# Learning from Wikipedia: Open Collaboration within Corporations

**Dirk Riehle** Open Source Research SAP Research, SAP Labs, LLC

Talk the Future 2008 Krems, Austria, Sept 5<sup>th</sup>, 2008





#### Learning from Wikipedia: Open Collaboration within Corporations

**Abstract:** Wikipedia is the free online encyclopedia that has taken the Internet by storm. It is written and administered solely by volunteers. How exactly did this come about and how does it work? Can it keep working? And maybe more importantly, can you transfer its practices to the workplace to achieve similar levels of dedication and quality of work? In this presentation I describe the structure, processes and governance of Wikipedia and discuss how some of its practices can be transferred to the corporate context.

**Speaker:** Dirk Riehle leads the Open Source Research Group at SAP Labs in Palo Alto, California (Silicon Valley). Before this, he was the co-founder of an on-demand business software startup in Berlin, Germany, which used agile methods and strategically employed open source software. A fan of wikis since their inception, Dirk started the Wiki Symposium, a conference dedicated to wiki research and practice, see www.wikisym.org. He holds a Ph.D. in computer science from ETH Zurich as well as an M.B.A. from Stanford Business School (GSB). He welcomes email at dirk@riehle.org and blogs at www.riehle.org.

#### **Overview of Talk**



- 1. Wikimedia Foundation
- History and Organization
- Processes and Practices
- 2. Wikipedia Processes and Practices
- Wikipedia Processes
- Wikipedia Challenges

- 3. Open Collaboration and Corporations
- Open Collaboration Definition
- Open Collaboration Examples
- 4. Open Collaboration Using Wikis
- Wikis and Open Collaboration
- Application Examples
- Wiki Best Practices



- 1. History and Organization
- 2. Processes and Practices

# **A Short History**



English Wikipedia launched on January 15, 2001, on www.wikipedia.com

- Goal is to create an English language publicly editable encyclopedia
- Founded by Larry Sanger and Jimmy Wales

The Wikimedia Foundation was founded on June 20, 2003

Mission is to develop and provide open content wiki-style to the world for free

Local chapters in many countries followed quickly

Information taken from http://en.wikipedia.org/wiki/Wikipedia

#### **Organizational Setup**

The Wikimedia Foundation

- A U.S.-based 501(c)(3) non-profit organization
- Registered in Florida, headquartered in San Francisco
- Owner of some intellectual property (trademarks, domain names, etc.)

The WMF Board of Trustees

- At present 8 members, growing to 10
- All volunteers, actively engaged, no big donors on board
- At least half of the board members to be elected/appointed by the community

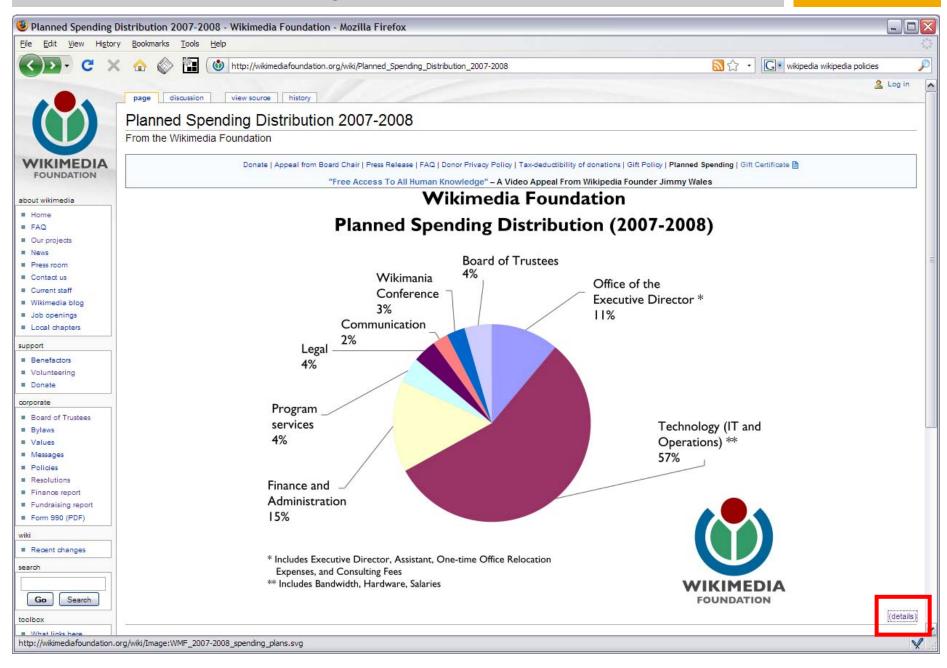
The WMF Professional Staff

- Executive director since Nov 2007, supported by professional staff
- Growing rapidly, building a professional structure

