Open Project Management

from an "open" perspective

Instructor: Dr. Bradly Alicea

http://bradly-alicea.weebly.com

IS 340: Spring 2023

Welcome!

Syllabus Review

All materials available on Canvas (canvas.illinois.edu).

- course syllabus, reading list, lectures posted after class period.

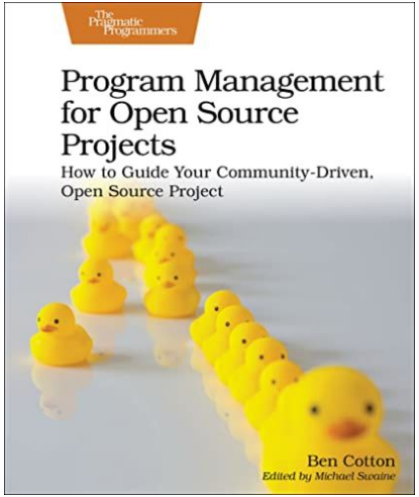
Office Hours will be virtual. Fridays 10am-12pm, https://meet.jit.si/project-mgmt

- come here with questions and for check-ins. And try out Jitsi!

Discord: https://discord.gg/ZvxwgXg, join #project-management

- discuss quizzes, paper ideas.

Syllabus Review



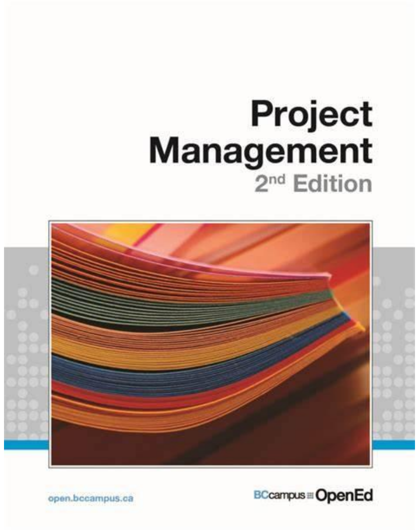
The Pragmatic Programmers

Program Management for Open Source Projects

How to Guide Your Community-Driven, Open Source Project

Ben Cotton

Edited by Michael Swaine



Project Management

2nd Edition

open.bccampus.ca

BCcampus OpenEd

mozilla

FOUNDATION

Who is this curriculum good for?

Entrepreneurship: start a company or non-profit initiative around “open” systems (software, writing platforms, communities of collaborators).

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Joining and managing open-source software initiatives: become a collaborator in an organization, gain skills and experience in new areas. Build upon prior innovations, target efforts towards niche applications.

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Joining and managing open-source software initiatives: become a collaborator in an organization, gain skills and experience in new areas. Build upon prior innovations, target efforts towards niche applications.

Learning the basics of tools for collaboration: how do you work in a distributed, collaborative environment? Work across time zones, cultures, and working styles.

About Me

PhD in Cognitive Science and Computational Biology, Michigan State University

Senior Contributor, OpenWorm Foundation https://openworm.org/

Head Scientist and Founder, Orthogonal Research and Education Lab https://orthogonal-research.weebly.com/

Mentor, Google Summer of Code, 2017-2022.

Mozilla Open Leader (2018-2019) and eLife Ambassador (2019).

Open-source Community Manager, Rokwire Initiative (2020-2022).

Introduction to Open Source and Open Access

Open Source

Origins in the 1950s and 1960s: software in the public domain (Academic Labs).

Worked against intellectual property rights of corporations, rise of proprietary software.

Public domain software lead to hacking culture (1980s).

Public domain works: UNIX (Bell Labs, 1970), Tex (Donald Knuth, 1978).

Copyleft licensing: GNU project (Richard Stallman, 1983).

Introduction to Open Source and Open Access

Open Access

Sociology of Science. Robert Merton (1942)

