

Subash Basnet

**E-COMMERCE WEB APPLICATION FOR SANSAAR OY**

# **E-COMMERCE WEB APPLICATION FOR SANSAAR OY**

Subash Basnet  
Bachelor's Thesis  
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Degree Programme in  
Information Technology  
Oulu University of Applied Sciences

## ABSTRACT

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The main aim of this bachelor's thesis was to develop the best E-commerce web solution for Sansaar Oy and the new web solution should solve all the problems that are being faced by the client in their existing online store. The current situation of client's existing online store, process describing how the best E-commerce solutions for the client were found and implemented have been documented in this thesis.

At first, all the drawbacks of current online store of the client were found by thoroughly examining the current online store and discussing with the client. Then, the suitable solutions to solve all the problems of the existing online store were discovered by deep research and comparing all the possible ways of establishing an E-commerce online store for the client. The solutions were implemented in a way that all the problems related to the existing online store could be solved and new possibilities and interest of growing the client's online business could be generated by the new online store.

As a result, all problems of the client's existing online store were solved by this thesis and also new possibilities to grow the online business were generated.

## **PREFACE**

This thesis has been done at Oulu University of Applied Sciences during the autumn of 2017. One of the most enthusiastic and inspiring teacher, Mr Veikko Tapaninen, supervised my Bachelor's thesis. It has been my great pleasure to work under his supervision. I would like to thank him from my heart for his great effort, patience, helpful nature and encouraging acts.

Johanna Heikkilä and Eerika Heikkilä helped me in my thesis as representatives of Sansaar Oy. I would like to thank them for giving me this opportunity to build the E-commerce solution for their company and providing me their important time, information about the company and very helpful suggestions during each and every step of my thesis project. I would also like to thank FastComet hosting service for providing very nice support for solving the issues related to the server.

Oulu, 16 October 2017,

Subash Basnet

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## **ABBREVIATIONS**

CMS	Content Management System
DNS	Domain Name System
IP address	Internet Protocol address
SSL	Secure Sockets Layer
SEO	Search Engine Optimisation
VPS	Virtual Private Server
IT	Information Technology



# 1 INTRODUCTION

E-commerce is a modern way of doing business in which buying and selling of goods and services is done through electronic channels, mainly on the Internet. E-commerce has become one of the most important parts of business therefore most of the companies are using or trying to implement e-commerce in their business wherever it is possible.

Sansaar Oy is a company operating in Finland with the main motto of humanely trading for a sustainable environment and common prosperity. Sansaar Oy has been selling handmade products, such as furniture, bags, toys and accessories through their online store. With a belief of helping a small business to grow and encouraging it to build a work environment where workers are treated and paid well, they are selling the products produced by a group of people by social enterprises where the workers are properly treated and paid. They have been donating all their profits to different kind of social work and they promise to do the same in the future, too. They have customers in many countries and along with the time their business is also growing. Currently, Sansaar Oy is operating their online store at [www.sansaar.fi](http://www.sansaar.fi). [11]

The existing online store of Sansaar Oy is expensive to maintain and it lacks many features, due to which the company has not been able to grow their business as expected. Sansaar Oy wanted to establish a new online store which would be inexpensive and easy to maintain. It should have its unique design with some especial features which would help the company to attract new customers and also to establish an especial bonding with them. The new online store should help them in marketing and keeping track of their customers and sales. It should be mobile responsive, user friendly, scalable and secured.

During my thesis, I tried to find the best solutions to fulfil the requirements related to the e-commerce online store of Sansaar Oy and I implemented those solutions to establish a new e-commerce online store for the company. The new online store should contain all the required features needed for the growth of the business of the company and it should be cheaper to build and maintain.

## **2 E-COMMERCE OVERVIEW**

E-commerce or electronic commerce is a type of business model or a part of a larger business model in which business is done over an electronic network, such as the Internet. E-commerce has become a very popular business model because it helps to establish, manage and grow business easily by reducing the need of physical company set-ups. It enables to operate business 24 hours a day without any geographical limitation. It reduces operational cost and improves the quality of services, too. E-commerce enables customers to compare, select and buy products and services from different providers easily by staying at one place. [2]

In this world, nothing is black or white but everything is black and white. E-commerce also has some disadvantages along with its advantages. As anyone can easily start their business with less resources using e-commerce, there are many fraud businesses which are cheating customers. E-commerce business has a high risk from hackers and it also lacks customers' loyalty. [1]

Along with the development of the internet, the e-commerce market is also growing every year which can be seen in the statistics (shown in figure 1).

# E-Commerce: Market Overview

## How Big is the E-Commerce Market? (Stats and Forecast)

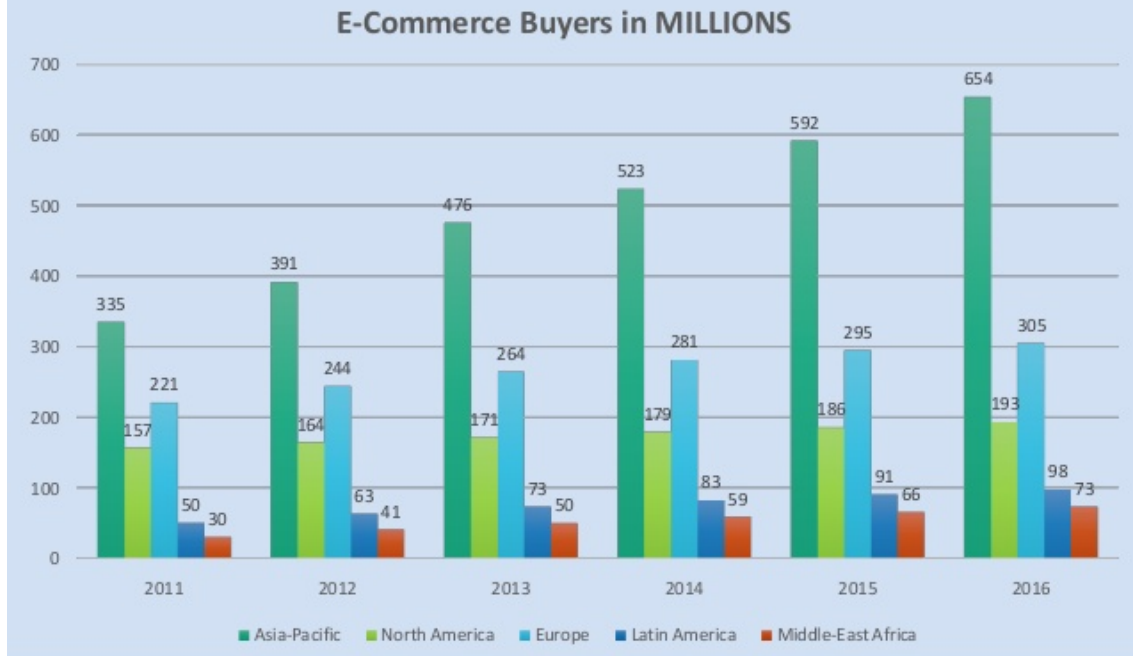


FIGURE 1. E-commerce: Market Overview [4]

## 2.1 Ways of Establishing E-commerce Platforms

To fulfil the need of the e-commerce business market, the ways of establishing an e-commerce business model are also increasing. The ways of establishing e-commerce platforms can mainly be categorised into 3 categories.

### 2.1.1 Building from Scratch

To build an e-commerce platform from scratch a company needs to hire developers or companies and it needs to do everything from the zero level. Although this provides a high level of flexibility in the features of the platform, it is a very expensive and time-consuming process and it requires a lot of resources to maintain. Thus, it is not suitable for small businesses.

### **2.1.2 Managed E-commerce Platforms**

E-Commerce platforms are readymade platforms which means that they are already hosted on a server where the client will not have any access. They do not need any development team and the whole system is made in such a way that the client does not need to have high technical knowledge. But these platforms are limited in features as they do not allow the client to have additional functionalities, e.g. customized design and they are unable to handle larger stores.

BigCommerce and Shopify are some of the popular managed e-commerce platforms. [12]

### **2.1.3 Content Management System (CMS)**

Content management systems are self-hosted on a server where the client will have complete access. They provide the client freedom to add advanced functionalities and unique looks by allowing them to use different plugins, add-ons and themes. They can support large and sophisticated websites and the client is also allowed to modify the features and improve and enhance the user experience on the e-commerce platform. Magento and WooCommerce are very popular content management systems. [12]

### 3 EXISTING ONLINE STORE OF SANSAAR OY

Sansaar Oy has been operating their online store at [www.sansaar.fi](http://www.sansaar.fi) . They have been using one of the ecommerce theme of MyCashflow and the hosting service from the same company. The domain registrar is Multim Oy/ Shelit.org. Currently Sansaar Oy has been paying €990 per year to the hosting company and €15 to the domain registrar. For integrating an online payment system in the online store, Sansaar Oy has been paying € 0.35 per payment received through the online store.

