



I often used the phrase "the commodification of software" to represent what I believe is the critical force behind the rise of open source software. Broadly used software is now defined primarily by its capacity for networked data exchange of standardized commodity datatypes such as a web page, an MP3 file, a UNIX executable, or a Word document, rather than its application model and user interface.

David Stutz



Open Source Software & Protocols? Interaction-Driven Economy!

Implication on society, economy and education

Alexander Schatten
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Who uses Linux or *BSD?

- Let's not talk about "Open Source" in this presentation:
 - OS is settled
 - It is used in companies all over the world
 - It drives economy and the internet
 - It is used on the server and desktop
- O.k. let's talk a little bit about Open Source:
 - What can we learn from Open Source from the community and interaction point of view
 - What are the implications to modern business strategies?
 - What are the implications for developing countries?

- Software as Commodity?
- Paradigm Shift in Software Development
- The User?
- How does OS fit in here?
 - Open Source as Interaction Process
 - Open Protocol as Enabling Technology
- Strategies



Software as Commodity?



What is a commodity?

**“A useful or valuable thing,
such as water and time”
(Apple Dictionary)**



Photo from Snap (flickr)

Is there “Commodified” Software?

- Post-PC era (ubiquitous Software)
- Standard-based approach for data exchange
- **Community driven processes/involvement**
 - ✓ Very similar concepts to Open Source process
 - ✓ Communication driven Systems (Internet, mobile phones)
- Open Protocols are the enabling technologies for next-generation of software (as commodity)
- But: Software as commodity is also exchangeable (e.g., Firefox, IE),
 - **Hence real competition can appear!**
 - **New players have the chance to participate!**

First Steps in Paradigm Shift

- Producer / Consumer
 - Replaced by Interaction Models
- **Platforms and Processes, Standard driven Services** instead of products!
 - Standard driven services like
 - Email
 - RSS: Aggregation, Podcasts, Photocasts, ...
 - Platforms like
 - Wikipedia
 - EBay
 - Second Life
 - Video Game Platforms
- Example: “Web 2.0”
 - Data and
 - Interaction drive
 - Example?
 - Digg it, del.icio.us, reddit, Facebook, Twitter



Interoperability becomes key!

Business build on Interoperability has to be seen **on various levels:**

- **Technical**

- Webservices
- REST
- shared protocols

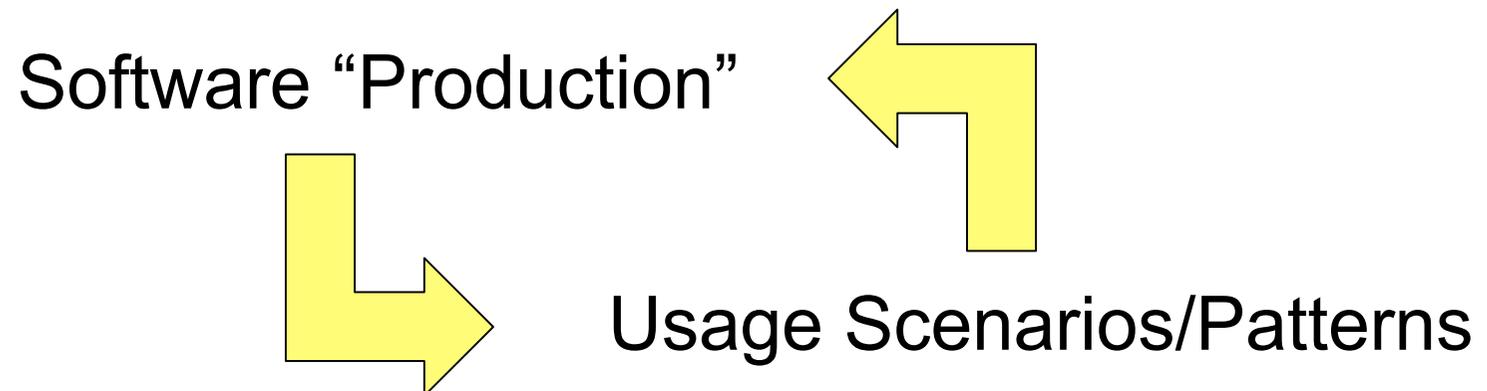
- **Development/Management**

- Shared processes
- Distributed programming
- Best-practices

- **Sociological (Effects on Society) / Political**

- Globalisation
- Community driven Applications (see “Web 2.0”)
- Communication and “virtual worlds” (second life, ...)

