Content Management Systems (CMS)

Lecture 04: Content Management Systems – presentation of popular solutions

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Agenda

- Presentation of several free systems.

- Popularity of CMS.

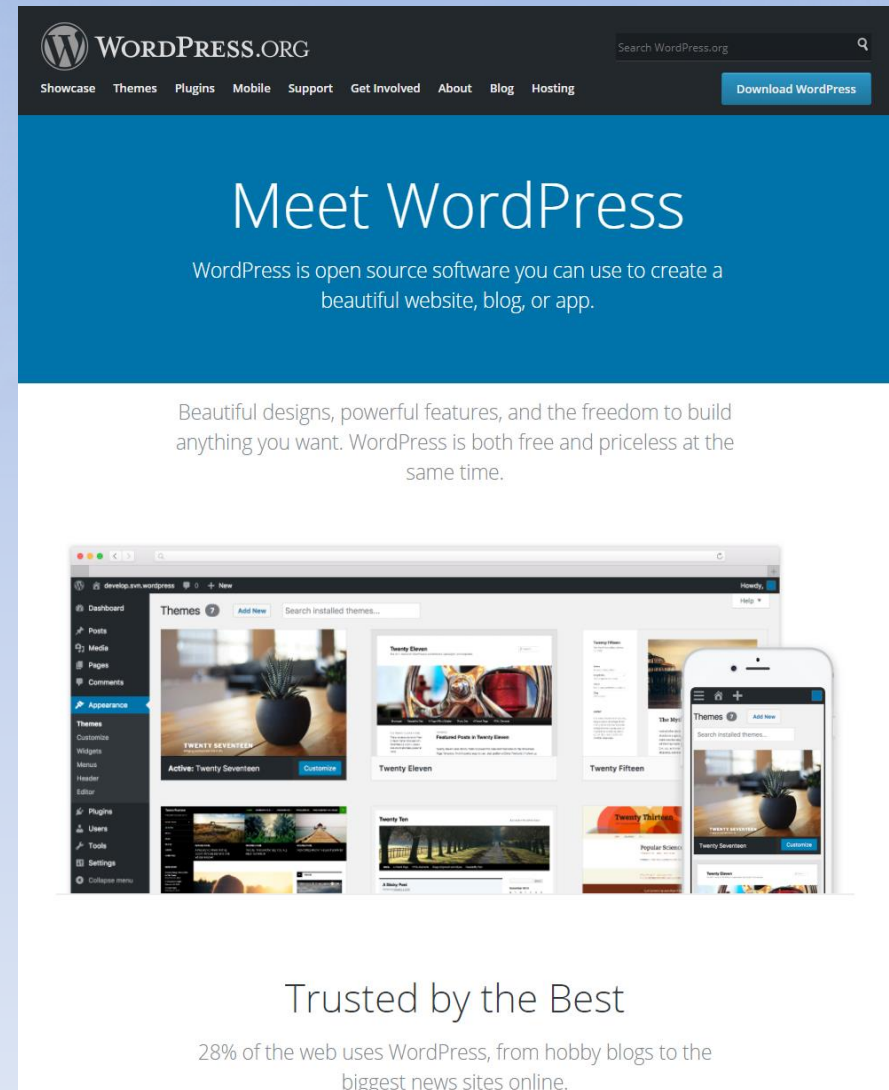- Security of CMS.

- New trends

- Summary.

Introduction

- Sources:

  o The 20 point CMS test from
    http://www.openadvantage.org

  o https://www.ionos.com/digitalguide/hosting/cms/cms-comparison-a-review-of-the-best-platforms/

Some popular CMSs (open-source)

- WordPress

- Drupal

- Joomla

- Xoops

- Exponent CMS

- Plone

- Typo3

- Exponent CMS

- Orchard

- Magnolia

- Contao

- Neon

WordPress

- Used to be a blogging system.
- Currently:
  - powerful,
  - universal,
  - easy to use CMS system.
- One of the most popular in the world.

WordPress (2)

● Features

- o Dashboard with customizable widgets;

- o Preview of visual themes without applying them;

- o Simple image editing for articles;

- o Dedicated tag for automatic splitting of posts into pages;

- o Automatic media embedding;

- o Support for multiple portals on a single installation;

WordPress (3)

- Features – *cont*.
  - Very good WYSIWIG editor (classic and block-based);
  - Ability to specify the publication date;
  - Dedicated mobile applications for Android and iOS;
  - Optional blocking of posts with a password;
  - Draft content;
  - Good search system;
  - Friendly urls;

WordPress (4)

- Features – *cont*.
  - Multi-language support (GUI);
  - Importing content from other systems;
  - Automatic core and plugin updates;
  - REST API to facilitate potential integration with other systems;
  - Possibility of authentication using external services, e.g. *Active Directory*;
 - Automatic generation of RSS streams;

WordPress (5)

- Features – *cont*.
  - The ability to comment on any content with extensive moderation;
  - Protection against spam;
  - Notification system;
  - Extensive SEO possibilities;
  - No advanced workflows;
  - Very big number of plugins;
  - Due to their popularity, websites using WP are vulnerable to various attacks.