Sansaar Oy has been facing many problems with the existing online store. Firstly, it is expensive to maintain and its design looks outdated. It lacks many features due to which the client is having many difficulties to maintain and grow their business. The current online store is not mobile responsive, customizable and user friendly. It lacks marketing tools and it is unable to keep track of customers, customers' behaviour and sales. Due to the lack of proper features, such as options to choose different colours, sizes, design and a number of products for customers, they are not able to sell their products properly and the website is available only in Finnish language which is limiting their sales. Customers cannot sign in the website without buying. There is no feature for maintaining a link to social media, e.g. Facebook, Instagram and YouTube. The Client intend to make changes in the website so that it could also be used by mobile devices, which is not possible in the current system due to the lack of responsiveness. Changes made through the admin panel are not being reflected in the frontend properly. In the admin panel, it is possible to notice customers' unfinished carts but there is no feature to know the customers and communicate with them. In the current online store, there are few online payment options available for customers but the client thinks that those options are not enough to compete in the current market and they also wanted to have a Pivo payment. During this project, I had to find solutions for all these problems related to the online store of Sansaar Oy.

## **4 CHOOSING SUITABLE SOLUTIONS**

### **4.1 Choosing the Best E-commerce Solution for Sansaar Oy**

The requirement of the business determines which way of establishing the e-commerce platform is best for it.

#### **4.1.1 Choosing Between Building from Scratch, Managed E-commerce Platforms and Content Management system (CMS)**

Sansaar Oy is a small company, which wanted to have an inexpensive e-commerce platform with advanced functionalities, unique looks with constant improvements and enhancements to the user experience on the web application. They also wanted to utilize author's technical knowledge as much as possible. Therefore, using the content management system would be the most effective way to build an e-commerce platform for Sansaar Oy. The flowchart (shown in figure 2) states clearly that open source or CMS would be the right choice for Sansaar Oy.

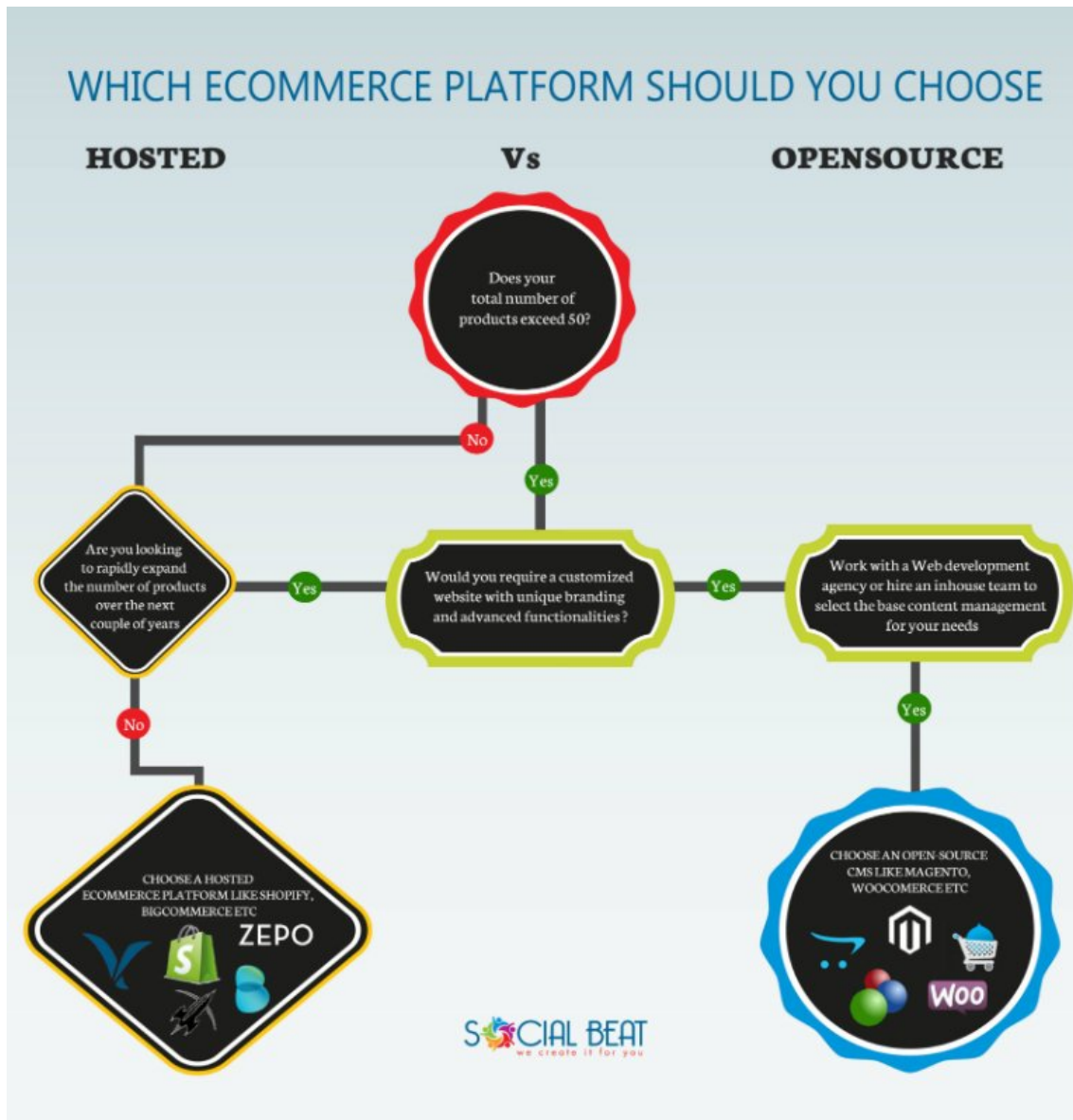



FIGURE 2. Hosted ecommerce platforms vs Open source CMS [4]

#### 4.1.2 Choosing Between Different Types of Ecommerce CMS

There are many ecommerce CMSs available on the market (shown in figure 3) at the moment. Although all of them are open source and have many common features, depending on the availability of extensions, the availability of support, functionality, customizability and the cost of development and maintenance, the author had the best one for Sansaar Oy.



From a comparison between a popular open source ecommerce CMS (shown in figure 4), it was found that Magento and WooCommerce are more suitable than another CMS for Sansaar Oy. WooCommerce has a disadvantage that it might not work for a medium and large size company or for a company aiming at growing up soon whereas Magento is highly scalable and no need would arise to upgrade to another platform while growing in future [4]. Due to this, the author selected Magento as the best solution to establish an ecommerce online store for Sansaar Oy.

 SOCIAL BEAT <small>we create it for you</small>	Magento	WooCommerce	Opencart	OsCommerce	Drupal Commerce
<b>No. of online stores*</b>	216,548	396,171	179,100	80,141	13,989
<b>Percentage share of top 100,000 ecommerce websites using open source technologies</b>	58.2	Data not available	6.0	11.1	7.2
<b>No. of plugins/add-ons/Extensions available</b>	High	High	Medium	Medium	Medium
<b>Availability of expertise for development and maintenance</b>	Very easily available	Very easily available	Suitable expertise is difficult to find	Suitable expertise is difficult to find	Easily Available
<b>Overall development and maintenance cost</b>	Low	Low	High	High	Medium

*FIGURE 3. Magento vs WooCommerce vs Drupal Commerce vs Opencart vs osCommerce [4]*

#### **4.1.3 Magento**

Magento is the most popular and advanced e-commerce content management system with a high level of usability and customization. According to Magento's website, more than 250,000 merchants around the globe choose Magento as their e-commerce platform [3]. It is an open source platform which is free to use

and customise as per need and it is suitable for both small and large businesses. According to a research report by Aheadworks, which is shown in figure 4, Magento has the highest market share among the most popular e-commerce platforms in 2016.

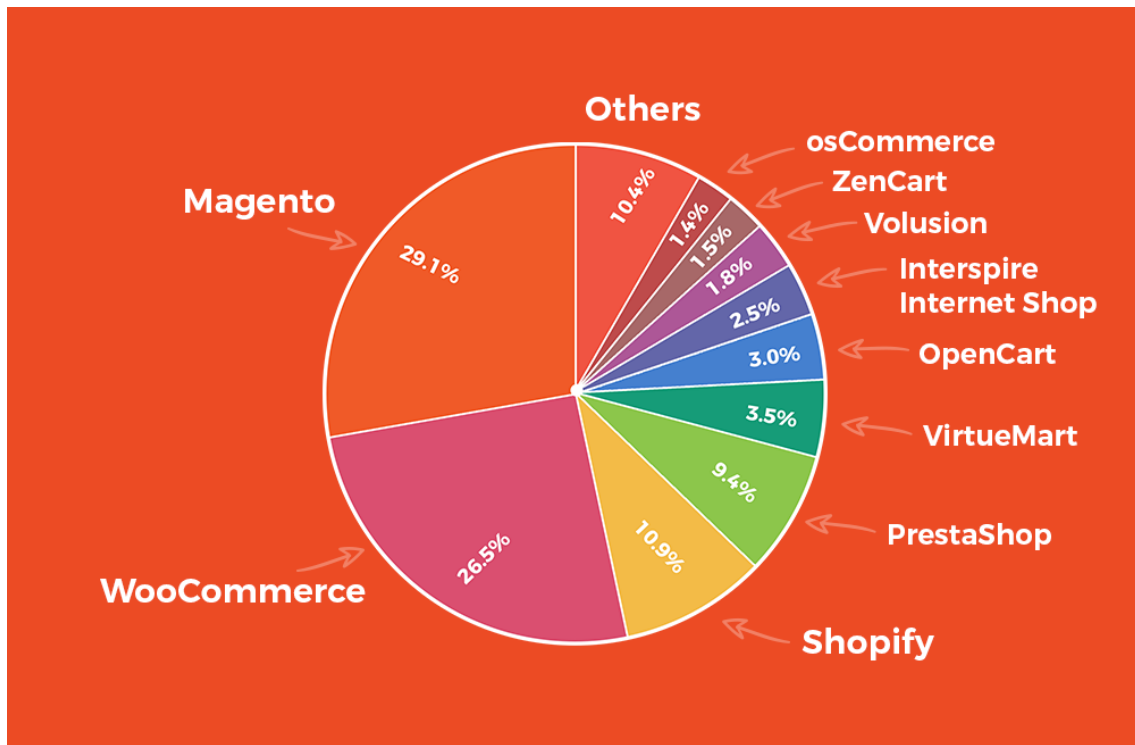


FIGURE 4. Market share of popular ecommerce platforms [9]

Magento was originally developed by Varien Inc, which is a US private company headquartered in Culver City, California, combining with the voluntary assistance. It started officially with a public beta version release on August 31, 2007. Roy Rubin, the CEO of Varien, decided to sell a substantial 49% of his share to eBay. Later, eBay acquired the ownership of 100% of Magento on June 6, 2011, but it spun out as an independent company by a new owner, Permira private equity fund, on November 3, 2015. Magento 2 is the latest upgrade of Magento, and it was officially released on November 17, 2015. [14]

### **4.1.3.1 Types of Magento Editions**

The Magento platform is available in two editions, i.e. the Magento Community edition and the Magento Enterprise edition.