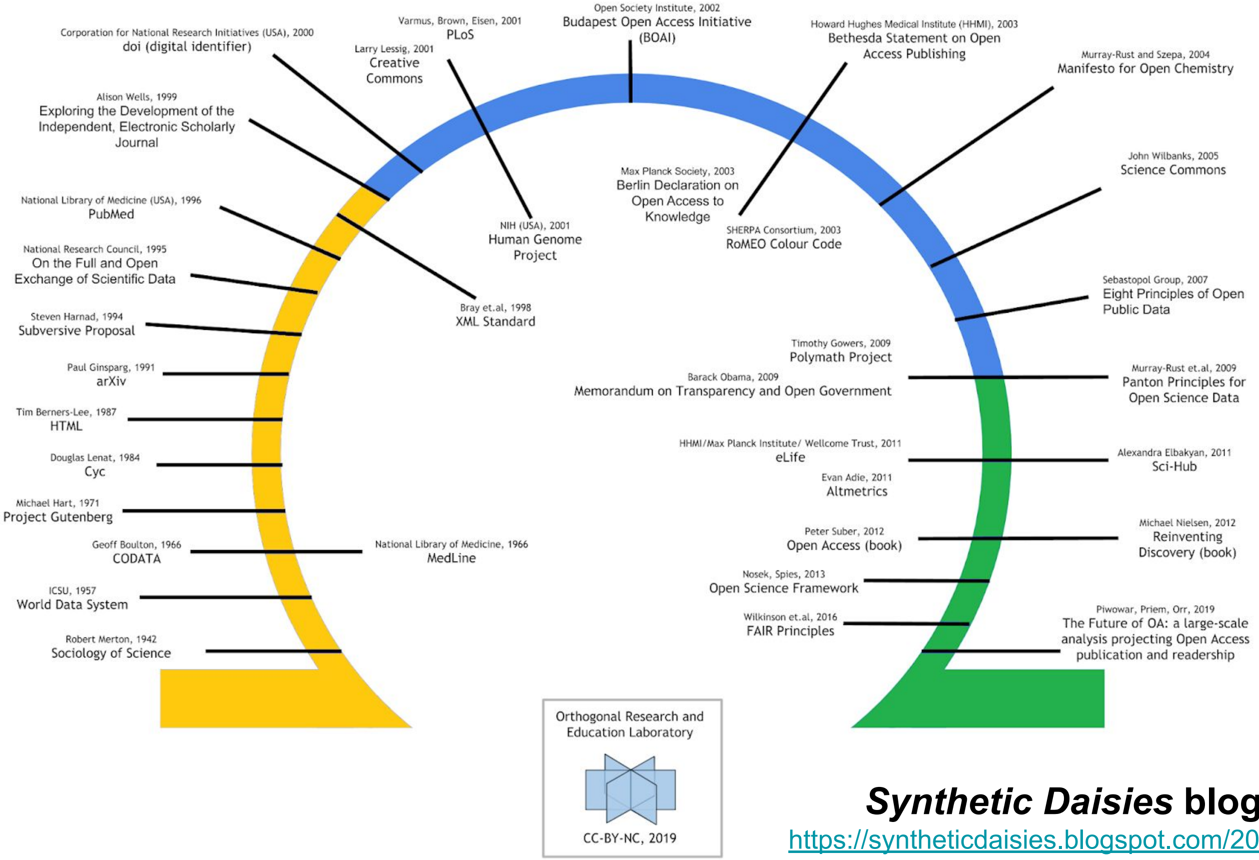
Medline (1960s), HTML (1987), arXiv (1991): digital access to databases and papers enabled by a stylistic standard.

Creative Commons. Lawrence Lessig (2001).

Eight Principles of Open Public Data (2000s), *Reinventing Discovery* (2010s).

Polymath Project, Altmetrics, FAIR Principles (post-2010): working styles and evaluatory standards for open access.

Further Reading



Robert Merton, 1942
Sociology of Science

ICSU, 1957
World Data System

Geoff Boulton, 1966
CODATA

National Library of Medicine, 1966
MedLine

Michael Hart, 1971
Project Gutenberg

Douglas Lenat, 1984
Cyc

Tim Berners-Lee, 1987
HTML

Paul Ginsparg, 1991
arXiv

Steven Harnad, 1994
Subversive Proposal

National Research Council, 1995
On the Full and Open
Exchange of Scientific Data

National Library of Medicine (USA), 1996
PubMed

Bray et.al, 1998
XML Standard

Alison Wells, 1999
Exploring the Development of the
Independent, Electronic Scholarly
Journal

Corporation for National Research Initiatives (USA), 2000
doi (digital identifier)

Larry Lessig, 2001
Creative
Commons

Varmus, Brown, Eisen, 2001
PLoS

NIH (USA), 2001
Human Genome
Project

Open Society Institute, 2002
Budapest Open Access Initiative
(BOAI)

Max Planck Society, 2003
Berlin Declaration on
Open Access to
Knowledge

Howard Hughes Medical Institute (HHMI), 2003
Bethesda Statement on Open
Access Publishing

SHERPA Consortium, 2003
RoMEO Colour Code

Murray-Rust and Szepa, 2004
Manifesto for Open Chemistry

John Wilbanks, 2005
Science Commons

Sebastopol Group, 2007
Eight Principles of Open
Public Data

Timothy Gowers, 2009
Polymath Project

Barack Obama, 2009
Memorandum on Transparency and Open Government

Murray-Rust et.al, 2009
Panton Principles for
Open Science Data

HHMI/Max Planck Institute/ Wellcome Trust, 2011
eLife

Evan Adie, 2011
Altmetrics

Alexandra Elbakyan, 2011
Sci-Hub

Peter Suber, 2012
Open Access (book)

Michael Nielsen, 2012
Reinventing
Discovery (book)

Nosek, Spies, 2013
Open Science Framework

Wilkinson et.al, 2016
FAIR Principles

Piwowar, Priem, Orr, 2019
The Future of OA: a large-scale
analysis projecting Open Access
publication and readership

Orthogonal Research and
Education Laboratory

CC-BY-NC, 2019

***Synthetic Daisies* blog, History of Open Access**

https://syntheticdaisies.blogspot.com/2019/10/oa-week-history-of-open-science.html

Defining Open Source

Denoting software for which the original source code is made *freely available* and may be *redistributed and modified*.

Software is “free” or “libre” in accordance with the Free Software Definition and Definition of Free Cultural Works.

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Five Pillars of Open Source

Five things make a software release “open source”:

1) Publicly-available source code.

Github repositories
https://github.com/rokwire

Workspace and archive for version-controlled, open-source computer code, formatted text, and editable data.

Five Pillars of Open Source

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2) Copyleft licensing.

Copyleft

https://www.copyleft.org/

A set of principles governing open content that protects creator’s rights.

- opposite of copyright, which restricts use by the public).

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Five things make a software release “open source”:

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3) Free distribution and remixing.

Creative Commons

https://creativecommons.org/licenses/

Set of licenses for non-code open access materials (books, digital content) that specifies terms of use.

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4) Technology neutral.

Software Distribution

Channels of distribution: FTP, CD-ROM, Web downloads.

