CS7026

Building your website
Building your website

- Your website will be constructed using:
  - html5
  - css
  - javascript?
  - Php?

- Before deciding how to build your website you need to establish its **goals** and **requirements**.
Website Goals

- Try to define what you want to get out of this?

- Do you want sales, do you want inquiries, or do you want social shares, newsletter signups? Do you want people to sign a petition?...
Website Requirements

- Outlining the requirements can help to determine how complex the website will be.

- You need to consider the requirements for:
  - Users
  - Functionality
  - Integration with other systems or software
  - Content
  - Design
  - Scalability
  - Security
  - Maintenance
  - Cost
**User Requirements**

- Users of the site could include not only your target audience, but also the people who will be operating the site behind the scenes.
  - What will the users that are coming to the website need to do?
  - How will the administrators of the website need to access the site?

- As there are more complex user and administrative requirements, more customisation might be needed.
Functionality Requirements

- The functionality of a website depends on what the purpose of the website is.

- What are the main functions that you want the website to perform?

- Are these relatively common functions that a lot of websites have or are they more specific or complex functions?

- The website becomes more complex with more unique or advanced functionality requirements.
Functionality Requirements

- If you want one unusual feature, it can be fine. But, once you start adding more, especially if those things need to interrelate with each other, then the complexity multiplies because everything has to coordinate.

- There's a kind of exponential scale of complexity in terms of extra functionality.
Integration Requirements

- What outside software or systems need to be integrated with the website?

- Are there customer relationship management tools, marketing tools, mailing lists, or analytics? Do they need personalization, video, or audio?

- Are these widely used systems or are they more custom or complex?
Integration Requirements

- Widely used systems or software generally have well developed application programming interfaces (APIs), making integration easier.

- Custom-built software or more complex systems could be harder to integrate into any site.

- The complexity of the integration depends on
  - the integration type,
  - how custom the integration is, and
  - how the integration will work with the rest of the website.
**Content Requirements**

- The type and volume of content will influence how the site needs to be built.

- If content needs to be added and updated regularly, a website should probably be built with a content management system.

- With more complex content requirements, a custom system might need to be built to support different types of content.
Design Requirements

- How will the content and other features fit into the design of the website?

- Are custom design and branding elements imperative for the website to have?

- Customizing the content, images, and design to represent a brand will make the build more complex but can help to build a successful online marketing presence.
Scalability Requirements

- Does the website need to be able to keep up with the growth of a business?

- Consider what the purpose of the website is now, and compare that to the purpose of the website in the future.
Scalability Requirements

- How transferable does the website need to be?
- Does it matter if the website is locked into a certain platform or a web design and development company?
- If a website needs to have the option to change servers or to change platforms or to change design/development companies, the website should be built with a solution that allows for these changes.
Security Requirements

- What are the security needs of a website?

  - Basic security needs require that a site is secure at all times, with a reliable way to maintain that security.

  - Will the website hold highly sensitive information that needs to be monitored at all times?

  - For higher security requirements, a custom or more responsive security system might need to be built.
Maintenance Requirements

- How will the website be hosted?

- Who will be responsible for maintenance, security, and updates?

- Some solutions are all-encompassing and take care of the hosting, updates, and basic security needs.

- Other solutions require either a knowledgeable internal team to handle website security and updates, or for you to continue to update and maintain the site.

- More custom websites with complicated security and maintenance will require a greater maintenance commitment.
Cost Requirements

- The costs of building a website vary depending on the solution used.

- From there, the costs can increase and decrease depending on the complexity of different website requirements.

- In general, as there are more complex, custom requirements, the costs of a website will increase.
Choosing a Solution

- Once there is a general understanding of the requirements, and how complex the website might be, you can determine what the optimal solution is for building the website.

- To get the most value out of a website project, you will want to find a solution that is able to build a website with the given purpose and the desired requirements.
Choosing a Solution

- The complexity and customisation requirements for a website are great indicators for which solution should be used in building the site.

- There are certain features and functions that are not possible to build into a site if using the wrong solution.
Building your website

**Options**

1. Using a do-it-yourself website builder

2. Using a pre-made theme or template for an open source content management system (CMS)

3. Build a custom website on an open source CMS

4. Build a custom website by hand coding or with a framework
DIY Web Builder

Examples
- Squarespace, Wix, Weebly…

Purpose
- A simple platform to drag and drop different elements directly onto the website.
- Provides the tools, templates and guidelines needed, allowing those with a low budget to easily create a website.
- A simple website can be built quickly without any knowledge of coding.
DIY Web Builder

**Functionality**

- DIY web builders are great for building simple to medium complexity websites with little need for back-end customisations.