#### **4.1.3.1.1 Magento Community Edition**

The Magento Community edition is a free, open-source e-commerce platform which anyone can download and use to build an online store. It can be modified to meet user's own needs and different extensions can be used from the Magento extension marketplace to improve the functionality of the platform. It is perfect for a small business. [8]

#### **4.1.3.1.2 Magento Enterprise Edition**

The Magento Enterprise edition is a premium paid version of Magento which is designed for those that believe that the Community edition is not enough. It is completely backed by the Magento team which provides a full support to the subscribers by phone or email. The pricing also includes security updates, special features and exclusive product enhancements. It is mostly used by big online stores which need advanced features and more customizable options. [8]

### **4.1.3.2 Comparison Between Magento Community Edition & Magento Enterprise Edition**

Both Magento editions are open source. They have same core features and they are part of the same Magento ecosystem. The Magento Community edition is free whereas the Enterprise edition costs about \$15,550/year. The Magento Enterprise edition includes much more powerful security features than the Community edition. Although Community the edition is fast, the performance is much better with the Enterprise edition. The Enterprise edition offers more advanced features than the Community edition. [8]

#### **4.1.3.3 Choosing Between Magento Community Edition & Magento Enterprise Edition for Sansaar Oy**

One of the main aims of this project was to find an inexpensive online store solution for Sansaar Oy and the Enterprise edition is much more expensive while Community edition is free to use. Sansaar Oy does not have a big volume of online sales, thus the great additional advanced functionality present in the Magento Enterprise edition is not worth using for Sansaar Oy. For these reasons the Magento Community edition is more suitable than the Enterprise edition for Sansaar Oy. From now on the Magento 2 Community edition will be referred to as Magento in this document.

#### **4.1.3.4 Magento Features**

Magento has many features that offer the merchants a complete flexibility and control over the functionality of their online store. Some of the important features are discussed below.

- Magento script is integrated in Google Analytics and offers many different reports.
- It has an advanced product browsing feature as there are e.g. options for using multiple images for products, options for extensive reviews and wish lists.
- It has an easy navigation, an advanced product filtering system and a product comparison.
- Magento has catalogue management features such as an inventory management, a batch import and an export of products, different tax rates per location and additional product attributes.
- Customers can view their order status and history. They have options to get an email and RSS feeds for products in the wish list and a newsletter subscription. They can save and modify a default billing and shipping address.

- In order to provide a great customer service, Magento has enhanced features for customers' accounts, a contact us form, a comprehensive order tracking and history and customizable order emails etc.
- To make the order management process more simple and effective, Magento has features such as creating an order from the admin area, creating multiple invoices shipments and credit memos and also a call centre order creation option.
- Magento has different payment methods such as credit cards, PayPal, Authorize.net, Google Checkout, checks and money orders. It also supports external payment modules, e.g. Cybersource, ePay, eWay.
- Magento allows shipping to multiple addresses and flat rating shipping. It supports UPS, UPS XML, FedEx, USPS and DHL.
- Magento has one page checkout, an SSL support, a checkout without having an account.
- Magento supports multiple languages and currencies. With the Magento, a filtered list of countries can be allowed for registration, purchasing and shipping and Magento also has a localization feature.
- Magento has many features, such as coupons, discounts and different promotion options to help in marketing and promoting the products. [7]

## **4.2 Choosing a Domain for Sansaar Oy**

The Domain Name System or DNS is a friendly naming system for giving addresses to web servers and web pages [10]. Each computer on the Internet is assigned a unique address, called an IP address. An IP address consists of strings of numbers. It is very difficult to remember the IP addresses of all the visited websites daily but words are easier to remember than strings of numbers. Thus, this is where the domain name comes in use. When people visit a website, they only need to remember the domain because the computer remembers numbers, and the DNS helps to convert the domain into an IP address that the computer can understand. [13]

The Domain name is unique for each website and the domain name can be bought from the domain service provider. As Sansaar Oy already has its domain, i.e. [www.sansaar.fi](http://www.sansaar.fi), therefore they do not need to buy a new domain.

### **4.3 Choosing a Web Hosting Service for Sansaar Oy**

#### **4.3.1 Web Hosting**

Web hosting is a service that allows organisations and individuals to post a website or web page onto the Internet. Websites are hosted, or stored on special computers called servers.

##### **4.3.1.1 Types of Web Hosting**

Depending on the technology used on the server, the level of management offered and additional services on offer such as backups, the level of support, malware scanning and cleaning, SSL certificates and the bandwidth. The web hosting packages can be categorised into different categories as follows.

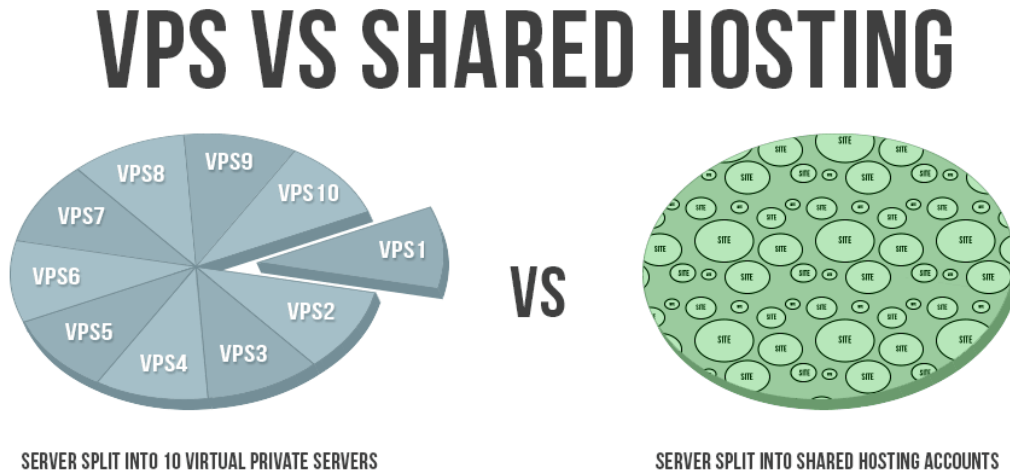
###### **4.3.1.1.1 Shared Hosting**

Shared hosting is cheap, fast to set up and relatively easy to manage. In a shared hosting environment, the host puts a large number of websites on a single server and these websites share the server's resources. Shared hosting services are affordable because the cost of operating the server is shared between all the websites sharing the server. It has also many disadvantages, e.g. being slower and risky.

###### **4.3.1.1.2 VPS Hosting**

VPS stands for a Virtual Private Server. It is also a shared environment but between a smaller number of websites compared to shared hosting. In VPS hosting, a specific amount of resources is allocated for each website and if any website will reach its maximum limit, then only that specific website will face problems leaving other websites unaffected. This hosting is normally less expensive

than shared hosting. It is highly configurable, providing a lot more flexibility and scalability. Figure 5 shows how servers' resources are divided in VPS and shared hosting.



*FIGURE 5. VPS vs Shared Hosting [6]*

#### **4.3.1.1.3 Dedicated Hosting**

In dedicated hosting the entire web server is used by only one owner. This allows for faster performance, as the owner has all the server's resources entirely, without sharing them with other website owners. The owner of the server is responsible for all the costs of the server operation entirely and he/she needs to have a good knowledge of computers and server technology. Dedicated hosting is more expensive than VPS. Figure 6 shows that dedicated hosting is like a separate house which is totally separate and belongs to only one owner and there is no need to share anything. VPS is like town houses which are connected and sharing some resources and shared hosting is like apartments. There are many apartments in a building and they are sharing most of the resources.

# web hosting compared

There are several kinds of web hosting services to choose from.  
Here are the **three main solutions** you should know about.

