What factors are Important in Developing a Successful E-commerce Website?

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June 2007

Thesis, 10 points, C level
Computer Science

Creative Programming
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What Factors are Important in Developing a Successful E-commerce Website?

By

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Abstract

As the internet has become an increasingly growing market for companies, it has also subsequently revolutionized shopping. There are countless different options on the internet for individuals. If a website does not live up to the expectations, there is always another one just a few clicks away. This raises the demands on the retailers, in terms of development and maintenance of their e-commerce websites. In order to succeed, there are many things that have to be considered and addressed. This thesis research discusses some of the most essential questions that may arise during the development of an e-commerce website. The process has been divided into four different sections; graphical design, information design, interaction design, and online trust. Each one of these sectors is important and every website developer should be familiar with them.

Keywords: e-commerce, web design, graphical design, information design, interaction design, online trust.
Acknowledgement

To Sharon Lazenby for being my supervisor. I deeply appreciate all the support that she has given me. She made me push myself forward when I was stuck in every sense of the word. She is a truly devoted teacher, and for that I thank her.

To Patrik Jonsson for everything. I am not sure I have the words to describe what your endless support during this time has meant to me. He was there when I needed someone to talk to. He encouraged me to go on when I felt like this was a never-ending project. I thank him for all his love and patience.

To both of my wonderful parents for supporting me as I wrote this thesis. I think my life these last years has been a great source of worry. But they have tried not to show it. They have waited for me to find my way back again, and now I think I am finally on my way there.

To Tomas Fridén for having completed his thesis before me and proving to me that it was even possible. I greatly appreciate all the good advice that he has given me and that he took the time to answer all my more or less crazy questions.
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1 Introduction and method

As of March 10, 2007, there were 1.114 billion Internet users in the world [1]. The Internet has also become an increasingly large market for companies. Some of the major companies today have grown by taking advantage of the efficient nature of low-cost advertising and commerce through the Internet, also known as e-commerce. It is the fastest system to spread information simultaneously to a vast amount of people. The Internet has also subsequently revolutionized shopping. For the buyer, this means that almost everything can be bought online. There are countless different e-commerce websites for the users to choose from. This raises the demands on the retailers.

E-commerce (Electronic Commerce) is exactly analogous to a marketplace on the Internet. E-commerce consists primarily of the distributing, buying, selling, marketing and servicing of products or services over electronic systems such as the Internet and other computer networks [14].

1.1 Questions at issue

Even though it might be fairly simple to start up an e-commerce website, it is far from unproblematic to make that website successful. There are numerous aspects to take into consideration when developing a successful e-commerce website.

1.1.1 Graphical design

When it comes to graphical design, a website must be aesthetically appealing to the eye, without it taking a large amount of time to load. A flashy design might be nice to look at, but if it takes too long to load the user will loose patience and find another faster website. Therefore, it is necessary to think through the graphical design and come up with something that is both aesthetically appealing and has a short loading time. But how is this done in a simple way?

1.1.2 Information design

It is imperative that a customer who arrives to the e-commerce website immediately understands what it is about. How information is presented on a website has a decisive influence on how the website is received.

It is crucial that the website is simple to navigate and that the customer, without difficulty, can obtain an overview of the website.

When developing an e-commerce site, it is necessary to consider how to present the merchandise. Long sections of text are hard to read. But too little information might not be satisfying to the customer. How much information is adequate? How much is too much?
1.1.3 Interaction design

In order to look at the merchandise or purchase anything, the user must interact with the website. The customer may have to register in order to purchase products. Most e-commerce websites have a shopping cart where customers can place items of interest. It is important that it is easy for the customer to deposit or remove merchandise from the shopping cart. The more intuitive these actions are, the more comfortable the user feels. Therefore, it is incredibly important to think about how a website can be made as intuitive as possible. A customer who is comfortable using a website is more likely to explore it and return. If a customer is afraid or hesitant to push a button, due to lack of information, the website is a failure.

1.1.4 Trust

A key element in e-commerce is trust. Without trust it would be impossible to do business at all. It is not easy for customers to know if an e-commerce site is trustworthy or not. Therefore, it is essential to have a well-structured site where the customer can find the information needed. However, are there more methods to win the customer’s trust?

Security is also an important issue when developing an e-commerce site. The customers should always know that the information they provide will not be sold or misused in any other way. This is essential since the customers might provide sensitive information such as their credit card number.

1.2 Choice of method

The method that I used in this thesis is literature studies. Furthermore, I will create a checklist addressing the issues important when developing an e-commerce website. I will also write guidelines explaining the points in the checklist more extensively.