Drupal

- Publishing standard web pages (HTML5).
- Simple authorization of articles (there is no sophisticated management of workflows).
- Ability to generate custom RSSs.
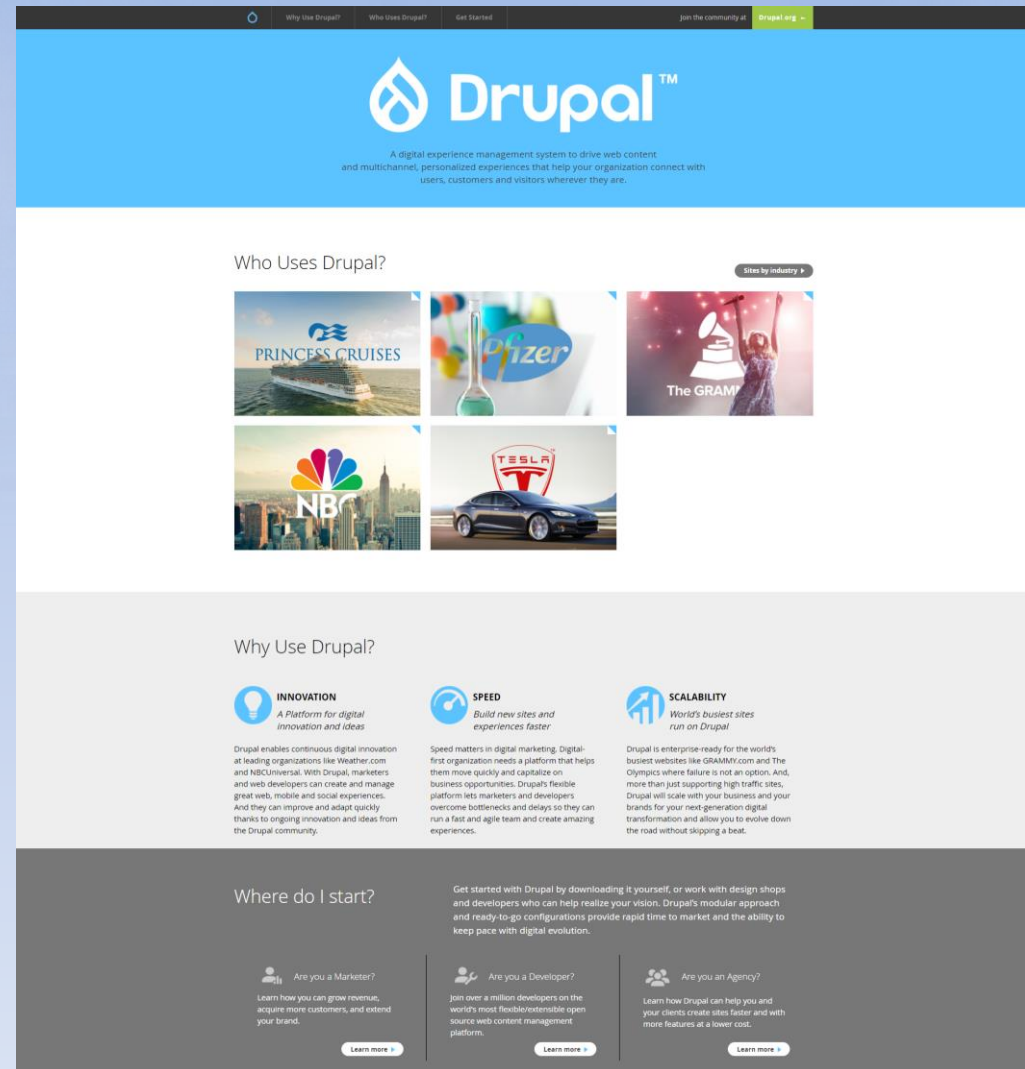
Drupal (2)

- Blog + Blog API + potential integration with other sites.

- Use of a calendar control to display archival material.

- Book. A special environment facilitating the joint work of the parties.

- Comments. Any item can be commented by users.

Drupal (3)

- Discussion forum
- Surveys
- Dictionaries/Tags whose help to classify content.
- Saving important operations.
- Tag system with powerful possibilities.

Drupal (4)

- Accelerate page generation using cache.
- Searching system.
- Additional modules: Export to PDF, Categorization, Files, Anti spam, WYSIWYG editor, form editor.
- No backward compatibility.
- Graphic themes.

Drupal (5)

- 10 Reasons to Use Drupal :
  - o Advanced URL management (URL aliases, Global Redirect, friendly URLs);
  - o Custom data types and views (currently integrated with the core):
    - Content Construction Kit (CCK),
    - View module.
  - o Content version management;
  - o Taxonomies, tags, categories, dictionaries;

Source: http://tips.webdesign10.com/drupal/about-drupal-311.html

Drupal (6)

- 10 Reasons to Use Drupal - *continued*:
  - Advanced user management (custom roles);
  - Custom page titles and meta tags (SEO);
  - Extensive documentation;
  - PHP templates (PHPTemplate theme engine);
  - Code snippets;
  - Very large community.

Source: http://tips.webdesign10.com/drupal/about-drupal-311.html

Joomla

- User interface with optional WYSIWYG content editor.
- Clear separation of public and administrative parts.
- Easily add images to your content.
- Templates using PHP and HTML.

Joomla (2)

- Export content to PDFs.
- ~~Extensive help system.~~
- ~~Fairly poor management system for users and roles.~~
- No version management.
- Easy to modify / add menu items.
- ~~Not very dynamic development of the project.~~

Joomla (3)

- Additional modules:
  - Manage downloads.
  - Calendar
  - …

- Arrangement of elements (banner, message, logo) is easily modified by the appropriate interface.

- Many extras are paid services.

- Quite low quality of the source code (?)

Xoops

- Use of MySQL database.
- Full modularization. Module management is done through a convenient interface.
- Users can edit graphic themes, edit their profile, etc.

