

CODE *for* AMERICA SUMMIT

Designing for change, delivering for the future

Open Source & CMS: Making A Bigger Impact

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<https://github.com/DSACMS/decks/blob/main/cfa2025.pdf>

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OSS & CMS at CFA Summit

- What is CMS?
- What is the Digital Service at CMS?
- What is Open Source?
- What is the Office of Communications at CMS?
- What are some of our Open Source Success Stories?
- What is the impact?
- What are your questions?



What are the Centers for Medicare and Medicaid Services? (CMS)

“CMS is the federal agency that provides health coverage to more than **160 million** through **Medicare**, **Medicaid**, the **Children's Health Insurance Program**, and the **Health Insurance Marketplace**. CMS works in partnership with the entire health care community to improve quality, equity and outcomes in the health care system.”

Who we serve: The American People

67.8M

**Medicare Beneficiaries
(2023)**

82.3M

**Medicaid Beneficiaries
(2023)**

21.1M

**Healthcare.gov
(2023)**

<https://data.cms.gov/fact-sheet/cms-fast-facts>

<https://www.cms.gov/files/document/health-insurance-exchanges-2024-open-enrollment-report-final.pdf>

Who we serve: Taxpayers

\$1.76_T

**CMS Budget
22% of the
federal budget
(FY 2024)**

\$ 1.05_T

**Total Medicare Payments
(FY 2024)**

\$ 846_B

**Total Medicaid Payments
(FY 2024)**

<https://data.cms.gov/fact-sheet/cms-fast-facts>

<https://www.govinfo.gov/content/pkg/BUDGET-2025-BUD/pdf/BUDGET-2025-BUD.pdf>

<https://www.cms.gov/files/document/cms-financial-report-fiscal-year-2024.pdf>

Who we serve: The Healthcare System

6,613

**CMS Employees
(FY 2024)**

1.5M

**Health Care Providers
(2024)**

22 %

**National Health Care
Spending is Medicare
(2024)**

https://data.cms.gov/sites/default/files/2025-04/CMSFastFacts2025_508.pdf

<https://www.cms.gov/oact/tr/2024>

<https://www.cms.gov/files/document/cms-financial-report-fiscal-year-2024.pdf>

What does the Digital Service at CMS do?

We transform the US Healthcare System by



Improving design and
user experiences



Delivering value to
government,
providers, and patients



Modernizing systems



Participating in Policy
Development

How do we do it?

We deploy small groups of designers, engineers, and product managers on a "tour of duty" to work alongside dedicated civil servants.

These multidisciplinary teams bring best practices and new approaches to support government modernization efforts.





What is Open Source Software?

Source code that anyone can **inspect**, **modify**, **enhance**, and **share**.

96% of all commercial software contains open source code, representing **\$8.8T** of value if it had to be rewritten from scratch.

What does an Open Source Program Office (OSPO) do?

An Open Source Program Office (OSPO) serves as the center of competency for an organization's open source operations, strategy, and structure.

An OSPO is responsible for defining and implementing **programs**, **policies**, and **projects** to guide these efforts.

30% of Fortune 100 companies have implemented an OSPO, with 84% of OSPOs developing or managing GenAI infrastructure.

CMS is the **first** United States Federal Agency to implement this private-sector styled approach to an Open Source Strategy.



Save us Money



Save us Time



Reduce Duplicate Work



Reduce Duplicate Costs



Reduce Security Risk



Reduce Continuity Risk



Accountability for Contract Performance



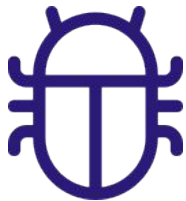
Engine for Talent

What are the “Risks” (aka Myths) of Open Source?

Open Source is ~~less~~ more secure

“Many eyes make any bug shallow.”

The more people who look, the faster we find bugs, and the faster we fix them.



~~Open Source means that ALL data MUST be public.~~
Open Source means that SOME data CAN be public

Open Source is not a monolith, it is a stack, and it has layers. Being explicit about what **cannot** be shared for privacy or security reasons helps open information silos and unlock shared value.



Open Source is ~~bad~~ good for business

By lowering acquisition costs, businesses gain world-class tools and infrastructure built and maintained by the largest enterprises. By preventing vendor lock-in, businesses can invest strategically, promote competition, and reduce technical debt.