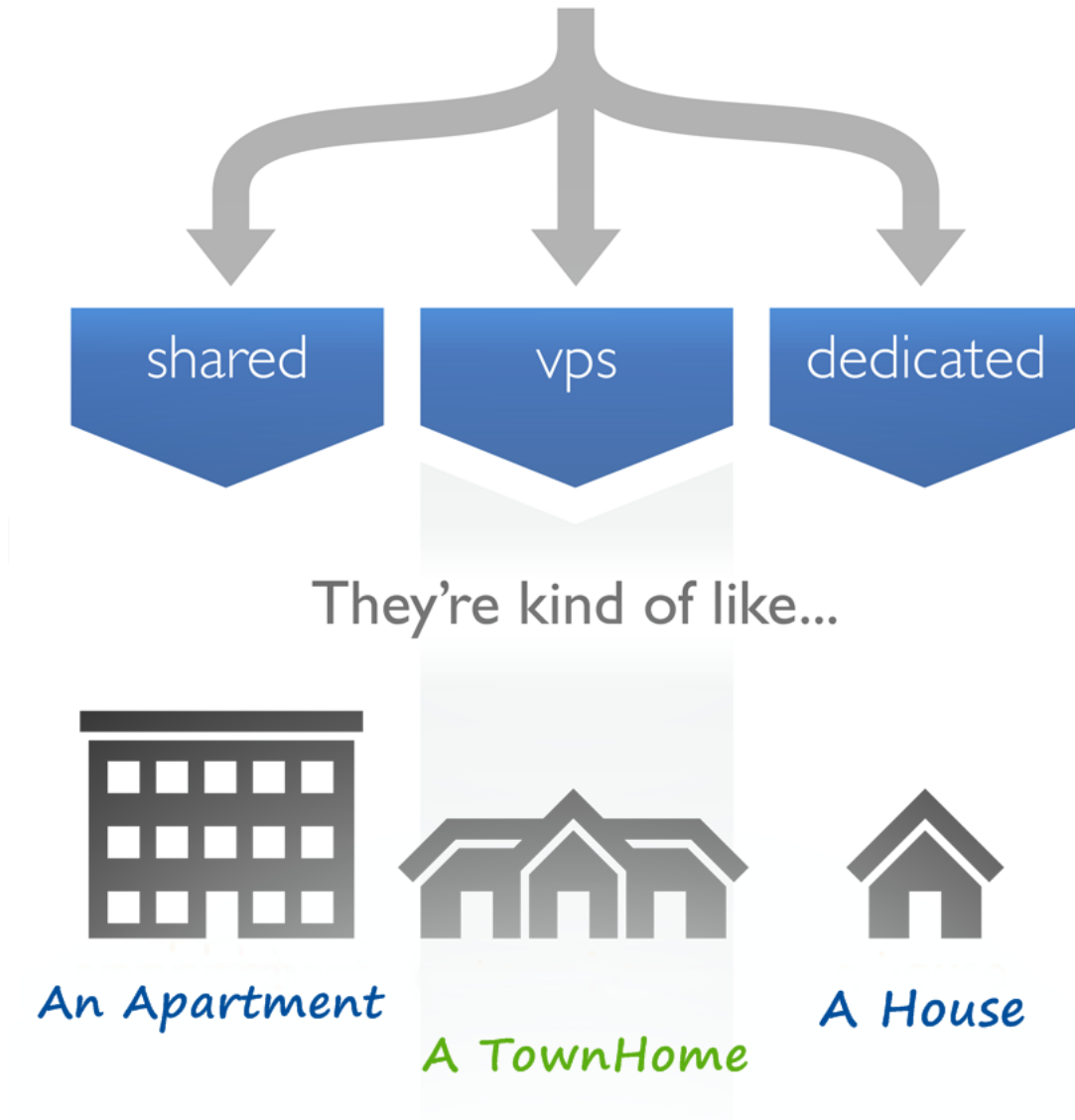


FIGURE 6. Web hosting compared [9]

## 4.3.1.1.4 Cloud Hosting

Cloud hosting is similar to VPS but it allows to use the resources of multiple servers in a network making itself highly scalable and secured. A traditional



VPS can be scaled, but only to a certain point depending on the maximum capacity of hardware it is on. A cloud based system can be scaled a lot further.

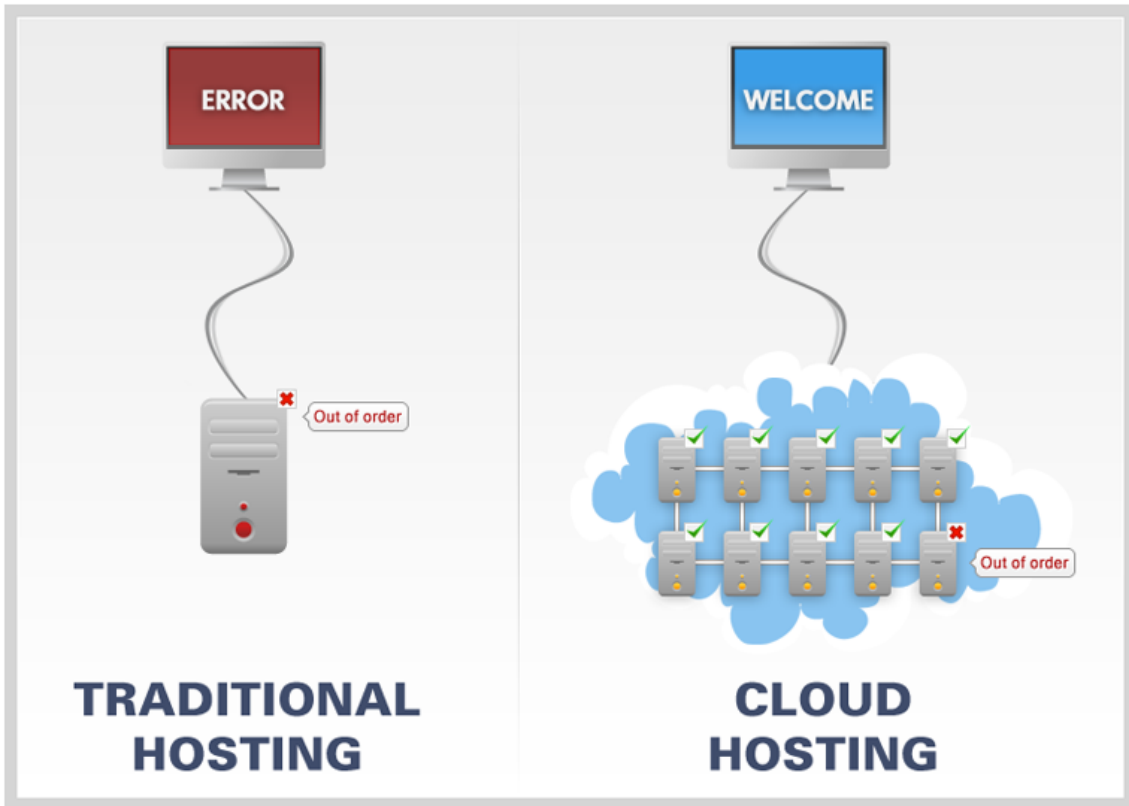


FIGURE 7. Traditional hosting vs Cloud hosting [6]

Cloud hosting is more expensive than dedicated hosting. It also needs a good knowledge of computer and server technologies to handle it. As shown in figure 7, the system still works when one of the server stops working but in traditional cloud hosting its not possible due to the lack of multiple servers. [6]

For Sansaar Oy, the author had to find a server which would be cheap to establish and maintain, and which would meet all the requirements to operate Magento CMS and which would also be secured and fast enough for conducting the business. After comparing all types of web hosting, the author selected shared hosting because it is cheaper and easy to establish and run, it also meets all the requirements for running Magento CMS and it is secured and fast enough to run in the company's online store. It is best hosting to begin with and

many hosting service providers provide the Magento optimised shared hosting service.

#### **4.3.2 Selecting Web Hosting Service Provider for Sansaar Oy**

A web host, or a web hosting service provider is a business that provides the technologies and services needed for the website or webpage to be viewed on the Internet. There are many web hosting service providers on the market, therefore the author had to choose the best one for the company depending on the price, host reliability and uptime scores, upgrading options, hosting control panel, hosting features and supporting features.

After having compared various web hosting service providers for hosting Magento CMS with the help of experts' and users' reviews found on the site <https://hostadvice.com/hosting-companies/magento/>, the author became quite interested in the FastComet web hosting service provider. Therefore, the author started researching more about the FastComet's services and found many reasons which prove them to be the best web hosting company for hosting Magento CMS. They have cheap and fixed price. One can renew all services on the same price as it was when he/she signed up without any hidden fees or contracts. They also provide a 45-day money back guarantee. They provide a free application installation and a one-click installer for more than 250 open source applications including Magento. They also provide a free application upgrade service. They have a free application firewall which stops attacks at the network edge, protecting the website from common web threats and attacks before they even reach the website. They provide a free security audit and a malware removal service for the website. It is possible to have full, unrestricted access to daily and weekly backups through the web-based 1-click restore manager without any cost and their 24/7 technical support can be used if help is needed to restore the website. With their 24/7 human monitoring, they provide excellent performance and uptime for the website. They have free text and video tutorials made by experts. They have a responsive and user-friendly control panel. They provide a free 24/7 premium support for our services, websites

and apps. They have data centres in many countries including also European countries. They have many features that other hosting companies are missing, which is shown in figure 8. They also have a web hosting package which has been specially optimized to provide a fast and secure hosting environment for Magento stores. [15]