Open-source must not come into conflict with distribution channels.

Five Pillars of Open Source

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4) Technology neutral.
5) Versioning.

Version-control

Track and compare different document versions. Keeps contributions clear, allows for tracing faults (why things don’t work).

- diffs (line-oriented edit distance), version tracking (revisit previous versions).

Why should we work (and manage projects) in an open manner?

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Why do we “Work Open”?

What are the benefits (payoffs) and drawbacks?

Does this require a shift in perspective?

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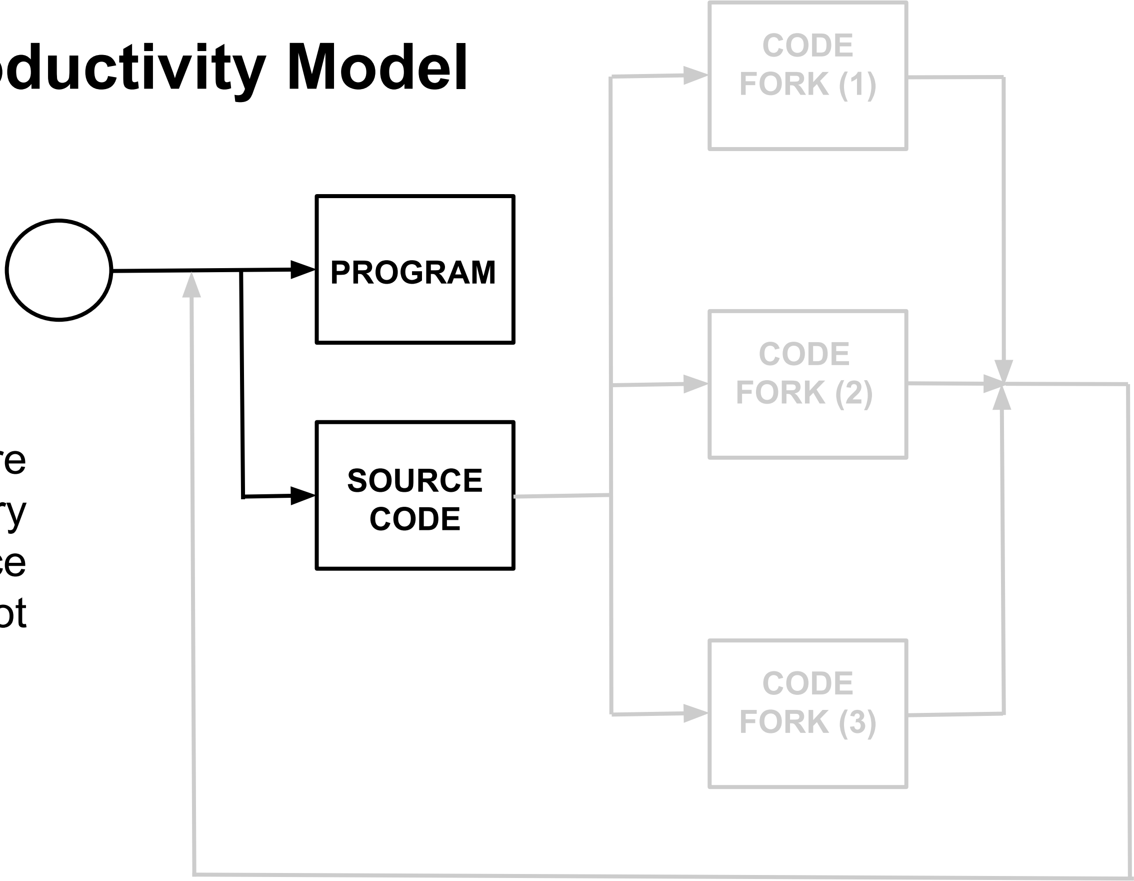
Does this require a shift in perspective?

Developing an “ethos” of open-source:

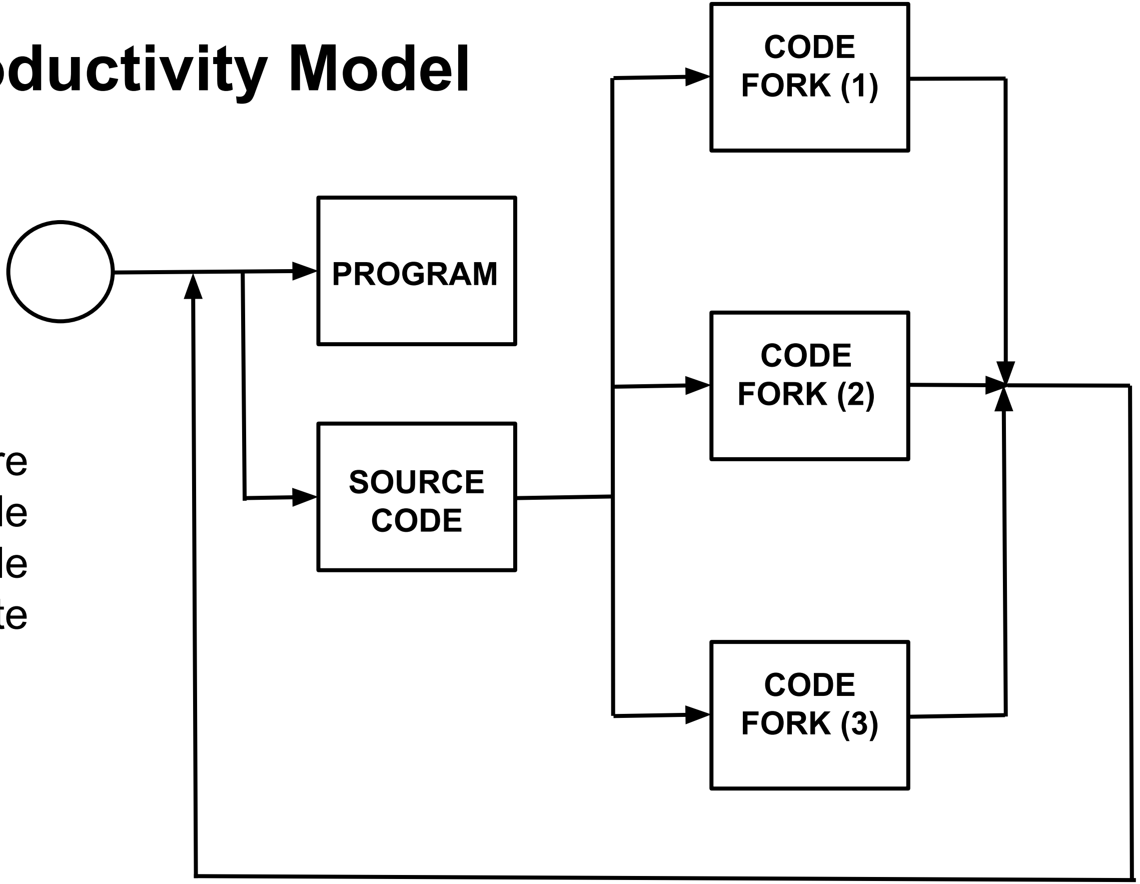
Think of your efforts in terms of productivity, copying and sharing (forking), idea genealogy, and the social implications (capital and contracts).

Open-source Productivity Model

Closed-source software provides a proprietary “program” with source code that is not freely-available.

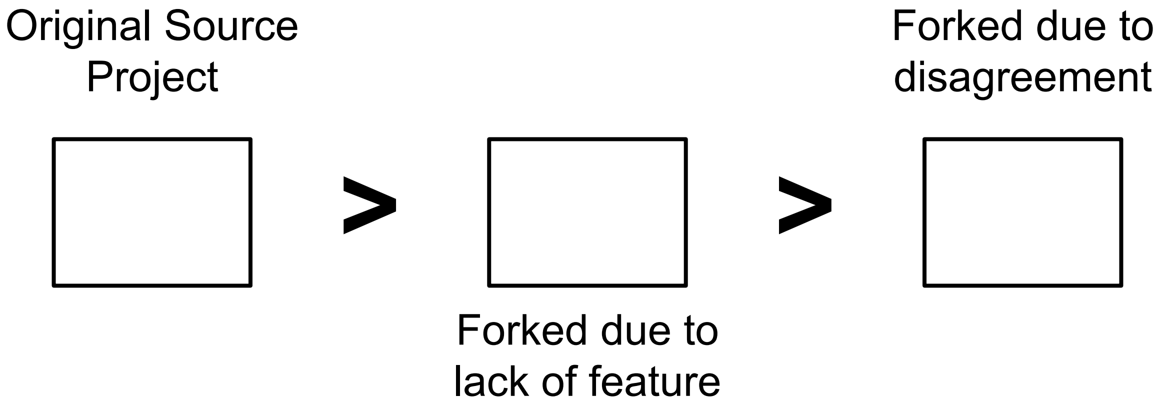


Open-source Productivity Model



Open-source software provides freely-modifiable source code where people can make forks (alternate copies).

Open-source Genealogies



Original Source Project

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Forked due to lack of feature

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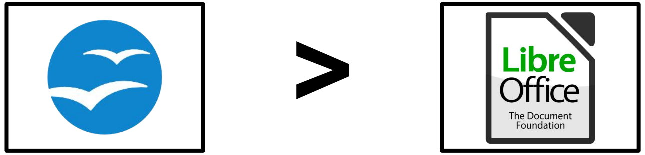
Forked due to disagreement



LibreOffice (Document Foundation) is a fork of OpenOffice (Apache Foundation)

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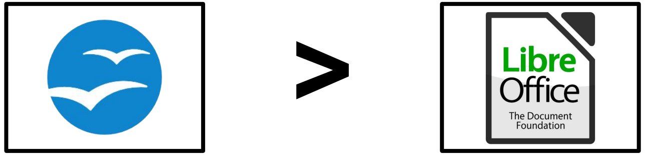

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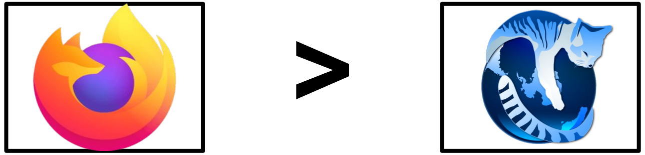

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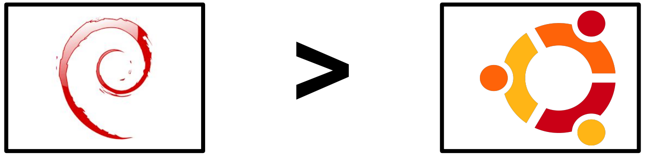

Ubuntu (Canonical, Ltd) is a fork of Debian (Debian Project)