Open by Default is ~~not~~ what Federal Government does

Title 17 U.S. Code § 101 and 105: “Copyright protection under this title is not available for a Work of the United States Government” Work meaning “prepared by an officer or employee of the United States Government as part of that person's official duties”

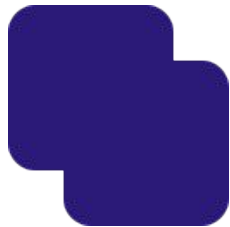


See Also: Federal Source Code Policy **M-16-21** and starting on 07/22/25 **The SHARE IT Act**

<https://www.law.cornell.edu/uscode/text/17>
<https://www.law.cornell.edu/uscode/text/17/105>
https://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2016/m_16_21.pdf
<https://dsacms.github.io/share-it-act-lp>

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What are the actual Risks in Open Source?

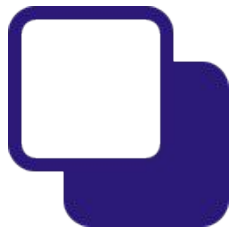


Overdifferentiation

- Unnecessarily duplicating work
- Unnecessarily dividing your resources

Examples

- “Not Invented Here Syndrome”
- From Scratch v.s. Commodity
- Roll your own Crypto™

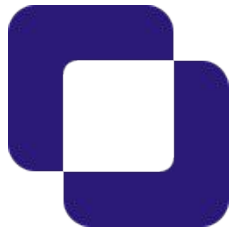


Proliferation

- Unnecessarily duplicating communities and projects
- Unnecessarily dividing your addressable market

Examples

- “Decision Fatigue”
- Framework Proliferation
- Event / Conference Proliferation



Fragmentation

- Unnecessarily duplicating your code base
- Unnecessarily dividing your community of contributors

Examples

- “Hostile Forks”
- License Forks
- Internal Forks

What is our answer? The OSP0 Model!

Open Source Repository Maturity Models

- *Q: Where is our project on our Open Source Journey?*
- *A: a framework to evaluate and categorize open source repositories based on their composition and goals can be found here: <https://dsacms.github.io/repo-scaffolder/#maturity-model-framework>*

Repository Templates

- *Q: What files are required/recommended for healthy repository hygiene?*
- *A: a foundation for building well-documented, clean, repositories that adhere hygiene standards and best practices is available here: <https://dsacms.github.io/repo-scaffolder/#repository-templates>*

Outbound Checklists

- *Q: What steps should our project take to share our repository safely?*
- *A: a review process to reduce risk and improve quality when releasing open source projects can be found here: <https://dsacms.github.io/repo-scaffolder/#outbound-checklists>*

Repository Metadata Inventory

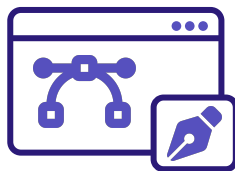
- *Q: How do we keep our repositories healthy at scale?*
- *A: Workflows to automate code scanning, secret detection, metrics gathering, and documentation generation are available here: <https://github.com/DSACMS/repo-scaffolder/blob/main/docs/.github-directory.md#workflows>*

What does the Office of Communications at CMS do?

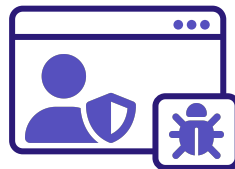
We manage customer service for Medicare and the Health Insurance Marketplace, including managing CMS' consumer facing websites and open data sites, among numerous other functions.