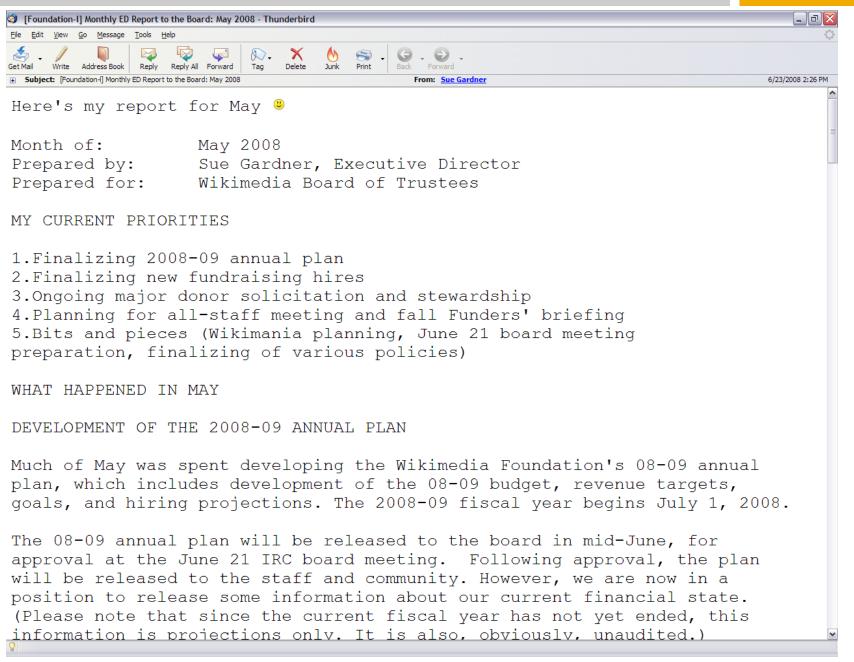
### **Wikimedia Foundation Properties**



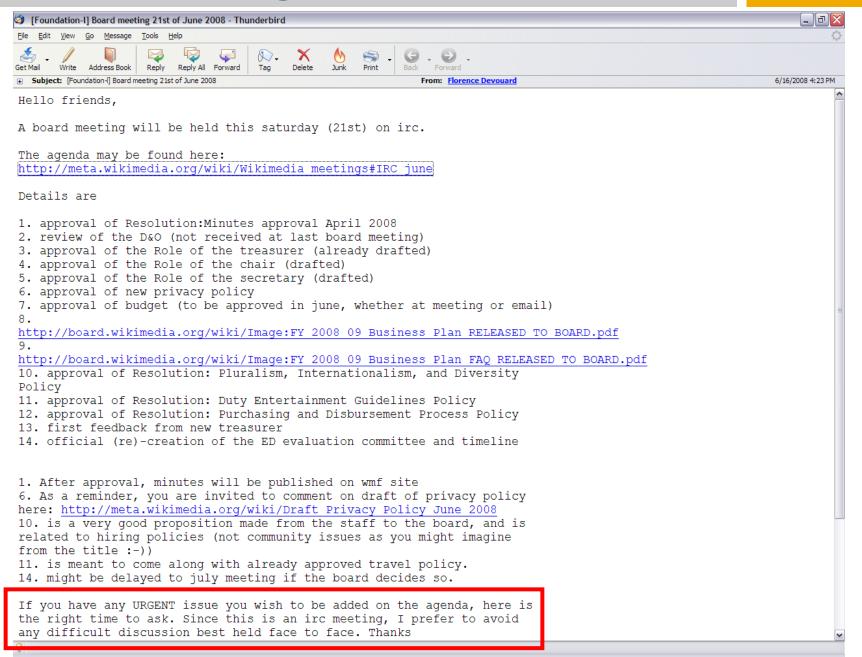
#### **Finances are Publicly Accessible**



#### Many Board Dealings and Operations are Public



#### **Some Board Meetings Are Public**



### **Policy Proposals Are Publicly Discussed**

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#### Anyone Can Raise an Issue...

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Subject: [Foundation-I] Commons Usurp issue	From: <u>Stone</u>	6/3/2008 4:25 PM

To whom it may concern:

I am writing about a policy issue in regards to nick usurping on the Commons. I am User:Bstone on the English Wikipedia, the Meta, Wikiversity and Wikiquote. I recently attempted to set up a unified log in and was told that there was another user on the Commons named Bstone. Seeing that this user was not active on the Commons since 21 November 2006 I asked the crats on the Commons if I could usurp the the nick, here:

http://commons.wikimedia.org/wiki/Commons:Changing username/usurp requests#Bstor

After a short discussion in IRC with a Commons crat, I was told that despite the inactivity of this account there exists a Commons policy disallowing Usurption as long as an account has ever had any contributions. I was urged by some fellow editors and administrators that I should bring up this issue on this email list. My apologies if this is not the appropriate place to discuss it.

Sincerely,

Bstone

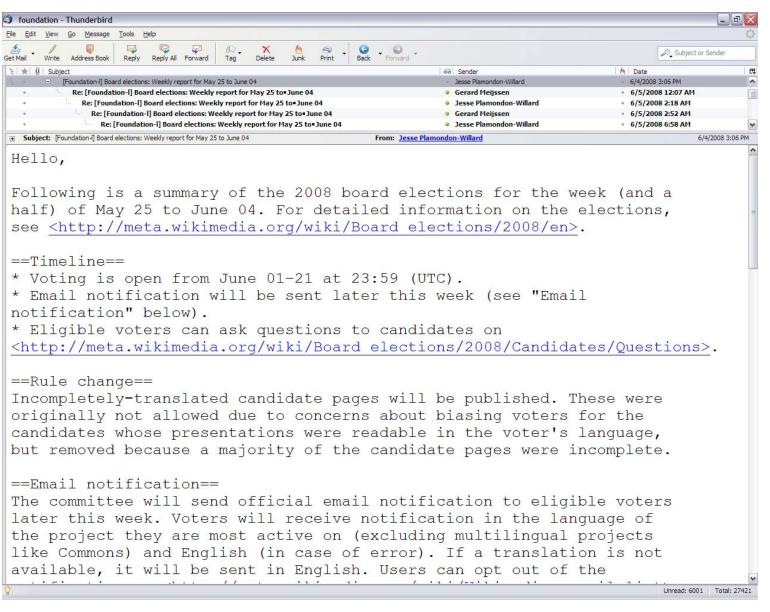
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# ... And Discuss Them Ad Nauseam