Red Hat Family Tree

based on GLDT version 11.6

A. Lundqvist, D. Rodic - **futurist.se/gldt**
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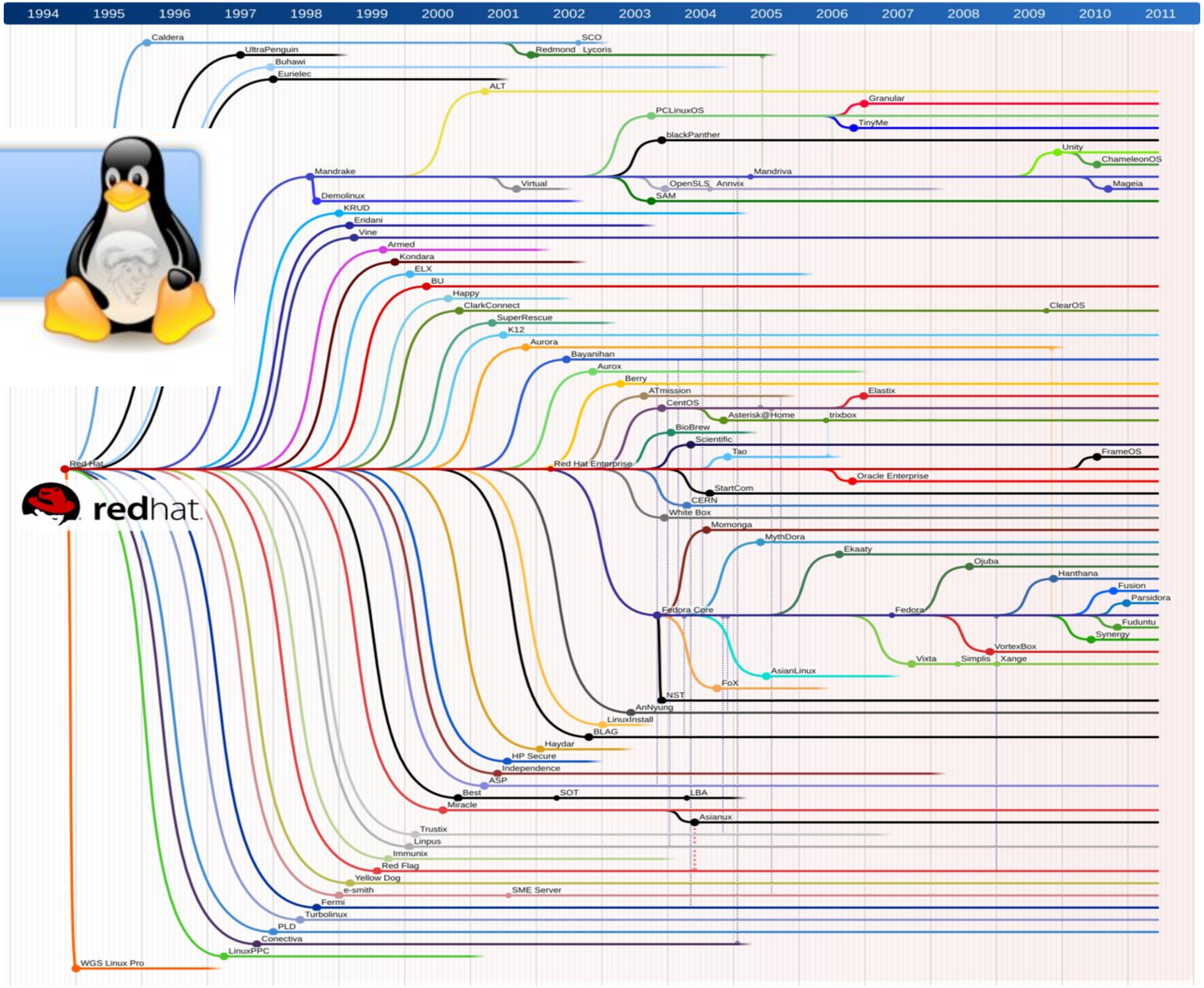