	FastComet	HostGator	GoDaddy	bluehost	inmotion hosting	site5	arvixe web hosting
Regular Price	\$ 2.95 /mo	\$ 5.95 /mo	\$ 6.99 /mo	\$ 7.99 /mo	\$ 6.99 /mo	\$ 5.95 /mo	\$ 7.00 /mo
SSD Only servers	✓	×	×	×	✓	×	✓
RocketBooster	✓	×	×	×	×	×	×
Let's Encrypt	✓	×	×	×	×	×	×
Cloudflare CDN Caching	✓	×	×	×	×	✓	×
SpamExperts	✓	×	×	✓	✓	×	×
Web Application Firewall	✓	Paid	Paid	Paid	×	×	×
Malware Removal	✓	×	×	×	×	Paid	×
Free Daily Backups	✓	×	Paid	×	×	✓	✓
Instant chat response	✓	×	×	×	✓	×	×
Flat renewal price	✓	×	×	×	×	×	×
Multiple server location	7	2	3	2	2	2	3

[GET STARTED](#)
[compare head to head](#)
[compare head to head](#)
[compare head to head](#)
[compare head to head](#)
[compare head to head](#)
[compare head to head](#)

FIGURE 8. Comparing features provided by various hosting companies [15]

## 5 IMPLEMENTATION

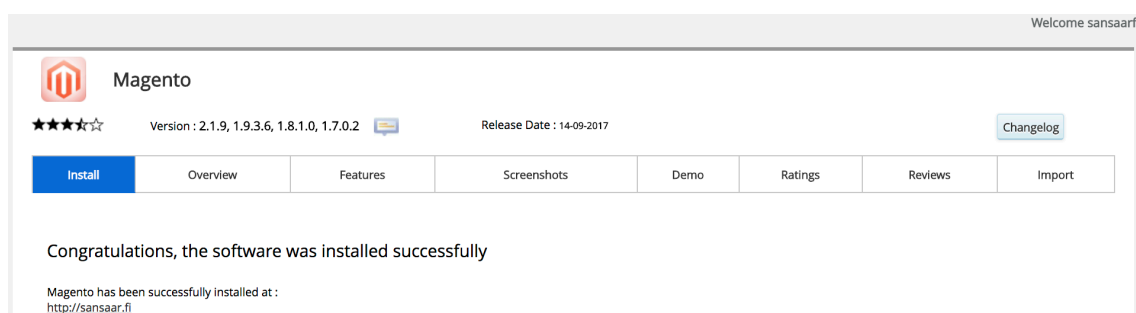
### 5.1 Magento installation

To be able to use Magento CMS, it has to be installed in Sansaar Oy's server. There are many ways of installing Magento CMS depending on the server type. The most effective way of installing is used here.

#### 5.1.1 Installing Magento with Softaculous Auto-Installer in cPanel

FastComet provides an application installer called a Softaculous auto-installer, it is available in the control panel of all Magento Hosting plans. It allows the user to browse a review and install more than 150 open-source applications, including different versions of Magento, in just a few clicks.

After having clicked the install now button, Magento installation settings need to be configured. Then the desired Magento version must be selected and specify the protocol, domain name for which our Magento will be installed must be specified. Admin account details must also be filled in. Once all the details have been filled up, the user can click install and Sansaar Oy's Magento online store will be ready within a few minutes. The user can see an installation success message as shown in figure 9.



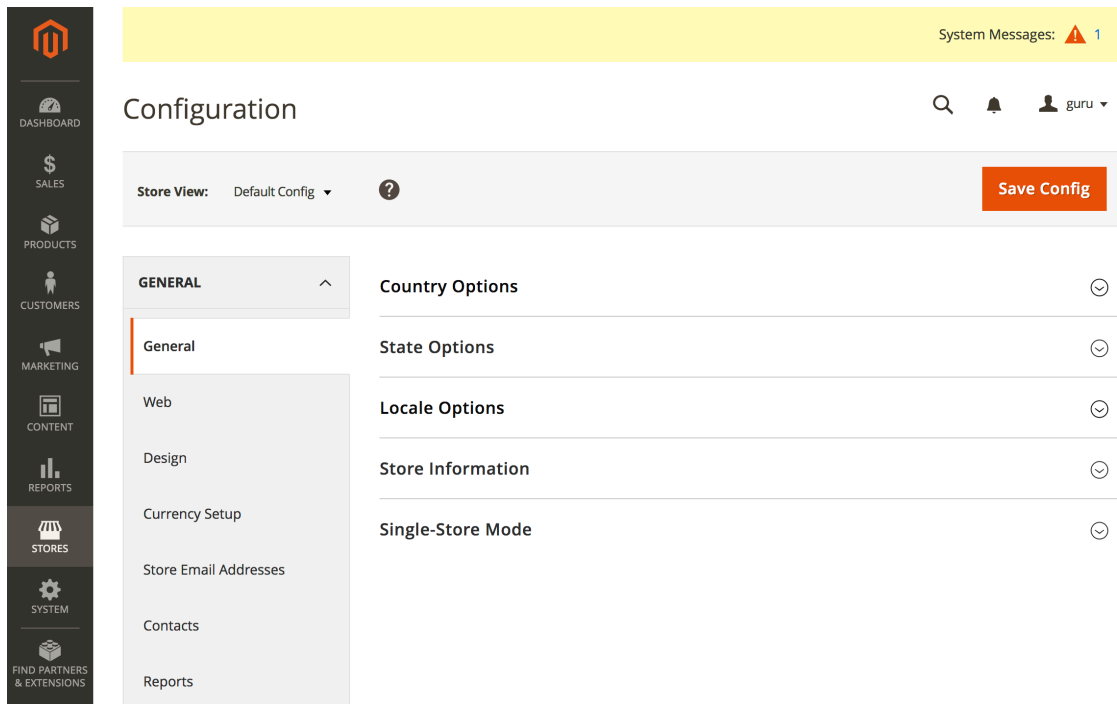
*FIGURE 9. Magento installed successfully*

## 5.2 Configuration

After the successful installation of Magento CMS, many settings must be configured in the backend for the online store to work properly.

### 5.2.1 General Settings

The general setting option can be found by navigating to the Stores>Configuration>General section in the admin dashboard as shown in figure 10. Here the user has to set up locale info of the store, e.g. a time zone, a default language, a weight unit and basic information of the online store, such as a store name, a phone number, addresses, a VAT number. The user can also specify the countries from where Sansaar Oy's online store can be accessed.



The screenshot shows the Magento 2 Configuration page for the 'General' section. The page is titled 'Configuration' and includes a search bar, a notification bell, and a user profile dropdown for 'guru'. A yellow banner at the top right indicates 'System Messages: 1'. Below the title, there is a 'Store View' dropdown set to 'Default Config' and a 'Save Config' button. The left sidebar contains a navigation menu with categories: DASHBOARD, SALES, PRODUCTS, CUSTOMERS, MARKETING, CONTENT, REPORTS, STORES, SYSTEM, and FIND PARTNERS & EXTENSIONS. The main content area is divided into two columns. The left column lists sub-sections under 'GENERAL': General (selected), Web, Design, Currency Setup, Store Email Addresses, Contacts, and Reports. The right column lists configuration options: Country Options, State Options, Locale Options, Store Information, and Single-Store Mode, each with a circular refresh icon.

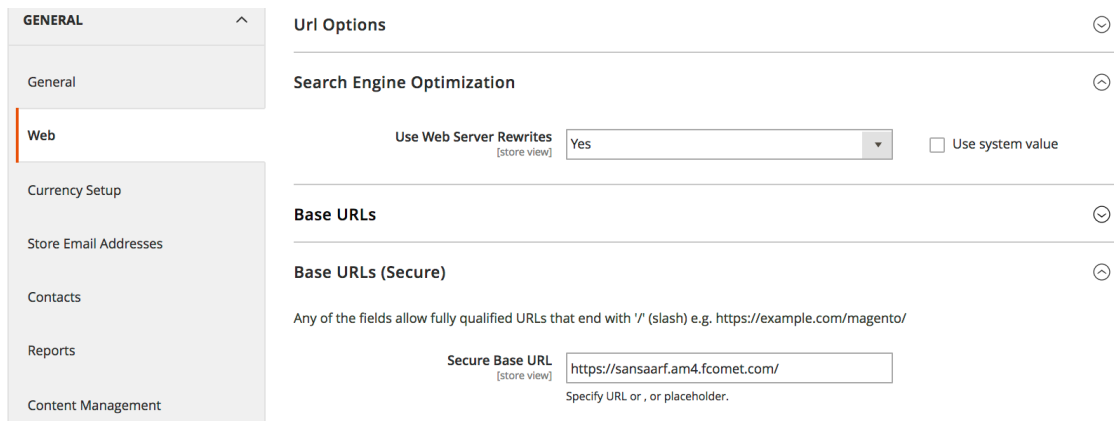
FIGURE 10. General settings

## 5.2.2 Contact Us Page

Magento comes pre-defined with a contact us page which can be used by customers to leave feedback or ask questions. It is necessary to configure the contact us form properly to receive emails from visitors. To do this, the author has to enable this feature and fill up necessary information, such as email address where the submitted emails from the form are received and any email sender. The email template must also be chosen.

## 5.2.3 Enabling SSL

SSL or the Secured Sockets Layer protection of online stores has become a standard procedure of the e-commerce field. It adds security in the website by encrypting the data flowing to and from the server. An SSL activated website gains more credibility and is ranked higher in Google search, too. In order to enable SSL, it must be first installed on Sansaar Oy's domain and then it must be enabled through the admin dashboard by navigating to Stores > Configuration > Web section and edit the base URL(secure) to be <https://> as shown in figure 11 [5]. In this case, a temporary URL is used. Therefore it is not possible to activate SSL at this point, but it will be done when the real domain is used.