Content management (CMS)
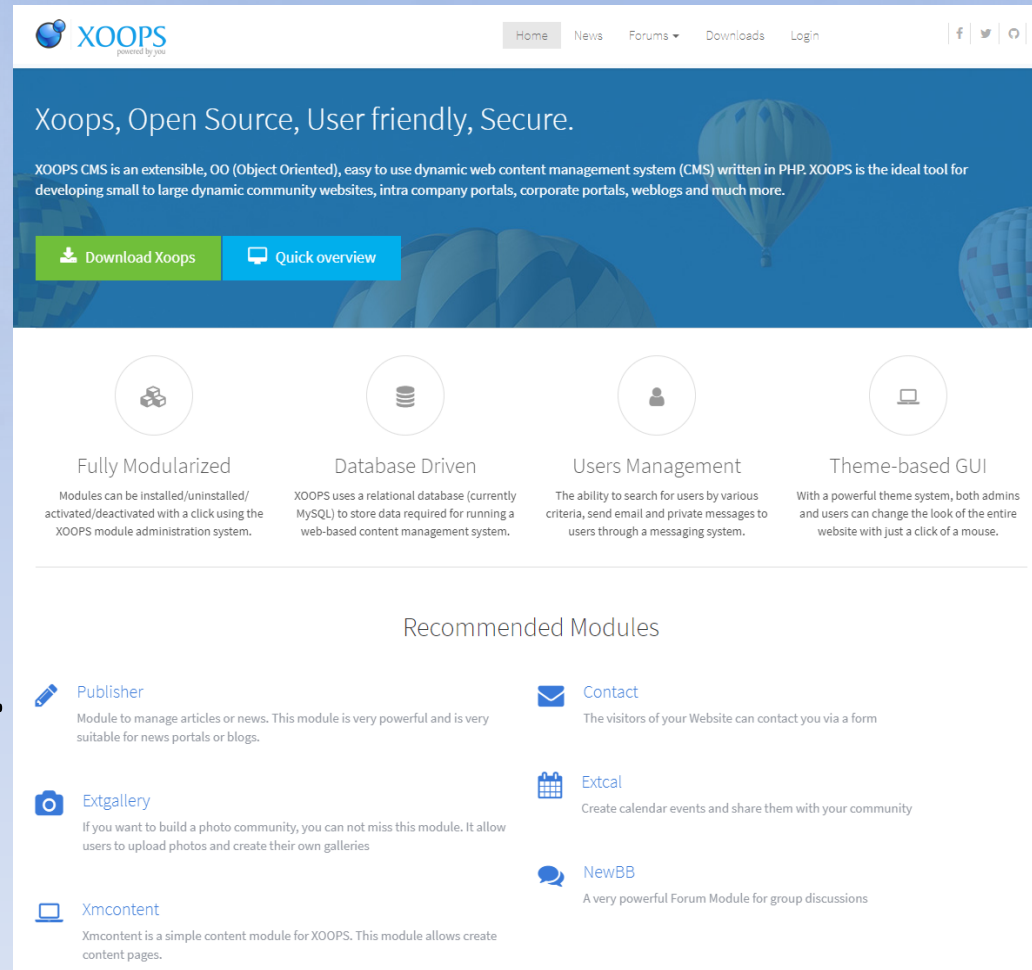
Xoops (2)

- Convenient user data management.
- Supported by many local (including PL) communities.
- Manage permissions.
- Many different graphic themes.

Xoops (3)

- Broad selection of additional modules:
  - administrative
  - social
  - commercial
  - Images management
  - communication
  - navigation
  - statistical
  - support

Exponent CMS

- Unique GUI for portal management.

- Metaphor for module and container:
  - Adding containers to any page,
  - The container contains other containers and / or modules,

Exponent CMS (2)

- The module contains any content.
- A convenient WYSIWYG editor.
- Easy module management.
- Content appears automatically in the menu. Possibility to edit them later.
- Easily add columns of text with the ability of any organization on different pages.

Exponent CMS (3)

- Easily reuse of the content by using special referrers (picker).
- Convenient page layout.
- File management.
- Ability to specify start and end date of publication.

Exponent CMS (4)

- Rich workflow configuration options.
- Advanced permission management system.
- Few additional modules.
- Flexible pattern system.