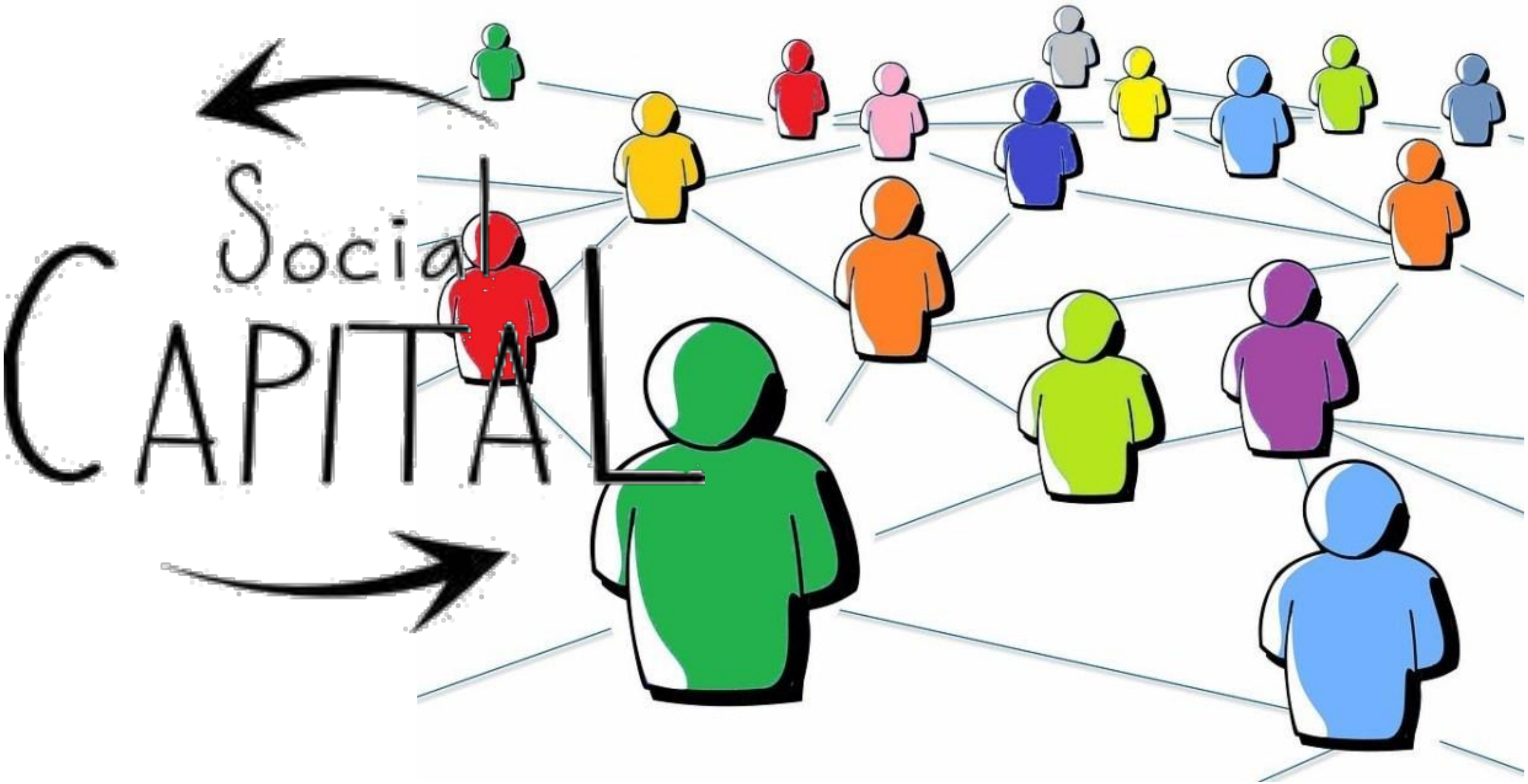
─ Influence, developer switching
┈ Rebasing, substantial code flow, project overtaking
▪▪▪ Developer & code sharing, project merging



