



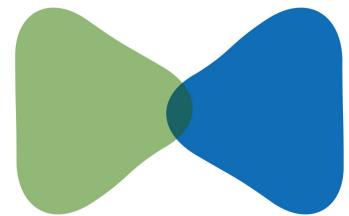
ThoughtWorks®

Open Source and Government

*Jim Gumbley, Lead Consultant
4 October 2016*

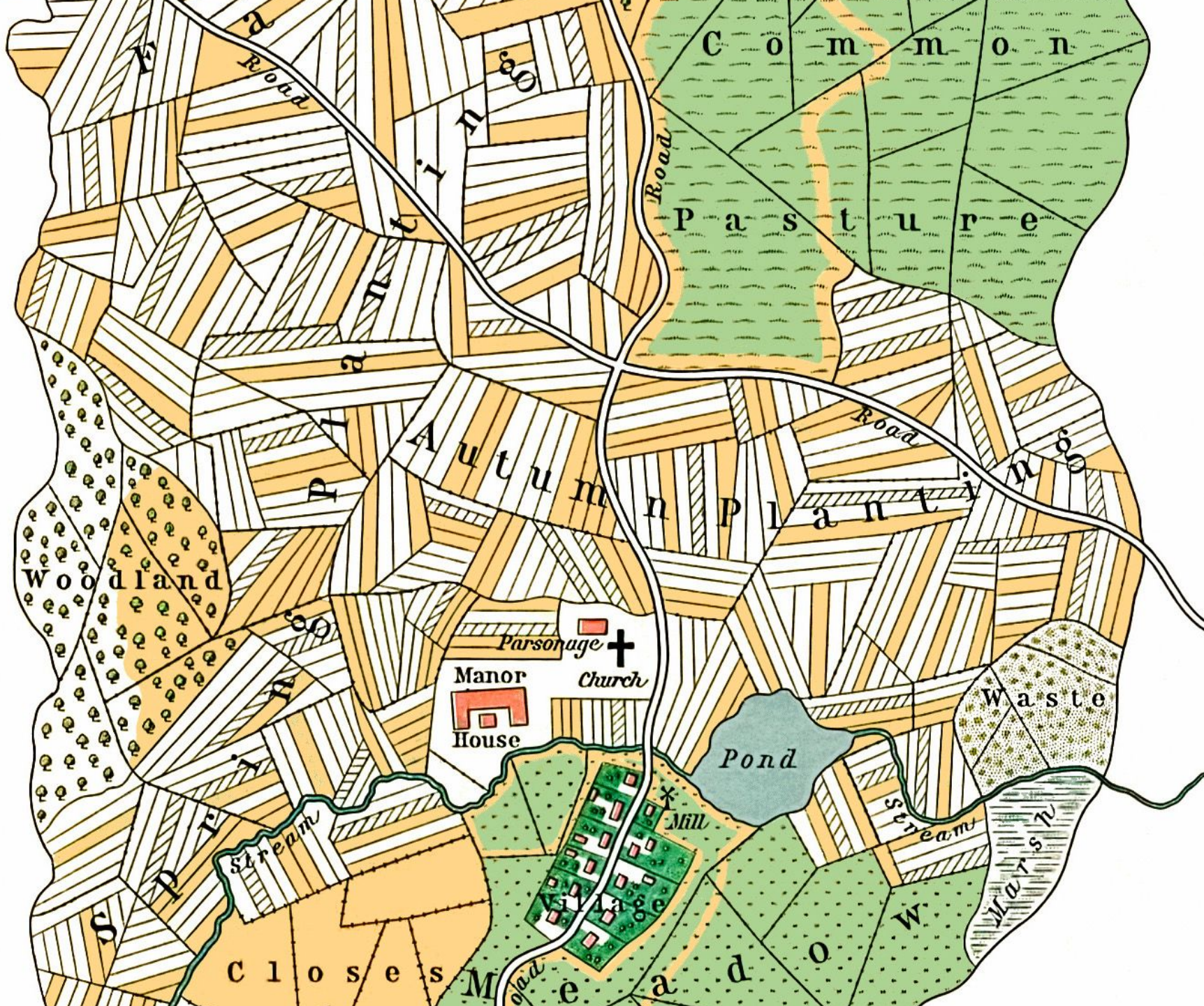
Agenda

- The Commons
- The “Free software” movement
- “Open Source” becomes mainstream
- OSS at GDS: Two case studies from Government