1.3 Aim

The aim of this thesis is to gain a deeper knowledge about e-commerce and its different aspects; graphical design, information design, interaction and trust. All of these aspects are essential and will be explored in this thesis. A checklist will be put together. It will help developers remember some of the most important elements to address when creating a successful website. The checklist will be supported by a guideline that explains every point of the checklist in detail. This guideline will be beneficial when developing an e-commerce site.
2 Theoretical background

2.1 Current development

2.1.1 Graphical design

J. Ahlberg, the editor and publisher of the website “Jonas Webresurs” [8] writes that one of the most important things to think about when creating a website is that the layout and colors should harmonize with the content of the website. A user that enters the website should immediately understand what the purpose of the website is. The developer should also be consistent in choice of layout and colors. Consistency in layout and color provides the user a sense of familiarity.
When choosing colors for the layout, it is a good idea to use web safe colors [8]. Most browsers today can show millions of colors, but there are still some old browsers that only show 256 colors. Therefore, to make sure that the website looks the same to everyone, web safe colors is a wise choice. There are 216 web safe colors. The remaining 40 colors out of the 256 are reserved for the use of the operating system [9].

The width of a page on a website should be less than the width of the browser window, to avoid horizontal scrolling [7]. According to a worldwide statistic research published by TheCounter January 1:st [11], 75% of all internet users use a resolution of (1024x768) or higher.

When writing for the web and choosing fonts, there are several rules to consider. In typography, serifs are non-structural details on the ends of some of the strokes that make up letters and symbols. A font that has serifs is called a serif font and a font without serifs is called sans-serif [14]. When writing for the web sans-serif fonts is always a good choice since sans-serifs are easier to read on a screen than serifs. Another thing to consider is to avoid colors that are too bright. Bright colors might be hard to look at for a long time. If not, the users will find another page to lean their eyes on [8].

Contrast between background color and text color also makes the text easier to read. However, white text on a dark background should if possible be avoided, since it will be a huge waste of ink if the visitor decides to print out the page [8].

![Figure 3. Example of good contrast.](image)

![Figure 4. Example of poor contrast.](image)
When choosing fonts, it is wise to use common fonts that most users will have installed on their computers. If the user does not have the chosen font installed, it will be replaced by font that is installed on the user’s computer. This can make it hard to control the design. If an unusual font has to be used, consider using an image [8].

R. Molich, the author of the book ”Webbdesign med fokus på användbarhet” [6], argues that the area of graphical design is where the developers understand their users the least. Many developers believe that the user places great weight on a fancy graphical design. But the truth is that the majority of the user’s loose patience if the loading time is too long for most individuals will wait less than 10 seconds [10]. Developers also often make the mistake of believing that all their users have as fast of an internet connection as the developers themselves, which is not true [6].

There are three different kinds of graphics [6]:

**Useful graphics** – Images of products or maybe maps. This is the kind of graphics that the user may be willing to wait for while it uploads. It may be a good idea to show a thumbnail image at first and then let the users decide whether they would like to see a larger image.

**Supportive graphics** – Helps structure the information on a website. For example; create a clear dividing of the navigation field and the information field.

**Insignificant graphics** – This could be company logotypes or ads. The user will tolerate this kind of graphics if it loads quickly.

Be careful when using animations, they can easily distract the users from the text. The only place where animations are really useful is when there is no text for the user to focus on, for example; on a page that shows when the website uploads information [6].

### 2.1.2 Information design

Provide a search engine to help the users to find what they are seeking. The search engine should be located in place where it is easy for the users to find. It is enough with a text field with a search button next to it and a link to a more advance search [6].

To make the text more perspicuous, divide large chunks of text into smaller paragraphs and provide them with clear and descriptive headings. Make sure there is some space between the paragraphs [6].

Images can also break up a text and make it easier to read. But make sure that the images are relevant and have a logical connection to the text that they illustrate [6].
A branch within the psychology, called perception psychology, deals with how we perceive entitities in images. Psychologists have formulated the findings in the so called laws of shapes. A developer of websites can keep information together visually by using these laws of shapes [6].

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Law</th>
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<tbody>
<tr>
<td>○○○ ○○○ ○○ ○○○</td>
<td>Vicinity, Nearness</td>
</tr>
<tr>
<td>[○○] [○○] [○○]</td>
<td>Seclusion</td>
</tr>
<tr>
<td>○○ ○ ● ● ○ ○ ○</td>
<td>Likeness, Similarity</td>
</tr>
<tr>
<td>○●○ ○●○ ○●○</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

Table 1. The laws of shapes.

The law of vicinity and nearness:
Symbols that are located near each other are perceived as connected.

The law of seclusion:
Symbols that are located within the same frame are perceived as connected.

The law of likeness and similarity:
Symbols that are similar to each other are perceived as connected.

The law of continuity:
Symbols that are linked together are perceived as connected.

The products on the website should be categorized in a method that is meaningful to regular customers, the depths of the categories should be no more than three [7].

Always provide accurate and detailed information about the products together with an image. It could be a thumbnail image, with the possibility of clicking on it to see a larger image. Also present the size of the products in a way that is measurable and comparable. It should be easy to compare different products. Always present the inventory information of a product [7].