The screenshot shows the Magento Admin Configuration page. On the left is a sidebar menu with the following items: GENERAL (expanded), General, Web (highlighted), Currency Setup, Store Email Addresses, Contacts, Reports, and Content Management. The main content area is titled 'Url Options' and contains the following sections:

- Search Engine Optimization**: 'Use Web Server Rewrites' is set to 'Yes' (dropdown menu), with a checkbox for 'Use system value' which is unchecked.
- Base URLs**: This section is collapsed.
- Base URLs (Secure)**: This section is expanded. Below the heading is a note: 'Any of the fields allow fully qualified URLs that end with '/' (slash) e.g. https://example.com/magento/'. The 'Secure Base URL' field is set to 'https://sansaarf.am4.fcomet.com/'.

FIGURE 11. Activating SSL

### 5.2.4 Currency Setup

The base currency, default currency and allowed currencies for the online store must be set up by navigating to Stores>Configuration>Currency setup and in this case, Euro is set up in all cases.

### 5.3 Setting up a Multilingual Store

To compete on the current ecommerce market and to internationalize the business our client wants to have a multilingual website. The current website is available only in Finnish language because of which they are having difficulties in reaching a broad range of customers, which is limiting their sales.

As per the client's needs, the author has to make a new website available in Finnish and English languages. By default, Magento is available only in English language and to add other languages, third party extensions must be added. In this case an open source Finnish language pack downloaded from git was installed. At this point the frontend is not available in Multilanguage, for this the author had to create a new store view other than the default one and from now on everything, such as categories, products, about us section will be added twice, i.e. once in the default store in English language and once in the new store in Finnish language. After creating the new store view, the website is available in Finnish and English languages at the frontend as shown in figure 12.

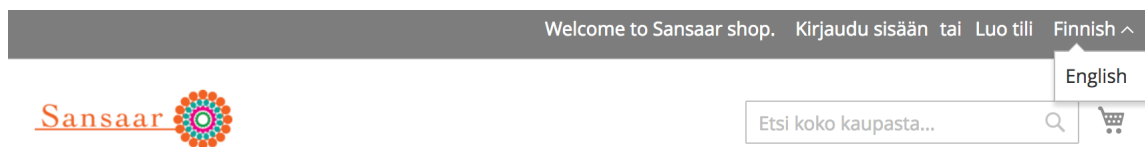


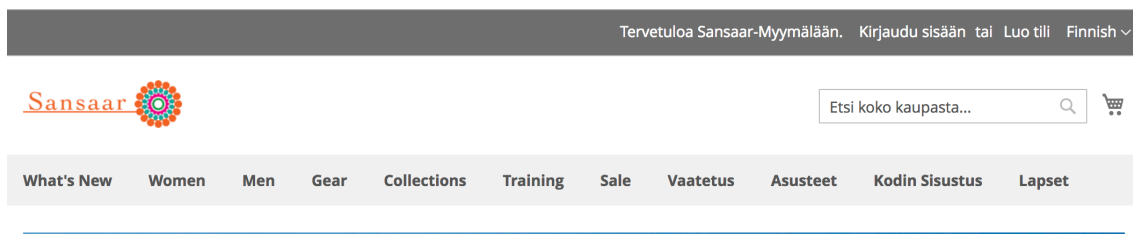
FIGURE 12. Multilingual feature at frontend

## 5.4 Product and Categories

Magento has nice features for categorising products into different categories, adding attributes and several other features to the products. It helps in better sorting of the store and it also improves the user experience.

### 5.4.1 Adding Categories

Categories can be added by navigating to Products>Categories. By default, Magento already has one default root category but new root categories and sub categories can be added as per requirement. Magento also has a drag functionality to arrange the categories order. It is possible to configure a different setting and different design for the categories separately. In order to add categories and sub categories in different languages, the specific store view must be selected and they must be configured separately. Once it has been done, they can be seen in menu bar at the frontend as shown in figure 13.



*FIGURE 13. Categories in the menu bar at the frontend*

### 5.4.2 Adding Products' Attributes

Attributes are an important part of products as they help customers to select the specific product according to their needs. It also enables users to search and compare products based on their attributes. Sansaar Oy has been facing problems in selling the products properly in the current online store. Because of the lack of proper product attributes, customers have not been able to select the



right product, but instead Sansaar Oy needs to contact the customer through email or phone to ask the attributes, such as size, colour and style of the product that the customer has ordered. In the new online store, this problem has been solved by adding the required attributes, such as size and colour, and the customers can also see what the product of the specific attribute looks like because the main image of the product changes with the attribute selection. Therefore, the buyer and the seller both are able to have a clear idea about the product they are dealing with.

### **5.4.3 Adding Products**

In order to add a product, the user has to navigate to Products>Catalogue>Add Product in the admin panel. A simple, configurable, grouped, virtual, bundle and downloadable product can be added. All the necessary information, such as name, price, tax class, quantity, categories, description, about the product can be filled up as shown in figure 14. Images and videos of the product can be uploaded so that customers can get a clear idea about the product. This will also ease the selling and managing process. A product can be linked to different categories, different attributes can be also added while adding a product and they can be edited later.

The screenshot shows a 'New Product' form in a dashboard. The form is organized into several sections:

- Enable Product:** A toggle switch set to 'Yes'.
- Attribute Set:** A dropdown menu with 'Default' selected.
- Product Name:** A required text input field.
- SKU:** A required text input field.
- Price:** A text input field with a Euro symbol (€) and a link to 'Advanced Pricing'.
- Tax Class:** A dropdown menu with 'Taxable Goods' selected.
- Quantity:** A text input field with a link to 'Advanced Inventory'.
- Stock Status:** A dropdown menu with 'In Stock' selected.
- Weight:** A text input field with 'kgs' and a dropdown menu with 'This item has weight' selected.
- Categories:** A dropdown menu with 'Select...' and a 'New Category' button.
- Visibility:** A dropdown menu with 'Catalog, Search' selected.
- Set Product as New From:** Two text input fields with calendar icons and a 'To' label.
- Country of Manufacture:** A dropdown menu.

Below the form, there are four expandable sections:

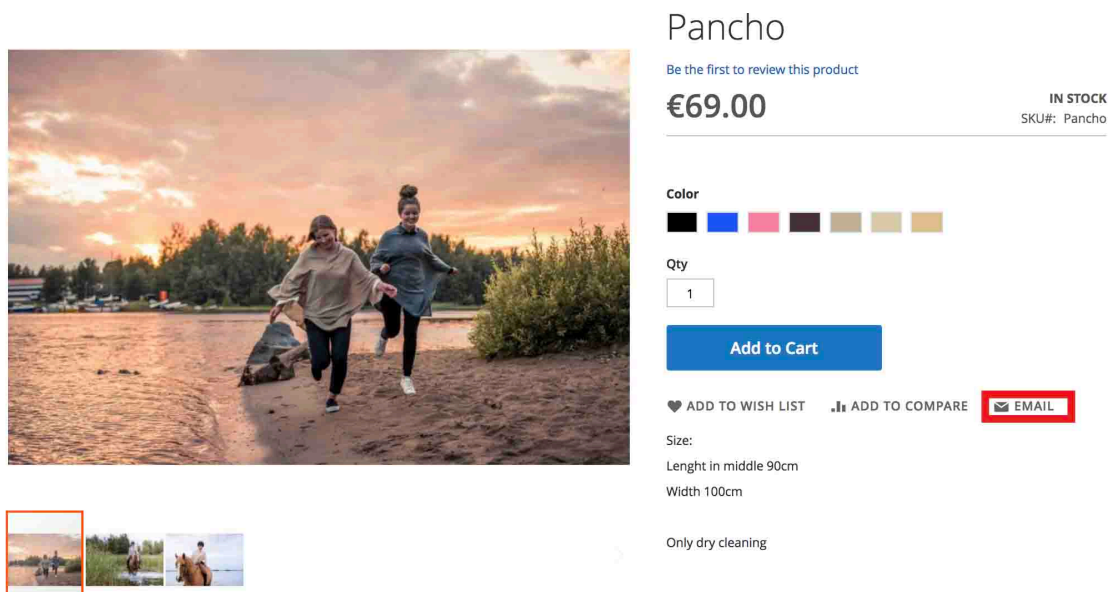
- Content:** A section with a collapse icon.
- Configurations:** A section with a collapse icon. It contains a paragraph: 'Configurable products allow customers to choose options (Ex: shirt color). You need to create a simple product for each configuration (Ex: a product for each color).' and a 'Create Configurations' button.
- Images And Videos:** A section with a collapse icon.
- Search Engine Optimization:** A section with a collapse icon.

FIGURE 14. Adding product

## 5.5 Adding Marketing Tools

For any business, the proper marketing of their products and services is one of the most important things to compete on the market. Marketing is very important for online stores because marketing helps them to sell more. The current online store of Sansaar Oy was lacking proper marketing tools and the client thought that having some marketing tools would really help them to increase their sales. Thus, in the new online store a newsletter feature, a separate promotion page

and a sale page and some multimedia blocks are added on the home page which will help promoting the products. Magento also has some marketing features, such as sending an email to anyone about the product directly from the website. This can be done by clicking the email icon found in the side of any product page as shown in figure 15. Customers have a feature to add a product to their wish list, which helps customers to keep track of what they want to buy and on the other hand the admin can also see the wish listed items and can use this information to create a new offer targeting the customers.