Tree to be
coppiced

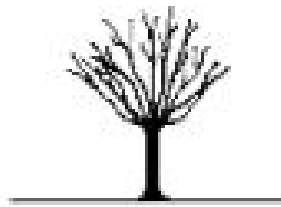
Cut close
to base
in winter

Shoots rapidly
regrow from
stool the
following spring

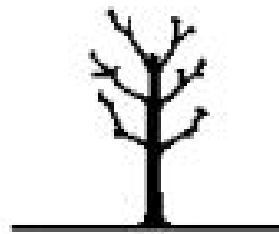
Coppice ready
for harvest
between 7-20
years



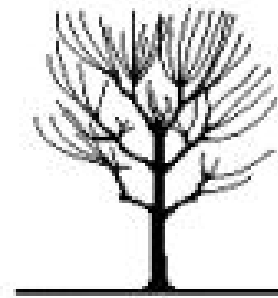
Traditional Pollard



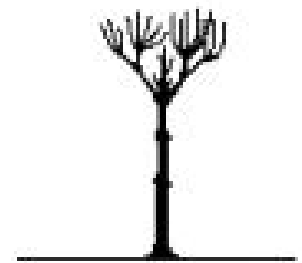
2 year old Pollard



Amenity Pollarding



Young Regrowth

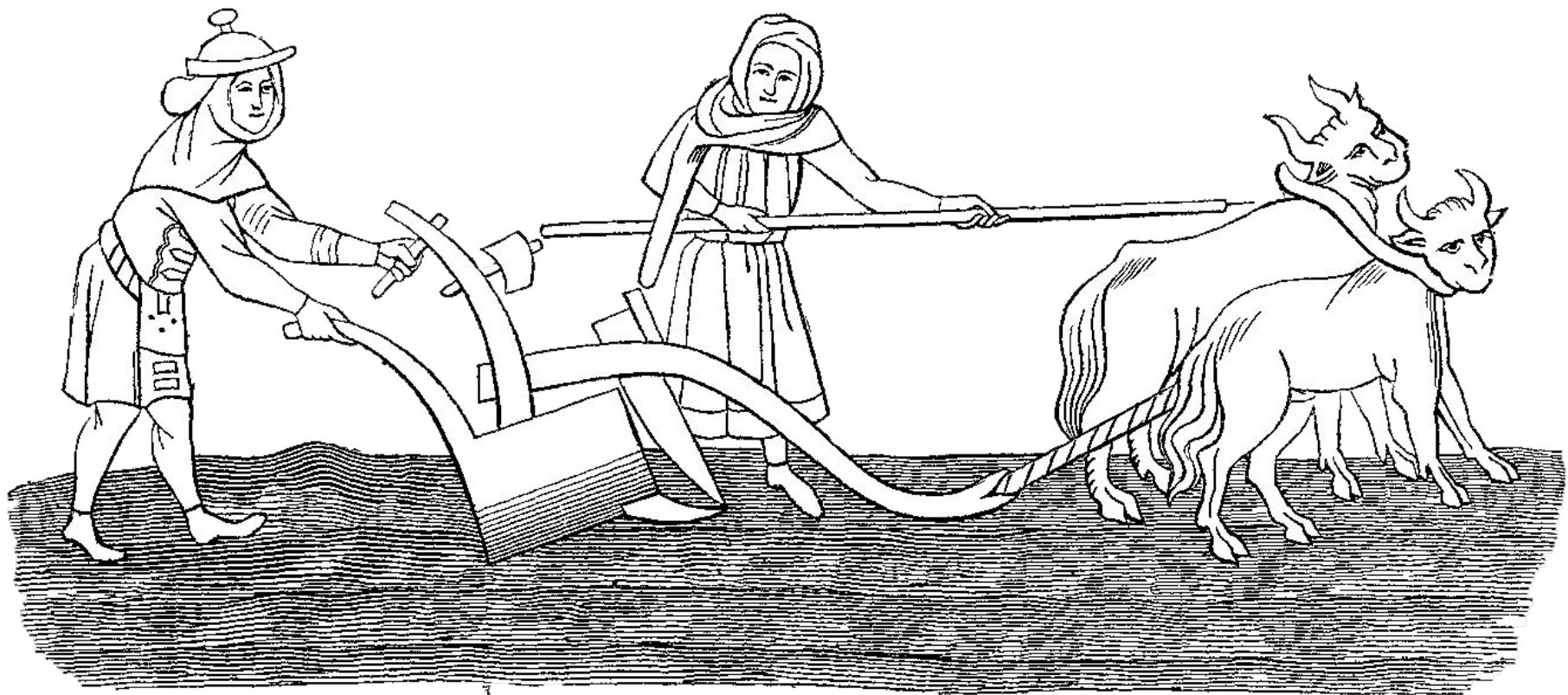