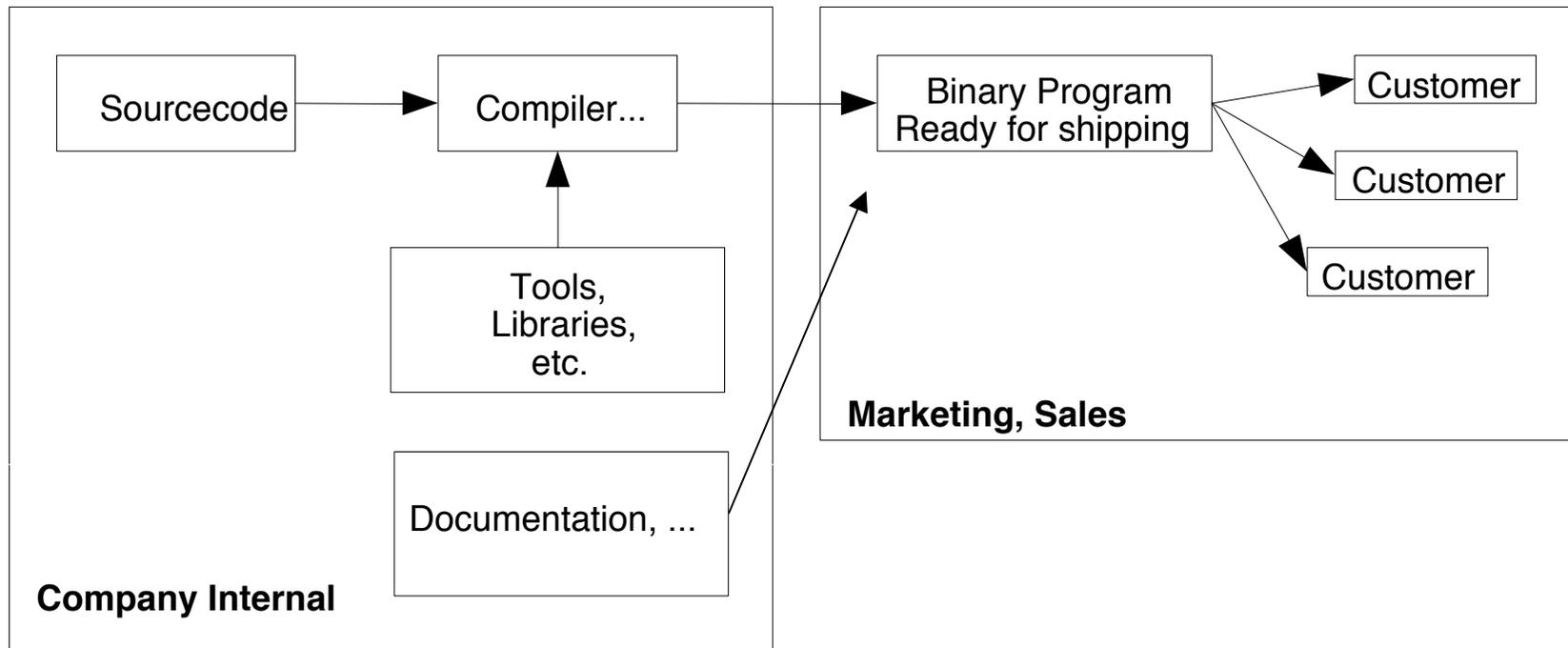
**Paradigm Shift has (at least)
two aspects
that re-inforce each other:**



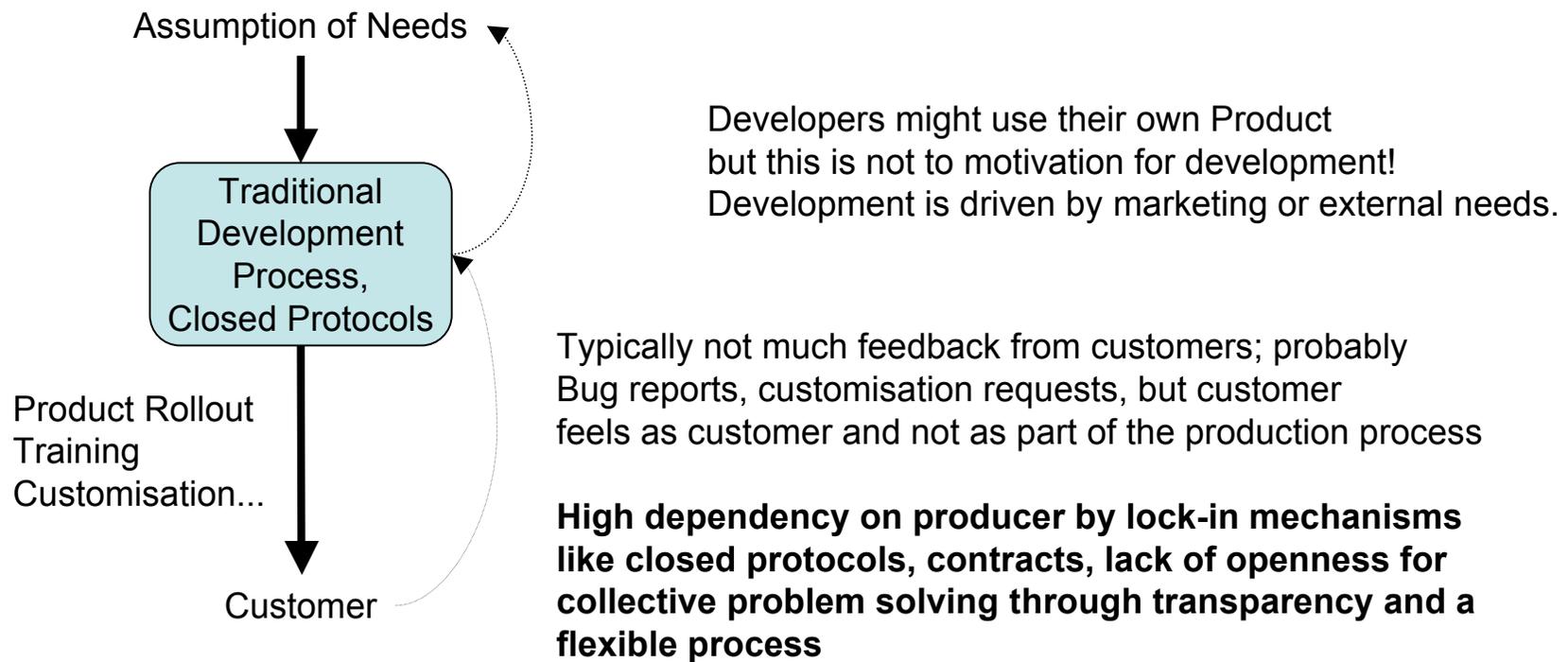
- Open Source
 - Software where sourcecode is freely available
 - Software that you are allowed to change, adapt, use within other Software products according to:
 - OS licenses (e.g., Gnu Public License, Apache License)
 - Difference to “free” Software, Shareware, Freeware, Shared Source and the like!
- Open Protocol
 - Protocols that are specified openly
 - Driven by standard organisations like W3C or business consortia like
 - Specification is freely available for everyone
 - Protocol can be used “free of charge”