*FIGURE 15. Showing the email icon to send product info through email directly from the website.*

New custom pages to display parts of Sansaar Oy's catalogue or other useful information to the customer can be added. In this case the about us page and customer services page were added to give information about the company and the available customer service respectively to the customers.

### **5.5.1 Configuring Newsletters**

Newsletters are a great marketing tool. They do not cost anything and spread news regarding future promotions, sales and new products to attract more customers. Magento has a sending newsletters feature but it has to be configured first by navigating to Stores>Configuration>Customers>Newsletter in the admin panel. Here, the email template and sender email are defined. Then a newsletter template must be created by navigating to Marketing>Newsletter>Template>Add New Template and by saving the template after designing it.

### **5.5.2 Special Pricing and Promotions**

In Magento we can create different catalogue price rules and cart price rules, which can be done easily from admin panel by navigating to Marketing > Catalog price rule > Add and specifying conditions here and in the same way we can also add cart price rule. These features encourage the customers to buy more products from the store.

### **5.5.3 Search Engine Optimization**

SEO helps to have a good google ranking, which helps to appear at the top when customers make search related to products or anything that is available in Sansaar Oy's online store. Magento makes SEO easy and provides all tools to optimize the content for search engines. Basic SEO tasks, such as setting up proper metadata, creating site maps, and redirecting URLs can be easily completed because Magento provides a different field for an SEO setup as shown in figure 16, while adding products, categories, attributes and pages.

## Search Engine Optimization



**URL Key**  
[store view]

Create Permanent Redirect for old URL

**Meta Title**  
[store view]

**Meta Keywords**  
[store view]

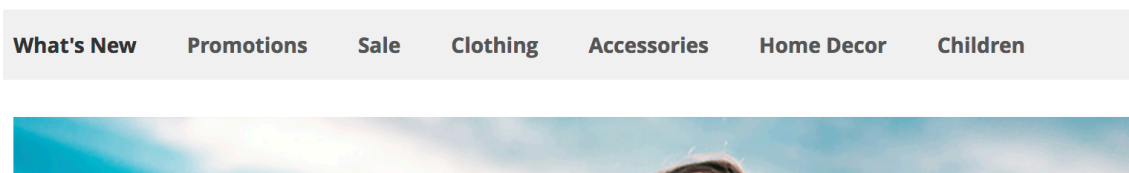
**Meta Description**  
[store view]

Maximum 255 chars. Meta Description should optimally be between 150-160 characters

*FIGURE 15. SEO setup field while adding product*

### 5.5.4 Adding Promotions, Sales, What's New Pages

To make it easy for Sansaar Oy to attract its customers to buy the products, 3 pages for new, discounted and promotional products have been added and they are also included in the menu bar as shown in figure 16, so that the customer can view them and navigate easily.



*FIGURE 16." What's New", "Promotions" and "Sale" menu items in main menu bar*

### 5.5.5 Adding Static Blocks on the Home Page

To attract the customers, static blocks have been added on the home page with attracting images, convincing text and link in itself to navigate easily. This will attract the visitors to buy the specific product.

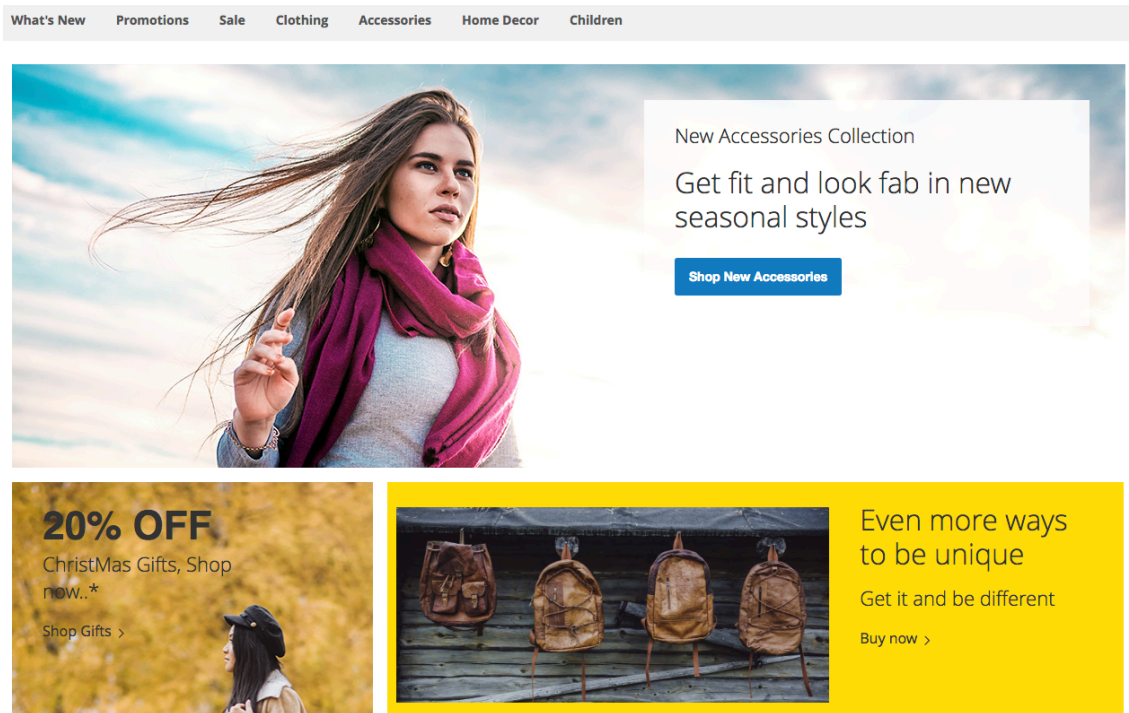


FIGURE 17. Static blocks in the home page

### 5.5.6 Adding Rating Criteria

Magento allows customers to review products on different criteria and the store admin can publish the reviews on their website. It will be beneficial for Sansaar Oy also to have this feature because it will help the customers to make their decision. It creates a sense of trust between the customer and the brand. The rating criteria also helps to represent the features of the store. Rating criteria can be added according to the need of Sansaar Oy's store. Review ourselves can also be added from the admin panel, which will be useful if in some case the user submits reviews through email or a Facebook page. Review is a very nice way to know how the customers feel about the products and services which

helps the store owner to make improvements acknowledging the customers' reviews.

## **5.5 Configuring Payment Methods**

Integrating a payment method in the online store is very important for online businesses because this feature allows customers to complete their shopping at once. Different customers prefer different choices of payment methods, such as online bank transfer, visa and master cards, PayPal and pay on delivery etc. Many payment options in the online store mean more sales. In the current online store Sansaar Oy has few payment methods and they wanted to add more options including Pivo mobile pay. Thus, after some research it was found a company named "Checkout Finland Oy" which provides online payment services called "Checkout" that can be integrated in Sansaar Oy's new online store. It supports all varieties of payment methods that Sansaar Oy wishes to have in their online store. They support payment through different banks, visa and MasterCard, a comprehensive range of invoice and outsourcing services, Pivo, MobilePay and MasterPass mobiilimaksutavat. They provide this service in different packages and their "Starter Edition" package was considered the most suitable for Sansaar Oy because for this package there is no monthly charge and it includes all the payment methods.

To use the "Checkout" service from "Checkout Finland Oy" it was necessary to integrate their plugins in Sansaar Oy's online store. For this Sansaar Oy had to make an online agreement with the company which was very easy and quick. We had to download their source code from their website and include it in this server by following the guideline provided by the company. After doing this the "Checkout Finland" option can be seen in the admin panel as shown in figure 17. Here, the settings must be configured and the merchant ID and authentication code provided by the company must be used after the agreement has been

made. After the proper configuration, customers can see the “Checkout Finland” payment options as shown in figure 20 while checking out from the online store.

