



# **Creating Value: Peer Production and the 21<sup>st</sup>C Organisation**

**Gale Moore  
KMDI  
University of Toronto  
June 14, 2007**



# Outline

- What is peer production?
- How does this fit into our understanding of the broader social and economic context?
- What does this have to do with software generally and open source [and free] software in particular?
- Can this model of production be applied more generally?
- Where are the opportunities for creating value?
- What are some of the challenges?
- Some current examples

# Peer production

- One definition
  - A new mode of production arising out of the ease of global participation in the production and dissemination of information and ideas via the internet combined with the recognition that collaboration and diversity can drive innovation by aggregating individual contributions
- Some related terms
  - Collective intelligence
  - Mass collaboration
- Classic example
  - Linux

# Organisation of Economic Production

- In the industrial economy, individuals organise their productive activity either as:
  - Employees in firms
    - Hierarchical
  - Individuals in markets

## ***A proposition:***

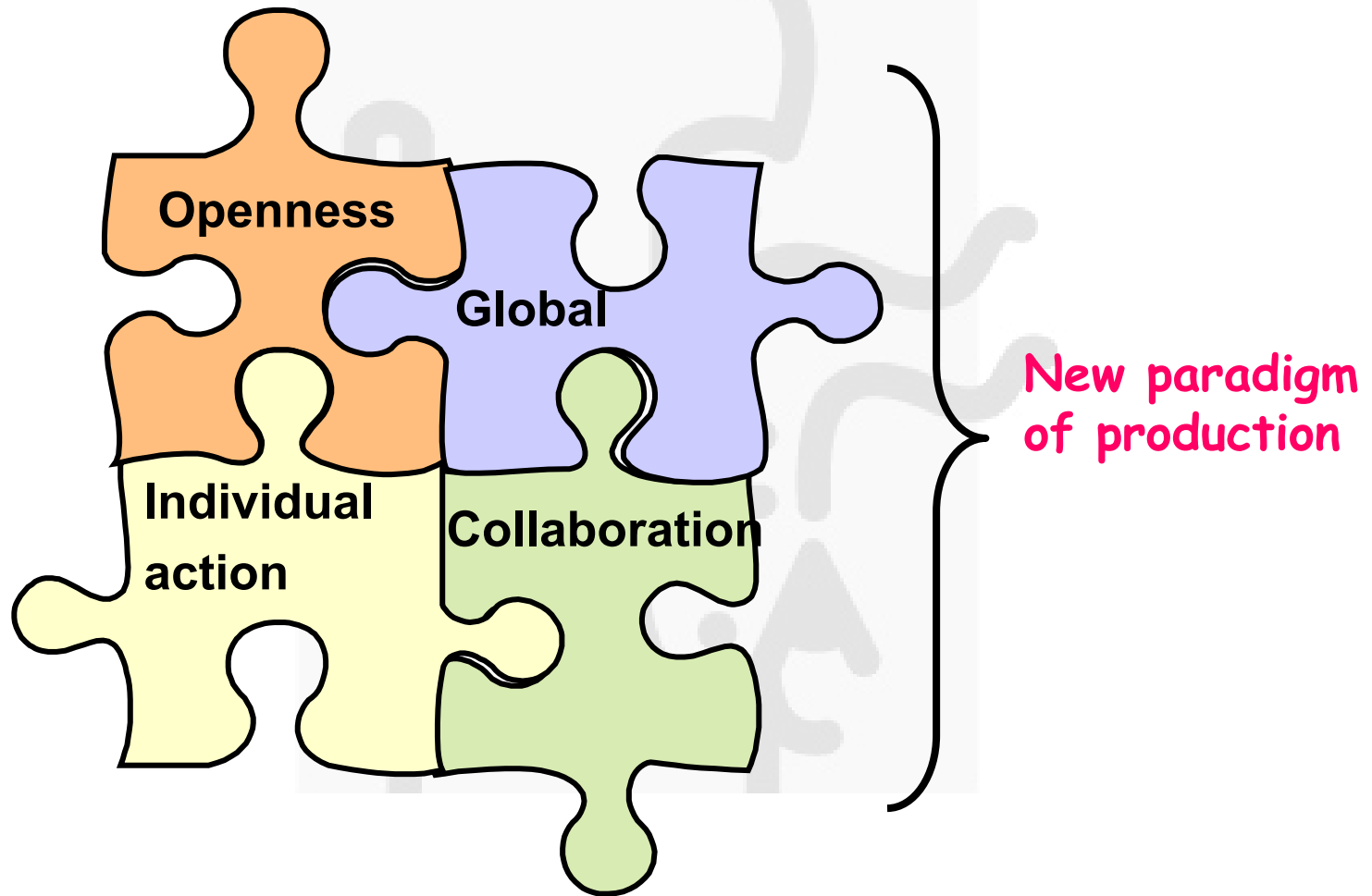
- In a networked information economy individuals organise their activity as:
  - Commons-based peer production and productive activities come from a different set of motivations, and are often collaborative and generally distributed

# Networked Information Economy

*What characterizes the networked information economy is that **decentralized individual action**---specifically, new and important **cooperative and coordinate action** carried out through **radically distributed, nonmarket mechanisms** that do not depend on proprietary strategies---plays a much greater role than it did, or could have, in the industrial information economy.*

Benkler. 2006. *Wealth of Networks*, p.3.