- The functionality options are offered within the website builder platform.

- Most people that use a DIY web builder use it for the pre-made templates and tools that make it easier to build websites with basic functionality requirements.
DIY Web Builder

- The platform can be limiting for those with more complex and custom requirements.

- E.g., search engine optimization and analytics are both built into a website automatically if built using a web builder. This is a great component for those who need basic SEO and analytic functions but, if there are more custom needs, the options could be limited.
DIY Web Builder

Integration

- Web builders include general integration capabilities with specific apps or programs and make them available within the platform.

- Some web builders also offer different plugins (for free or with premium packages) through a plugin store within the platform.

- The plugins are specifically made to integrate seamlessly with the websites built on the web builder.
DIY Web Builder

- If there are requirements for integration that the web builder does not offer, it is very hard to add these.

- For the most part, the only integrations available are the ones that the platform offers or has already built into the platform.

- An all-in-one web builder can be limiting for those that have specific integration requirements.
DIY Web Builder

**Content**

- DIY website builders make it very easy to add and edit content within the platform.

- The interface is WYSIWYG (what you see is what you get) meaning that wherever you want your content to be, you can add the content into that location by dragging and dropping it there.

- There are options for adding different types of content, which makes it convenient for building a blog, a simple e-commerce store, a portfolio, a gallery, or a restaurant page.
DIY Web Builder

- On some web builders, there are limits to the amount of pages that can be added to a website.

- This can vary from specific platform limitations to limitations based on the costs per month.

- If there is a need for unique content types or there is a high volume of content that needs to be organized in a certain way, a website builder might not be able to support these more complex needs.
DIY Web Builder

**Design**

- DIY website builders take pride in their visually successful websites. The design templates and available tools help customers to easily make a professional-looking website.

- SquareSpace in particular emphasises the beautiful looking websites that customers are able to make.

- They have templates that are created for specific purposes and users can add some custom design features if they know how to edit the CSS.
DIY Web Builder

**Scalability**

- There are limited options for scalability if a website needs to expand beyond what the website builder offers.

- Additionally, transferring the website to a different platform is typically very limited.

- Any features or designs built on the DIY builder platform usually cannot be transferred to a different system or platform.
DIY Web Builder

- If there is the option to transfer the website, the options are limited and not easily accessible.

- DIY web builders own the code of the website, and the site is also hosted on their server. Thus, the site only exists as long as the website builder exists and as long as the monthly fee is paid.
DIY Web Builder

**Security and Maintenance**

- Web builders handle all of the security needs and backend updates to ensure that the websites built on their platform are up to date and secure.

- There are limited maintenance responsibilities beyond keeping the content up to date.

- The web builder is responsible for the code and the security of the website, which can be a benefit for those who do not want to worry about maintenance.
For higher security needs, a web builder might not be the best option.

Because the web builder owns the code of the website, the security depends on their vigilance.

Higher security needs require the ability to assess the code of the website and to know how the site is being tracked and accessed at all times.
DIY Web Builder

Support

- Overall, web builders offer great guidance for those who are making a simpler site and want to build it on their own.

- The necessary tools, templates and designs for building a successful website are available without the confusion of unneeded tools or functions.

- Some DIY web builders have good customer support that is available for technical problems and to field general questions about the website.
DIY Web Builder

- However, if someone prefers a more guided process that includes analysis, strategy, planning, and discussing the purpose of the website, a web builder cannot offer these qualities.
DIY Web Builder

Costs

- Web builders provide an affordable way for a business on a budget to have a professional looking online presence.

- Most DIY website builders offer a free trial or free membership to build a starter website.

- From there, there are monthly costs that vary depending on the chosen package and platform.

- More advanced features, elements, and design options are available with premium monthly packages.
DIY Web Builders

- **Benefits:**
  - Pre-designed templates
  - All the functions, tools, integrations are included in the platform
  - Low cost

- **Limitations:**
  - Limited customisation
  - Limited scalability

- **Overall, DIY web builders**
  - provide the necessary tools and design options that make building a simple website easy.
  - are a good option for building a simple to medium complexity website without any knowledge of code.
Another DIY-type option is using a pre-made template or theme for a content management system (CMS).