2.1.3 Interaction design
Interaction design deals with how to identify users’ needs, and from this understanding, move to designing usable and enjoyable systems. The presence or absence of good interactions design can make or break an e-commerce website [12].
The process of interaction design involves four basic activities [12]:

- Identifying needs and establishing requirements.
- Developing alternative designs that meet those requirements.
- Building interactive versions of the designs with the intention that they can be communicated and assessed.
- Evaluating what is being built throughout the process.

Many websites that require users to interact with them to carry out their tasks have not necessarily been designed with the users in mind. Most likely they have been engineered as systems to perform set functions. While they might work effectively from an engineering perspective, it is often at the expense of how the website will be used by real people. The aim of interaction design is to address this concern by bringing usability into the design process. In essence, it is about developing interactive products that are easy, effective and enjoyable to use from the users perspective [12].

When developing interaction design, decisions should be based on an understanding of the user [12].

- Taking into an account what people are good and bad at.
- Considering what might help people with the way they currently do things.
- Thinking through what might provide quality user experience.
- Using tried and tested user-based techniques during the design process.

In addition to the four basic activities of design, there are three key characteristics of the interaction design process [12]:

- Users should be involved throughout the development of the project.
- Specific usability and user experience goals should be identified, clearly documented, and agreed upon at the beginning of the project.
- Iteration through the four activities is inevitable.

Usability is broken down into the following six goals [12]:

**Effectiveness**, effective to use.
Refers to how good a system is at doing what it is supposed to do.

**Efficiency**, efficient to use.
Refers to the way a system supports users in carrying out their tasks.

**Safety**, safe to use.

Safety involves protecting the user from dangerous conditions and undesirable situations. Safety also refers to helping users in any kind of situation, to avoid the dangers of carrying out unwanted actions accidentally. It also refers to the perceived fears users might have of the consequences of making errors and how this affects their behavior. Safe interaction systems could engender confidence and allow the user opportunity to explore the interface and to try
out new operations. Other safety mechanisms include undo facilities and confirmatory dialog boxes, which give users another chance to consider their intentions.

**Utility**, have good utility. 
Refers to the extent to which the system provides the right kind of functionality so that the users can do what they need or want to do.

**Learnability**, easy to learn.
Refers to how easy a system is to learn how to use.

**Memorability**, easy to remember how to use.
Refers to how easy a system is to remember how to use, once learned.

As well as focusing on improving efficiency and productivity, interaction design is increasingly concerning itself with creating systems that are [12]:

- Satisfying
- Enjoyable
- Fun
- Entertaining
- Helpful
- Motivating
- Aesthetically pleasing
- Supportive of creativity
- Rewarding
- Emotionally fulfilling
Usability goals are central to interaction design and are operational through specific criteria. User experiences goals are shown in the outer circle are less clearly defined. Recognizing and understand the trade-offs between usability and user experience goals are important. Obviously, not all of the usability goals and user experience goals apply to every interactive product being developed. What is important depends on the use context, the task at hand, and who the intended users are [12].

Text on links and buttons should be concise, self-explained and descriptive [7]. Users should not have to be unsure of what will happen if they push a certain button.

The shopping cart page on the website should provide a link that directs the customers back to the page they came from, where they can continue their shopping without having to start from the beginning again[7].

Once the users proceed to the check-out, they should only be asked to provide necessary and meaningful information, such as name and address. No marketing questions should be asked [7].
As I researched the subject of interaction design, I found numerous books and articles discussing interaction design in general. However, I could not find any information that applied specifically on interaction design for e-commerce websites. Therefore, I decided to study some of the largest and most well-known websites to how they had designed their interaction.

2.1.4 Trust

Dayal, Landesberg and Zeisser, the authors of the research report “How to build trust online” [2], say “that the lack of consumer trust is a critical impediment to the success of e-commerce.”

According to Lanford and Hübscher, the authors of the research report “Trustworthiness in E-commerce” [3], it is imperative to build a good reputation, not just real but also perceived trustworthiness. In order to do so, advertising in newspapers and magazines or television could be a great tool. If the consumers have heard the name of the e-commerce website repeatedly, they are more likely to make an effort to inspect the site.

Technical competence is a key factor when it comes to gaining the customers trust. It is imperative that the e-commerce website is completely functional. Make sure all words are spelled correctly, there are no broken links or dead images, search engines yield proper results, etc. If the website does not function properly, it gives an unprofessional impression. Customers will rather put their trust in a website that seems qualified [3].

A photograph of a company’s representative may be a simple, yet powerful tool to increase the trustworthiness of an e-commerce website [5]. However, there is reason for caution. Different people have different experiences on the internet. Putting photographs of employees on e-commerce websites might benefit one group of shoppers while deterring another [4]. Ill-considered use of photographs might decrease both trustworthiness and usability of a website [4].