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#### Thus, Most of the Work is Done by Volunteers





# Wikipedia Processes and Practices

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- 1. Wikipedia Processes
- 2. Wikipedia Challenges

## **The Wikipedia Success Story**



The free, multi-lingual, open content encyclopedia

- More than >2M articles in the English Wikipedia; German, French, Polish, Japanese next
- Among the top 10 websites in terms of traffic (Alexa), >600M visitors annually
- Criticized for being volunteer written, but first study showed high quality of contents [1]

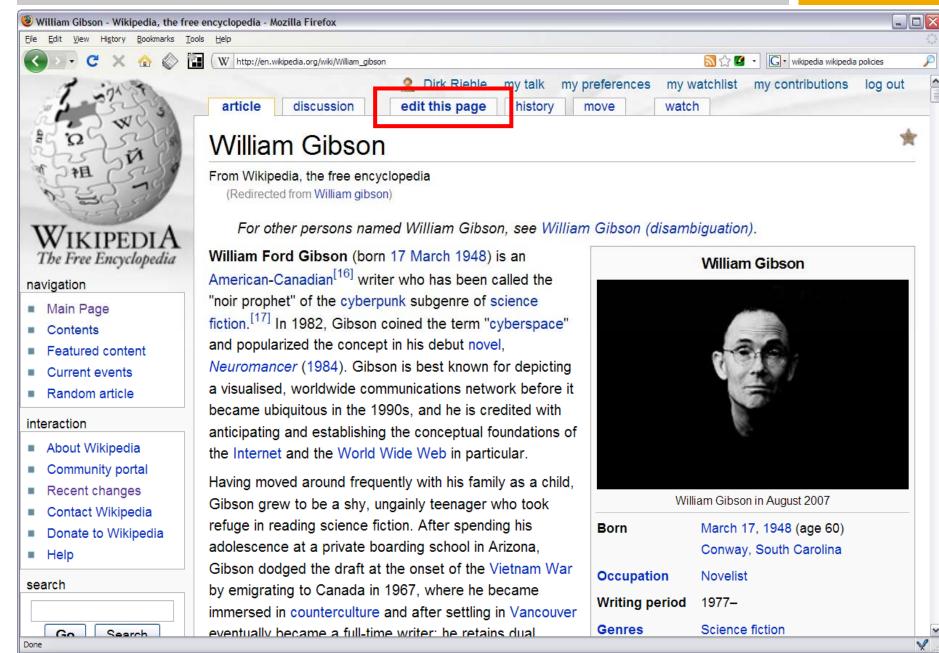
Operational model of Wikipedia (and most other WMF properties)

- Community of volunteers for everything e.g. content creation, administration, operations
- Anyone can edit, even anonymously (though IP address gets logged)
- Contents is currently covered by GFDL, moving on to a CC license

Active subject of research, see WikiSym and Wikimania proceedings

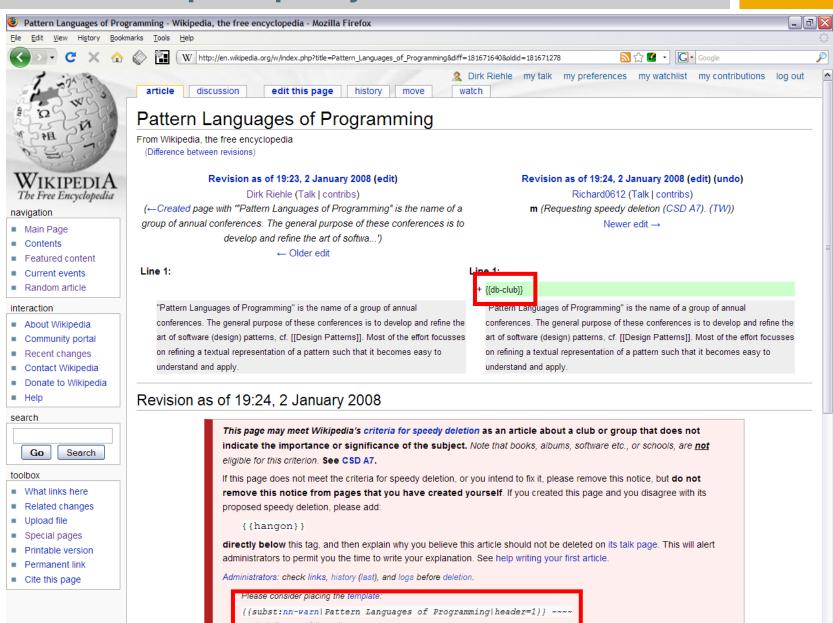
<sup>[1]</sup> Jim Giles. "Internet Encyclopedias go Head to Head." Nature News, 14 December 2005

### The Free Encyclopedia That Anyone Can Edit



#### **Process Example: Speedy Deletion 1/3**

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#### **Process Example: Speedy Deletion 2/3**