# Bringing it all Together



# Historical Timeline: Social and Economic Change

	PRE-INDUSTRIAL	INDUSTRIAL  1870s-	POST-INDUSTRIAL/ INFORMATION/ KNOWLEDGE ECONOMY  1950s-	NETWORKED INFORMATION ECONOMY  21 <sup>st</sup> C
MODE OF PRODUCTION	Extractive	Fabrication	Processing, recycling	Peer production
ECONOMIC SECTOR	Primary	Secondary	Tertiary	Quaternary
RESOURCES	Natural power & raw materials	Energy & capital	Information & knowledge	Networks & information
TECHNOLOGY	Craft	Machine	Intellectual	Human ingenuity & creativity
SKILL BASE	Artisan, manual	Engineer, semi-skilled worker; Managers	Scientific, professional, technical	All members of society, from individuals to groups
AXIAL PRINCIPLE	Traditionalism	Economic growth	Theoretical knowledge	Collaboration, Openness

**Source:** Daniel Bell *The Coming of Post-industrial Society* (1973)



Added by Moore

# Why now?

Clusters of innovation

- Organisations
- Technology



# Organisational Trends

## 1960s

- Organise
- Control
- Predict
- Plan
- Hierarchy
- Joining
- Individual
- Opinion
- Physical space
- Homogeneity
- Local
- ?

## 1990s →

- Manage
- Uncertainty
- Intuition
- Coordinate, Situated action
- Flattened hierarchy, Network
- Partnering
- Team/**Communities of practice**
- Learning
- **Virtual organisations**
- **Diversity**
- **Global & Glocal**
- ?

Johansen & Swigart. 1994. ***Upsizing the Individual the Downsized Organization***, 11.

# Technology Trends

- ICTs: Information and communication technologies
- Internet and WWW
- Mobile technologies
- Compute power no longer a scarce resource
- Collaboration technologies [CMC technologies]
  - Email, videoconferencing, webcasting, IM etc.
- Social networking and Web 2.0

# Software as an industry

- Idea of separating software from hardware begins to take hold in the 1960s
- By the late 60s the idea of software as product emerges
- IBM plays a major role in founding the industry - announces 'unbundling' in June 1969
- Software would no longer be 'free'
- **Software was new and different**
  - Non-rival [not reduced by consumption]
  - Non-excludable: [freely available to all]
  - Could be modularized

# Culture of Software Developers

- A distinctive culture(s) emerged around the production of software, e.g.,
  - Hacker culture
  - Culture of sharing among software developers was greatly enhanced with the development of networks and still later by the internet
- Competing culture of ownership & property rights emerged
- Software was something new
  - How should software be understood as property?
  - How could it be protected?

# Free and Open Source Software [FOSS]



Richard Stallman  
MIT AI Lab

Free Software Foundation (1984-)

*"Free as in speech, not as in beer"*



GNU Public License  
"viral"



## Open Source Software [OSS]

- Software that is distributed under a license that guarantees the right to read, redistribute, modify, and use the source code freely. [2005]

...**Open Source Initiative (OSI)**

Multiple licences, e.g.,  
BSD



<http://www.opensource.org/licenses>

# OS as a Model of Production

- Open Source is:
  - an experiment in social organisation for production around a distinctive notion of property. The right to **distribute**, not the right to **exclude**.

Steve Weber. 2004. *The Success of Open Source*
  - a development method for software that harnesses the power of distributed peer review and transparency of process. The promise of open source is better quality, higher reliability, more flexibility, lower cost, and an end to predatory vendor lock-in.