Working Open Runs on Social Capital



Social Capital

Trust + Positive Social Attention + Innovation + Reciprocity + Altruism

TRUST

Each contributor will abide by the expectations of the community (social contract).

Social Capital

Trust + Positive Social Attention + Innovation + Reciprocity + Altruism

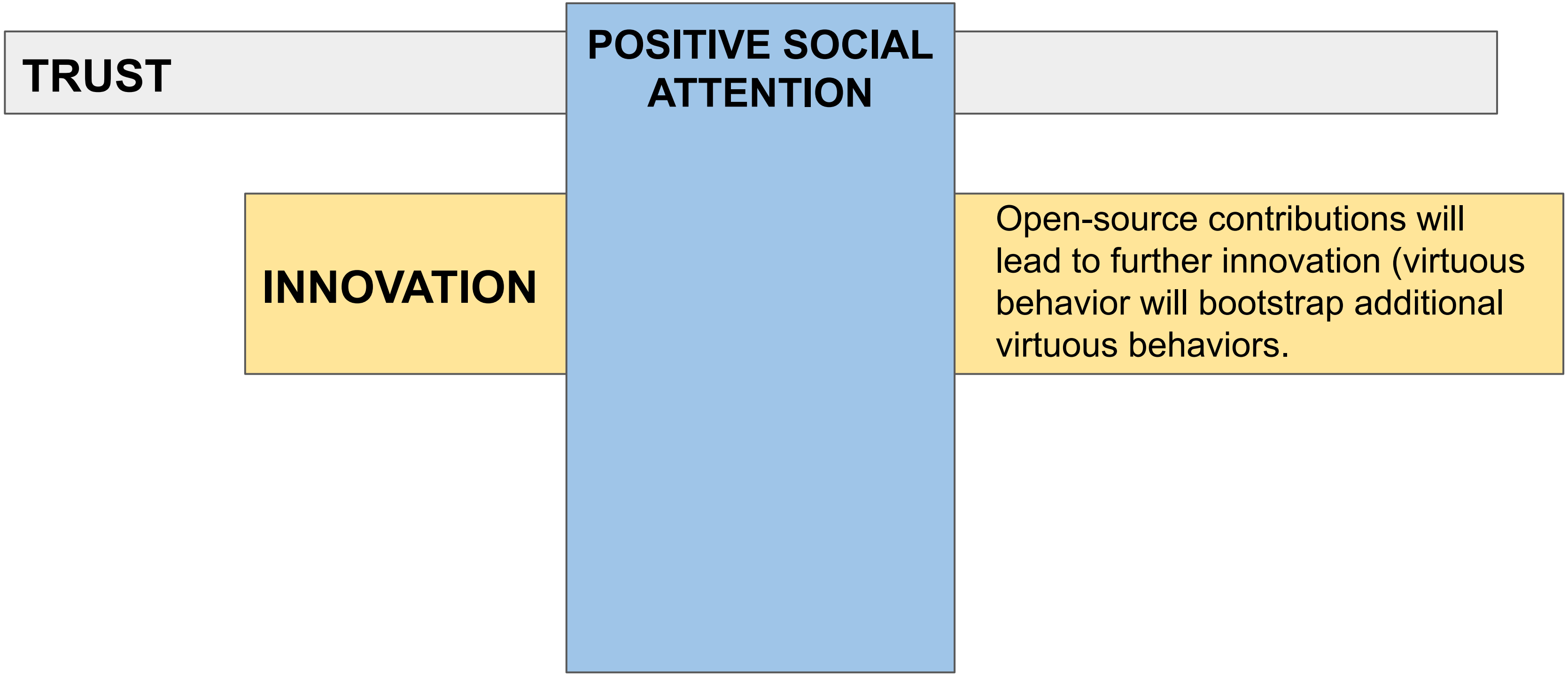
TRUST

POSITIVE SOCIAL ATTENTION

A person’s work will be seen by many other people, benefits of approval will be gained using a reputation mechanism (likes, shares, forks).

Social Capital

Trust + Positive Social Attention + Innovation + Reciprocity + Altruism



Open-source contributions will lead to further innovation (virtuous behavior will bootstrap additional virtuous behaviors.

Social Capital

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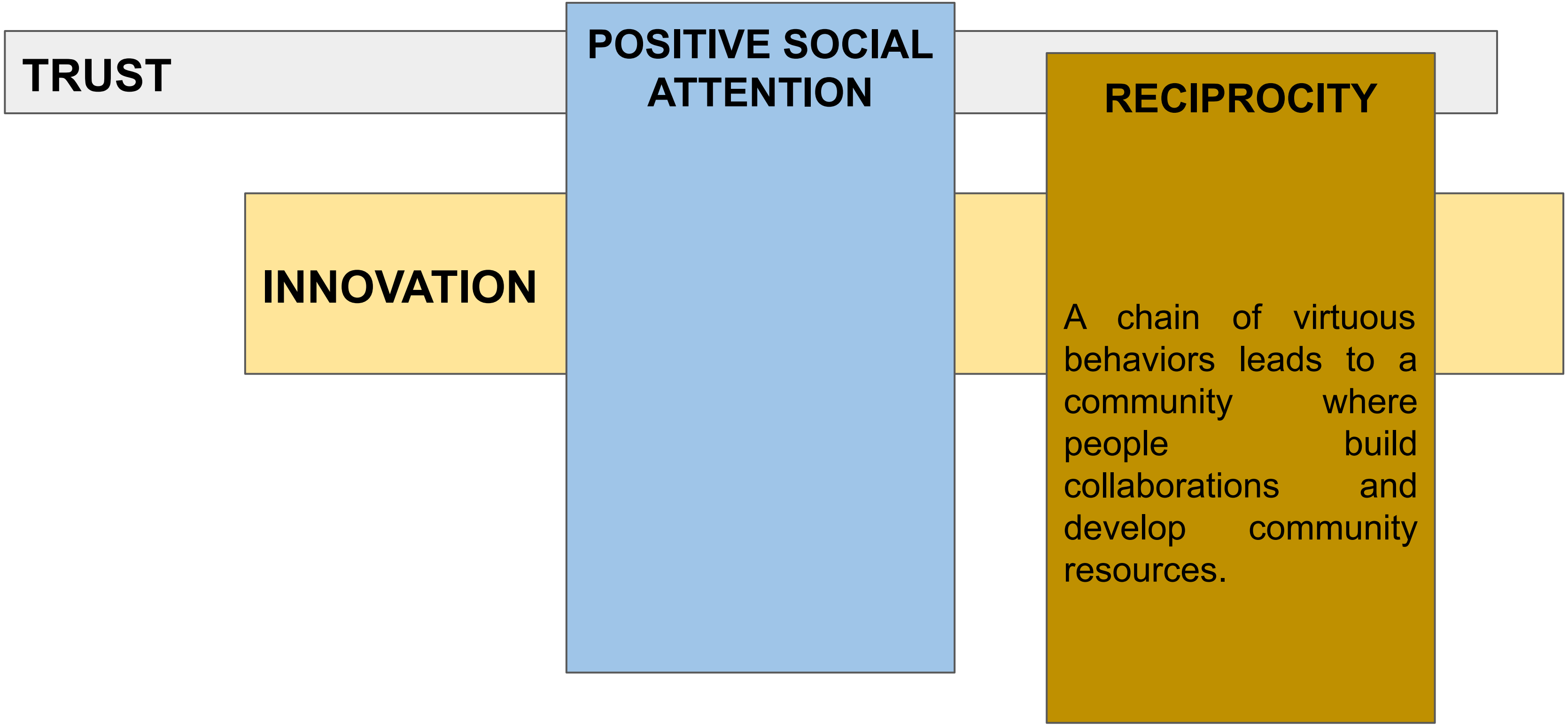

TRUST

POSITIVE SOCIAL ATTENTION

INNOVATION

RECIPROCITY

A chain of virtuous behaviors leads to a community where people build collaborations and develop community resources.