#### 😻 User talk:Dirk Riehle - Wikipedia, the free encyclopedia - Mozilla Firefox

Edit View History Bookmarks Tools Help

Search

Contact Wikipedia

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**Related changes** 

User contributions

E-mail this user

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I hope you enjoy editing here and being a Wikipedian! Please sign your name on talk pages using four tildes (~~~~); this will automatically produce your name and the date. If you need help, check out Wikipedia: Questions, ask me on my talk page, or place { { helpme } } on your talk page and someone will show up shortly to answer your questions. Again, welcome! . Nice interview with Angela, Aphaia and Elian by the way. - BT 22:02, 8 August 2006 (UTC)

#### Speedy deletion of Pattern Languages of Programming



A tag has been placed on Pattern Languages of Programming requesting that it be speedily deleted from Wikipedia. This has been done under section A7 of the criteria for speedy deletion, because the article appears to be about a club, but it does not indicate how or why the subject is notable: that is, why an article about that subject should be included in an encyclopedia. Under the criteria for speedy deletion, articles that do not indicate the subject's importance or significance may be deleted at any time. Please see

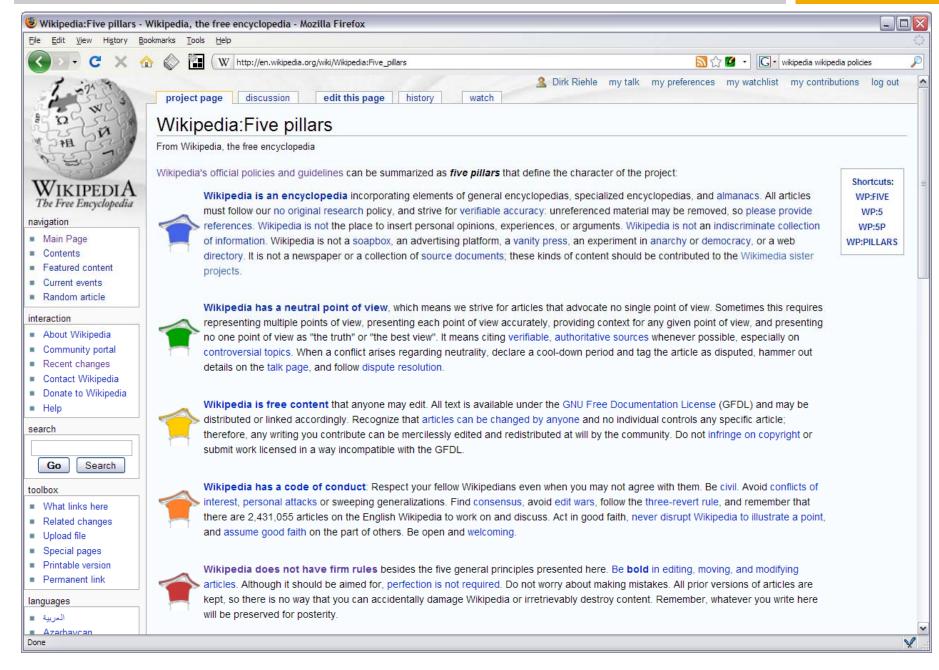
the guidelines for what is generally accepted as notable, as well as our subject-specific notability guidelines for people and for organizations.

If you think that this notice was placed here in error, you may contest the deletion by adding { {hangon} } to the top of the page (just below the existing speedy deletion or "db" tag), coupled with adding a note on the article's talk page explaining your position, but be aware that once tagged for speedy deletion, if the article meets the criterion it may be deleted without delay. Please do not remove the speedy deletion tag yourself, but don't hesitate to add information to the article that would would render it more in conformance with Wikipedia's policies and guidelines. RichardΩ612 19:24, 2 January 2008 (UTC)

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# Wikipedia Is Self-Documenting



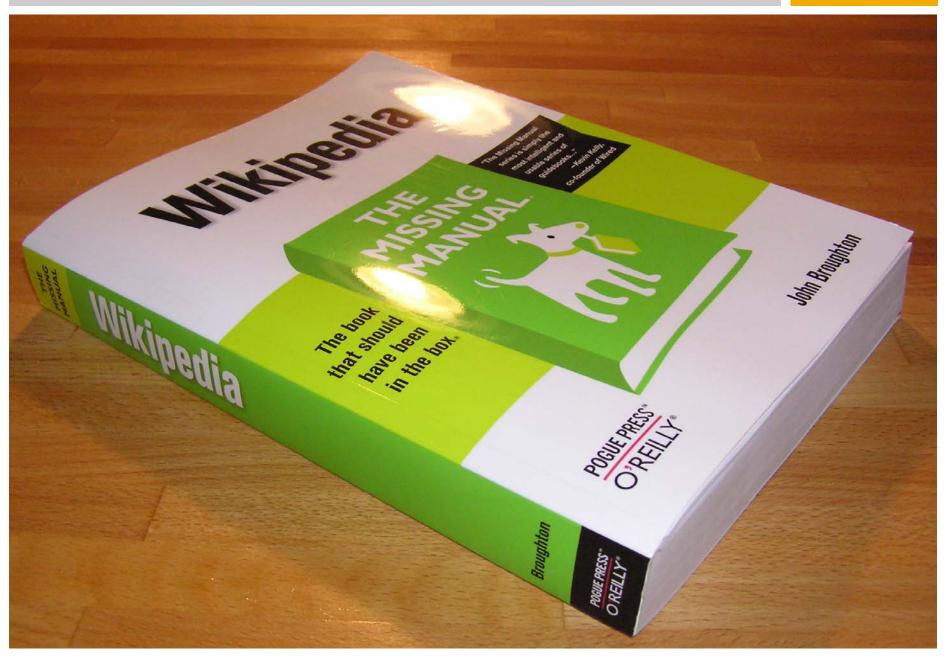
## **Wikipedia Policies**



## Wikipedia Policy: Ignore All Rules

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#### The Missing Wikipedia Manual [2]