High Pollarding











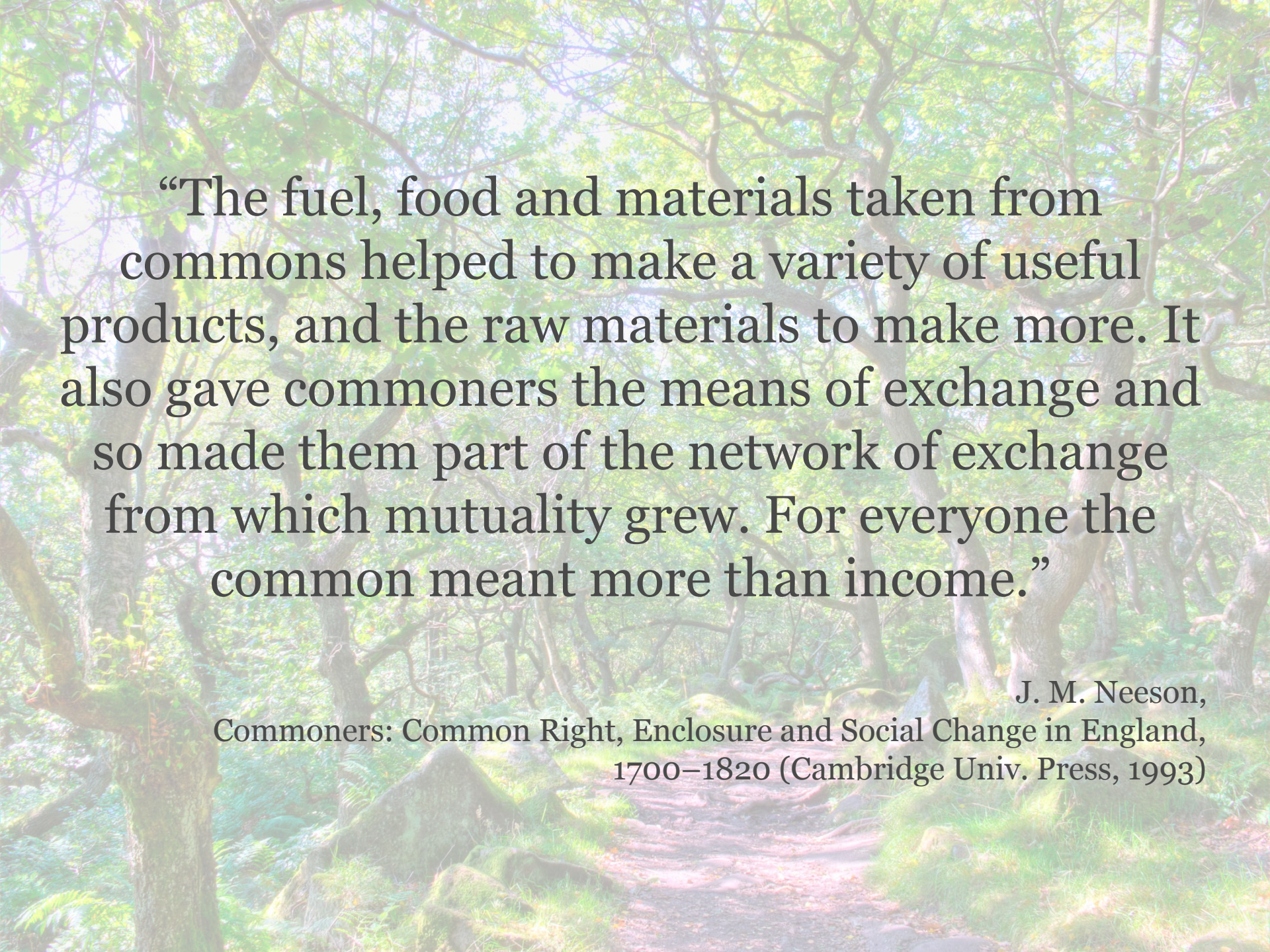










A lush green forest with a dirt path leading through trees and mossy rocks. The scene is bright and verdant, with sunlight filtering through the canopy. The path is made of dirt and small stones, winding through the forest. Large, moss-covered rocks are scattered along the path. The trees are tall and leafy, creating a dense canopy. The overall atmosphere is peaceful and natural.