Always provide the customer with accurate and detailed product information so there are no surprises when the product arrives [3]. A customer who is disappointed in the product or product information will not return to that same e-commerce website again.

Do not ask for personal information unless it is necessary. Do not make the customer log in to the website just to look at the merchandise. The user should not have to log in until the checkout. Avoid asking for personal or credit card information until the very end of the checkout procedure [3].

Consumers want to know that the personal information they submit will be handled with great sensitivity. It is a good idea to post an easy-to-read privacy statement on the website [2].
Minimize the risk that the customer is taking, when trusting the e-commerce website. The site needs to provide safe and secure transactions along with sound privacy policies. This way the customer may feel more comfortable sending personal information over the internet. Another option could be to move certain risky actions to a trusted third party [3].

PayPal is an example of these third parties, it is an e-commerce business allowing payments and money transfers to be made through the Internet. It serves as an electronic alternative to traditional paper methods such as checks and money orders. PayPal performs payment processing for online vendors, auction sites, and other corporate users, for which it charges a fee [14].

An e-commerce website should use the most reliable security measures, and communicate that this is the case to the customers in a language they understand [2].

To prove to the customers that their needs are the most important is a great way of winning their trust. Services such as money-back guarantees, competitive price matching, and product reviews should definitely be provided. If the customer had a bad experience it needs to be corrected, immediately by providing a shipping refund, store credit, or a coupon for a percentage of their next purchase. If this is fulfilled, the customer will return and also spread the word on the great customer service. The customer should always know that their satisfaction comes first and that making money comes second [3].

Companies that build and nurture trust find that the customers return to their e-commerce websites repeatedly. Websites without a core of returning customers must devote more capital to attracting new customers. These companies may find it difficult to survive in the long run [2].

In order to develop a long-term relationship, the customer must have a positive first shopping experience and come away with a good impression of the website. If the customers had a negative experience, they are definitely not going to return. To induce customers to return to the website, show them appreciation by providing discounts on return purchases, such as free shipping [3].

2.2 Delimitation of the problem area

I chose to limit my thesis research to e-commerce websites in Europe and the USA. I choose not to include e-commerce websites all over the world since this would involve not only technical research but cultural research as well.

I also decided to stick to the theory of the subject, since that was what interested me the most. An actual development of an e-commerce website would not fit in to the time frame of this thesis. And it also deals a great deal with programming. I was more interested in the theory behind the
programming. The reason for this is that there are so many developers out there who really know the programming, but still make simple mistakes.

3 Realization

This research originated with literature studies using books, articles, and the internet. Material of current research was essential in order to provide a present-day background. Then, a checklist was developed. The checklist contained important issues to take into consideration when building an e-commerce website. In order to better explain the points in the checklist, a guideline was developed. The guidelines discuss the issues more deeply and provide first-class and inadequate examples.

4 Result and discussion

The actual result of the research was a checklist and a guideline that could be used together in the development of e-commerce websites.

I believe that the area of research that I chose for this thesis was far too extensive. There were numerous questions to be answered and not enough valid time to research them all in depth the way I wanted to. It would have been enough time for in depth research of some of the issues. But rather than doing that I chose to keep the research on the same level for all of the questions. Still it was difficult to know how much focus to apply to researching every issue. I also found, when I developed the guidelines, that almost every point on the checklist would need additional research than what was possible in this thesis in order to explain everything that needed explaining. I partly feel like the result turned out too shallow. It might have been an excellent idea instead to pick a controlled area of research where I could apply concentrated focus.

4.1 Checklist

The checklist was created to be used in the development of e-commerce websites. Developers will be able to use the checklist to make sure that the most important issues have been addressed. Still there are many issues that could have been mentioned in the checklist that are not. The time constraints made it impossible to address every issue. I tried to focus on as many as possible.

The checklist is attached as Appendix A.
4.2 Guidelines

The guideline is an extension of the checklist and explains every point in further detail. I had hoped to have the time to discuss every point on the checklist more extensively than I did. However, discovering such a wide area of research was not possible with the time constraints.

The guidelines are attached as Appendix B

4.3 Method

For this area of research, I found that literature studies were an excellent method. I have come to the conclusion that it is mostly because the area of research is enormous.
5 Conclusions

During my research I came across all kinds of different e-commerce websites. Some of them were perfect examples of how a good website should look and function, while others were horrible to say the least. As I said earlier, it might be fairly simple to start up an e-commerce website, but it is far from unproblematic to make that website successful. There is no magical formula for how to succeed. However, there are a few things that every developer should think about. I wanted to research this topic in order to find out what those things were. I do not offer any solutions to the questions at issue. My goal was to illustrate these issues and bring them out in to the light. Most of the issues turned out to be fairly simple, but surprisingly they often get overlooked. I gathered all the issues in the checklist, and explained them further in the guidelines.

