Next Generation Collaboration

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Communication, Media & Entertainment
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Agenda

- The Motivation For Collaboration
- HP Collaboration
- The Challenge of Innovation
- Next Generation Collaboration
The Motivation for Collaboration
Collaboration = Source of Innovation

• **Scan the horizon**
  - understand issues and opportunities as they evolve/appear

• **Connect with strategic leaders worldwide**
  - develop long-term relationships and trust necessary to operate in a federated world

• **Leverage efforts and resources of others**
  - join together in areas of mutual interest/benefit to amplify our endeavors

• **Direct and co-create the future**
  - align our intention and strategy with those of others to play a more-significant role

• **Drive agenda with societal impact, nationally and internationally**
  - create environment where business success and building a better world are symbiotic
HP Collaborations
HP University Collaborations

- University of Washington
- Washington State University
- Oregon State
- Cal State University, Chico
- Sacramento State University
- UC, Davis
- UC, Berkeley
- Stanford
- Santa Clara University
- CSU, San Jose
- Cal Poly, San Luis Obispo
- UCLA
- USC
- California Institute of Technology
- UC, San Diego
- Arizona State University
- Brigham Young University
- University of New Mexico
- New Mexico State
- University of Colorado, Boulder
- University of Texas, El Paso
- Colorado State University
- University of Texas, Austin
- University of Illinois
- University of Wisconsin
- University of Michigan
- University of Indiana

- Purdue
- Southern University
- Tuskegee University
- Cornell
- MIT
- Northwestern University
- Penn State University
- Carnegie Mellon
- Rutgers University
- Morgan State University
- Howard University
- Research Triangle Universities
- North Carolina A&T
- Georgia Tech
- University of Puerto Mayaguez

- Switzerland
- CERN
- EPFL
- ETH Zurich
- Germany
- Hamburg
- Tuebingen
- TU Berlin
- TU Darmstadt
- Stuttgart
- France
- Grenoble campus
- UK
- Bristol
- Cambridge
- Derby
- Imperial
- Lancaster
- Newcastle
- Oxford
- Southampton

- Denmark
- Aalborg
- Sweden
- SICS
- KTH
- Israel
- Technion
- Italy
- Padova
- Russia
- St. Petersburg
- TU
- India
- Indian Institute of Technology

- University of Waterloo
- Groupe ESIEE
- Tsinghua University
- National Center for Supercomputing Applications & the University of Illinois, Urbana-Champaign
- Hewlett-Packard (sponsor)
- Bioinformatics Institute of Singapore
- University of New South Wales
### Criteria for Collaboration

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<th><strong>HP</strong></th>
<th><strong>Universities and R&amp;D Labs</strong></th>
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<td>Strategic technology priorities</td>
<td>Strength of research</td>
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<td>Need to connect to ext. R&amp;D</td>
<td>Interest for R&amp;D collaboration</td>
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<td>Availability of researchers</td>
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<td>Funding</td>
<td>Value of R&amp;D collaboration</td>
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<td>IP needs</td>
<td>IP conditions</td>
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<td>Existing university relations</td>
<td>Overall relation with HP</td>
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<td>Business perspectives</td>
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End-to-end Solution for Product Tracking and Authentication Challenge

Pallets → Secondary Package → Primary Package → Units

Supply distribution logistics

Pharmacy → Data Management → Hospitals

Data collection & Reporting

Sensing Technologies
Thermal cooling
The Gelato Federation is a world-wide consortium of research organizations dedicated to enabling scalable, open-source Linux-based Itanium computing solutions to address real world problems in academic, government, and industrial research.
The Challenge of Innovation
The Innovation Challenge

**Innovation Gap**
The shortfall between a organization's rapidly rising need for ideas/innovations and their inadequate supply.

**Innovation Delay**
The delay between the time when an innovation is ready for deployment and its eventual impact to organizations and society.
Next Generation Collaboration
Allocation Question vs Innovation Question

• The classical question: How can we get optimal allocation of resources in a market economy?
  – Answer: through perfect competition – the invisible hand.

• A different question: How can the economy bring forward innovations in a market economy?
  – Answer: Through organised markets and long term relationships – the visible handshake.
Next Generation Collaboration

- **Strong Ties versus Weak Ties**
  - **Strong Ties**: Families, Relatives, Close Personal Friends
  - **Weak Ties**: Acquaintances, Professional Associations
  - **Finding**: With few weak ties, ideas will spread more slowly and scientific endeavors will be handicapped; presence and reliance on strong ties prevent economic development

- **Vertical versus Horizontal Networks**
  - **Vertical Networks**: Links unequal agents in asymmetrical relationships of hierarchy and dependence; difficult and expensive to sustain trust and cooperation
  - **Horizontal Networks**: Links Agents who are treated as equal status and power; have norms of reciprocity that can sustain trust and cooperation
  - **Finding**: “Trust lubricates Cooperation”; Horizontal Networks produce High Social Capital
Importance of Social Capital

- **Shared Vision**
  - Working with others to create a shared vision – a common purpose.