Magnolia CMS

- Java platform,
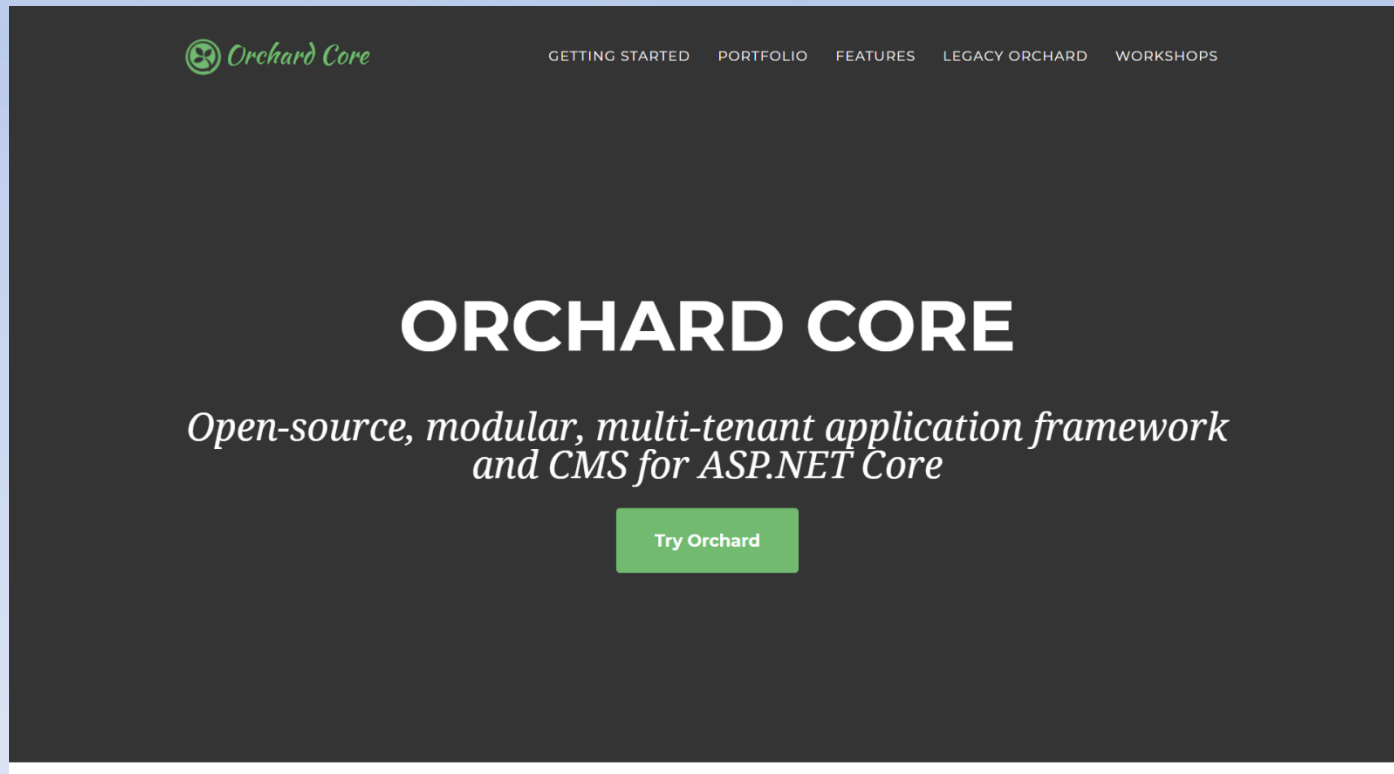- Both free (limited) and commercial versions.
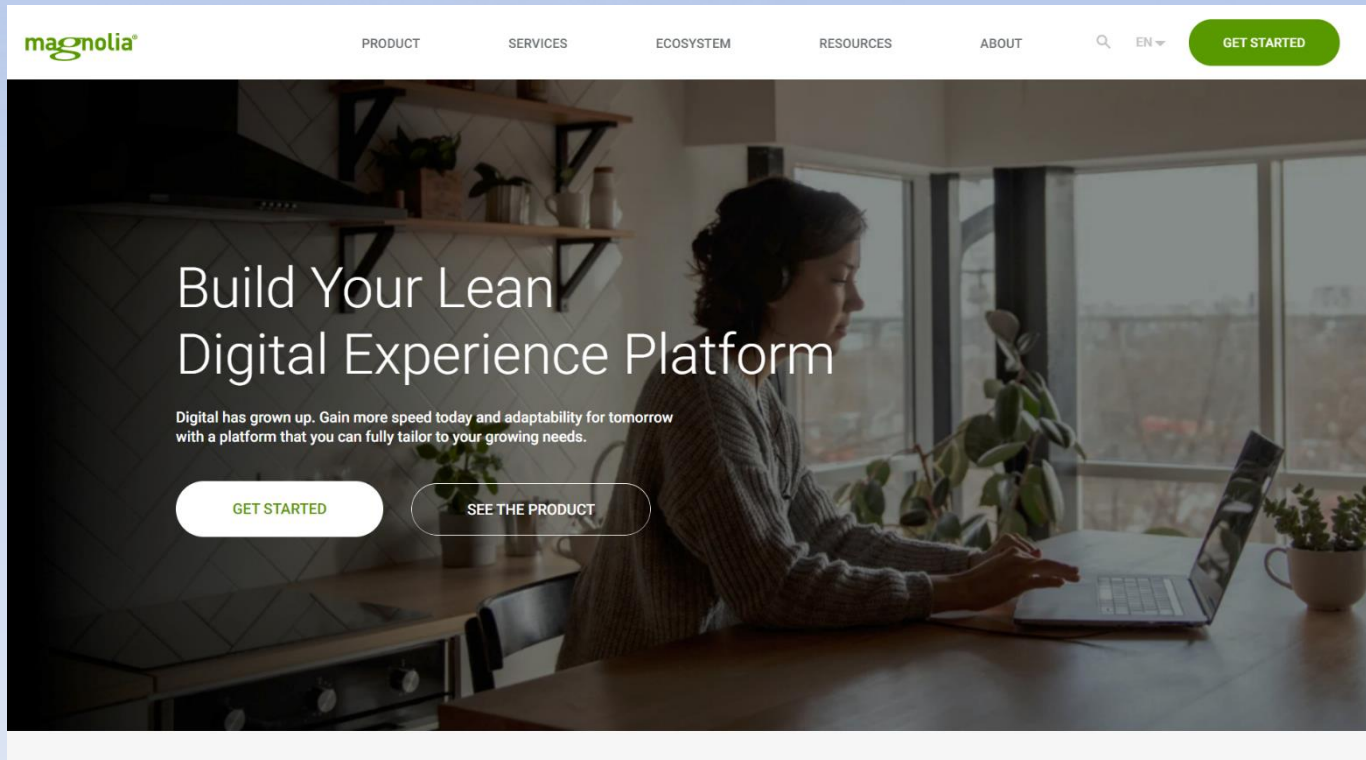
Magnolia CMS (2)

- Targeted at large companies/organizations.
- Full-text search.
- Document indexing.
- Versioning.
- Modifiable templates.
- Convenient WYSIWIG editor.
- Relatively few plugins/add-ons.

Orchard

- .NET platform;
- Free and open source;

Orchard (2)

- Custom content types and metadata;
- Multi-language support with the ability to share content;
- Modularity;
- One installation for many portals;
- Permission management;
- Content versioning;
- Defining workflows and event handling.

Plone

- Platform: Python / Zope.
- Most features are managed through a convenient interface.
- WYSIWYG content editor.
- User zones allowing to customize the set of pages, events, etc.

Plone (2)

- Any added message becomes part of the global message stream.
- The same applies to events in the calendar.
- Templates describing the portal design compatible with HTML5. Extremely easy to modify.
- Very advanced workflow management system.
- Extensive possibilities for using your own types (Archetypes).

Plone (3)

- Additional modules:
  - Blog
  - Extended calendar
  - Wrappers for external databases (MySQL, PostgreSQL, Firebird, SQL Server, Oracle) for downloading / processing and displaying their contents.

  - …

- Ability to connect servers in clusters to improve performance.