#### Wikipedia's Processes [3]

Goals, agents, technology

- Pillars, values, processes, policies, rules, guidelines
- Readers, editors, administrators, bureaucrats, stewards, sysops
- Templates, categories, talk (discussion) pages

Wikipedia's processes

- People execute processes by annotating pages
- Annotations are tags that define a page's state
- Annotations also provide process guidance
- Processes are documented and linked-to
- If necessary, after conclusion a sysop will take action

Wikipedia makes powerful use of almost trivial technology



<sup>[3]</sup> Dirk Riehle. "How and Why Wikipedia Works." WikiSym 2006. ACM Press, 2006

#### Wikipedia Challenges

#### Content challenges

- Article quality, trust, scope
- Manipulation attempts (contents, link spam)
- Incorporating all kinds of new information

#### **Operational challenges**

- Keeping a diverse community together
- Engaging new contributors given more and more arcane processes
- Organizing at rapid growth rate
- Scaling up technology

#### Legal challenges

Law suits about contents



#### What to Learn from Wikipedia?

Server operations? Financial operations?

Non-profit operations? Fundraising?

Content creation? Editorial processes?

Self-administration? Election processes?

How to empower users! How to bring out the smarts!

How to create and fuel passion for work!



PERHAPS

HARDLY

HOPEFULLY

#### **Open Collaboration and Corporations**

- **1. Open Collaboration Definition** 
  - Wikipedia

#### 2. Open Collaboration Examples

- Open Source
- Open Innovation
- Open Space

# **Open Collaboration Principles [4]**

#### The three principles of open collaboration

- Egalitarian: everyone can contribute
- Meritocratic: contributions are valued based on quality
- Self-organizing: collaborators develop their own processes

Open collaboration drives wikis, open source, etc.

- Open collaboration motivates and empowers collaborators
- Open collaboration utilizes resources you never knew you had
- Open collaboration can lead to superior results

Wikipedia is based on these open collaboration principles

SAD

<sup>[4]</sup> Riehle et al. "Bringing Open Source Best Practices into Corporations." IEEE Software, 2009

# **Open Collaboration and Wikipedia**



Egalitarian	Iow barriers: Internet access, computer literacy
Meritocratic	<ul> <li>extensive consensus-based rule set</li> <li>free and fair elections determine role/status</li> </ul>
Self-organizing	<ul> <li>no pre-imposed rules and processes</li> <li>consensus-based evolutionary process</li> <li>volunteers interpret and perform processes</li> </ul>

#### **Community Open Source**

No single legal entity owns the copyright to the source code

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Sometimes non-profit regulates affairs based on broad consensus

Interactions, copyright, patents are regulated by license

Usually copyright remains with programmer/company

Rank and position are determined by peer evaluation

But beware of initial conditions, commercial interests, status greed

Examples: Linux, Apache, PostgreSQL, ...

Commercial open source has related motivation only [5]

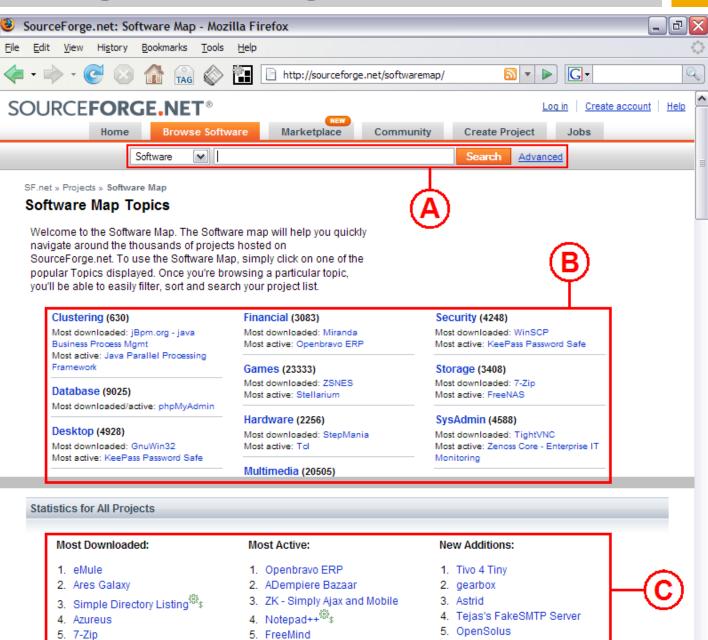
- Is owned by a company which holds 100% of the copyright
- Typically based on the dual-license strategy
- Community is important but has different function
- Examples: MySQL, Alfresco, Hyperic, ...