Web Development



Front-end design &
user experience



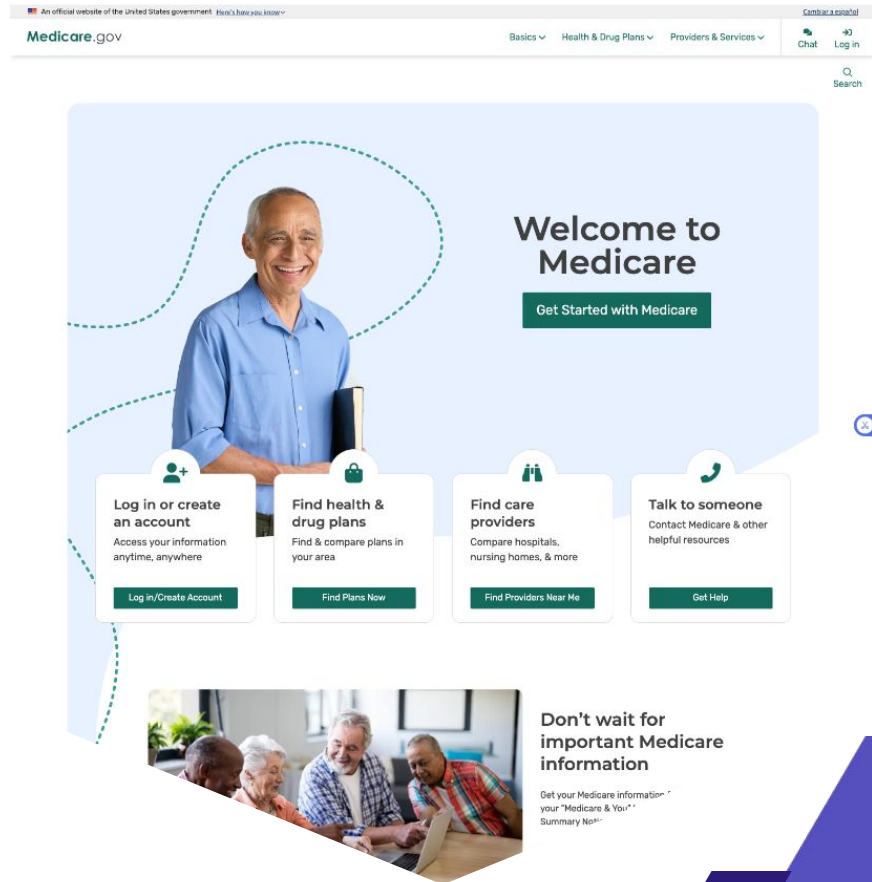
DevOps, Security and Systems
Testing & Monitoring

Medicare.gov

The official website for people with Medicare

Key Metrics (CY 2024)

- **Unique Users:** 68 million
- **Sessions:** 129 million
- **Pageviews:** 886 million

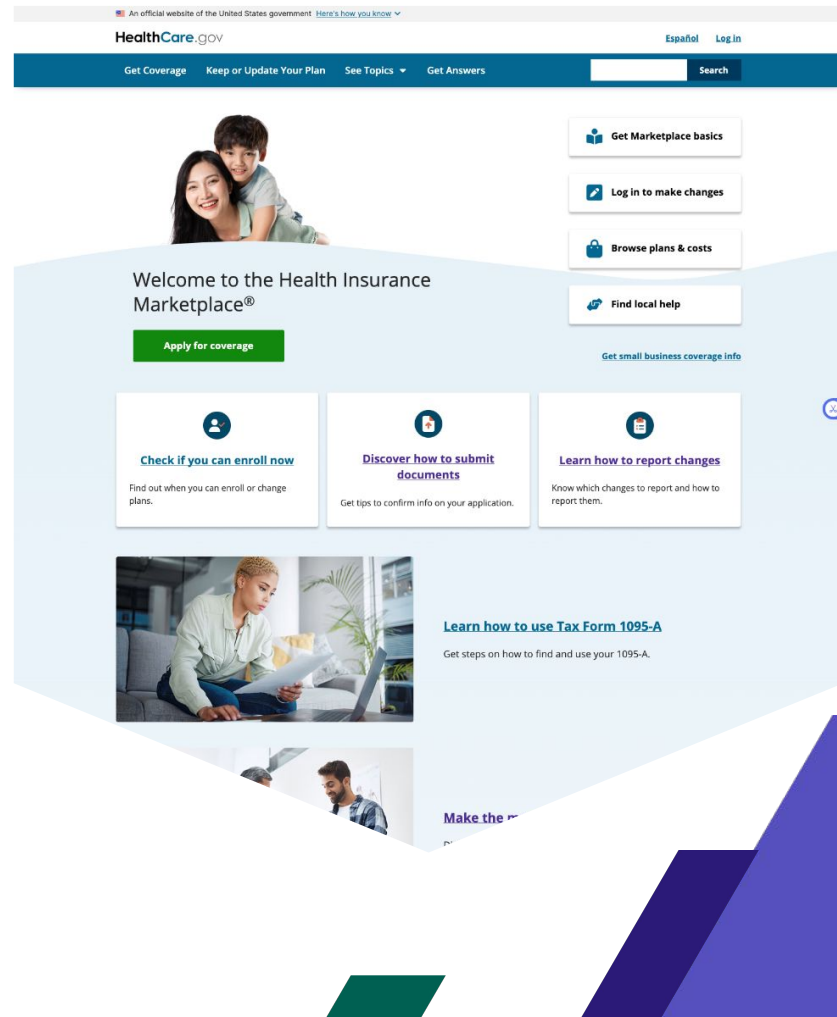


HealthCare.gov

The official website of the
Federal Health Insurance Marketplace

Key Metrics (CY 2024)