Social Capital

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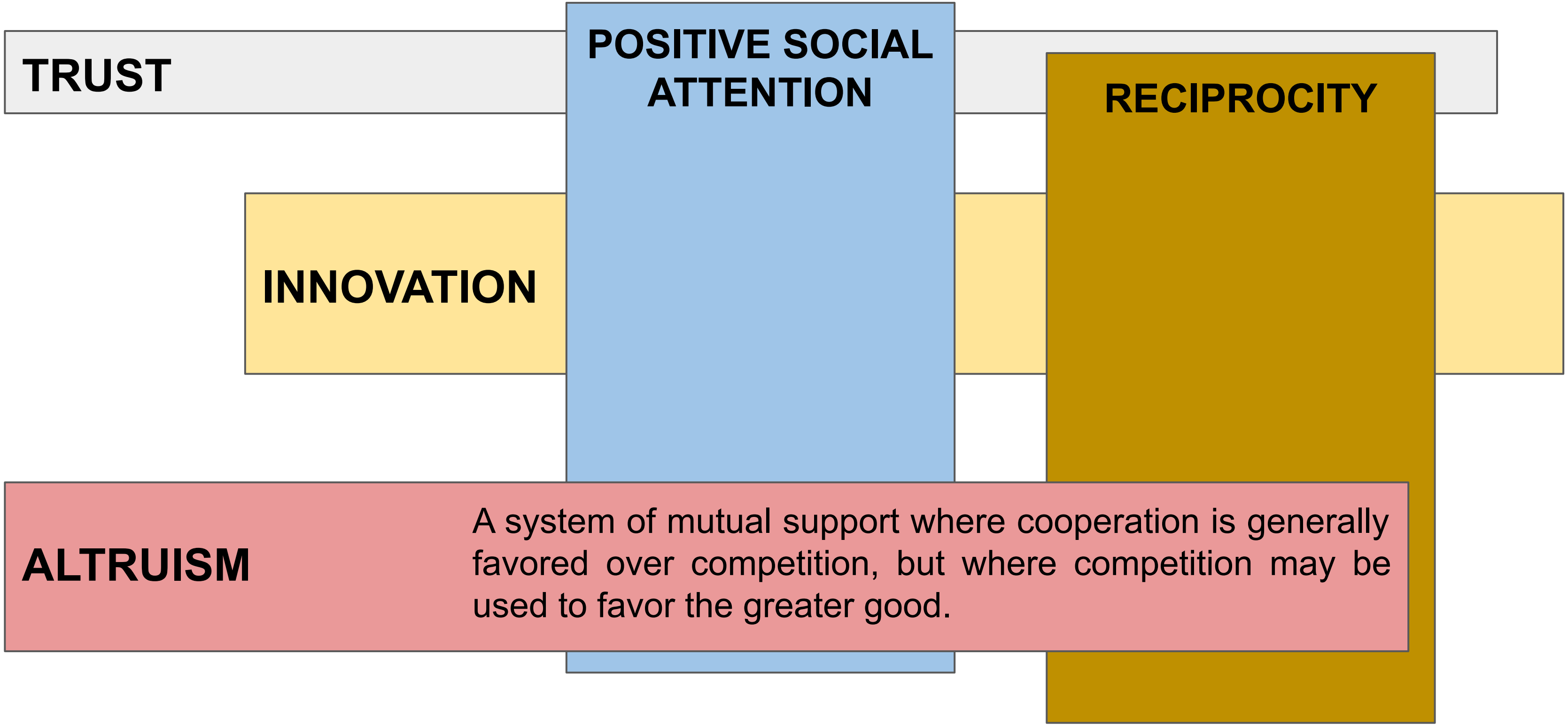


TRUST

POSITIVE SOCIAL ATTENTION

RECIPROCITY

INNOVATION

ALTRUISM

A system of mutual support where cooperation is generally favored over competition, but where competition may be used to favor the greater good.

The Hidden Benefit of Giving Back to Open Source Software

Harvard Business Review, September 5 (2018)

Open-source projects can be thought of as a public good.

Companies can benefit from hiring workers with experience in open-source organizations.

- open-source contributions outside firm benefits individuals (skill building, access to technological systems).

- companies can benefit from hiring open-source contributors (can build upon, utilize value of open-source tools).

Debian Social Contract (1997)

Ensure that software remains open and free as it gets forked, scales up:

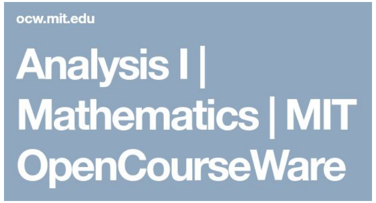
- gift improvements to the community that made the operating system possible.
- transparency in methods, software, and organization.
- staying focused on the users and the software that started the phenomenon.
- enable the use of free software with non-free software.

Forms the basis for the Open Source Definition (https://en.wikipedia.org/wiki/The_Open_Source_Definition)

Open Source, Open Access, Open *x,y,z*

You can make anything into an open-source project!

open source hardware



ocw.mit.edu

Analysis I | Mathematics | MIT OpenCourseWare

Open Journalism

10 Repositories · 3 Languages · Last updated 4 days ago

OPEN SCIENCE

OPEN ACCESS

Open Source

OPEN DATA

OPENGOV

Further Reading

Senz, K. The Hidden Benefit of Giving Back to Open Source Software. *Harvard Business Review*.
https://d3.harvard.edu/insights/the-hidden-benefits-of-giving-back-to-open-source-software/

Ghory, I. The Secrets of Successful Open Source Business Models. *Blossom Capital Medium*.
https://medium.com/blossom-capital/successful-open-source-business-models-2709e831e38a

For future lectures

Community-building (Mozilla)
https://mozilla.github.io/open-leadership-training-series/articles/building-communities-of-contributors/

Codes of Conduct (Mozilla)
https://mozilla.github.io/open-leadership-training-series/articles/building-communities-of-contributors/write-a-code-of-conduct/

Github glossary
https://docs.github.com/en/get-started/quickstart/github-glossary