[March 2007] ...**Open Source Initiative (OSI)**

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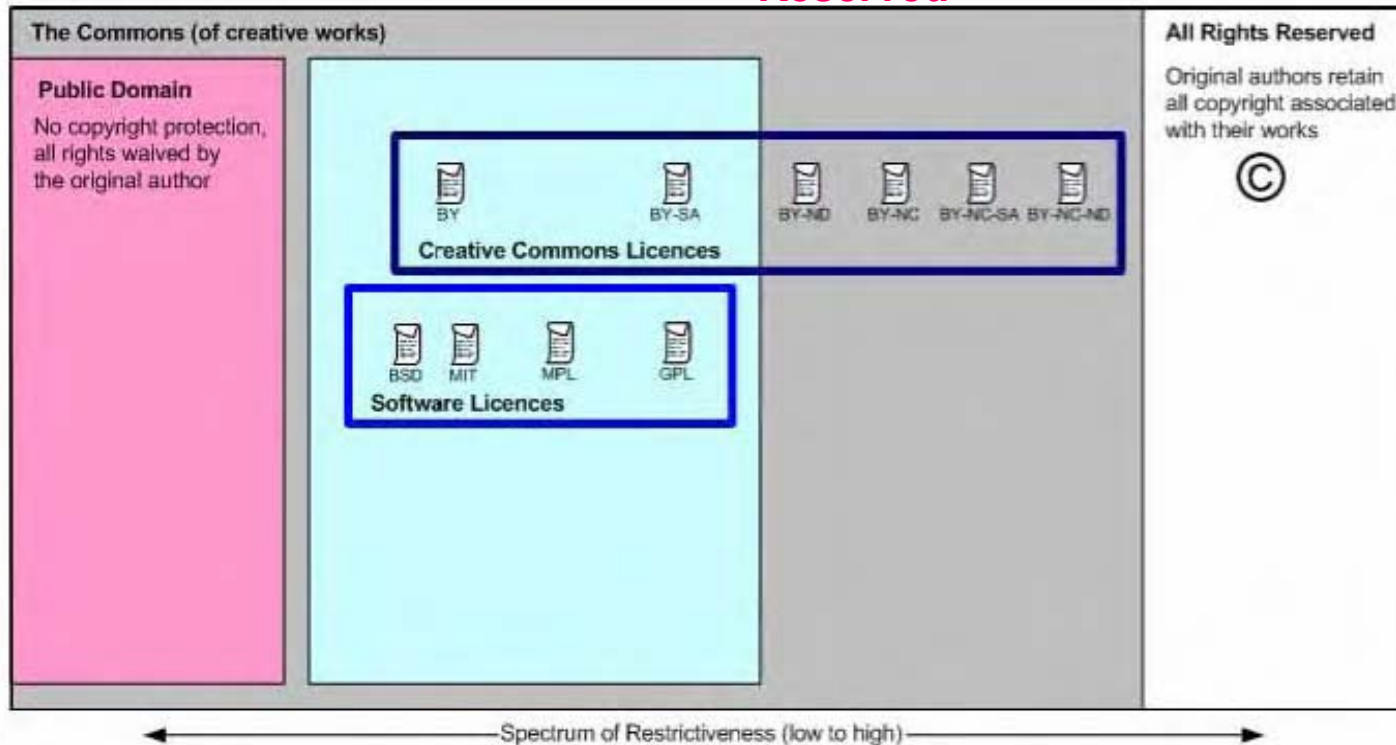
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Source: Bornfreund, M. 2005. *Open Source Software Licensing Primer*. Toronto: KMDI, Project OS|OA.



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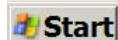


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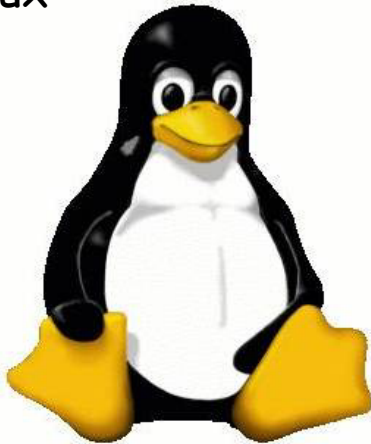
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... The future is open source everything

*Linus Torvalds*

Tux



Source: <http://www.fortune.com/fortune/technology/articles/0,15114,588422,00.html>

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## SPECIAL REPORT

### How the Open-Source World Plans to Smack Down Microsoft, and Oracle, and ...

Open-source software is popping up everywhere, from PCs and cellphones to giant corporate and government systems. Today the biggest challenge confronting virtually every major software maker is chillingly simple: How do you compete with programs that can be had free?

FORTUNE

Monday, February 9, 2004

By David Kirkpatrick

Steve Ballmer made a sudden and unscheduled trip to Munich last winter. The CEO of Microsoft had been vacationing with his family in Europe when he got word that the Bavarian capital was about to scrap the Windows operating system on its 14,000 PCs and switch to free "open source" Linux software to run its machines. Loath to lose a prominent government customer, Ballmer jumped into a business suit and rushed to Munich. But he was too late. The city decided to go open source.