A CMS is a web application that provides an easy-to-use system for adding, editing, and organizing content without immense technical knowledge.

Using an open source CMS means that the software is available for anyone to use for free or at a low cost.

Using a template for an open source CMS provides the foundation for the design, features, and certain functions, making it easier to build a website.
Theme/Template for an Open Source CMS

**Examples:**

- There are several open source content management systems, the two most popular are WordPress and Drupal.

- For both of these platforms, the website templates are referred to as *themes*.

- Free themes are available on WordPress.org as well as at Drupal.org. Premium themes are also available from third-party sources like ThemeForest, StudioPress, and Elegant Themes.
Theme/Template for an Open Source CMS

**Purpose**

- Those with lower budgets and limited coding knowledge can build a website on an open source content management system by using a pre-made theme.

- A theme supplies the design foundation for the website, with options to customise and add functionality through plugins or modules.

- For any problems or extra help the open source community has many developers and freelancers for hire.
Theme/Template for an Open Source CMS

**Users**

- Themes are available for various types of websites, including news, blogs, e-commerce, portfolios, business, restaurants, and other informational-type sites, among others.

- A CMS is made for ease of use. Administrators can determine who gets access to make edits and add content.

- In general, open source CMSs have very flexible user options.
Using a theme for an open source CMS does require some knowledge of how the platform works.

However, the good thing about open source is that there is a large community that offers help, tutorials, and classes to learn how to work the CMS properly.
Theme/Template for an Open Source CMS

**Functionality and Integration**

- Allows for more flexibility in terms of functionality than a DIY web builder does.

- Depending on the platform, there are plugins (WordPress) or modules (Drupal) that can be installed to add functionality to a website.

- The open source nature means that the community is constantly updating and adding more functional features.

- However, using a theme means that website could be limited to the functions and integrations that theme is made to support (depending on how restricting the theme is).
Theme/Template for an Open Source CMS

- E.g. Often, SEO is built into the theme, which can be beneficial for someone who does not know a lot about SEO. However, there is also no way of knowing if the pre-programmed SEO will benefit the website's marketing goals.

- There are often limited ways to customise the SEO of a pre-made theme, and if there are ways to, it would require the knowledge of how to manipulate the theme to the custom SEO needs.

- A theme may not be able to support more functionality or any custom functions.
Theme/Template for an Open Source CMS

Content and Design

- One of the main benefits of using a CMS is for the ease of adding, editing, and organizing different types of content.

- A theme includes the design and feature framework for a website making it quick and easy to get a site up and start adding content.

- There are a multitude of design options for themes, including different styles built for businesses, portfolios, e-commerce, and blogging.

- These themes are made for a specific purpose and are useful for creating a simple website that fits into a specific category.
Theme/Template for an Open Source CMS

- The drawback of using a pre-made theme is the lack of uniqueness - anyone can buy or download that same theme to use for their website.

- It can also be difficult to customise a theme to fit the personality of a specific brand.

- For more customised design and content options, a pre-made theme will probably not be the optimal choice.
**Theme/Template for an Open Source CMS**

**Scalability**

- A theme is typically made for a specific purpose, and often, when changes or improvements need to be made that are beyond what the theme is made to support, the theme might not scale and function as desired.

- If it is important to be able to customise and develop the website further in the future, then a theme might not be a good choice.
Theme/Template for an Open Source CMS

Security and Maintenance

- Using an open source CMS can be secure considering that there is an entire community committed to the security of the platform, and there are security updates to help maintain the security of the code.

- However, theme security is highly dependent on who built the theme and what they built into the code.

- Themes can be very vulnerable to security problems if they are not from a trusted source.
The security of a theme also depends on how invested the theme creator is in updating and maintaining the code of the theme.

Themes from both WordPress.org and Drupal.org have to be verified and go through a review process before they are available for download, so they are generally safe.
Theme/Template for an Open Source CMS

- There are security plugins and modules available that can protect moderate security needs, but if the theme is not updated regularly the website can be susceptible to various security problems.