<sup>[5]</sup> Dirk Riehle. "The Economic Motivation of Open Source." IEEE Computer, April 2007

#### **Open Source and Public Software Forges**

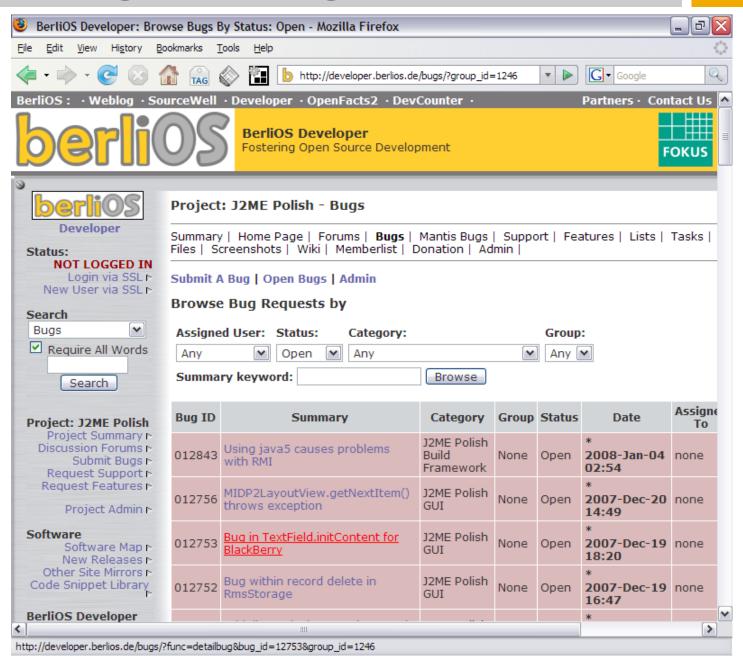
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#### **Software Forges: Attracting Volunteers 1/3**



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#### **Software Forges: Attracting Volunteers 3/3**



# **Open Collaboration and Open Source**



Egalitarian	<ul> <li>low barriers: Internet access, computer literacy</li> <li>resource-starved, hence every helping hand is welcome</li> </ul>
Meritocratic	<ul> <li>extensive discussions, best argument typically wins</li> <li>(committer) status is earned through extended service</li> </ul>
Self-organizing	<ul> <li>(almost) every open source process is different</li> <li>the people in the project determine their process</li> </ul>

# HP's (and IBM's) Internal Open Source

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Hewlett-Packard's "progressive open source" [6]

- Inner source (within firewall)
- Controlled source (in DMZ with partner access)
- Open source (on the "open" Internet)

Progressive open source to address the following problems:

- Left hand does not know what right hand is doing
- Large firms get frequently reorganized, lose institutional memory

IBM did the same: IBM's Internal Open Source Bazaar

Does open source provide the same benefits in-house as outside?

<sup>[6]</sup> Dinkelacker et al. "Progressive Open Source." ICSE '02. IEEE Press, 2002

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# SAP's Internal Software Forge<sup>1</sup>

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<sup>1</sup> Original screenshot with mock-up data

# **SAP's Internal Open Source [4]**

SAP Forge hosts internal software projects

- Started in September 2006, linear growth, currently at 9% of developer population
- Mostly research projects, as well as projects before first release

Comparison with other firm-internal software forges

	Start Date		# of Projects	at age [months]
IBM	January 2000	~800 (~4%)	45	18
НР	June 2000	1500 (~7.5%)	24	18
SAP	Sept 2006	706 (~7.1%)	179	18
Microsoft	June 2007	794 (~2.8%)	406	10

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<sup>[4]</sup> Riehle et al. "Bringing Open Source Best Practices into Corporations." IEEE Software, 2009

# **Benefits of Internal Open Source**

#### Benefits of volunteer help

- volunteers reduce resource needs
- higher quality through self-motivated volunteers
- higher quality through quasi-public scrutiny
- broader expertise becoming available
- broad support and buy-in into project
- increased visibility and display of significance
- improved research-to-product transfer

One project within SAP

- 3 developers signed up 18 volunteers
- received significant help in requirements and testing

In a survey, 66% of respondents browsed, 24% received help, 12% helped



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# **Challenges of Internal Open Source**

At SAP, initial lack of resources, compliance

Overcome by open collaboration---SAP Forge remains a volunteer job

Natural hesitation of developers to spend free time at work

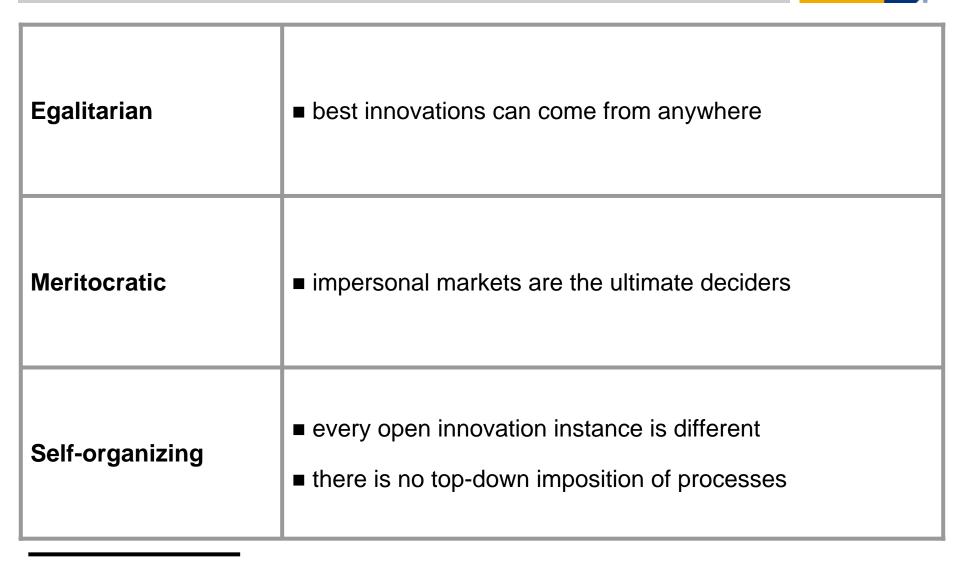
- Balanced out by equally natural curiosity and willingness to help
- Supported by smart project managers through tchotchkes etc.