Typo3

- PHP, MySQL /MS SQL Server/PostgreSQL / Oracle/Firebird
- Dedicated for complex portals run by large organizations / companies.
- Flexible permission management system.
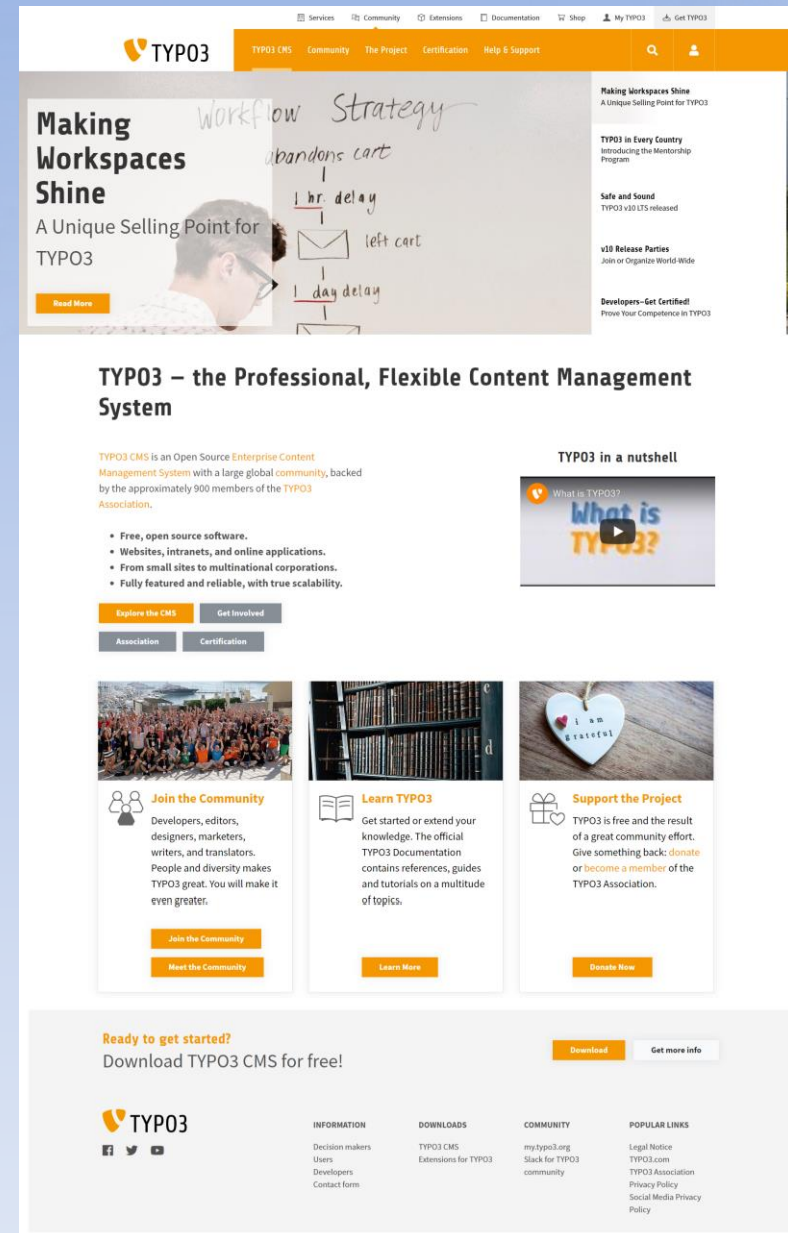
Typo3 (2)

- Possibility of integration with other systems, such as CRM or ERP.
- Large community and the possibility of commercial consulting.
- Support for multilingual content.
- Quite complex management requiring relatively long training.
- High hosting requirements.

Contao

- PHP 5.6.0, MySQL.
- Pretty easy to handle.
- Strict HTML5 implementation.
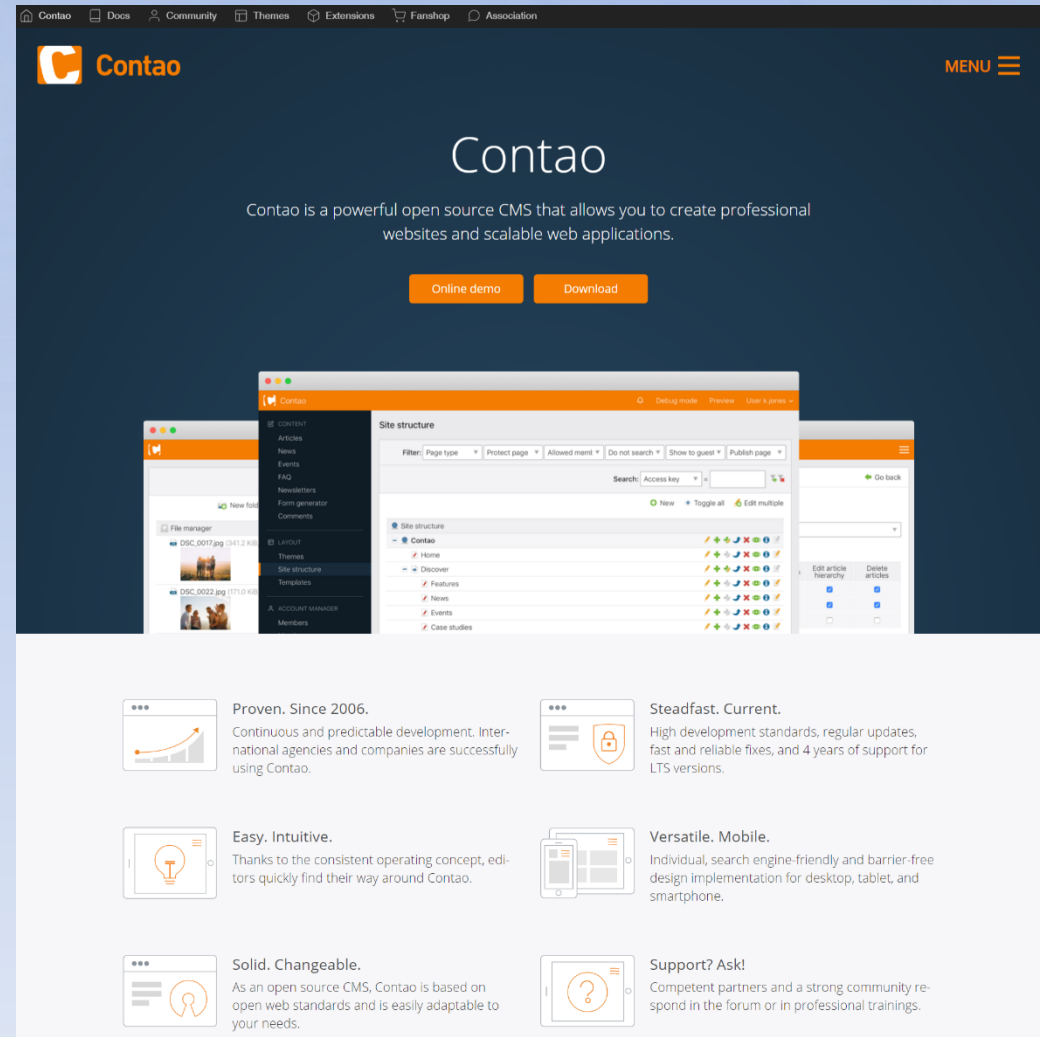
Contao (2)

- Quite a lot of plugins (around 2000).
- Multi-language support.
- Two-factor authentication.
- Powerful integrated graphic theme configurator.
- High security standards.
- The LTS version has 4 years of guaranteed support.
- No advanced workflows.