5.1 Proposal for further research

I propose additional and more in depth research in any of the areas that I have examined during the process of writing this research thesis. It is an interesting growing area that is still being developed and will continue to be in the future.
6 References

Books, reports, articles and websites


7 Appendix
Appendix A:

1 Graphical design

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<thead>
<tr>
<th>1.1 Layout</th>
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<tbody>
<tr>
<td>1.1.1 The layout should harmonize with the content of the website.</td>
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<td>1.1.2 The color should harmonize with the content of the website.</td>
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<td>1.1.3 The layout should be consistent throughout the website.</td>
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<tr>
<td>1.1.4 The colors should be consistent throughout the website.</td>
</tr>
<tr>
<td>1.1.5 Consider using web safe colors.</td>
</tr>
<tr>
<td>1.1.6 The width of the website should be smaller than the browser window.</td>
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</tbody>
</table>

1.2 Text

| 1.2.1 Use sans-serifs. |
| 1.2.2 Use common fonts. |
| 1.2.3 Do not mix more than three fonts. |
| 1.2.4 Make sure there is contrast between text and background. |
| 1.2.5 Do not use too small font size. |

2 Information design

| 2.1 In general |
| 2.1.1 If using images to break up a text make sure the images are relevant to the text. |

| 2.2 Product information |
| 2.2.1 Categorize the products using a method that is meaningful for the customers. |
| 2.2.2 The depth of the categories should be no more than three. |
| 2.2.3 Always provide accurate and detailed information about the products. |
| 2.2.4 Present the size of the products in a measurable and comparable way. |
| 2.2.5 Facilitate comparison of products. |
| 2.2.6 Present inventory information of the products. |
| 2.2.7 Always show images of the products. |
| 2.2.8 Show thumbnails of the products. |

3 Interaction design

| 3.1 In general |
| 3.1.1 Put the usability and user experience goals in focus. |
| 3.1.2 Let the users be a part of the development process. |

| 3.2 Shopping cart |
| 3.2.1 Provide a way to place a product in the shopping cart from the thumbnail view. |
| 3.2.2 Provide a way to place a product in the shopping cart from the product page. |
| 3.2.3 Provide a field where the customer can state the quantity of products wanted. |
| 3.2.4 Let the customers look in to their own shopping carts. |
| 3.2.5 Let the customers remove products from the shopping cart. |
| 3.2.6 Let the customers change the quantity of a product in the shopping cart. |
| 3.2.7 Provide an explanation of how to administrate the shopping cart. |
| 3.2.8 Provide a way to start the check-out procedure from the shopping cart. |

<p>| 3.3 Check-out |
| 3.3.1 Let the customers know where they are in the check-out procedure. |
| 3.3.2 Provide help to fill out different fields or chose between different options. |</p>
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<thead>
<tr>
<th>4  Trust</th>
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</thead>
<tbody>
<tr>
<td><strong>4.1</strong> Functionality</td>
</tr>
<tr>
<td>4.1.1 Make sure the website does what is supposed to do.</td>
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<tr>
<td>4.1.2 Make sure the spelling is correct.</td>
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<td>4.1.3 Make sure there are no dead images.</td>
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<td>4.1.4 Make sure there are no broken links.</td>
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<td>4.1.5 Make sure that the internal search engine yield proper results.</td>
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<tr>
<td><strong>4.2</strong> Privacy</td>
</tr>
<tr>
<td>4.2.1 Do not make the user log in until the checkout procedure.</td>
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<tr>
<td>4.2.2 Do not ask for unnecessary information.</td>
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<tr>
<td>4.2.3 Post an easy-to-read privacy statement</td>
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<tr>
<td>4.2.4 Avoid asking for personal and credit card information until the very end of the checkout procedure.</td>
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<td>4.3.1 Provide safe and secure transactions and make sure the user knows it.</td>
</tr>
<tr>
<td>4.3.2 Provide a possibility to move certain risky actions, such as payment, to a trusted third party, such as Pay Pal or BidPay.</td>
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1 Graphical design

1.1 Layout

1.1.1 The layout should harmonize with the content of the website.

It is imperative that the layout of a website mediates the message that the website tries to send out [8]. The users should never have to wonder what kind of site they visit. Different websites will need different layouts. A layout that works perfectly for a website that put cars on the market, will probably not work at all for a website that sells wedding articles (Figure 1, 2).

Below are two extremely different layouts. Both of these layouts are excellent for their specific purpose.

![Figure 1. Example of a good layout that harmonizes with the content of the website (www.saab.com).](image)

The website in the figure above sells cars (Figure 1). The straight lines and the simplistic but yet powerful layout works perfectly for this site. The website in the figure below sells wedding articles (Figure 2). The layouts of the two websites are as different as night and day. But that does not mean that one of them is right and the other one is wrong. They both harmonize nicely with the content of the websites and the message they want to send.
Below there is an example of a website, belonging to a kennel, where the layout definitely does not harmonize with the content (Figure 3). The users that surfed in to this website would not know what it was about until they read the text.