“The fuel, food and materials taken from commons helped to make a variety of useful products, and the raw materials to make more. It also gave commoners the means of exchange and so made them part of the network of exchange from which mutuality grew. For everyone the common meant more than income.”

J. M. Neeson,
Commoners: Common Right, Enclosure and Social Change in England, 1700–1820 (Cambridge Univ. Press, 1993)



Handwritten Latin text from the Magna Carta, Chapter 39, showing the original parchment with dense script.

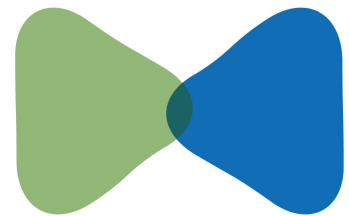
Magna Carta Chapter 39

No free man shall be arrested or imprisoned or disseised or outlawed or exiled or any way victimized, neither will we attack him or send anyone to attack him, except by the lawful judgment of his peers or by the law of the land. To no one will we sell, to no one will we refuse or delay right or justice.



So what?

- Earlier example where common resources available to all
- Also had to be protected by law
- Show by analogy the kind of innovative ecosystems which can arise



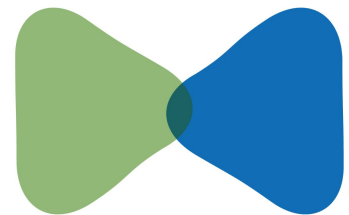


Man in MIT AI Lab: High-tech prankster

“This spirit of building up gigantic, complicated programs, and then exchanging them with other people, fueled the spirit of free-wheeling cooperation that we had at the AI Lab. The idea was that you could give a copy of any program you had to someone who wanted a copy of it. We shared programs to whomever wanted to use them, they were human knowledge.”

Free Software

- Richard Stallman created GNU Project in 1984
 - GNU licence designed to work **against** dominance
 - Source code should be **free to use, available to study, modifiable** and **redistributable**
 - Computing should not be dominated by large firms



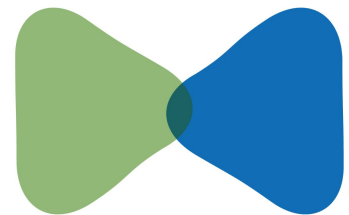


“Software sellers want to divide the users and conquer them, making each user agree not to share with others. I refuse to break solidarity with other users in this way. I cannot in good conscience sign a nondisclosure agreement or a software license agreement. ”

- Richard Stallman

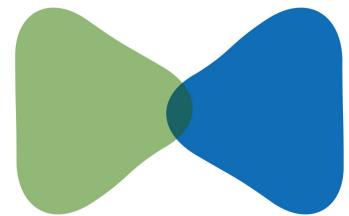
Open Source

- **1997** Open Source Software (OSS) defined by group of leaders in Free Software community
 - Created a marketing campaign to win mindshare
 - “Open Source” allows greater **liberties** and **mixing** with proprietary software
 - Addresses anti-business message of FSF