Neos CMS

- PHP, MySQL / MariaDB / PostgreSQL
- Intended for complex portals run by large organizations / companies.
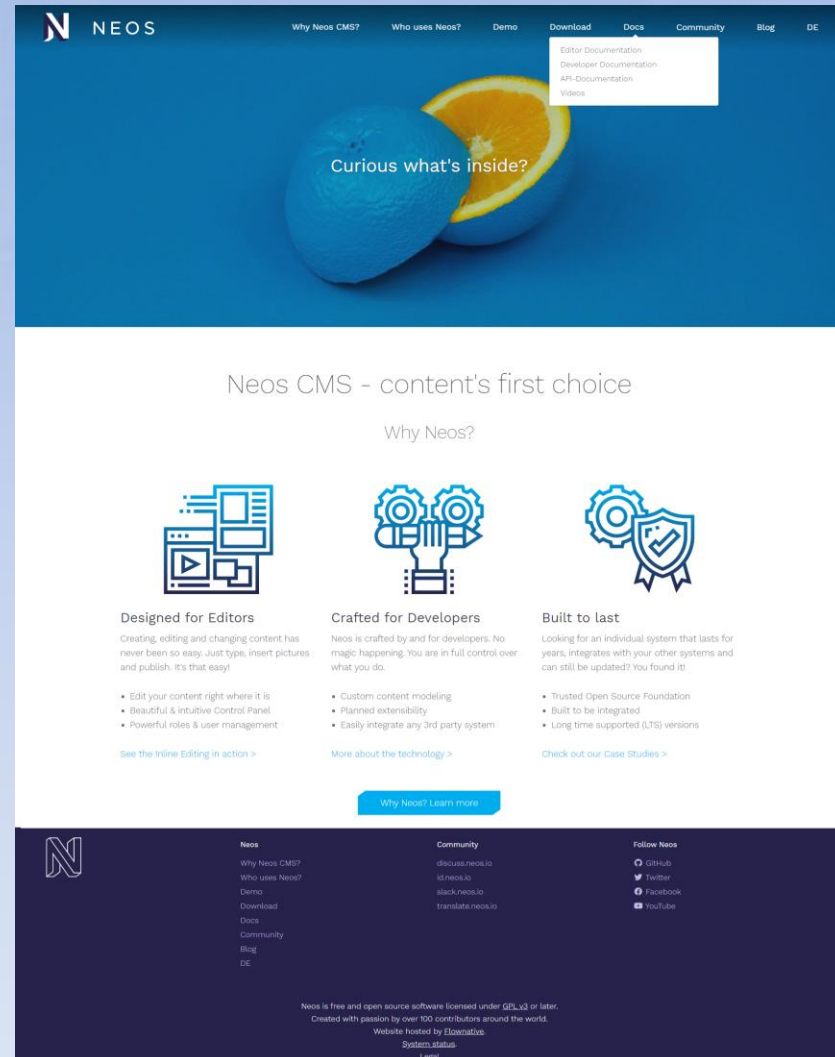- Support for multiple portals in one installation.

Neos CMS (2)

- Designed for:
  - editors: extended WYSIWIG editor (editing „in-place"),
  - programmers: a modern system that takes into account extendibility and connection with external solutions, e.g. ERP, CRM.
- SEO support.
- Special tools dedicated for mobile solutions.
- Easy access to external resources/assets, such as Google Drive, Dropbox.

Security: reported issues (CVE)

● The number of reported security issues (2020-10):