- **Unique Users:** 83 million
- **Sessions:** 126 million
- **Pageviews:** 1400 million

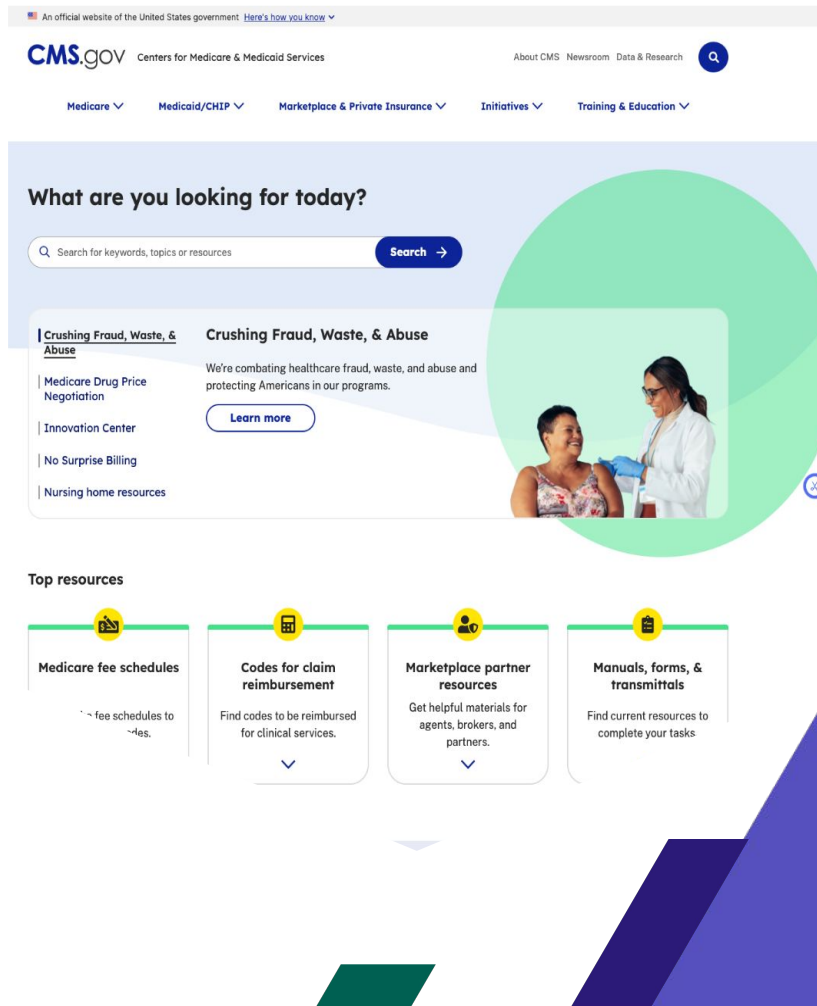


CMS.gov

The official Agency website of the
Centers for Medicare & Medicaid Services

Key Metrics (CY 2024)

- **Unique Users:** 35 million
- **Sessions:** 58 million
- **Pageviews:** 126 million



Drupal success stories:

Content Quality

Challenge

Broken links and orphaned content and media items.

Solution

Arachno Analysis - A custom Drupal module that shows the relationship between content items.

Outcome

Prevents content editors from accidentally editing someone else's content



Drupal success stories:

Complex Content Workflows

Challenge

Healthcare.gov is a complex, multi-product platform spanning several lower environments. A traditional architecture limits operational efficiency and agility for releasing the content.

Solution

Drupal Headless/Decoupled Architecture

Outcome

- Content authors can publish content from a single production Drupal instance to various lower environments
- Improves page load speed and publishing times and optimizes rendering for different devices and platforms.