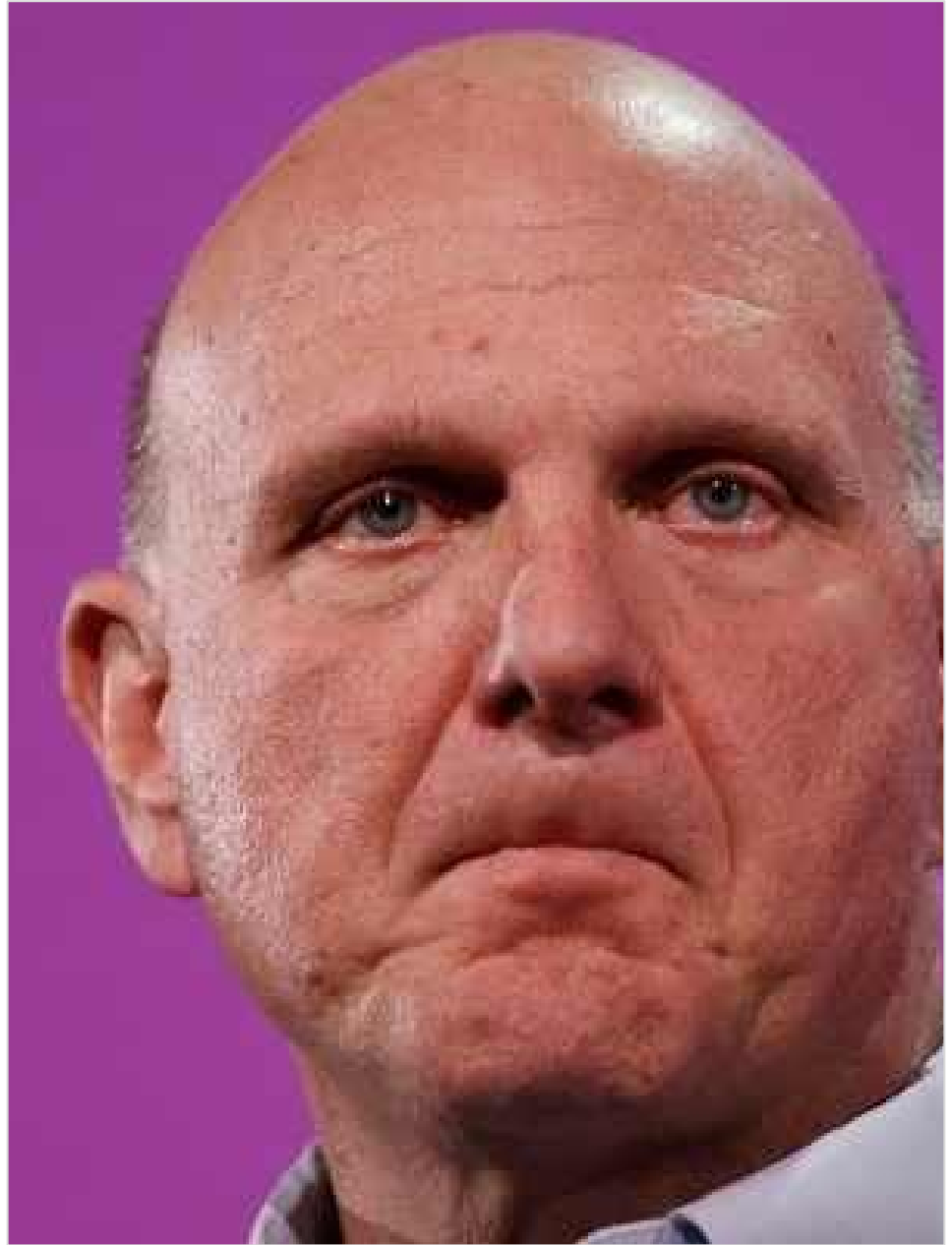
Clear Benefits of using open source

- Lower cost
- Avoid vendor lock-in
- Extensible / Adaptable
- Often more secure



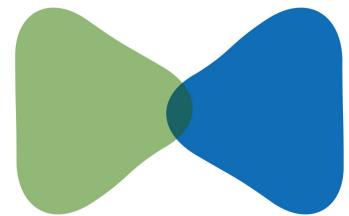
“Linux is a cancer which attaches itself in an intellectual property sense to everything it touches”

- Steve Ballmer,
Microsoft



What is open source software?

- Software
 - is data
 - I.e. very cheap to make copies
- Copyright holder waives rights so that anyone:
 - can study design
 - can modify design
 - can distribute the software
- Compare with MS Windows



In 2016... Open Source everywhere



Ecuador

- Open source is mandatory
- No proprietary software
- Stallman type licensing



Case of UK: Government Digital Service

- Open source is not mandatory in UK
- Is widely used
- But **lots** of proprietary software

But in 2012, UK Government started to publish some of the components and systems it built as open source...







Government Digital Service

Design Principles

- 1 **Start with needs**
- 2 **Do less**
- 3 **Design with data**
- 4 **Do the hard work to make it simple**
- 5 **Iterate. Then iterate again.**
- 6 **This is for everyone**
- 7 **Understand context**
- 8 **Build digital services, not websites**
- 9 **Be consistent, not uniform**
- 10 **Make things open: it makes things better**



10 Make things open: it makes things better

We should share what we're doing whenever we can. With colleagues, with users, with the world. Share code, share designs, share ideas, share intentions, share failures. The more eyes there are on a service the better it gets — howlers are spotted, better alternatives are pointed out, the bar is raised.

Much of what we're doing is only possible because of open source code and the generosity of the web design community. We should pay that back.

Welcome to GOV.UK

The best place to find government services and information
Simpler, clearer, faster

Search GOV.UK



Popular on GOV.UK

[Register to vote](#)

[Universal Jobmatch job search](#)

[Renew vehicle tax](#)

[Log in to student finance](#)

[Book your theory test](#)

EU referendum

On Thursday 23 June there will be a vote on the UK's membership of the European Union. [More information](#) ↗

[Register to vote](#)

Register to vote in elections and referendums. It takes less than 5 minutes.