  o Contao: 22 ([CVE](#)),

  o Drupal: 1094 ([CVE](#)),

  o Joomla: 1271 ([CVE](#)),

  o Plone: 107 ([CVE](#)),

  o Typo3: 555 ([CVE](#)),

  o WordPress: 3290 ([CVE](#)),
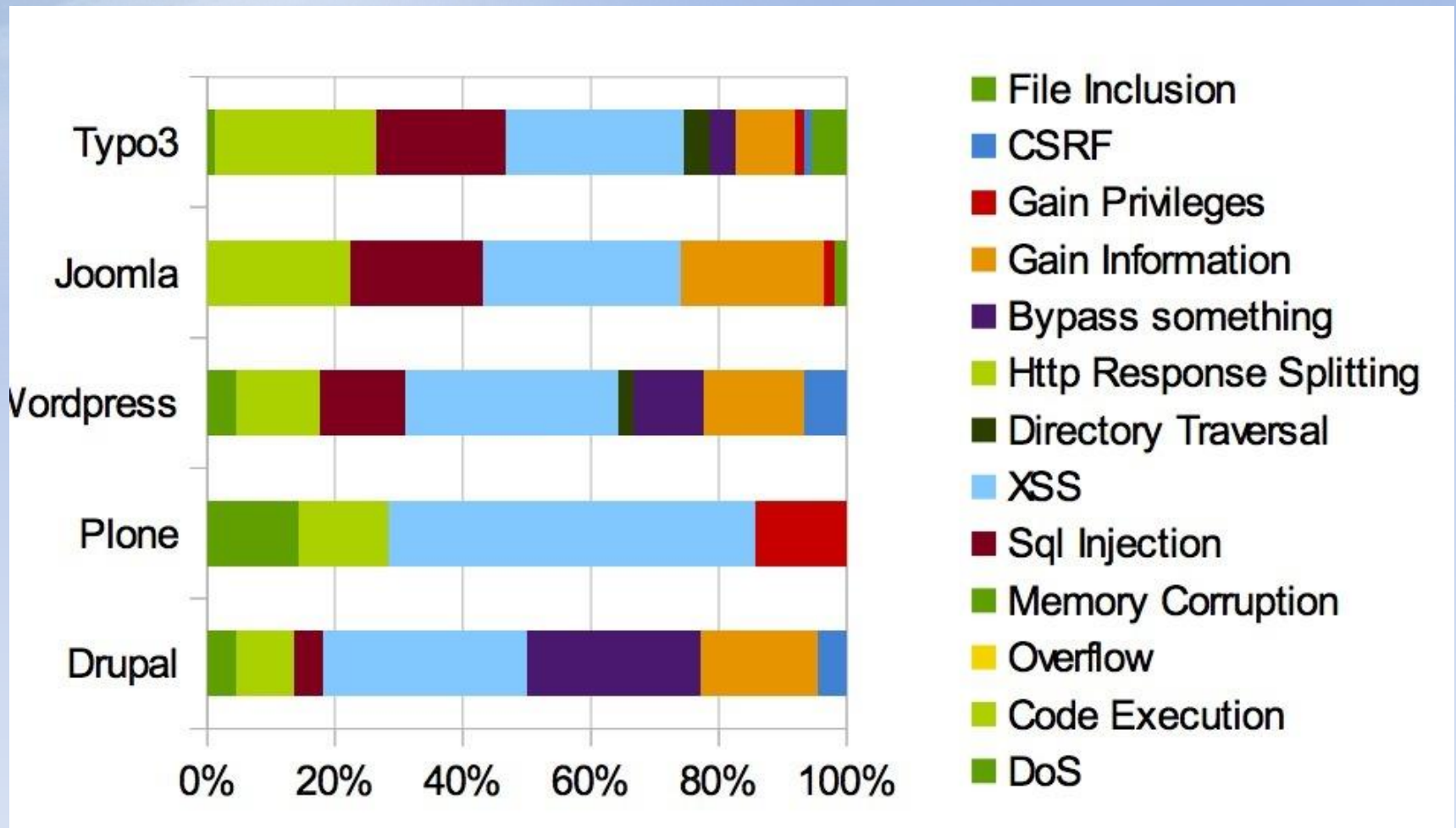
  o Xoops: 125 ([CVE](#)),

● Interpretation of the results:

  o popularity,

  o how long on the market,

  o system core or plugins,

  o severity of the problem, etc.
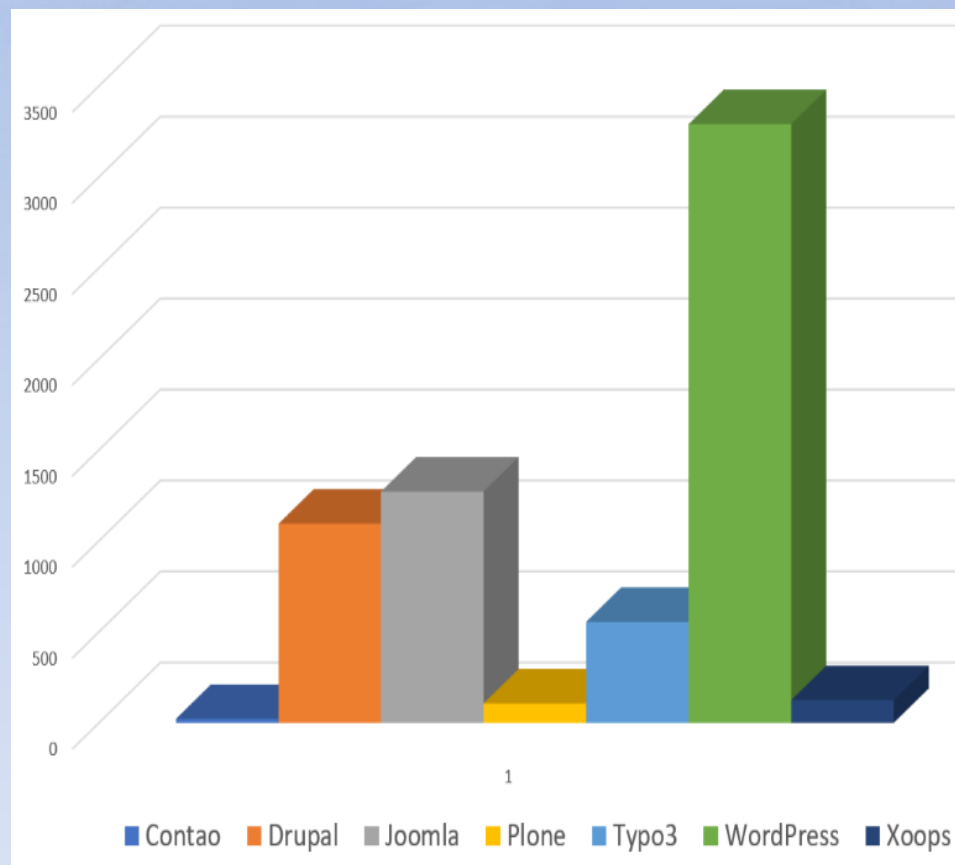
*Used: Common Vulnerabilities and Exposures (CVE)*

Security: different vulnerabilities

Source: Raport prepared by Germany's Federal Office for Information Security (BSI)

Security: different systems

- CMS scanned with a dedicated tool.
- Approximately 35% of the systems had security problems (of varying severity).