- There are more maintenance needs for a website built with a theme on an open source CMS than there are for a website built on a DIY web builder, but with the proper updates and a trustworthy theme, the maintenance can be relatively easy.
Theme/Template for an Open Source CMS

**Costs**

- The costs of using a pre-made theme can vary depending on whether someone wants a free, simple theme or a premium theme with more options.
  - Free themes are available for download on WordPress.org or Drupal.org.
  - Other services such as ThemeForest, Elegant Themes and Studio Press offer a range of options and pricing models.

- Certain plugins or modules can also cost money to download and install.
Theme/Template for an Open Source CMS

- **Benefits:**
  - More flexibility for users, functions, content
  - Themes available for different kinds of websites, and different design needs
  - Low cost

- **Limitations:**
  - Limited customisation
  - Security of a theme depends on updates and maintenance
  - Themes are not unique to your site

- **Overall,** if a website on an open source CMS is desired, but there is a need for custom functions, custom integrations, and unique design, then building a custom website on that platform will be more worthwhile.
Custom Website on an Open Source CMS

Example

- Design/develop a website using WordPress/ Drupal /Joomla...

- Building a custom website on an open source CMS means that you not only own and host the code, but there's a huge support community out there that you can get help from.
Custom Website on an Open Source CMS

**Users**

- It is easy and efficient to publish, organize and edit distinctive types of content.

- The simple interfaces make it practical for those with various technological backgrounds to learn how to use the system and contribute to the website quickly.

- The flexibility of the system makes it possible for you to customise the CMS for different user specifications while still maintaining the easy interface for adding and editing content.
Custom Website on an Open Source CMS

**Functionality**

- Developers have the ability to build more complex and custom functions into a website.

- There are also functions and integrations available through the open source community, making it easier to build general functions into the website without the need to custom build everything.
Custom Website on an Open Source CMS

- However, if the open source CMS was not made to support specific functions, the site can suffer from the enhanced manipulation.

- If you have defined exactly the way that you want the CMS to be laid out, and how you want to be able to publish content, or need to support an exact workflow you may run into problems.

- If you're going to use WordPress, you have to accept that it is the way it is. If you start to mess around with its fundamental nature then it just doesn't make any sense. You might as well use something different or build exactly what you want.
Custom Website on an Open Source CMS

Integration

- Both Drupal and WordPress have large developer communities that are constantly contributing new plugins or modules for different integrations, functions, and features.

- Instead of having to build custom installations for every integration need, many have already been built. E.g. if you want to build enterprise WordPress sites there’s an installation for WordPress that helps build multisites called WordPress Multisite.

- When there are highly custom integration requirements or integrations that are not made to work with the given CMS, either the integration requirements need to change or a custom website could be built with a more flexible framework.
Custom Website on an Open Source CMS

Content and Design

- WordPress and Drupal are great for building content oriented sites.

- WordPress began as primarily a blogging platform and is now capable of supporting a variety of content types.

- Drupal is also known for its flexibility in organizing and adding various content types. The degree and that granular control that you can have over different types of content is more customisable in Drupal.
Custom Website on an Open Source CMS

- You can create a design that helps to differentiate and market the business as a unique brand.

- Additionally, you can design the website so that the content works together and is optimised for search.
Custom Website on an Open Source CMS

**Scalability**

- Building a custom site on an open source CMS gives the website more flexibility down the road than using a pre-made theme or building on a non-open source platform would.

- More customisations, functions, and features can be added as needed.

- Transferability factor: options to hire different design and development companies within the open source community if you want to move on.
Custom Website on an Open Source CMS

Security

- Often, you'll hear about WordPress security concerns, but sites built this way tend to be as secure as the developers who build the site make it.

- You need to understand the code, common risks, and how to build with security in mind.

- Developers need to concentrate on using best practices, using strategic backups, having systems in place, and having plans for when security lapses happen.
Even though websites built on open source CMS can be very secure with the proper attention and updates, there are certain security requirements, such as financial-level bank security, that might not be ideal for an open source CMS platform.
**Maintenance**

- Maintenance is vital for the security, functionality, and sustainability of a website built on open source CMS.

- A website is not complete after the initial launch. It needs to be updated and improved to continue working as it should.

- You need to consider hosting, uptime monitoring, backups, and server management.

- Who will perform content edits or design or development changes?
Custom Website on an Open Source CMS

**Costs**

- A more expensive option as it involves more technical expertise.

- However, the costs of building a custom website on an open source CMS can be lower than building a completely custom website from scratch.