[Benefits](#)

Includes tax credits, eligibility and appeals

[Births, deaths, marriages and care](#)

Parenting, civil partnerships, divorce and Lasting Power of Attorney

[Crime, justice and the law](#)

Legal processes, courts and the police

[Disabled people](#)

Includes carers, your rights, benefits and the Equality Act

[Driving and transport](#)

Includes vehicle tax, MOT and driving licences

[Housing and local services](#)

Owning or renting and council services

[Money and tax](#)

Includes debt and Self Assessment

[Passports, travel and living abroad](#)

Includes renewing passports and travel advice by country



This repository Search

Pull requests Issues Gist

alphagov / frontend



Code

Issues 1

Pull requests 3

Wiki

Pulse

Graphs

Serves mainstream formats, the homepage, and search on GOV.UK <https://www.gov.uk/>

4,574 commits

71 branches

1,415 releases

Branch: master

New pull request

New file

Upload files

Find file

SSH

git@github.com

 **boffbosh** Merge pull request #943 from alphagov/remove-source-tracking

app	Remove source tracking on non RTV links
config	Remove ActionMailer
doc	Sort of renders an answer
lib	Use GSS code inplace of SNAC for Belfast
public	Remove redundant google site verification file.

Add EU referendum promo to new homepage slot

[Browse files](#)


master (#936) release_1879 release_1874

 dsingleton committed 7 days ago

1 parent [8c86e5b](#) commit [05062600d75d4abd27846906a05c614314c44a6](#)


Showing 2 changed files with 6 additions and 3 deletions.

Unified Split

4  app/assets/stylesheets/views/_homepage.scss

View

```
@@ -88,6 +88,18 @@ body.homepage {
 88 | 88 |     @include media(desktop) {
 89 | 89 |         max-width: 66%;
 90 | 90 |     }
 91 | 91 | +
 92 | 92 | +     a[rel~="external"] {
 93 | 93 |         @include external-link-19;
 94 | 94 | +     }
 95 | 95 | }
 96 | 96 | }
 97 | 97 | }
```

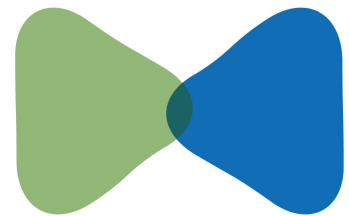
5  app/views/root/index.html.erb

View

```
@@ -45,9 +45,8 @@
 45 | 45 |
 46 | 46 |     <div id="homepage-promo-banner">
 47 | 47 |         <div class="banner-message">
 48 | 48 | -         <p><strong>Promo title</strong><br>
 49 | 49 | -         Words describing the promo item in more detail and adding more context for the reader.
 50 | 50 | -         <a href="#">A call to action</a></p>
 51 | 51 | +         <p><strong>EU referendum</strong><br> On Thursday 23 June there will be a vote on the UK's membership of the E
 52 | 52 | +         <a href="https://www.eureferendum.gov.uk" rel="external nofollow">More&nbsp;information</a></p>
 53 | 53 |         </div>
 54 | 54 |     </div>
```


Coding in the open

- Reusability not first priority
- Not enough resources (budget!) to build and support community around that component
- Code is use case specific, and has not been shown to have general applicability
- Still published under MIT (permissive) License
- Published on the Internet (i.e Github)



Coding in the open - Benefits

- Other groups can discover bits of software they would like to borrow or extract
- Provide examples for other teams. Examples of how other people have solved common problems.

Coding in the open - Benefits

- Immediately clear what work is being done
- Easier to consult with a wider community (i.e. vulnerability researchers) for input
- Clarity about intellectual property.
 - Licenses applied know exactly who has rights.
 - Prevent vendor lock-in
 - Flexibility to change suppliers later

Not OK to be open

- Cloud and application secrets
- Information about how software is configured
 - What software does security enforcing function
 - Specific versions of software components in use
- Code that performs a security enforcing function
 - E.g. core of authentication system



Welcome to govt.nz

Connecting you with government information and services

[Business](#)

+ Small business, internet trading

[Consumer rights](#)

+ Product recalls, warranties, credit contracts

[Driving and transport](#)

+ Licensing, regs, cars, bikes, planes, trains and ferries

[Emergencies and disasters](#)

+ Alerts, civil defence, earthquake recovery

[Families](#)

+ Children, adoption, relationships, caring for others

[Health](#)

+ Accessing health services

[Housing and property](#)