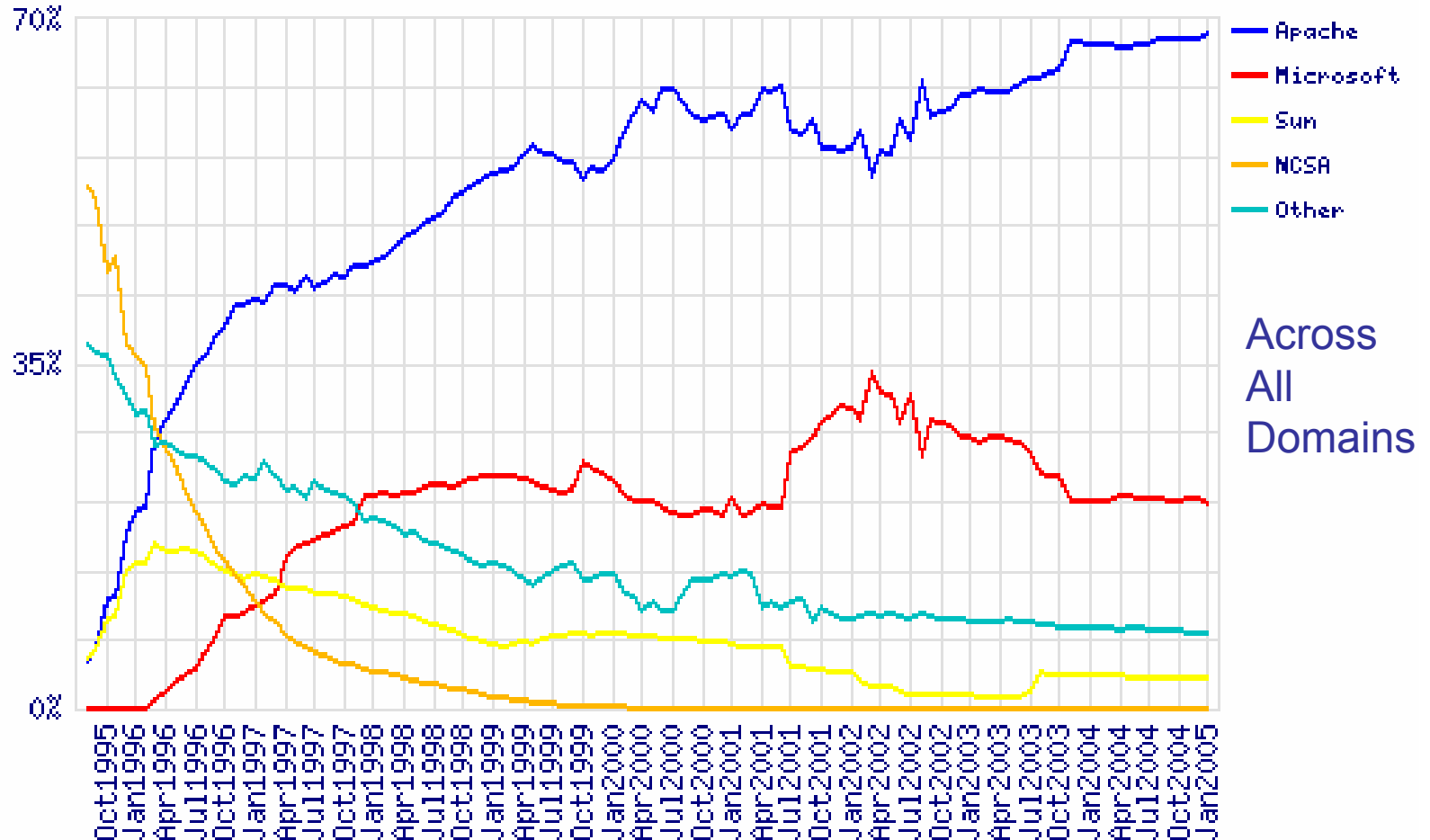
What happened in Germany is a microcosm of a change that is sweeping the \$200-billion-a-year software industry. Open-source software is popping up everywhere, in PCs and cellphones and set-top boxes, in servers that power the world's websites and in giant corporate and government systems. Today the biggest challenge confronting Microsoft—and Oracle and IBM and virtually every other major software maker—is chillingly simple: How do you compete with programs that can be had free?

In just a few years, a grassroots approach to creating software has shaken the status quo. In 1991, Linus Torvalds, a college kid in Finland, posted his Linux operating system online and invited friends to use and improve it. The availability of this basic, powerful software, which works