- What is a Protocol?
- Protocol \leftrightarrow Dataformat ?
- Commodification of Software bases on open protocols!
 - http
 - XML
 - mp3
- Additionally open Protocols make Longevity of Digital Information more certain
- Connection to OS Software
- Creative Commons

Conventional Software-Development Process

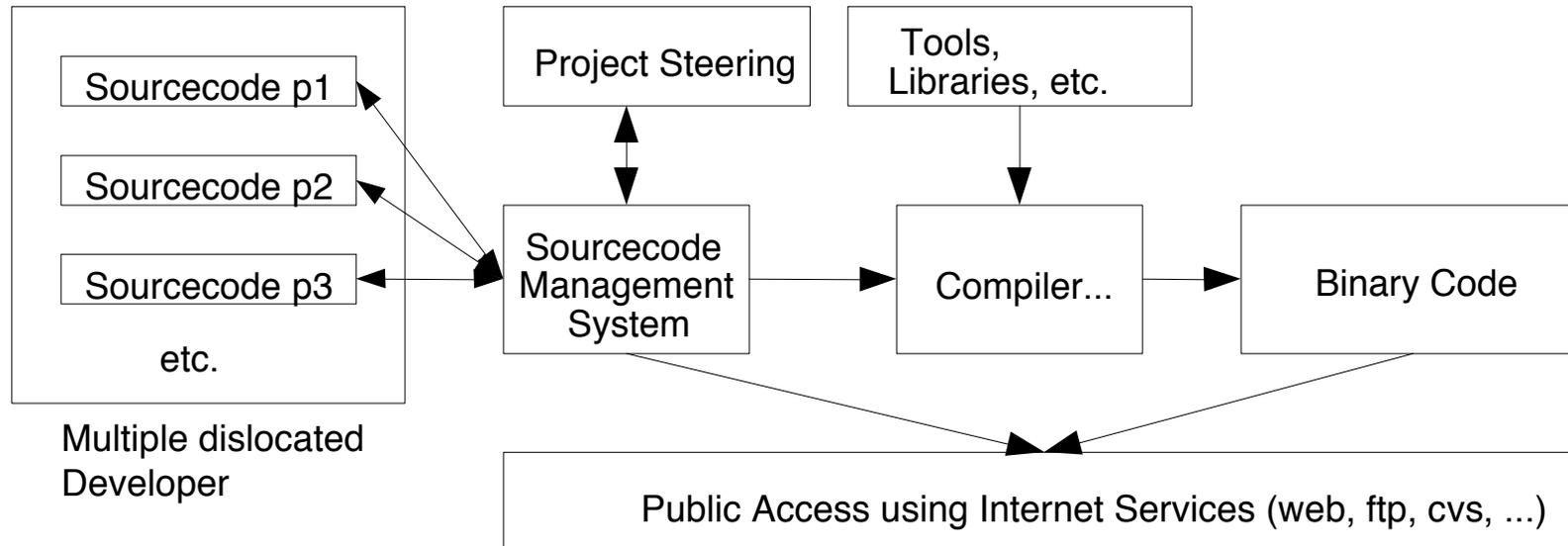


Conventional Process Interaction



Command & Control

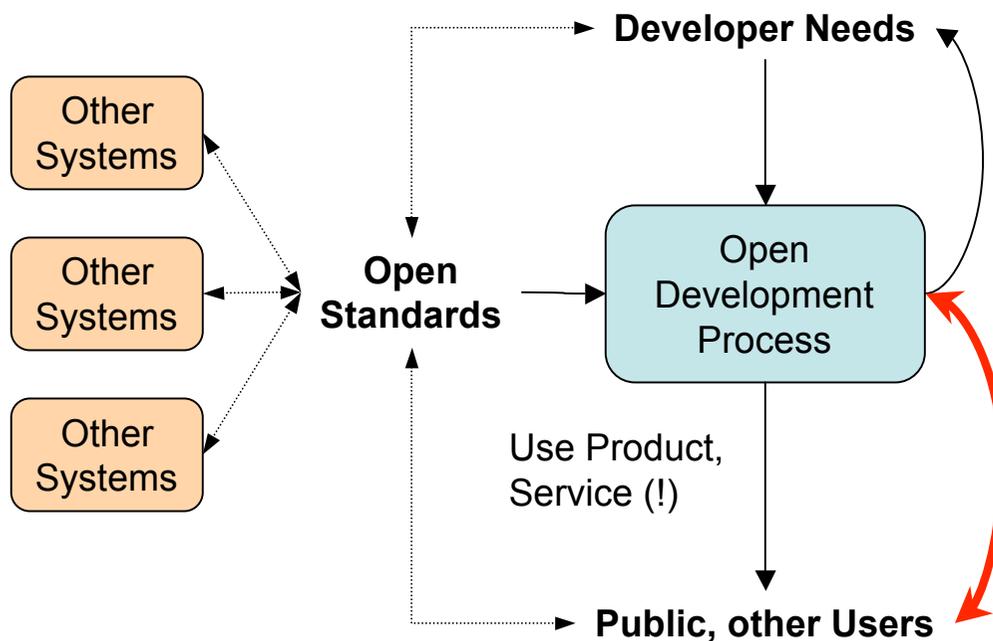
Development Process – Open Source Project



**First obvious observation: complete process is public
(including all artefacts like protocols)**

But this is still Producer/Consumer Driven perspective

Open Development Process: Interaction



Developers use their Product and their own feedback drives the **initial** development phase. (first order feedback)

“Second order” feedback by other users of the system/product: not “only” usage: **Interaction drives development**, support, add-ons, plug-ins, data...

Users feel connected to the project and more and more also as part of the development process: Increased value through flexible process; Enabler for collective problem solving