+ Renting, buying and selling, safety, loans and grants

[Internet, media and communications](#)

+ TV, radio, broadband, telephones, mobiles and postal services

[Community, arts and recreation](#)

+ Arts, parks, charities and volunteering

[Crime and justice](#)

+ Police, your legal rights, fines and jury service

[Education and training](#)

+ Schools, universities, adult education, apprenticeships

[Environment, resources and energy](#)

+ Weather, energy conservation, climate, geography

[Government in NZ](#)

+ Voting, elections, Parliament, consultations

[History, culture and heritage](#)

+ Historic places, war, family history, emblems and flags

[Identity and personal information](#)

+ Passports, name changes, online security, privacy

[Money, benefits and tax](#)

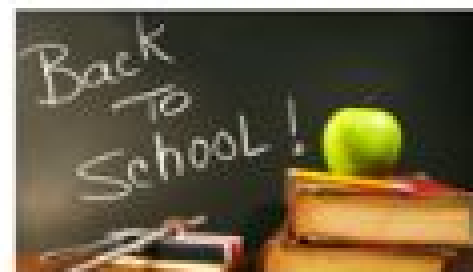
+ Low income, illness, disability, compensation, pensions

Government directory



Contact details and information about government departments and service providers.

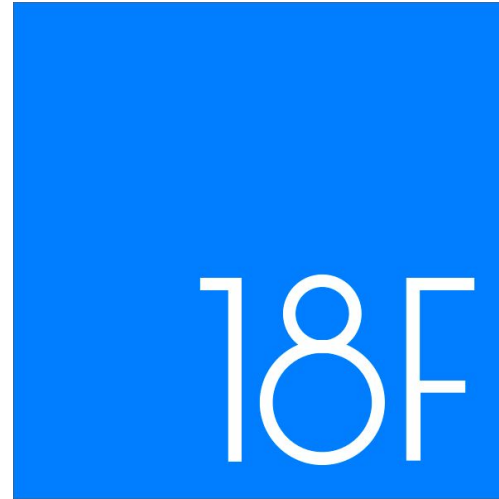
School terms for 2013



2013 school term dates for state and state-integrated primary, intermediate, secondary and composite schools.

[Get the calendar of school term dates for 2013.](#)

Benefits of openness



Open Source Tools - vCloud Tools

- VMware is widely used in UK Government, as well as in industry
- Good business case for building something reusable within GDS, in wider government and in Industry

```
10
11 - name: vapp-example-1
12   vdc_name: "Our VDC1"
13   catalog_name: our-catalog
14   vapp_template_name: our-vapp-template
15   vm:
16     hardware_config:
17       memory: '4096'
18       cpu: '2'
19     network_connections:
20     - name: Default
21       ip_address: 192.0.2.11
```



Discoverability

- How do potential users find it?
 - Search problem - many libraries lots of names.
 - Need to build a brand around it

What do people look for?

- Indicators of quality
 - Tests
 - Setup instructions
 - Stability
 - Versioning
 - Security
 - What if there's a critical security bug?

Accessibility

- Accessibility
 - Good documentation
 - Developers are users, API is a UI
- Help getting going
 - Quickstart guide
 - Examples
 - Sandbox
- Installation
 - Packaged on MVN, Pip, RubyGems etc.

Security

- There needs to be a contact for reporting security vulnerabilities
- Someone needs to be available to fix the bug and roll out the change to package stores
- Otherwise it's abandonware



vCloud Tools is a collection of tools for provisioning in [vCloud Director](#):

- [vCloud Walker](#): reports on the current state of an environment.
- [vCloud Edge Gateway](#): configure a vCloud Edge Gateway.
- [vCloud Net Launcher](#): configure vCloud networks.
- [vCloud Disk Launcher](#): configure independent disks.
- [vCloud Launcher](#): provision vApps and VMs.
- [vCloud Core](#): handles the interaction with the vCloud API, via [fog](#).

They can be used as Ruby libraries or as command-line tools.

See the [Usage](#) page to get started.

You may also be interested in other [open source projects](#) from GDS.

