Enabling Exponential Innovation via Open Source Software Development

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Overview

- Power law distributions (PLDs)
- PLDs in Open Source Software Development
- OSSD Projects as innovation engines
- OSSD multi-project ecology as an innovation frontier
- OSSD ecology can enable frontier with exponential growth for socio-technical innovations
ANATOMY OF THE LONG TAIL

Online services carry far more inventory than traditional retailers. Rhapsody, for example, offers 19 times as many songs as Wal-Mart’s stock of 39,000 tunes. The appetite for Rhapsody’s more obscure tunes (charted below in yellow) makes up the so-called Long Tail. Meanwhile, even as consumers flock to mainstream books, music, and films (right), there is real demand for niche fare found only online.

THE NEW GROWTH MARKET: OBSCURE PRODUCTS YOU CAN’T GET ANYWHERE BUT ONLINE

Sources: Erik Brynjolfsson and Jeffrey Hu, MIT, and Michael Smith, Carnegie Mellon; Barnes & Noble; Netflix; RealNetworks
OSSD Projects as innovation engines

Social/technical innovations in OSSD projects emerge via:

- Enhancing project resources
  - Inter-project mergers
  - Creating new software development artifacts
- Tuning adjustments or adaptations
  - Intra-team role migration
  - Incremental product releases ("daily builds")
- Restructuring transformations
  - Legal incorporation
  - Code refactoring
- Reinvention practices
  - Learning from others
  - Commercial product feature replication
OSSD multi-project ecology as an innovation frontier

- OSSD multi-project ecology: a (virtual) enterprise that collectively mobilizes an inter-related group of OSSD projects
  - Barclays Global Investments, Google Summer of Code, Apache Software Foundation, SUN Microsystems, etc.
- Frontier: a zone of unsettled land outside the region of existing settlements suitable for exploration and potential development
- Innovation frontier: a socio-technical zone for innovation outside of existing enterprise system settlements suitable for exploration and potential development.
Google Summer of Code

Accepted student applications for Google Summer of Code have been announced! We accepted over 900 student applicants from a pool of nearly 6,200 applications.

All the mentoring organizations that will participate in Google Summer of Code 2007 are listed below. You can learn more about the accepted students and their projects by visiting each organization's "about" page.

You might also be interested in keeping up with news about the program on the Google Summer of Code Blog. And, you can still hang out with us in #summer-discuss on Slashnet or in the program discussion group.

Registered Student Login

Registered Mentor Login

You can still take a look at all the organizations’ ideas pages to learn more about what help they need from new contributors.

Mentoring Organizations Participating in Google Summer of Code 2007

AbiSource (ideas)  LLVM Compiler Infrastructure (ideas)
Adium (ideas)  MacPorts (ideas)
The Apache Software Foundation (ideas)  maemo (ideas)
Aqsis Team (ideas)  MetaBrainz Foundation (ideas)
Ardour (ideas)  Mixxx (ideas)
ArgoUML (ideas)  MoinMoin Wiki Project (ideas)
Audacious Media Player (ideas)  Mono Project (ideas)
Bazaar (ideas)  Moodle (ideas)
BBC Research (ideas)  Mozilla Foundation (ideas)
Beagle (ideas)  MySQL AB (ideas)
Blender Foundation (ideas)  National Evolutionary Synthesis Center (NEStCent), Phyloinformatics Group (ideas)
Boost C++ (ideas)  NetCDF (ideas)
### Sun’s Open Source Initiatives

<table>
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<tr>
<th>Initiative</th>
<th>Key Statistics</th>
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| OpenSolaris           | 12,000 Members, in just 6 months  
30 major community projects  
25 user groups worldwide  
250 code contributors  
27,500 downloads |
| OpenOffice.org        | 7.5M Lines of code  
Largest contribution EVER  
80+ projects  
Translated into 50+ languages  
55M+ downloads |
| NetBeans              | First Java IDE to support  
J2SE 5.0 language features  
40+ industry endorsements  
8M+ IDE downloads |
| OpenSPARC             | First 64-bit, 32 Thread Architecture  
RTL code available under GPLv2 license  
Announced 12/6/05, Avail. 3/21/06  
Linux port already in progress by community member |
| Project GlassFish     | 1200+ members  
Includes Java EE 5, JWSDP and other Web services technologies  
200,000 downloads |

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**And now... Free and Open Source Java**
Enabling exponential growth for socio-technical innovation frontiers

- The most successful OSSD projects exhibit sustained exponential growth via social and technical innovations.
- Exponential growth requires critical mass for collective innovation action:
  - Critical mass emerges through sufficiently dense socio-technical networks that act as “small worlds”
  - Such networks emerge when participants enjoy making social/technical contributions that serve to advance the accumulation of common pool resources.
FOSS Social Networking across projects

24 Developers
5 Projects
2 Linchpin Developers
1 Cluster

OSS Developer - Social Network
Developers are nodes / Projects are links

Project 68x2

Project 7028

Project 7597

Project 15850

Project 9859
The Layman's Guide to Making Mods

If you are thinking about making a mod (for any game) and are not sure what you need to know, how to go about it, or simply want to avoid the most obvious mistakes then read on. The pages linked to below contain some excellent advice, and possibly comments on stuff that hadn't occured to you.

- **/My Team Your Team** – Introduction and disclaimer for all those, "what's all this my team your team crap?" readers.
- **Why Are You Making A Mod** – Sometimes the reason a mod fails is the reason you started it in the first place.
- **/Building a Team** – Building up your mod team.
- **/Despotism Or Communism** – Some thoughts on team structure.
- **/Working as a Team** – The day to day life of a team.
- **/Asset Management** – How to manage the assets of your mod (code, textures, models, etc).
- **/Distributed Development** – Find out how hard and unpleasant distributed development can be.
- **/Effective Testing** – How to get the most out of testing your mod.
- **/Releasing A Mod**
- **/Supporting Your Mod** – Easing the burden of mod support.
- **/Mod Death** – What happens when a mod or mod team self destruct and how to cope.

Thoughts on Mod Making

Several of the Unreal Wiki's contributors have experience in creating successful mods. Reading their accounts of their work and their advice is recommended.

- **MychaeeI/Mod Startups** – Making your idea a reality.
- **MychaeeI/Moding Etiquette** – How to make people like your mod.
- **Jb** – an analysis of the ChaosUT mod's history
- **Piglet/Finishing Things** – How to actually finish your mods, that said it's more how to start so that you can finish.
- **A Bug's Life**
- **GODZ Inception** – a journal of how GODZ started.
- **Making Mods/General Mod Optimization** – Common mistakes and ignored settings which often lead to lower performance – and how to fix/use them.
Closing remarks

- To be clear, nearly all enterprises and OSSD projects do not obtain exponential innovation growth.
- High, sustained growth OSSD projects do exhibit exponential innovation growth when proper conditions exist.
  - When innovation becomes participatory and self-serving, when innovations contribute to common pool resources, and when sustained collective action emerges as a social movement that transcends enterprise boundaries.
- Possible for enterprises to achieve exponential innovation growth.
Details


- Funding support through research grants from the National Science Foundation (*no endorsement implied*) #0083075, #0205679, #0205724, #0350754, and #0534771.