Figure 3. Example of a poor layout that does not harmonize with the content of the website. (www.slaboda.se).

### 1.1.2 The color should harmonize with the content of the website.

The choice of colors should harmonize with the content of the website [8]. Developers have to use colors that send the message of what sort of website it is. They might have to ask themselves what colors are associated to the type of website they are creating.

Below there are four examples of websites where the colors scheme matches the content (Figure 4). There is a Gothic, bridal, gardening, and baby website. The developer of the Gothic website has chosen black as the main color. Gothic is definitely associated with black. The developer of the bridal website has chosen pink and white. White is often thought of as the color of weddings and pink is a color associated with girls. The developer of the gardening website has taken his colors from nature. Green is often associated with plants and growth. The developer of the baby website has chosen light pastel colors, which is often associated with babies.
The pages are all extremely different. But a color that works perfectly for one website, might not work at all for another. Just imagine the Goth website with bright pastel colors.

1.1.3 The layout should be consistent throughout the website.
Consistency in the layout is especially significant for the users’ sense of orientation on the website [8]. If the navigation bar is located on the left side of the website’s first page, it is not a good idea to move it somewhere else on some other page. The user might find it hard to locate the navigation bar if it is moved.

1.1.4 The colors should be consistent throughout the website.
Keep the same color scheme throughout the entire website. Switching colors may confuse the customers who might believe they have entered another website by mistake. It is also more aesthetically appealing if the website has the same color scheme on every page [8].

1.1.5 Consider using web safe colors.
When choosing colors for the website, the designer needs to consider using web safe colors [8]. Most browsers today can show millions of colors. But not everyone has a modern web browser. Some people still use old browsers that only show 256 colors. Therefore, to make sure that the website looks the same to everyone, web safe colors is a wise choice. There are 216 web safe colors. The remaining 40 colors out of the 256 are reserved for the use of the operating system. Below there is any image of the 216 web safe colors [9] (Figure 5).
1.1.6 **The width of the website should be smaller than the browser window.**

Internet users dislike horizontal scrolling, they want to see the whole width of the page. To avoid horizontal scrolling, the width of a page on the website should be smaller than the width of the browser window [7].

1.2 **Text**

1.2.1 **Use sans-serifs.**

Use sans-serifs when writing body-text for a website. This will make the text more effortless, for the visitor, to read [14].

In typography, a sans-serif font is one that does not have the small features called "serifs" at the end of strokes [14].

**Sans-serif  Not Sans-serif**

Figure 6. Sans-serif and Serif.

Sans-serif fonts have become the de facto standard for body text on-screen,
especially online because electronic screens such as computer monitors or otherwise provide a cleaner and more legible rendering of sans-serif fonts than they do for serif fonts. This is also true of typography on television; serif fonts are rarely used on a TV channel due to the flickering which can easily occur when they are employed.

1.2.2 Use common fonts.

When choosing a font, restrain the use of fonts to the most common ones. If a website contains a font that is not installed on the visitors’ computer, that font will be substituted by a font that is, which can distort the layout [8].

Below there is a table showing the forty most common fonts installed on computers today. The percentage shows on how many percent of the computers the font in question is installed (Figure 7).
If the use of an unusual font is necessary, define in your code an alternate font to be used in case the visitors of the website do not have the chosen font installed on their computer. This way the choice of substitution font can be controlled.

If the use of a certain font is absolutely necessary, and a substitution is not acceptable, the best way is to use an image format.
1.2.3 **Do not mix more than three fonts.**
The use of more than one font can be a powerful tool. But a mix of too many fonts appears cluttered.

1.2.4 **Make sure there is contrast between text and background.**
Contrast is the difference in visual properties that makes text distinguishable from the background (Figure 8). Contrast between text and background is imperative since the lack thereof can make the text on a website almost impossible to read [8] (Figure 9).

![Figure 8. Examples of good contrast.](image)

![Figure 9. Examples of poor contrast.](image)

1.2.5 **Do not use too small font size.**
Too small font sizes are hard to read for the user. Browsers usually have option of changing the font size, but most likely the users will not bother [8].

2 **Information design**

2.1 **In general**

2.1.1 **If using images to break up a text make sure the images are relevant to the text.**
A good way to break up a long text, and make it easier to read, is to insert images into the text. But make sure that the inserted image is relevant to the text in question [6].
2.2 Product information

2.2.1 Categorize the products using a method that is meaningful for the customers.

When categorizing the products, make sure to do it using a method that is meaningful to the customers [7]. Many developers make the mistake of arranging the products using a method that makes sense from an administrative perspective. If it is complicated for the customers to find what they want on a website, they will find it somewhere else. Therefore, it is imperative to organize the products with the customers in mind.