Reuse amongst UK agencies



Driver & Vehicle
Licensing
Agency



HM Revenue
& Customs



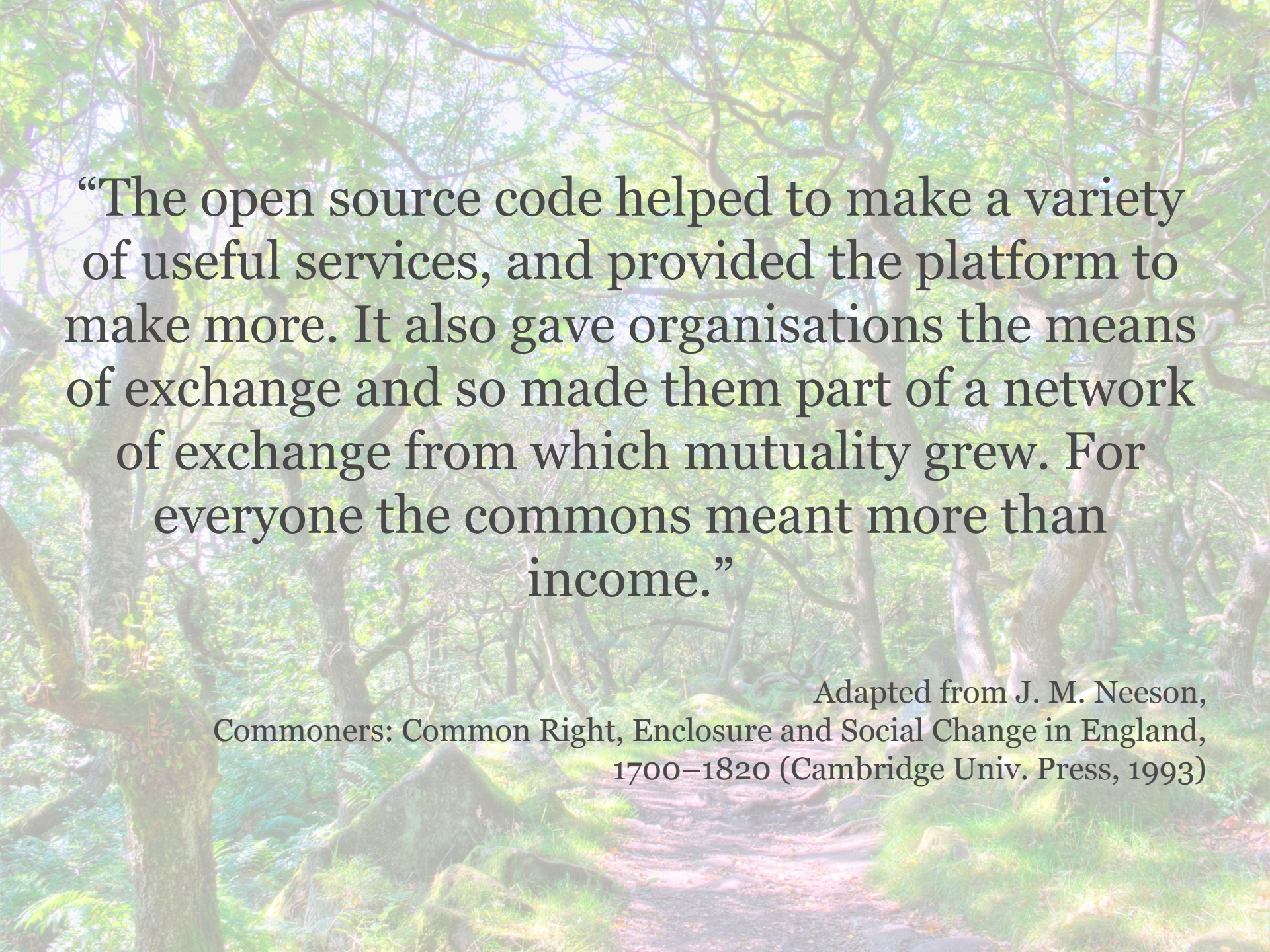
Ministry of
JUSTICE



The Insolvency Service

Conclusions

- Because source code is open, an ecosystem of collaboration with other organisations can develop
- Because of the license the code will remain open forever under law, suppliers will need to adapt
- Coding in the open is cheap to implement and gives clear benefits
- Building reusable OSS requires investment but impact can be magnified in longer run

A photograph of a forest path. The path is made of dirt and stones, winding through a dense forest. The trees are tall and thin, with green leaves. The ground is covered in moss and ferns. The lighting is soft and natural, suggesting a sunny day with some shade.

“The open source code helped to make a variety of useful services, and provided the platform to make more. It also gave organisations the means of exchange and so made them part of a network of exchange from which mutuality grew. For everyone the commons meant more than income.”

Adapted from J. M. Neeson,
Commoners: Common Right, Enclosure and Social Change in England, 1700–1820 (Cambridge Univ. Press, 1993)