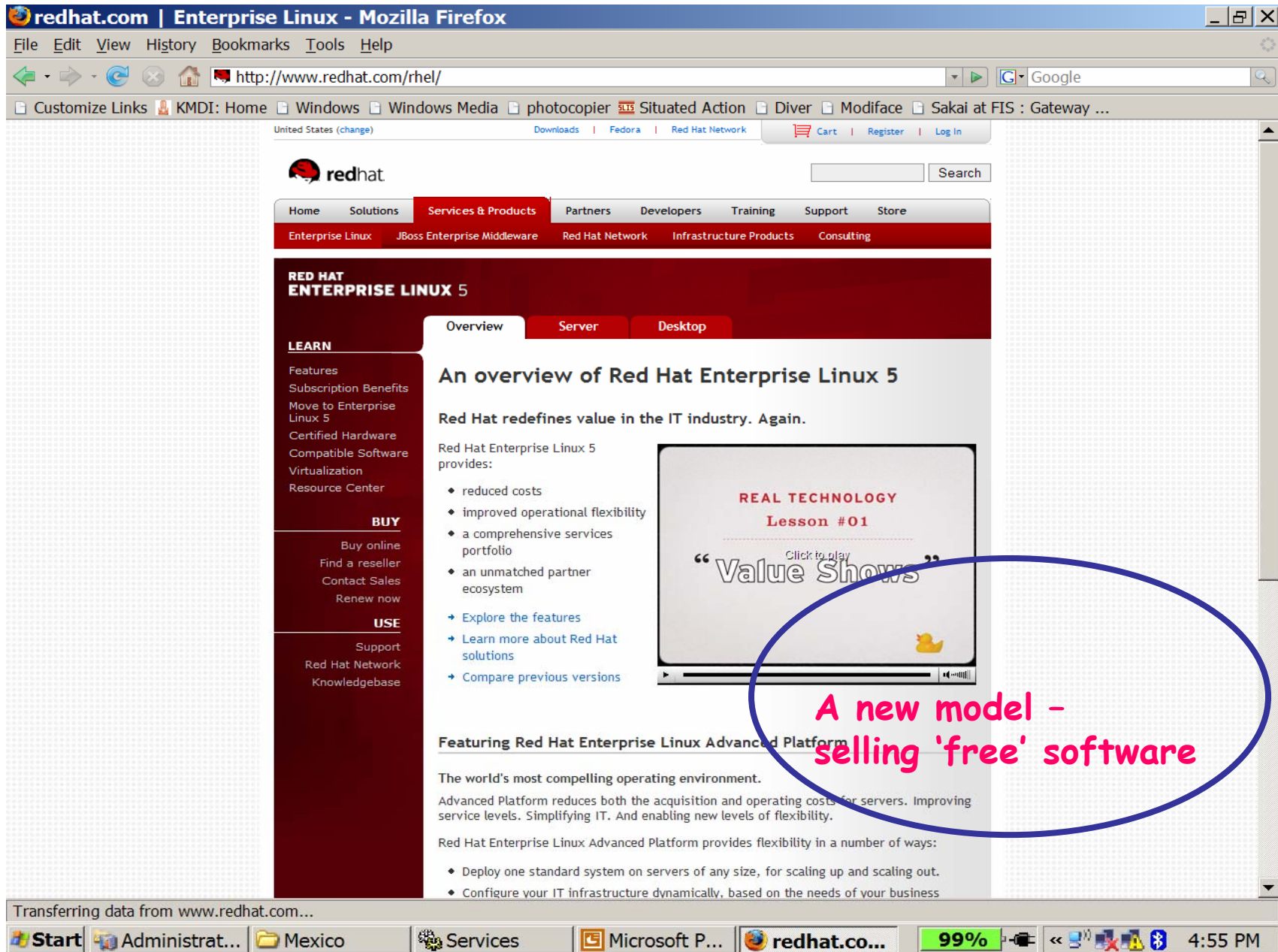
“Open-source software is popping up everywhere, in PCs and cell phones and set-top boxes, in servers that power the world's websites and in giant corporate and government systems.”



# Apache Dominates Web Servers



Source: [http://www.dwheeler.com/oss\\_fs\\_why.html](http://www.dwheeler.com/oss_fs_why.html)



Fedora Project - Mozilla Firefox

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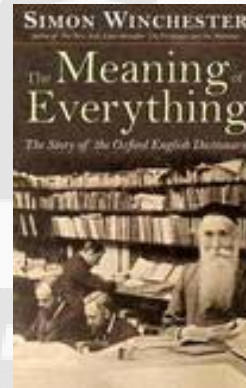


# Can this model be generalised to other parts of the economy?

- Antecedents, e.g.,

- OED

- 1<sup>st</sup> ed. 1928
    - New call: 1999



- Uptake, e.g.,

- Education

- Sakai, Moodle [LMS], MIT Open Courseware, Open Access Movement

- Human Genome Project

  
  
  
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# Decentralised Models of Production have Impacts Beyond the Software Industry

IMPACTED  
Music Industry



IMPACTED  
Publishing Industry

Wikipedia  
Blogs, wikis



- Commons-based peer production
- Mass collaboration
- Collective Intelligence

IMPACTED  
Traditional Media Industries



IMPACTED  
Communications Industry



Skype

VOIP: Voice over IP



Challenge:  
Changes the price point



# OS Model of Production Informs Web 2.0 Applications

## Creating /Community

- Participatory Media
- Social Media
- Web 2.0



facebook



Blogs



*Time Magazine's 2007  
'Person of the Year'*

Wikipedia



Gale Moore



## Search



del.icio.us  
social bookmarking



# Some Common Characteristics of this New Model

- Activity is distributed and de-centralised
- Often involves large numbers of people
- Individuals decide **if** they will participate and **what** they will contribute
- Contributors act independently
- Opportunities for communication, discussion & debate if desired
- Contributions often voluntary
- Open communities
- Self-organising – communities develop rules/structures
- Contributions evaluated on quality
- Rules may develop for aggregation of contributions
- Productive activities are not only motivated by market forces
- Ongoing revision of contributions – rapid detection of error
- Use and re-use of content


# How can these Ideas be used to Create Value in the 21<sup>st</sup> Century Organisation?

## ■ Inside the firm

- Know the business you're in
- Look at the organisation through this lens
  - What old problems could be solved in new ways?
  - Are there new tasks you should be doing?
  - Are there specific departments or units that might benefit/lead?
  - Could this lead to new business opportunities?