Collaborate & Connect

Assets?

- Conventional Process
 - Software Artefact
 - Closed Protocol
 - Lock-in contracts and customer bindings
- New Process
 - Process itself
 - Knowledge
 - Data
 - User Interaction

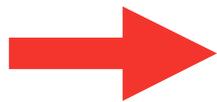


The “new” Software Development Process

- No Rollouts, no shrink-wrapped Software packages
- Software was "artefact"
- now it becomes a **”Process” using similar strategies like OS processes, even in commercial setup**
- *perpetual beta* (Tim O’Reilly)
- becomes commodity
- Finally, abstraction from Software
 - Services
 - Ontologies and Service Level Agreements
 - *Towards self-organising Systems?*
 - Multiple devices
 - Multiple access strategies
- Who is inside and who is outside of value-chain?

OS Process and the Economy

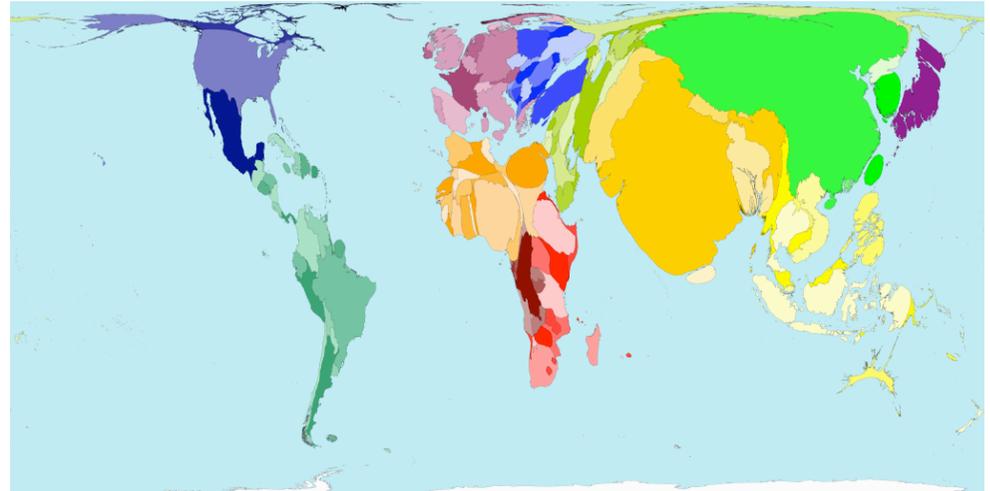
- The “user” was always part of the Open Source process
- Open Source Communities built their tools for communication and collaboration
- These tools themselves are mostly open source