Some managers are skeptical, not supportive of volunteer work

Turned neutral when realizing the benefits of engaging with research projects



# **Open Collaboration and Open Innovation [7]**



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[7] Henry Chesbrough. Open Innovation. HBS Press, 2003

# **Open Collaboration and Open Space [8]**



Egalitarian	<ul> <li>everyone can call for a meeting</li> <li>people vote with their feet and are free to choose</li> </ul>			
Meritocratic	<ul> <li>organizational status (should) does not play a role</li> <li>what's important naturally comes to the fore</li> </ul>			
Self-organizing	<ul> <li>the agenda gets negotiated and refined all the time</li> <li>everyone can call for a meeting and conduct it</li> </ul>			

[8] Harrison Owen. Open Space Technology. BK Publishers, 2008

# Open Collaboration Using Wikis

- 1. Wikis and Open Collaboration
- **2. Application Examples**
- 3. Wiki Best Practices

# **Successful Collaboration Applications**

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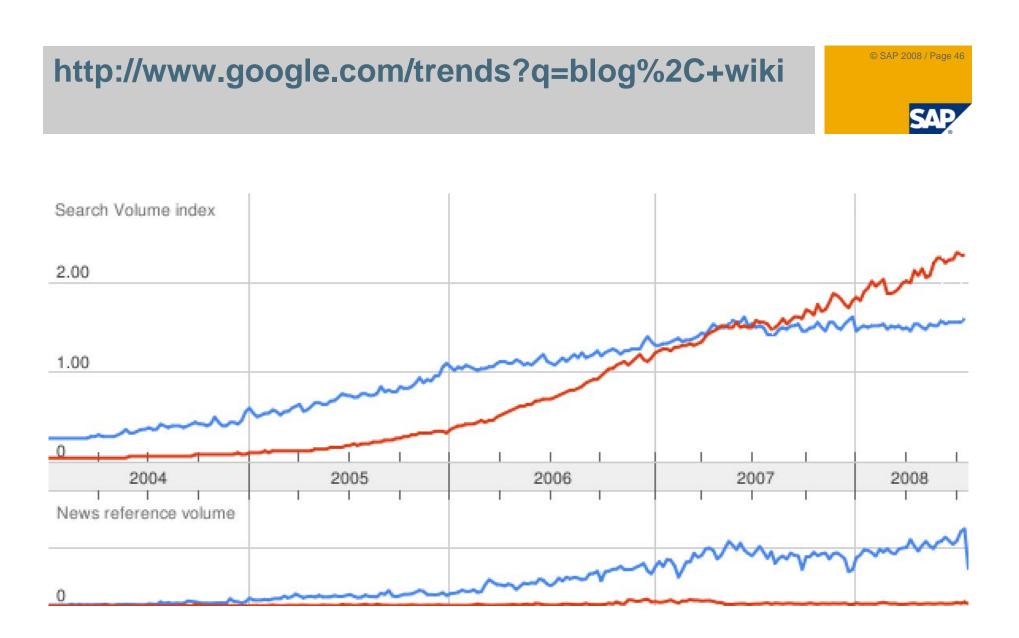
Successful "web 2.0" applications

- Email, blogs, wikis, micro-blogging, instant messaging
- Both consumer and enterprise applications!

They all avoid key pitfalls

- Everyone (within a given scope) can contribute,
- There is no status hierarchy, and maybe most importantly,

There are no predefined, superimposed processes on how to do things



As of July 30, 2008: blog (blue), wiki (red)

# **Principles of Open Collaboration**

Egalitarian: whoever shows up is the right people

- On the Internet: whoever cares
- Within a corporation: whoever cares

#### Meritocratic: contributions are evaluated based on their merits

- Status and seniority do not grant extra rights
- Egalitarian and meritocratic view of peers

Self-organizing: follows its own processes

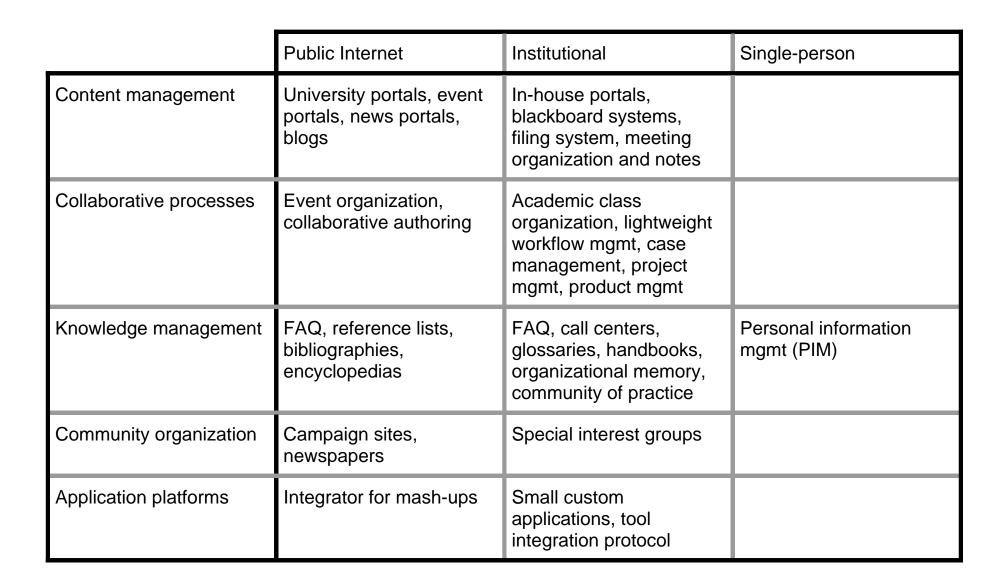
- Meta-contributions (processes) are contributions too
- Contributors ensure context fit but allow for idiosyncratic variation

