quantity



Problem: Author names

- Spelling of your name can highly influence online publication lists:

Kranzmüller, Kranzmueller, Kranzmuller,
Kranzmüller, Kranzmueller, Kranzmuller,
Kranzelmüller, Kranzelmueller, Kranzelmuller,
Granzmüller, Kanzmüller, Ganzmüller, ...

Conflicting goals

- Publisher: more papers, higher prizes
- Conference organizer: more papers, more registrants
- Academic Institutions: more papers, better reputation → better ranking
- Journal: often long reviewing – still up-to-date?
- Conference: shorter review cycle, less pages, less quality?



Gutenberg Bible, Lenox Copy,
New York Public Library, 2009.
Pic 01" von NYC Wanderer (Kevin Eng)

Peer reviews

- Peers check the quality of submitted work
- Feedback for authors to improve work
- Acceptance of paper based on judgement of peers (experts in the field)

Problem:


- Number of reviews needed to assess quality (statistics)
- Amount of work for reviewing (increasing number of publications/conferences)
- Plagiarism check is time consuming (despite Google)

Problem: Reproducibility

- Publication is only part of the scientific work →
Documentation of methodology and results
- Source code and data are more and more important → Why publish only papers?
- Reproducibility requires the same computing environment as before, from operating system to floating point precision
- Program runs on large-scale computing infrastructures are costly

Quality Assurance

- (1) Submit to well-known conferences and journals
- (2) Use/trust reliable reviewers
- (3) Offer incentives for reviewers
- (4) Seek references to source code/data/virtual machines



Panel


Challenges in Knowledge Sharing *A Knowledge Management Perspective of Requirements Engineering*

Institut für
Computertechnik
ICT
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Computer Technology

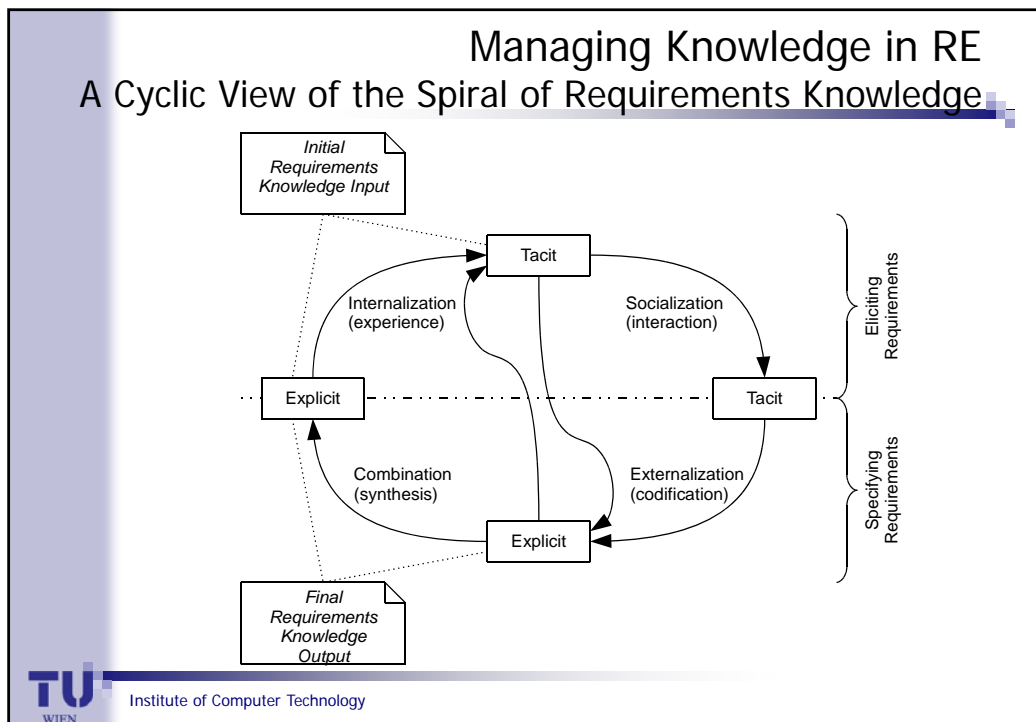
Hermann Kaindl
Vienna Univ. of Technology, ICT, Austria

Introduction

- Exchange of knowledge among stakeholders and requirements engineers
- Requires the willingness to share knowledge
→ Adopt Knowledge Management (KM) for Requirements Engineering (RE)
 - Insights about knowledge transfer and transformation
 - Understanding issues involved and addressing them by adopting a KM view of RE
- Based on Pilat & Kaindl, RCIS'10



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Managing Knowledge in RE Facilitating Requirements Knowledge Exchange

- Make sharing of requirements knowledge work
- Knowledge Map
 - Association of knowledge holders with the relevant knowledge they have
- Incentives to make knowledge holders "share"
 - Increase perceived "pay-off"
 - Promote "group-identity" and feeling of "ownership"
- Appropriate form for codified knowledge

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An Exemplar Case Lessons Learned

- While doing requirements, focus on the knowledge sharing process:
 - Identifying “knowledge holders” may be more important than identifying “stakeholders”.
 - Individual factors affecting the pay-off perceived by the knowledge holders for sharing are important.
 - New knowledge holders should be involved if key knowledge is found to be missing.
- Establish spiral of knowledge to iteratively increase the knowledge about the requirements and the domain in the project.



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Thank you for your attention!

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