2.2.2 The depth of the categories should be no more than three.

Too many levels of depth might be confusing for the customers; they might feel lost in the navigation [7]. Three is the recommended maximum of levels that should be used. The number of levels can exceed three if there is a good reason as to why.

2.2.3 Always provide accurate and detailed information about the products.

It is essential that the product information is as detailed and accurate as possible [7]. The customers want to know what they are buying. They often read the text and make sure that the product is what they want. And if they order a specific product, they do not want to find out that the product in question does not live up to the expectations, due to an insufficient product description.

2.2.4 Present the size of the products in a measurable and comparable way.

The customers may need to know the size of a product in order to know whether it will fit into the place that they planned on. Therefore, they will need to know the exact measurements. Make sure the measurements are correct. Inaccurate measurements could potentially cause the customers great problems [7].

2.2.5 Facilitate comparison of products.

When looking at several different products of the same type, trying to figure out which one to buy, it might not be that easy to keep all the details in mind. This makes a comparison of different products difficult. In order to facilitate this process for the customer, it is a good idea to provide a function for comparison [7].

Many of the larger e-commerce websites already provide this feature. Below there is an example from Sears e-commerce website (Figure 10). All the customers have to do is to check the box to the right of the products they wish to compare, and then press the compare button at the top right corner.
When the customer has pressed the compare button the comparison view appears (Figure 11). This view lets the customers compare different attributes of the products in a simple way.
2.2.6 Present inventory information of the products.

When customers order items online, they do not want to wait a long time for the products to be delivered. The delivery time might have an impact on where the customers decide to order their product from. If the customers find out that the company does not have the product in stock after they have placed the order and that the waiting time will actually be longer than expected, they will probably shop somewhere else in the future.

Always present inventory information on the website [7]. This way the customers will know what to expect, and will not be disappointed and focus elsewhere in the future. They might go somewhere else for a specific product. But they will appreciate the honesty, and they are likely to return.

2.2.7 Always show images of the products.

That an image says more than a thousand words is true. No matter how well the product is described, nothing will describe it better than an image. The users can not touch, feel or smell the product, but they can to see it. And they definitely want to [7].

2.2.8 Show thumbnails of the products.

The images provided on the website do not have to be large images right away. It is best to use thumbnails to present the products [7] (Figure 12). And let the users decide for themselves whether they would like to see a larger image or not.

![Figure 12. Example of products presented as thumbnails (www.sears.com).](image)

On most e-commerce websites, a larger image and more detailed product information will show up if the customer click on the thumbnail image (Figure 13).
3 Interaction design

3.1 In general

3.1.1 Put the usability and user experience goals in focus.

While working on the development of the interaction design make sure to keep the usability and user experience goals in focus. Not all of them apply in every case, but it is a developer’s responsibility to know which ones who do and which ones who do not [12].

3.1.2 Let the users be a part of the development process.

Developers and users have different views on numerous issues. A developer might believe that a solution is simple to understand and easy to use, while a user might find the solution complicated to understand and hard to use. This is the reason why the users should be involved during the development of a website. The users are the ones who will be using it, and their input on the development process is imperative [12].
3.2 Shopping cart

3.2.1 Provide a way to place a product in the shopping cart from the thumbnail view.

There are some customers who do not need or want to compare products or to look more closely at a certain product. These customers have already decided what they want to purchase. In order to make the website more efficient to use for these customers, provide a way to place a product in the shopping cart without them having to click their way to the page that contains product information and a larger image. This will save the customers some time and they will leave the website feeling satisfied.

![Figure 14. An example shows how easy it would have been to make it possible for the customers to place a product in the shopping cart without them having to go to the product page (www.shop.com).](image)

3.2.2 Provide a way to place a product in the shopping cart from the product page.

Once the customers have read through the product information, it is imperative that it is obvious how to order the product. Position a button for placing the product in the shopping cart somewhere on the product page. This way the customers do not have to go back to the page with the thumbnails to order a product.

3.2.3 Provide a field where the customer can state the quantity of products wanted.

Some customers might want to purchase more than one of each item. Therefore, always provide a field where the customers can state the quantity of products they want to place in the shopping cart. The preset default quantity should always be one.
3.2.4 Let the customers look in to their own shopping carts.

When customers shop at a regular store, they might look in to their shopping cart to see if they have forgotten to buy anything important. The same thing should be possible on an e-commerce website. The users should be given the possibility to look in to their shopping cart as they are shopping, not only at the check-out. They should be able to see what products are in the shopping cart, the quantity and price of each product, the total price, and if possible the price of shipping. The price of shipping is not always possible to show since it might depend on where the products are shipped.

3.2.5 Let the customers remove products from the shopping cart.

A possibility to remove products from the shopping cart should definitely be provided to the customers. It would not be pleasing to the customers to have to start all over again because they put the wrong product in the shopping cart and could not remove it.