## ■ Relationships outside the firm

- What is your core business competency?
- How do you protect that?
- Finding the right balance between 'open' and 'closed'



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**Podcast:** Interview with **Irwin Lazar (Principal Analyst, Nemertes Research)**   
In this interview, industry analyst and Enterprise 2.0 speaker Irwin Lazar discusses the concept of "Enterprise 2.0" — what it is, what technologies it encompasses, the advantages it offers businesses, and more.

### FEATURED KEYNOTES:



**Marthin De Beer**  
Emerging Markets Technology Group, Cisco




**Andrew McAfee**  
Harvard Business School



**Michael Rhodin**  
IBM Lotus




**Donald Tapscott**  
Wikinomics: Winning with the Enterprise 2.0



**David Weinberger**  
Harvard Berkman Center for Internet & Society



**Dennis Moore**  
Emerging Solutions, SAP



**Kim Polese**  
CEO, SpikeSource



**Derek Burney**  
General Manager, SharePoint Platform and Tools

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# 10 Predictions To Help Define the Social Media Revolution

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Tuesday, May 22, 2007; Posted: 6:24 AM - by Richard Stacy



"To find something comparable," said Rupert Murdoch to Wired Online in July 2006, "you have to go back 500 years to the printing press, the birth of mass media - which, incidentally, is what really destroyed the old world of kings and aristocracies. Technology is shifting power away from the editors the publishers, the establishment, the media elite. Now it's the people who are taking

control."

This article is a non-techy's attempt to start to galvanize thinking about the practical implications of what people in the business and marketing world are going to have to do adjust to the new world of social media.

## Introduction

Most of the current on-line conversation about social media and web 2.0 is very of-the-minute, focusing on the latest thing, widget, gizmo, company or controversy. There doesn't seem to be much attention given to the bigger picture or the practicalities of what this is going to mean and what brands and businesses are going to have to do about it - other than vague exhortations about doing things differently, becoming more social, engaging with consumers, recognising that power is shifting to brand users rather than brand owners etc. etc. I am not sure why this is. Perhaps it is because the pace of change is so great that no-one is able to see the wood for the trees yet. Alternatively it could be because most of the people driving the debate are more naturally drawn to the technical detail rather than the bigger picture implications.

To help galvanize thinking about the practical implications of what people in the business and marketing world are going to have to do adjust to the new world of social media, I am going to make some predictions about what the future could look

## Related Links

From Gutenberg to Google: Media in Transition Conference

Enterprise RSS: Three Key Benefits For Any CxO

That's Del.icio.us! - Using Social Bookmarking To Take Over the World  
How To Use Del.icio.us To Take Over the World

## HOT STORIES THIS WEEK

10 Predictions To Help Define the Social Media Revolution  
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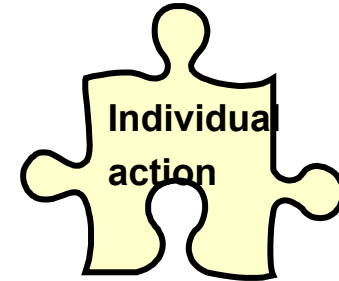
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# Creating Value by Increasing Competitiveness & Innovation

- Leverage individual participation
  - Employees
  - Customers as co-designers
  - Volunteers as contributors
  - Part-time contributors
- Encourage open sharing of ideas
  - Intellectual property
- Recognise value of online communities and realise opportunities for collaboration
- Re-thinking what it means to be global – from outsourcing to crowdsourcing & from supply chain management to partnerships to create a globally integrated ecosystem





Some examples  
of businesses  
who are  
innovating with  
these ideas

**The Wealth of Networks - Mozilla Firefox**

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**The Wealth of Networks**  
How Social Production Transforms Markets and Freedom

Yochai Benkler

REVIEWS CONTENTS EXCERPTS INDEX

Winner of the 2006 Donald McGannon Award for Social and Ethical Relevance in Communications Policy Research

Listen to an interview with Yochai Benkler on [The Invisible Hand Podcast](#).

With the radical changes in information production that the Internet has introduced, we stand at an important moment of transition, says Yochai Benkler in this thought-provoking book. The phenomenon he describes as social production is reshaping markets, while at the same time offering new opportunities to enhance individual freedom, cultural diversity, political discourse, and justice. But these results are by no means inevitable: a systematic campaign to protect the entrenched industrial information economy of the last century threatens the promise of today's emerging networked information environment.