Open Source Community, Communication and Collaboration Structure can be a role model for a new economy

The Flat World

- Thomas Friedman describes “flattening” factors in his book “The world is flat”, meaning, that actually location does not mean very much any more
- **Important are factors like**
 - Talent, Education
 - English Skills (!)
 - Good Network to collaborate
 - Good new ideas to support global economic processes
- **We move(d) from**
 - **Command and Control** to
 - **Collaborate and Connect** Economy/Society



The dot-com boom and bust were just “the end of the beginning”. The last 25 years in technology, said Fiorina, have been just the “warm-up act”. Now we are going into the main event, she said, “and by the main event, I mean:

an era in which technology will literally transform every aspect of business, every aspect of life and every aspect of society.

Carly Fiorina, the former CEO of HP quoted from *The World is Flat*, Thomas Friedman, Penguin Books (2006)



The User?



The “User” Revisited

- User integration on all levels is key
- For example:
 - Amazon
 - Ebay
 - Flickr
 - Games: Little Big Planet
 - “Human Computation”:
Mechanical Turk
- As described in good Open source Projects
 - quality of community is indicator for OSS quality!

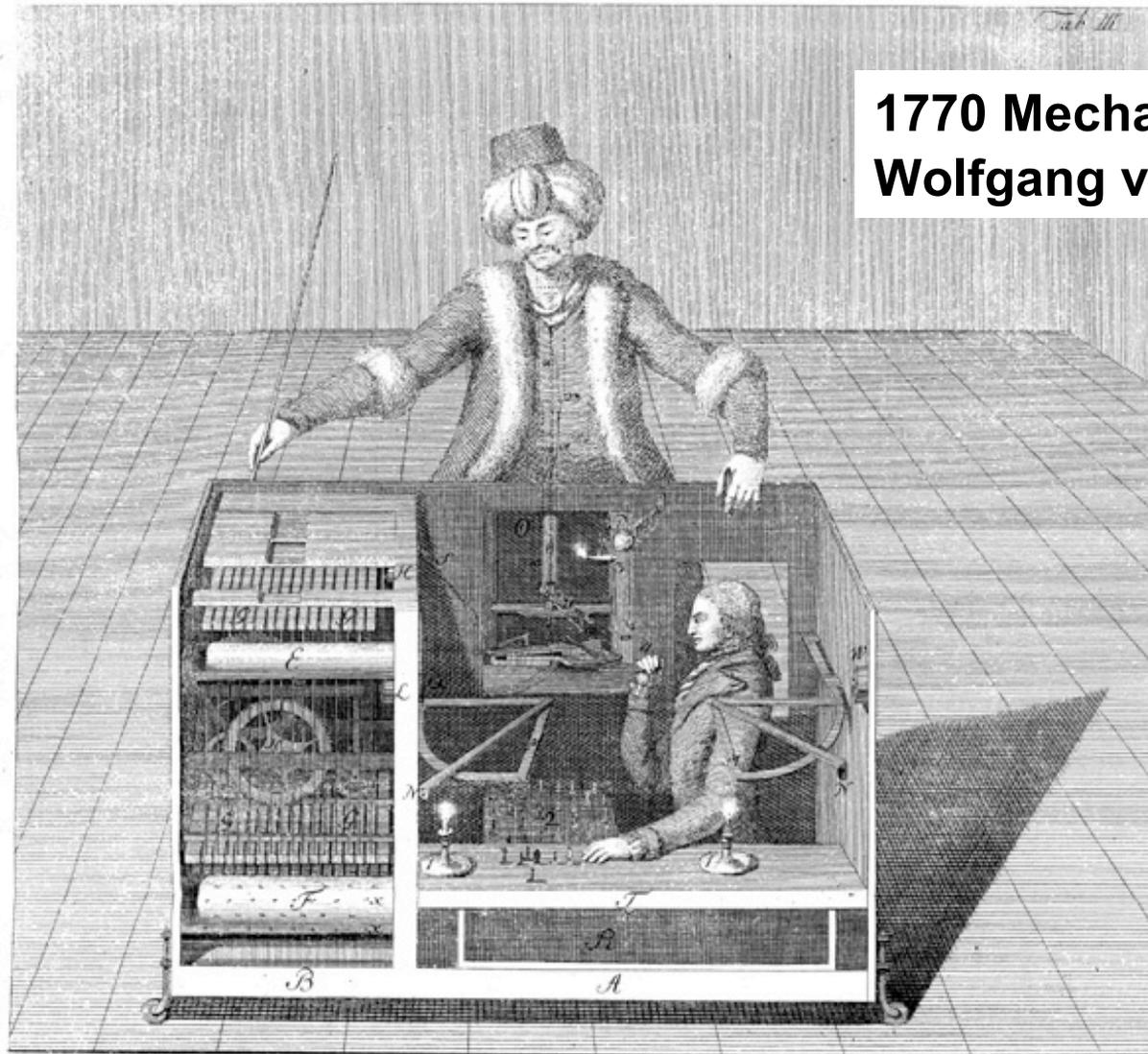




The USER is in the center of the process



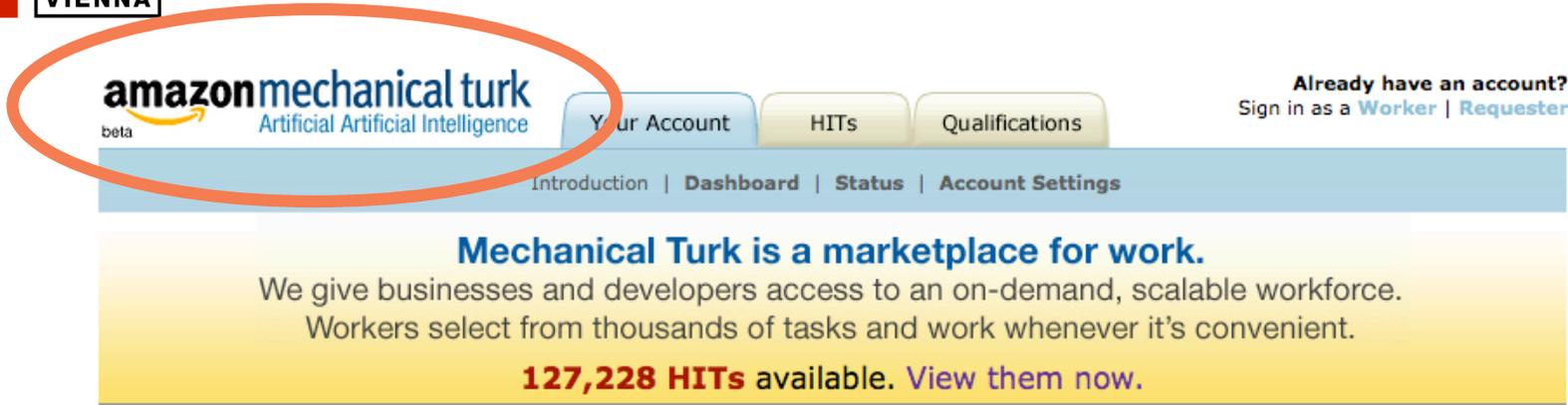
The “new User”: Software or Human Computation?



**1770 Mechanical Turk by
Wolfgang von Kempelen**



Mechanical Turk 2008



amazon mechanical turk
beta Artificial Intelligence

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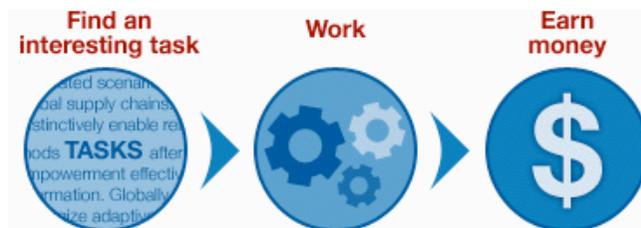
Mechanical Turk is a marketplace for work.
We give businesses and developers access to an on-demand, scalable workforce.
Workers select from thousands of tasks and work whenever it's convenient.
127,228 HITs available. [View them now.](#)

Make Money by working on HITs

HITs - *Human Intelligence Tasks* - are individual tasks that you work on. [Find HITs now.](#)

As a Mechanical Turk Worker you:

- Can work from home
- Choose your own work hours
- Get paid for doing good work



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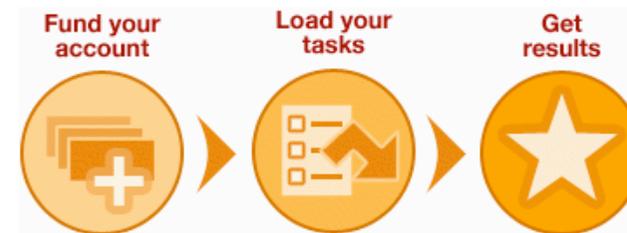
[or learn more about being a Worker](#)

Get Results from Mechanical Turk Workers

Ask workers to complete HITs - *Human Intelligence Tasks* - and get results using Mechanical Turk. [Get started.](#)

As a Mechanical Turk Requester you:

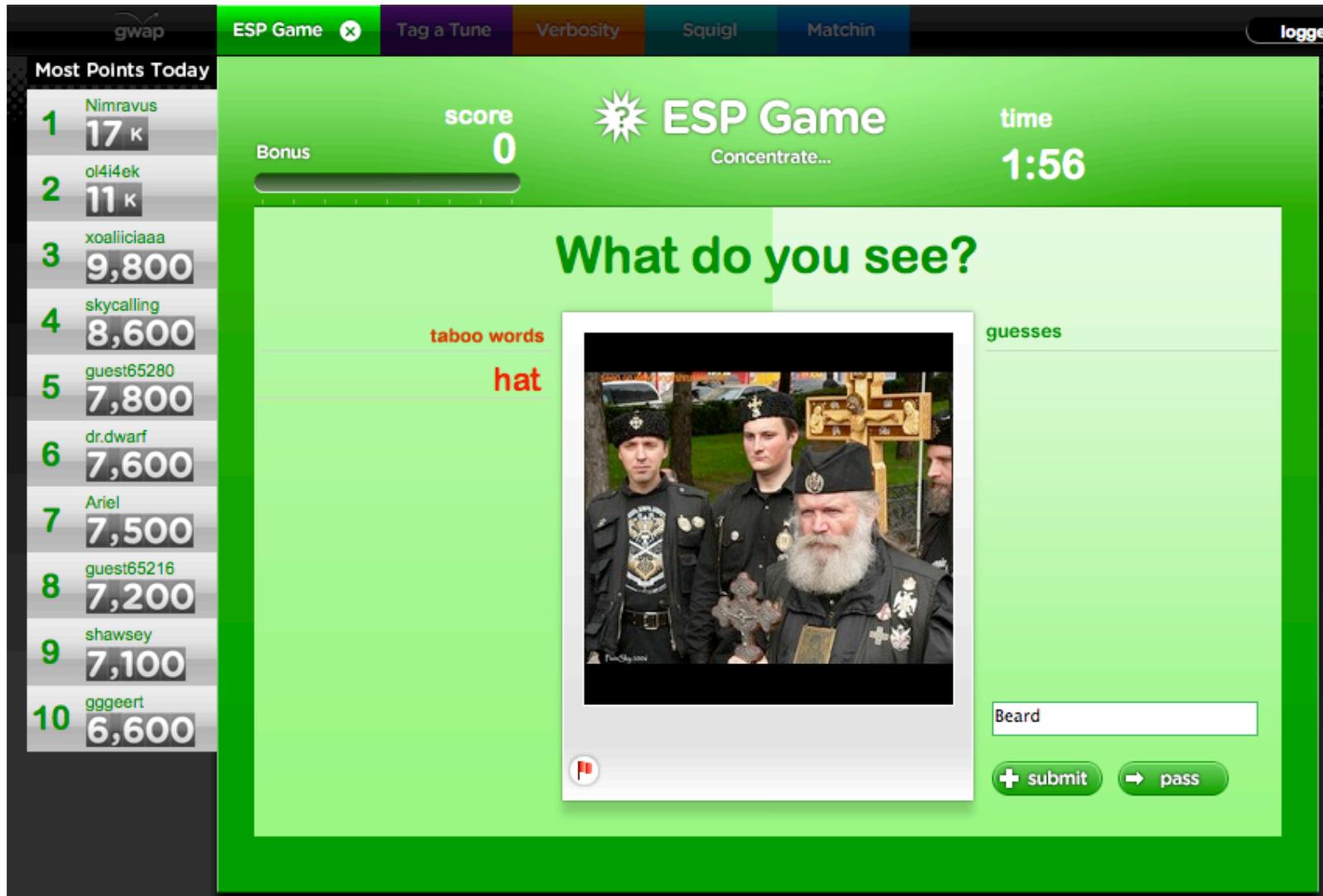
- Have access to a global, on-demand, 24 x 7 workforce
- Get thousands of HITs completed in minutes
- Pay only when you're satisfied with the results



[Get Started](#)

[or learn more about being a Requester](#)

ESP, Tag a Tune, ...



gwap ESP Game Tag a Tune Verbosity Squigl Matchin logged

Most Points Today

1	Nimravus	17 K
2	ol4i4ek	11 K
3	xoalliciaaa	9,800
4	skycalling	8,600
5	guest65280	7,800
6	dr.dwarf	7,600
7	Ariel	7,500
8	guest65216	7,200
9	shawsey	7,100
10	gggeert	6,600

score 0 time 1:56

Bonus

What do you see?