It should be simple and self-explanatory how to delete a product. Buttons are a natural method to show that something is clickable. The text on the button will provide an explanation what the button does (Figure 16).

Watch out so that the method to remove the item does not blend in to the rest of the text and gets lost (Figure 17).
3.2.6 *Let the customers change the quantity of a product in the shopping cart.*

If the user wishes to change the quantity of a certain product in the shopping cart, this should be possible. It would be incredibly annoying if the customers had to remove all of the products and then add some again just because it was not possible to change the quantity.

3.2.7 *Provide an explanation of how to administrate the shopping cart.*

Interaction design should always be made with the user in mind. However, sometimes there are still some users that do not understand how the shopping cart and its functions work. Provide an easy-to-read explanation that the customers can turn to in case of confusion.

3.2.8 *Provide a way to start the check-out procedure from the shopping cart.*

Many customers finish up their shopping by taking a final look in the shopping cart. Therefore, it is always a good thing to provide a way to go straight from the shopping cart to the check-out.

3.3 *Check-out*

3.3.1 *Let the customers know where they are in the check-out procedure.*

Let the customers know which step in the check-out procedure that they are at. The check-out procedure is often the less liked part of the shopping experience. By letting the customers know where they are at, they will also know how far they have to go before they have completed their purchase.

3.3.2 *Provide help to fill out different fields or chose between different options.*

The check-out procedure often includes filling out forms and making choices. This can be stressful and difficult if the user does not know how. Provide examples to help the users fill out the forms. Provide information about the different options to help the users to make the choice that is best for them. Any kind of service that will make it easier for the users to walk through the check-out procedure will be greatly appreciated.
4 Trust

4.1 Functionality

4.1.1 Make sure the website does what is supposed to do.
Technical competence is a key factor when it comes to gaining the customers' trust. Always make sure that the website is fully functional. How well the website works reflects on the people behind the creation. A dysfunctional website indicates incompetence [3]. How are customers supposed to trust a website with their personal and credit card information if the person behind it is incompetent?

4.1.2 Make sure the spelling is correct.
As mentioned above, appearance is imperative. Misspelled words can affect the customers’ opinion of the website. Although, spelling may not seem all that important, it truly is [3].

4.1.3 Make sure there are no dead images.
Make sure there are no dead images on the website [3]. The customers expect the website to be updated regularly. If the website does not function properly, it provides an unprofessional impression. Customers do not want anything to do with an unprofessional website.

4.1.4 Make sure there are no broken links.
Make sure there are no broken links on the website [3]. If the link does not work, remove it immediately. Do not waste the customers’ time, sending them to websites that are no longer there. This will make the customers annoyed, and an annoyed customer might not return to the website.

4.1.5 Make sure that the internal search engine yield proper results.
It is essential that the internal search engine on the website yield proper results [3]. If it does not, customers might not find the product they are searching for and leave the website believing that the product is not there, even though it might be. This is an unnecessary way to lose customers.

Developing a functional search engine might not be a simple thing to do. However, there are other options. Google provides a free custom search engine (Figure 13). This custom search engine can be set to search only certain websites. It can be used by e-commerce websites where they could choose that the search engine should search only that certain e-commerce site. The search engine is then placed on the website for customers to use. The e-commerce website gets a free search engine and Google acquires free commercial.
4.2 Privacy

4.2.1 Do not make the user log in until the checkout procedure.
If customers surf on to a website and are not allowed to look at the products without logging in, they will probably just move on. Since they have not yet seen the products, they do not know whether the products are worth their hassle. Most likely they can go somewhere else to see the same products without having to log in, and most likely they will [3].

4.2.2 Do not ask for unnecessary information.
Do not ask the customers for unnecessary information. All the customers want to do is to buy a product, pay for it and have it sent to their home. They do not wish to answer questions about their personal life and about their shopping habits [3].

4.2.3 Post an easy-to-read privacy statement
The customers want to be sure that their personal information will be handled with care. To reassure the customer that you will not sell their personal information to the highest bidder, post an easy-to-read statement on the website [2].

4.2.4 Avoid asking for personal and credit card information until the very end of the checkout procedure.
The customers are rarely completely comfortable providing a website with their credit card number, especially if they are not sure they will buy something. They do not want to provide it until they are ready to check out. Therefore, make sure that the customers do not have to provide their credit card information until the very last step of the checkout procedure [3].

4.3 Security

4.3.1 Provide safe and secure transactions and make sure the user knows it.
Provide the safest and most secure transaction that the business can offer. And let the customers know that this service is provided. This induces trust [2].
4.3.2 Provide a possibility to move certain risky actions, such as payment, to a trusted third party, such as Pay Pal or BidPay.

For some customers, it might feel safer to use a trusted third party to handle the payment transaction. The website needs to provide the customers with this possibility for there are many options to select from. The smart thing would be to use one of the well known ones that the customers recognize and trust [3].