In this comprehensive social theory of the Internet and the networked information economy, Benkler describes how patterns of information, knowledge, and cultural production are changing—and shows that the way information and knowledge are made available can either limit or enlarge the ways people can create and express themselves. He describes the range of legal and policy choices that confront us and maintains that there is much to be gained—or lost—by the decisions we make today.

Yochai Benkler is the Joseph M. Field '55 Professor of Law at Yale Law School, Yale University.

Visit Dr. Benkler's [wiki](#).

Apr 17, 2006  
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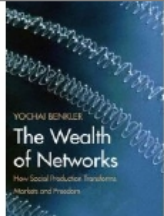
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## Main Page

This Wiki is an invitation to collaborate on building a learning and research environment based on Yochai Benkler's book, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, available under a [Creative Commons Attribution Noncommercial Sharealike](#) license.

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## Reviews and Blogs

- [Lessig blog](#), by Lawrence Lessig, 15Apr06.
- [Financial Times](#), Net Gains, by Paul Miller, 07Jul06.
- [Times Online](#), Netizens Awake, by Paul Duguid, 07Jul06.
- [Rough Type](#), Calacanis's wallet and the Web 2.0 dream, by Nicholas Carr, 19Jul06. See also [Benkler's reply](#), 28Jul06.
- [New Statesman](#), Power to the People, by Kenneth Cukier, 04Sep06.
- [German Law Journal](#), by James Brink, 01Oct06.
- [Public Knowledge](#), by Gigi Sohn, 03Oct06.
- [Rue Descartes](#), by Thierry Leterre, Feb07 (French journal edited by the [Collège international de philosophie](#)).

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## Discussions

- [Crooked Timber](#) (Net-seminar)
- [OpenBusiness](#) (interview)
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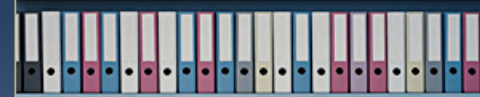
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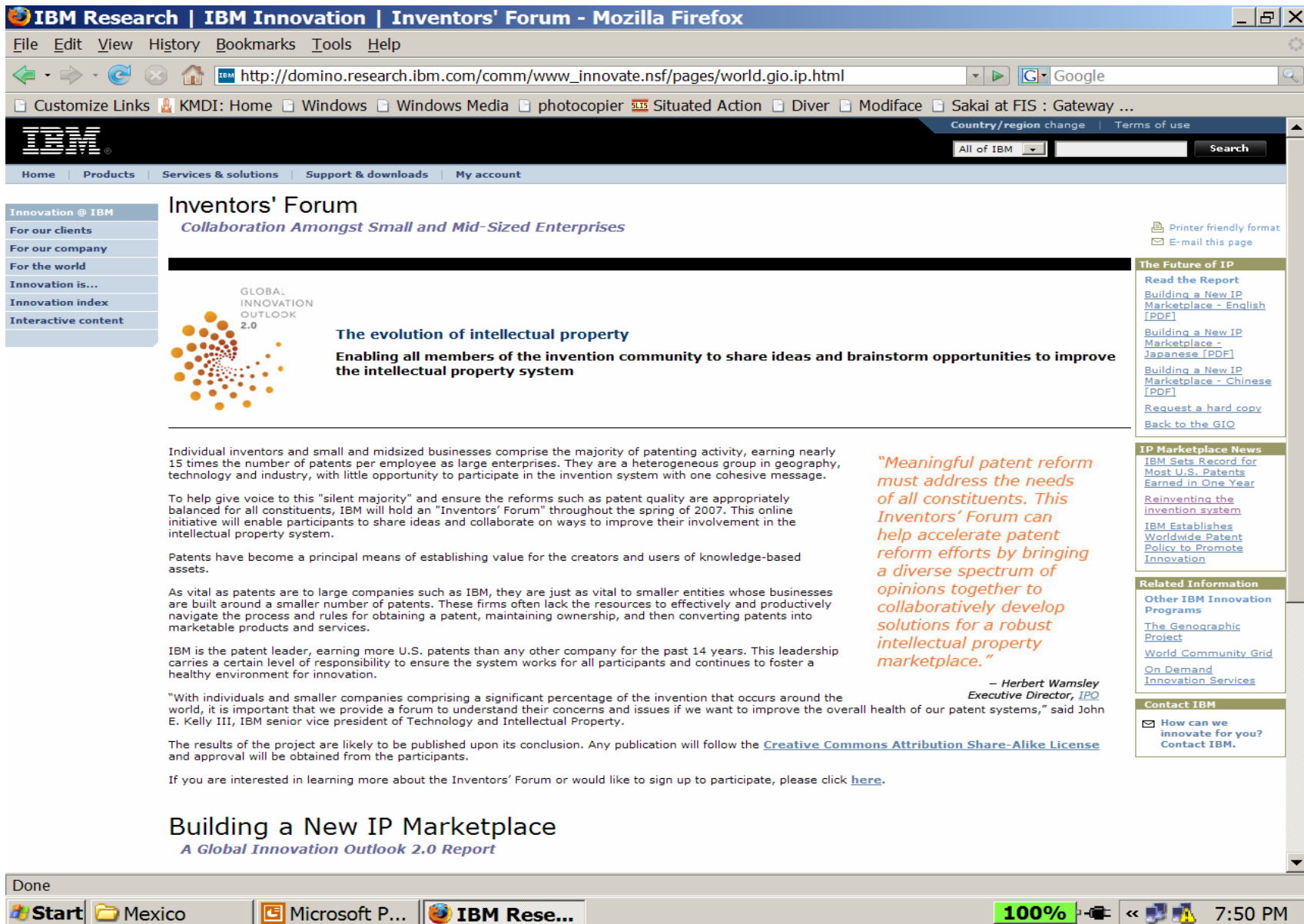
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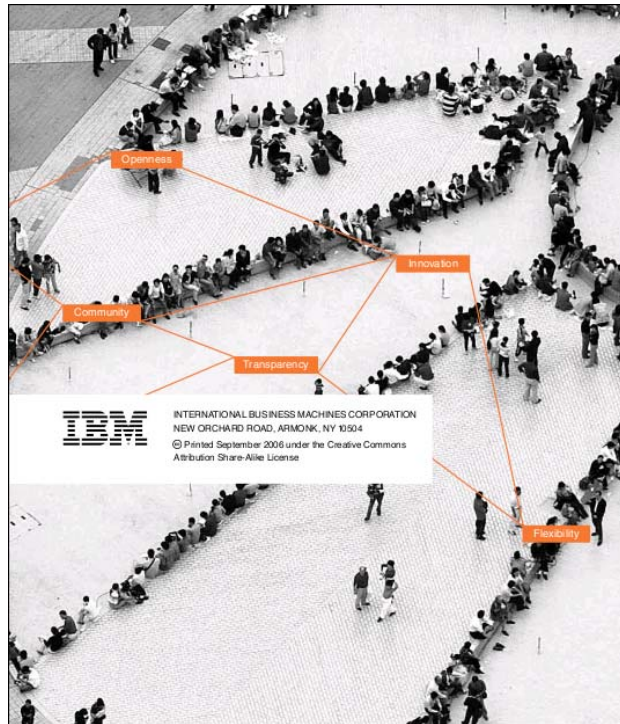
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# Building a New IP Marketplace