taboo words
hat

guesses

Beard

+ submit → pass

Taken from <http://www.gwap.com>



Summary: The Role of Open Source and Open Protocols

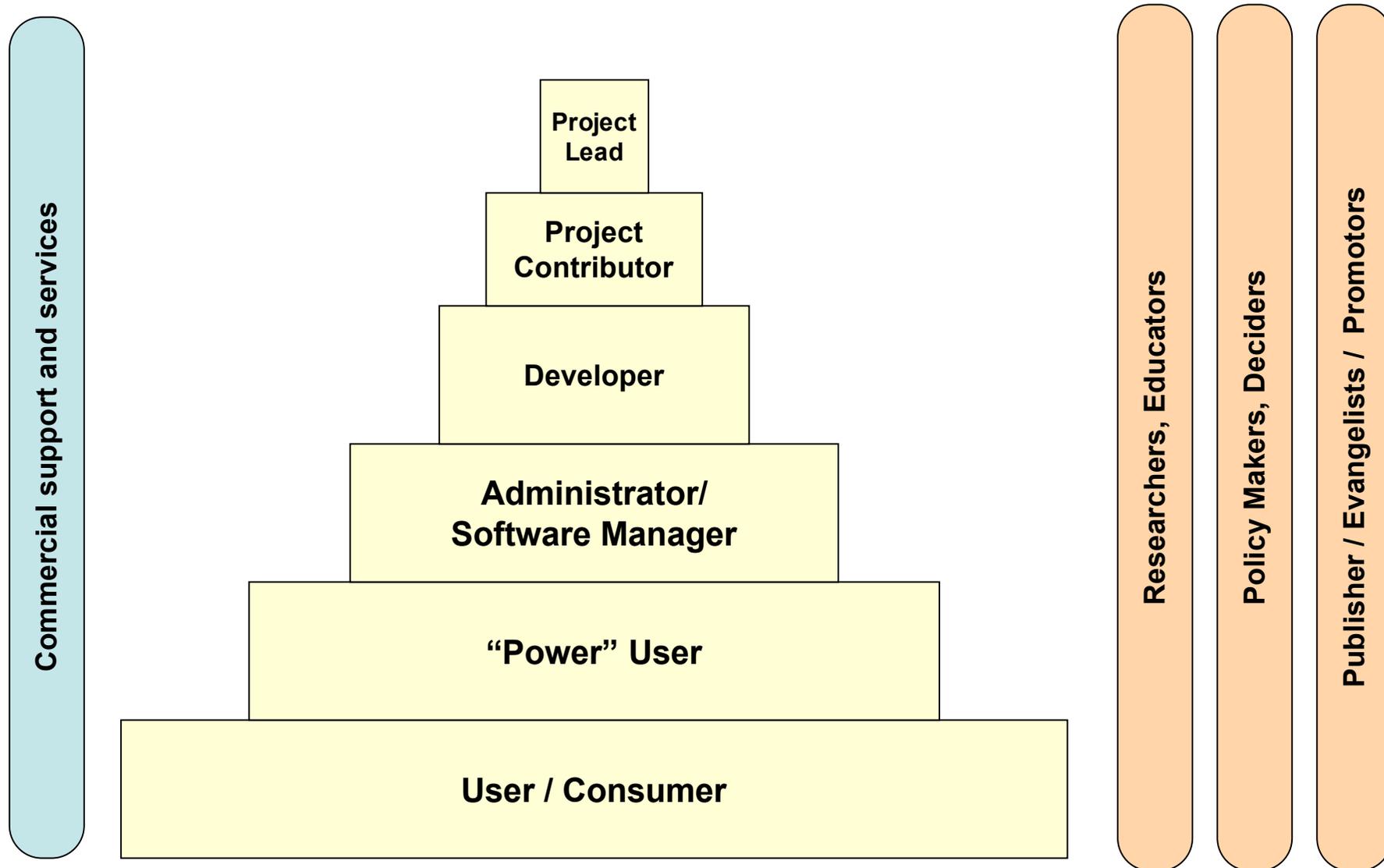




What Role does Open Source play in that context?

- Well known are issues like:
 - Avoid (Unnecessary) Economic Dependencies
 - Freedom of Speech
 - Freedom of Selection
 - Right to use the information produced in an arbitrary way
 - “Web 2.0” style applications are heavy OS users
- Connected Economy encourages the OS model!
 - Open Source interaction mechanisms are best-practice for modern distributed development efforts
 - Software as a process **IS** the OS idea
 - Openness is key for modern economies and innovative products
- **Open Source movement teaches patterns for modern economic interaction**

“Healthy” Open Source Community and Vertical Services



Policy / Knowledge Society

- IT Infrastructur is the digital bloodstream of contemporary societies:
 - Patents (Software)
 - Copyright – Abuse (Lobbies)
 - Currently special Status of Developing Countries like Indonesia (Software, DVDs, ...) will change soon!
 - Pressure from USA (DMCA, ...)
- User and Interaction Driven Economies demand
 - Open Protocols
 - Open Systems
 - Commodified Applications
 - Example: the failure of DRM in music downloads
- The „flat“ world provides a lot of new opportunities, but also limits to old business models



Conclusion

- We observe a paradigm shift from
 - Closed Source/proprietary/shrink wrapped Software
 - Towards Service-Oriented applications with
 - Strong inclusion of the community (the user)
- We move(d) from
 - **Software as Artefact** to
 - **Software as a Process**
- In the Center of Attention are
 - Data
 - User
 - Interactions
- This new paradigm often follows Open Source (interaction) mechanisms
- Open Protocols are the foundation for Software as commodity and for a working market



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