Has found a straightforward expression in wikis



# **Public and Corporate Uses of Wikis**





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# Wikis in Software Companies [9]

For internal collaboration

- Hardly a tech company without an internal wiki these days
- Standalone or integrated with other tools, for example, a forge
- Chordiant uses wikis for project management and collaboration
- IBM used a wiki to develop its IP manifesto, base of its new IP policy

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To engage with the ecosystem

- Wikis are becoming a tool of open collaboration with the ecosystem
- Like internal collaboration, well integrated with ecosystem processes
- F5: DevCentral for technical users community for shared development
- SAP's SDN wikis for knowledge sharing in SAP's ecosystem

<sup>[9]</sup> Rachel King. "No Rest for the Wiki." Businessweek.com, March 2007

#### **Wikis in Software Projects**

Uses in software projects

- Requirements definition
- Product and project management
- Project and system documentation
- Project reporting (by hand as well as automated)
- Describing and running functional tests (FIT)

#### Dominant use is for knowledge management

- How the source code is laid out
- The meaning of some core abstractions
- How to set up your local build environment
- Where to find the reports
- And so on...



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# **Case Illustration: SAP's First Internal Wiki**

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#### SAP's BIS

SAP's first internal portal

#### Goal of BIS

- First internal portal to manage websites
- Main knowledge source for whatever material

#### History of BIS

- Started in 1998, built by one FTE + two students
- Initially HTML managed using config mgmt system
- FTE was project lead, main gardener, wiki champion

#### Results

- Typical skunkworks effort
- Successful where 25 FTE portal team failed at the same time

# **Case Illustration: Leap Frog [10]**

LeapFrog Enterprises, Inc.

Developer of educational tools, about 1000 wiki users

Goal of wiki deployment

- Centralized website and information hub for digital information
- One place (and only one place), information searchable and findable

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Decentralized information provision and consumption

#### History of LeapFrog wiki

- Started as a grassroots effort by the R&D group
- Evangelized by a team of two wiki champions (continuing in that role)
- Volunteer contributions including support for new users
- Then, finally, senior management buy-in and formalization of support

#### Results

- Wiki now part of corporate vocabulary, in-grained in processes
- Awareness of and improvements wrt information creation and distribution

<sup>[10]</sup> Stewart Mader. Wiki Patterns. Wiley, 2008

# **Case Illustration: SAP's SDN Wikis**

#### SAP's SDN Wikis

- SDN is SAP's software developer network
- A highly successful community website with blogs, forums, and wikis

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#### Goal of SDN wikis

Provide a community-edited knowledge base

#### History of SDN wikis

- Started around 2004
- Quick growth and acceptance

#### Results

- Significant reduction in customer service calls
- Significant use in event organization, pre-event chatter
- Wikis are just one aspect of forming a community
- Incentive system works well

# Seeding a Wiki

Have dedicated evangelist and seeder for wiki Release only with content; don't release empty wiki Choose a wiki engine with a beginner's option Have well-working RSS feeds and reader culture Offer templates for common tasks and common wiki pages Reduce friction through help pages, provide training Direct requests for information to wiki where applicable Integrate wiki with your standard business processes Add wiki collaboration to performance management



# Gardening a Wiki



Be bold! (In editing and refactoring, from Wikipedia)

Develop and use clear conventions and categories

For contentious contents, use a talk page rather than a phone

Depending on the content, sign your contributions

Develop process along with regular contents

#### **More Wiki Best Practices**

Allow for multiple wiki instances

Scope of a wiki should be topic-oriented, not task-oriented Organize by products/components rather than projects Err on the side of larger but few wikis to avoid balkanization Don't forget but be light on access restrictions Have senior management buy-in and participation Create credibility by bringing in outside experts Look to and learn from Wikipedia for working processes



# Wikis and Open Collaboration Revisited

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#### Egalitarian: Everyone is invited (within a given context)

- Be light on access restrictions
- Don't erect artificial boundaries
- Encourage participation

#### Meritocratic: Contributions are evaluated based on their merits

- Don't sign contributions where unnecessary
- Don't use status and seniority as arguments
- Have senior management accept critique like everyone else

#### Self-organizing: Wiki communities develop their own processes

- Be bold in editing and refactoring (don't be afraid of change)
- Watch for and codify emerging (business) processes

#### Conclusions



We are experiencing a major shift in the IT industry

Open collaboration provides new principles of engagement

Open source and wikis are great tools for such engagement

Companies can benefit internally from open collaboration

Companies can grow their ecosystem using open collaboration

The 2008 International Symposium on Wikis: Where Wiki Research and Practice Meet



# WikiSym



Sept 8-10, 2008, Porto, Portugal

http://www.wikisym.org/ws2008

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# Thank you!