- The open source CMS makes it easier to utilize modules and plugins so that each element or function does not necessarily need to be built from scratch.

- This can lower both the developer hours needed and the complexity of adding different requirements.
Custom Website on an Open Source CMS

- There are different factors that can affect the costs:
  - Complexity of the website
  - Customisations
  - Guidance
  - Maintenance
  - Unexpected revisions

- These can all affect the amount of hours needed to complete a project, which has a close impact on the cost of the project.
Custom Website on an Open Source CMS

- There are also testing, maintenance, hosting, and update costs that are essential for the sustainability and optimisation of the site.

- Factor in doing user research, doing A/B testing, (comparing two versions of a web page to see which one performs better) and doing user experience testing.
Custom Website on Open-source CMS

- **Benefits:**
  - Flexibility and Customisation
  - Open-source community: plug-ins, modules, scalability

- **Limitations**
  - Security problems if no maintenance
  - Not fully customisable
  - Higher Cost
Custom-built Site

- Developers can build websites from scratch by hand-coding the entire site, or they can use a framework to expedite the processes of building the main features of a site.

- From there, they are able to build in highly custom functions and features.

- *Example* frameworks include Bootstrap, Ruby on Rails, cakephp…
Custom-built Site

**Purpose**

- Frameworks allow for more customisation and flexibility allowing you to produce a website that meets your direct needs.

- The costs in general will increase, but the flexibility and customisation possibilities can make this website building solution desirable.

- Depending on the purpose of the website, the development process will vary. Developers can build custom content management systems, e-commerce systems, security systems, and databases.
Custom-built Site

**Users**

- Very precise user specifications can be built into a website. But it can be harder for the administrators to add and edit content, or make changes to the website, without advanced coding knowledge or help from the developer.

- To make it easier for nontechnical users to add and edit content, a developer can build a custom CMS to meet the exact needs of the user.

- Building a custom CMS exactly to the website and administrative needs can eliminate confusion and possible mistakes that could happen when using an "out-of-the-box" CMS platform.
Functionality and Integrations

- Sometimes, it takes more work to customise and tailor things to someone's unique needs, than it does to build something from scratch.

- The biggest benefit comes from being able to create an entire website around a specific, custom function – if that is what is needed.

- E.g., when there are a lot of customisations needed, customizing an open source CMS might be more trouble than building a custom CMS. The developer can build a custom system that fits into the exact needs of the clients.
Custom-built Site

- Frameworks are able to accommodate more custom and complex functionality and integration requirements.

- However, there are not the vast plugin and module options that both WordPress and Drupal have, which can make for a more expensive process to add in general functions and integrations.
Custom-built Site

Content and Design

- There is the potential for further customisation of the content types and organization structure.

- Potential for unique and custom design.

- The flexibility of a framework does give more possibility for creating a truly unique website.

- Sometimes, the complexity comes from really thinking through the design and content.
Custom-built Site

Scalability

- A website can be built to grow and expand to the custom needs of the company.

- Transferability can be problematic. It can be difficult to change developer or to transfer the website to a different framework.
Custom-built Site

Security

- A customised security system can be built.

- Additionally, the code is not widely available as it is with an open source CMS.

- If you're on a platform that's widely shared, there's a potential that people will find a way to get into that platform and cause problems.

- However, most frameworks and custom built systems do not have automatic security updates like the open source CMS. This means that *you* need to make provision for maintaining the security of the site and making security updates.
Custom-built Site

**Maintenance**

- You need to make provision for hosting, security, and update responsibilities.

- Usually either the developer or an advanced internal team.
Custom-built Site

Costs

- Typically, the costs are higher for developing a custom-built website on a framework.

- A lot of these costs are for the experience and time it takes to learn and work with different frameworks.

- However, the costs of building a highly customised site on a framework can be less than it would be to over customise a CMS.
Custom-built Site

**Benefits:**
- High amounts of flexibility and customisation
- Option to build a unique website that fits exact needs of user/customer

**Limitations:**
- Need to think about security, maintenance, and support
- High cost
Conclusions

- There are various ways to build a website and by knowing what different options can offer, you will be able to make a more educated decision on the best solution.

- The purpose, requirements, and general budget of the website will influence which solution is right for building the website.

- Different solutions are better for different types of websites and knowing how complex the website requirements are can help to select the optimal solution for building a successful website.