Joomla! Issues – 9.4%

Drupal Issues – 1.9%

WordPress Issues – 23.8%
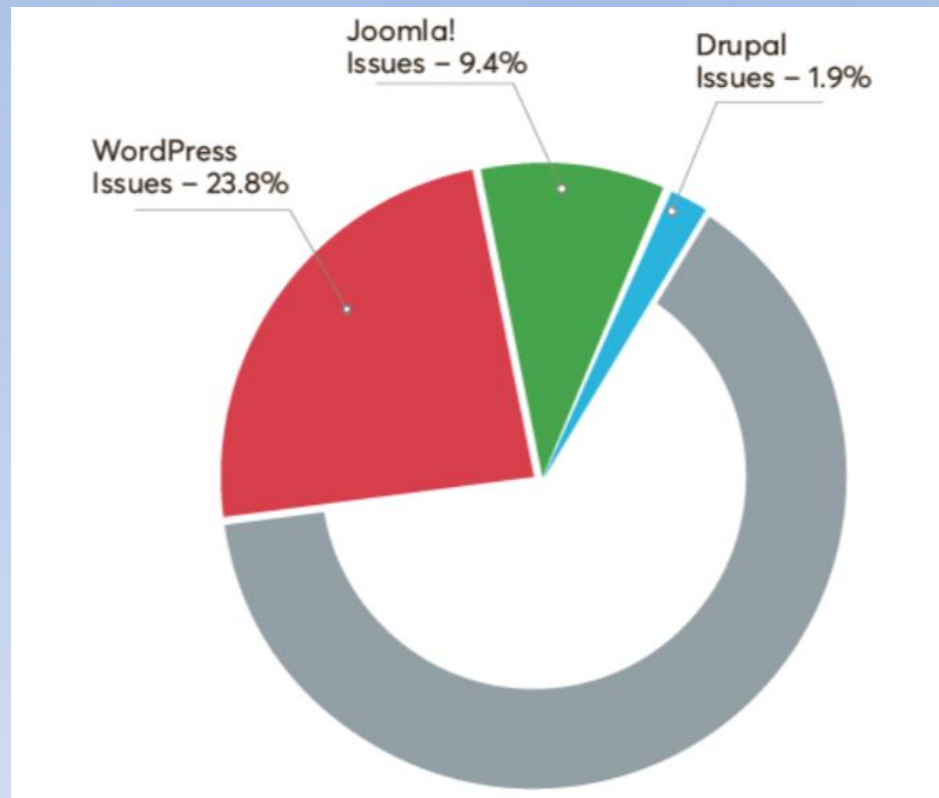
Source: Acunetix Web Application Vulnerability Report 2020
https://www.acunetix.com/acunetix-web-application-vulnerability-report/

Popularity according to Alexa service

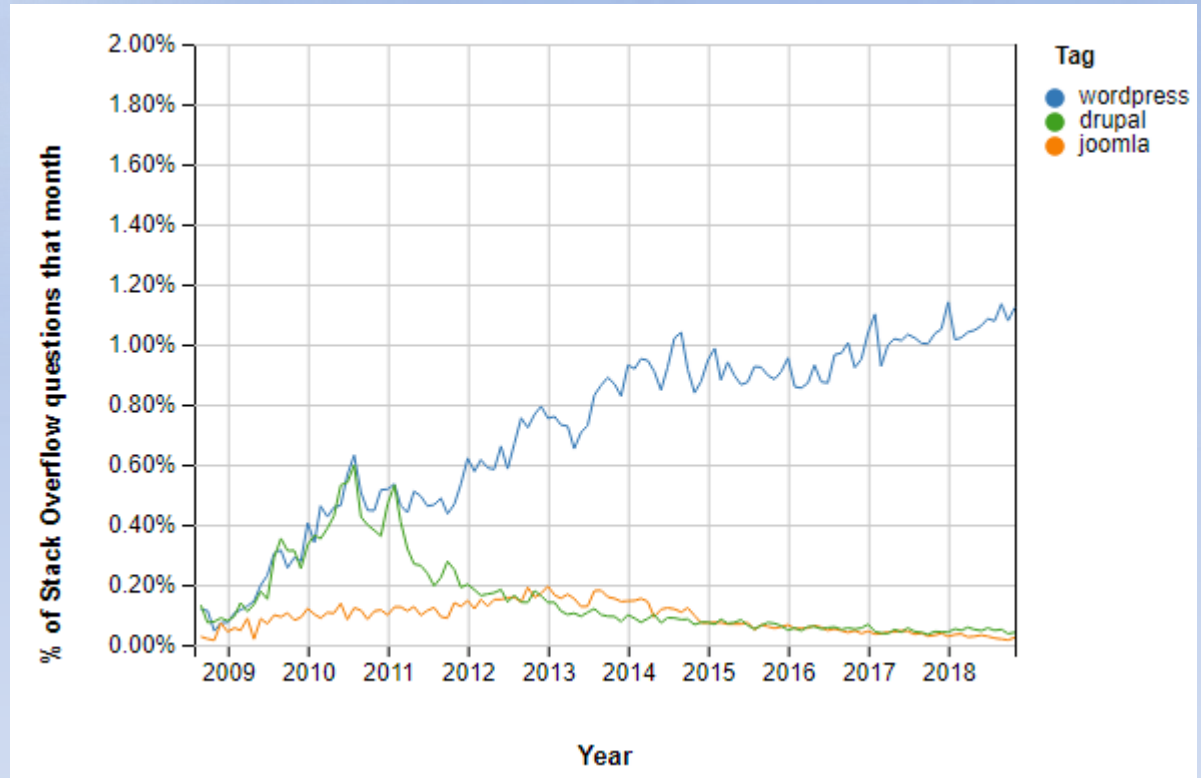- Alexa Rank for project sites (less = better):
  - drupal.org: 12 493,
  - joomla.org: 9 531,
  - typo3.org: 90 974,
  - wordpress.org: 490,
- Number of links to project sites (more = better):
  - drupal.org: 10 087,
  - joomla.org: 27 326,
  - typo3.org: 1 416,
  - wordpress.org: 489 368,

Popularity according to StackOverflow

● Number of tag occurrences for each CMS on StackOverflow.

Source: CMS Comparison: Joomla vs Wordpress vs Drupal in 2020
https://www.guru99.com/joomla-vs-wordpress-vs-drupal.html

● To be continued during the next lecture …