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Global

# Chongqing, China



## Chongqing

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Set in the middle reaches of the Yangtze, the former trading centre and treaty port has long been the economic hub of western China. It is now at the centre of China's drive to address the huge inequalities between the rich eastern coastline and the poor western interior. The scale of the "Go West" policy - with 1.6 trillion yuan (£114bn) spent since 1999, mainly on roads, bridges, dams and pipelines – is sometimes compared with the Marshall Plan that helped rebuild post-war Europe.

**Source:** Guardian



# “Localized Modularization”



14 years ago - a motorcycle repair shop  
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## Competitive Futures Blog

Thursday, February 15, 2007

### Open Source Everything

**POINT ONE:** Swiss drug maker Novartis, knee deep in genetic research on diabetes, [opening up its database to the world](#) instead of hoarding its hard-won information. "It will take the entire world to interpret these data," says Novartis research head Mark Fishman. "We figure we will benefit more by having a lot of companies look at these data than by holding it secret." **POINT TWO:** Apple's Steve Jobs is pointing out that the record industry's "digital rights management regime" is pretty much a failure. To increase sales and improve the industry, Jobs is [beseeching the companies to open their files](#) to the world. **POINT THREE:** If you are truly interested in Linux, open source anything, the future of biology, or the fate of record companies, check out this seemingly unrelated, but fascinating twenty minute movie about ["the world's most important six-second drum loop."](#) It tells the story of the "Amen Breakbeat" the drum loop that essentially launched hip hop and the billions in record sales it has represented. According to the movie, it was the free nature of the drum sample that allowed a thousand new ideas to bloom. So the hip hop movement has come to genomic medicine and an update of international copyright law. Think about it. -Garland

posted by Eric Garland at 2/15/2007 08:35:00 AM

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Trends and observations about what's next by Eric Garland, professional futurist and author of [Future Inc.: How Businesses Can Anticipate and Profit from What's Next](#)

### About Me



**Name:** <b>Eric Garland</b>

**Location:**  
Washington, DC,

Professional futurist, business intelligence geek, and president of Competitive Futures, Inc. of Washington DC. Fascinated by the future, writing about it for you.

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# Muchas Gracias

*Further information:*

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[gmoore@kmdi.utoronto.ca](mailto:gmoore@kmdi.utoronto.ca)



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