Drupal success stories:

Author Experience and Visual Consistency

Challenge

CMS.gov is a highly complex website that has **650** Drupal users. We needed a way to allow CMS Centers and Offices to edit their own content.

Solution

CMS Groups - An Access Scheme in Drupal that defines distinct CMS groups for different Centers and Offices. Every piece of content and media in Drupal is assigned to one of these groups. When a user is granted access to Drupal, they must be assigned to one of these groups.

Outcome

Prevents content editors from accidentally editing someone else's content.



Drupal success stories:

Content Ownership in a Large Organization


Challenge

CMS.gov uses a distributed model for content management, in which each Center/Office is responsible for posting and maintaining the content that is relevant to their expertise. These content editors often do not have a design, user experience, or tech background, but desire visually appealing pages that are consistent with the look and feel of the rest of the website.

Solution

Layout Builder

Outcome

- Gives content creators the ability to make visually appealing content, within an area that we have defined and in a way that they can do it themselves.
 - Does not require contractor support to build custom coded sections of the website.
- 

Drupal success stories:

Review and Approvals

Challenge

Often times before content editors publish content, they want to preview the webpage to see if everything looks correct. There wasn't a great way to show what the page would look like without the content editing interface in the way.

Solution

Draft Preview Link

Outcome

- Content editors can share out a preview of a page they have created with a tokenized link.
- Content editors can take this link and send it to others, like their approvers, to review.
- Editors can select how long they want the link to work, from 24 hours to 2 weeks.

Drupal success stories:

Visual Consistency & Accessibility

Challenge

CMS needed to provide web product teams with a single source of truth design system that supports the visual design pattern libraries that include CMS program branding.

Solution

CMS Design System & “child” Design Systems

Outcome

- A single **open source** global design system with themed child design systems (CDS) to support CMS’s three major program websites.
- Each themed CDS is built on top of the based “core” design system.

CivicActions Contributions

12

Months

302

Drupal Contributions


147

DKAN Contributions



- Community of over **100,000** active contributors
- Free, open source content management system (CMS)
- Modular design is easily customizable
- Powerful content authoring tools, for creating, managing and organizing content
- Extensive **API** for seamless integration with other systems and services

Vertex AI Search


- Admins can now create and configure custom search pages
 - Additional settings include autocomplete, spelling correction, and SafeSearch filtering
 - Promoted Search Results that appear at the top of the search
 - Access Controls settings allow admins to restrict visibility to specific search pages
- 

Content Reminders

- Editors can set reminder notifications for specific content items, prompting them to review and update content as needed
- Offers preset dates for scheduling reminders, such as "a week from now" or "next month,"
- Notifications can be customized with specific messages and sent to multiple recipients.



DKAN

- Open source data platform designed to help governments, organizations, and institutions publish, manage, and share open data
 - Built on Drupal
 - Supports different user role-based permissions, allowing organizations to control who can publish, edit, or view data.
 - Allows users to upload datasets, link to sources, and provide metadata to enhance discoverability and reuse
 - Users can browse, search, and access datasets in various formats (CSV, JSON, etc.)
 - Provides **APIs** for programmatic access to datasets, enabling developers to build applications using the data
- 

Recent DKAN Improvements

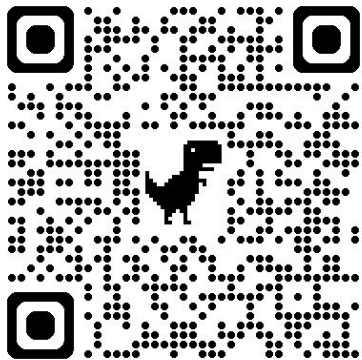
- Enhanced Metadata Management: Users can now customize metadata schemas improving data discoverability
 - Improved Data Harvesting Capabilities: Streamlined the process of importing dataset from external sources improving efficient data collection
- 

What's Really Important

- If we build or improve something, we give it back
- You don't need to be an engineer; designers, product managers, and people who write documentation contribute too!
- SHARE IT Act requires sharing source code for other agencies to reuse

Thank You

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at CMS**

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<https://cms.gov/digital-service>
<https://go.cms.gov/ospo>

**Office of
Communications
at CMS**

wetg_director@cms.hhs.gov

<https://www.medicare.gov/>
<https://www.healthcare.gov/>
<https://www.cms.gov/>

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Questions?