- **Build Trust**
  - Spend time with individuals and groups to create a foundation of trust built around this shared vision with assurance that your expertise and or opinions will not be valued.

- **Share Resources**
  - Once you’ve done the above, a willingness to exchange valuable resources (people, expertise, contacts, reputation, etc.) to achieve the common goal.
Three Modes of Collaboration/Development

**Hierarchies/Firms**
- Producers organized as employees in firms, following the direction of managers
- Flow of materials through adjacent steps is coordinated by controlling and directing it at a higher level in the managerial hierarchy
- Production costs are high
- Coordination costs are low
- Example: Ford’s famous Rouge River Plant

**Markets**
- Producers organized as individual entities in markets, responding to price signals
- Markets coordinate the flow through supply-and-demand forces and external transactions between different individuals and firms
- Production costs are low
- Coordination costs are high
- Example: markets in financial instruments and other intangibles

**Commons-Based Peer Production**
- Groups of individuals collaborate on large-scale projects following a diverse cluster of motivational drives and social signals
- Possesses systematic advantages over markets and managerial hierarchies when the object of production is information or culture, and where the physical capital necessary for that production (e.g., computers and communications capabilities) is widely distributed instead of concentrated
- Example: open source software development
Open Source Innovation

- Open source has grown to encompass a spectrum of process models and approaches
- Openness is largely defined by the degree of process transparency or openness and the degree of collaboration between players

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<tr>
<th>Openness</th>
<th>Low</th>
<th>High</th>
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<tr>
<td>Business Blog</td>
<td>Hybrid Models</td>
<td>Typical Open Source Project</td>
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<td>Traditional Corporate R&amp;D</td>
<td>Industry Consortium</td>
<td>Teaming Agreement</td>
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Collaboration

- Low
- High
## Open Source Examples by Industry

### Biology
- The biochem and pharmaceutical industries are becoming the next major proving ground for open source
- Biological Innovation for Open Society
- Science Commons
- Public Library of Science (PLOS)

### Publishing
- Wikipedia
- Project Gutenberg
- Distributed Proofreading
- Prentice Hall – computer books with Bruce Perens

### Film
- "Nothing So Strange,” the open source movie
- The plot involves a Bill Gates assassination, and the footage is open to editing by all
- www.nothingsostrange.com/open_source

### Politics
- Community platforms played a significant role in the 2004 US elections with notable examples being the surprising rise of the Dean Campaign as well as the role played by the Blogosphere

### Recipes
- The Open Source Cookbook is a Slashdot-born project that's collected dozens of recipes begging for improvement.
- Head chef Matthew Balmer has version 0.5 on the way. www.ibiblio.org/oscookbook

### Propaganda
- From the slightly paranoid folks at PR Watch comes Disinfopedia
- Ranging from public relations firms to corporate "grassroots" groups, the directory provides a deconstruction of a wide range of propaganda

### Engineering
- ThinkCycle, a Web-based industrial-design project brings together engineers, designers, academics, and professionals from a variety of disciplines
- OSCOMAK is a proposal to create distributed global repository of manufacturing knowledge

### Police Work
- The Doe Network is an international effort tackling unsolved disappearances and tracking down unidentified victims
- In four years, Doe claims to have solved nearly 100 cases
- www.doenetwork.org

### Education
- The Open Textbook Project is building free textbooks in a range of subjects, using the principles of distributed collaboration and open access
- The result will be low-cost, high-quality texts
- www.otp.inlimine.org

### Aviation
- Van's Aircraft involves an active community of hobbyists in the development of its aircraft
- JP Aerospace is a volunteer-based organization dedicated to achieving cheap access to space through very low cost, innovative solutions
### Defining Characteristics of an Open Source Economy

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<tr>
<th>Today’s Economy</th>
<th>Open Source Economy</th>
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<tr>
<td>• Vertical Integration</td>
<td>• Business Ecosystem</td>
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<tr>
<td>• Mass Market</td>
<td>• Market of One</td>
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<tr>
<td>• Opaque</td>
<td>• Transparent</td>
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<tr>
<td>• Transaction Economics</td>
<td>• Relationship Economics</td>
</tr>
<tr>
<td>• Producer-Centric</td>
<td>• People-Focused</td>
</tr>
<tr>
<td>• Conflict</td>
<td>• Trust and Collaboration</td>
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<tr>
<td>• Broadcast</td>
<td>• Podcast</td>
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<tr>
<td>• Consumption</td>
<td>• Participation</td>
</tr>
<tr>
<td>• Isolated</td>
<td>• Networked</td>
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<tr>
<td>• Proprietary Systems</td>
<td>• Open Systems</td>
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<tr>
<td>• Command and Control</td>
<td>• Champion and Channel</td>
</tr>
<tr>
<td>• Economies of Scale</td>
<td>• Economies of Scope</td>
</tr>
<tr>
<td>• Centralized</td>
<td>• Highly Distributed</td>
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Example of Unique Collaboration
Rich Media Collaboration
In Summary
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Making a difference

+hp = everything is possible

HP stands for invent and applying technology to make a meaningful difference in people's lives, communities and businesses
Thank you

Q & A