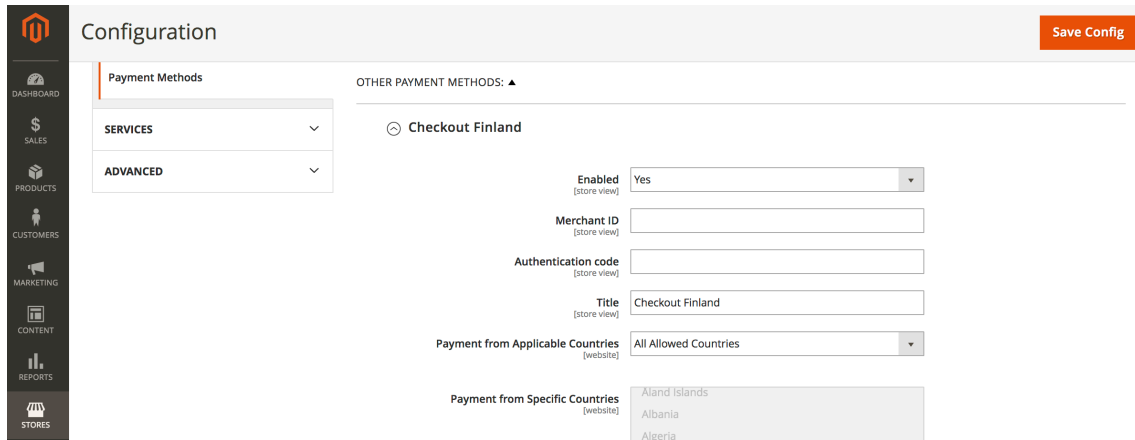


FIGURE 18. Configuring “Checkout Finland” payment option

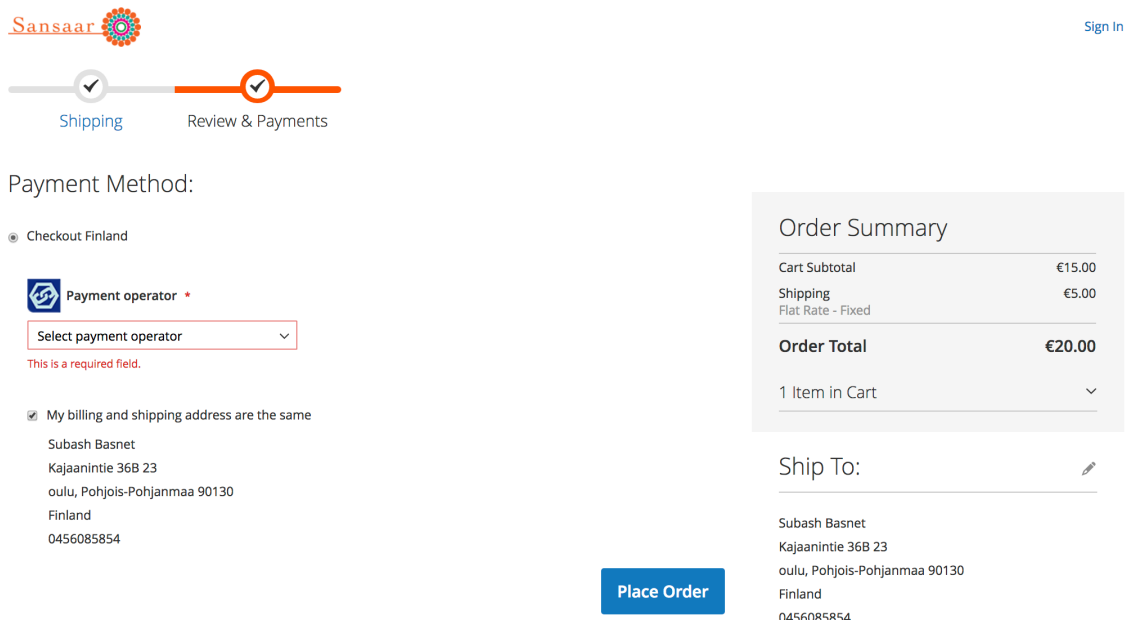


FIGURE19. “Checkout Finland” payment option in frontend



## **5.6 Configuring Shipping Methods**

Magento comes with seven types of shipping methods. Among them, Sansaar Oy will be using flat rate shipping and free shipping, thus only these two shipping methods will be configured. Free shipping is one of the most effective promotion methods in every E-commerce business. For Sansaar Oy, the free shipping method will be enabled with the condition of a minimum order amount of 100€, i.e. a customer buying a product of minimum 100€ will get free shipping coupon immediately. In the flat rate shipping, the charge for each product or order can be predefined. This method is very popular among store owners because of its simplicity and useful benefit that it brings. For the client, this shipping method is enabled with a 5€ price per item and a handling fee of 5€ per order.

## 6 QUALITY ASSURANCE AND TESTING

Quality assurance test means testing whether each and every functionality of the website is performing the way it should or not, whether the content of the website is grammatically correct or not, the different browser compatibility of the website, mobile responsiveness and also if the website is bug free or not. For smooth functioning of a website, it is necessary to perform a quality assurance test of the website. In this case the website is not fully ready to be published because the author was not able to put all the real contents to the website due to the busy schedule of the client. So, content checking was ignored at this stage.

The browser compatibility test was performed on many popular browsers, such as Chrome, Safari and Firefox, and the website works well on all the tested browsers as shown in figure 21. The website responsiveness was tested by running it on Android, iOS and Windows mobile, iPad and tablet devices. It was found that the website responsiveness is good enough to easily use it on different kinds of devices. All the links, and forms present on the website work well. The author checked the functionality, such as signing up, signing in, buying a single and multi-product, browsing all the products, search functionality, navigating through the main menu and breadcrumbs, and all of them are working properly. Newsletter, referring a friend through an email, subscription email, order confirmation email, email through contact us form and all other emails are also working properly. Every functionality of the admin panel is also working properly.

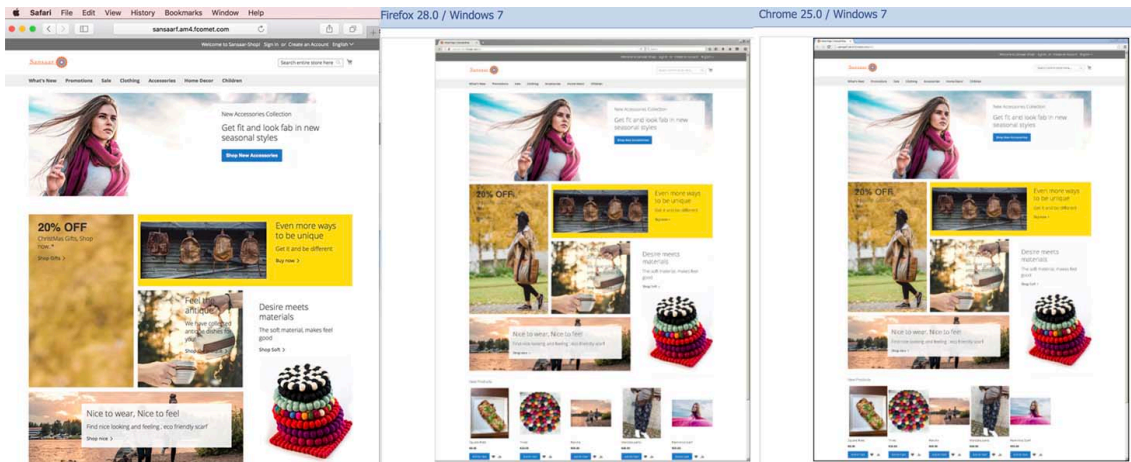


FIGURE20. Testing browser compatibility of the online store

A speed test of the website was performed using [www.pingdom.com](http://www.pingdom.com) web app and a satisfactory result was received as shown in figure 22. A temporary URL was used and SSL was not activated for this domain which could be the reason for getting a B grade performance.

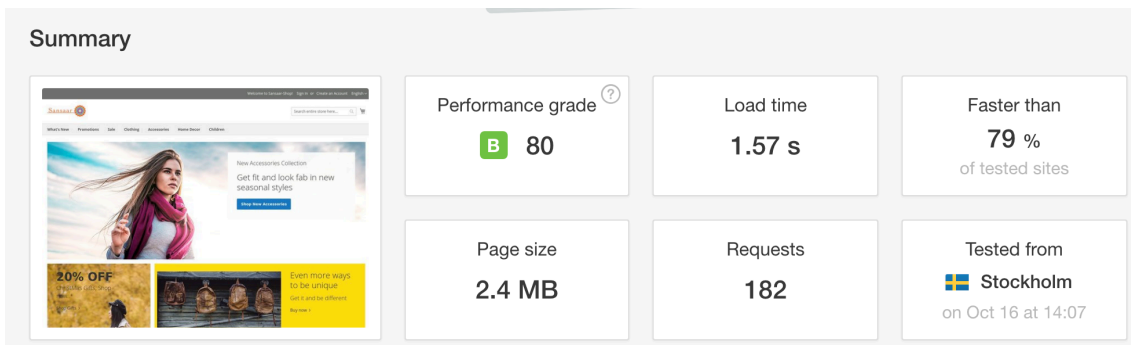


FIGURE21. Performing speed test of the online store

## 7 CONCLUSION

My client Sansaar Oy is a developing E-commerce business company. It has been challenging for me to provide a suitable E-commerce solution for the client considering their financial capability, earlier experience, present needs and future possibilities. However, at this point I have been able to present the client a proper solution, which promises to delete the problems related to the online store and also provides the client a very nice possibility to develop their business.

The new solution is very cheap as it reduces 80% of the operating cost compared to the existing online store. The new online store looks simple and trendy. It is fully responsive and user friendly as it works very well on all types of devices, such as mobile, desktop and tablet, and it follows the trendy online shopping design. It has many features which are very important for an online store and which are lacking in the existing online store. It has many marketing tools, such as newsletter, referring a product through an email, a wish listing feature, separate and easily visible pages to feature new, promotional and discounted products and static blocks on the home page to attract customers to buy a specific product. It is easy to setup SEO in the new online store and the store owner can create a special pricing and promotion campaign easily. In the new online store, the store owner can keep track of customers, customers' behaviours, orders and sales from the admin panel very easily, which will help to manage the business and make decisions in the future. In the existing online store, customers are not able to select the right products in many cases and they need to communicate through email with the store owner just to complete the purchase but in the new online store I have created customizable products in a way that without any extra communication both the customers and the store owner can have a clear idea about the products they are dealing with. Before customers were not allowed to sign up without buying any product but in the new online store customers are allowed to sign up at any time. Unlike in the existing online store, the store owner can easily update products and handle the sales in the new online store from the admin panel using mobile devices, too.

The new online store has many payment methods available including Pivo mobile pay, just as the client has wished. The new online store is now available in Finnish and English languages.

During this project, I faced many problems, such as bugs on the website, problems in the server and configuring the CMS, but I managed to overcome all of them with the help of online resources and the support team of FastComet hosting company. One of the most essential issues of this project was adding a theme to the website. I tried to integrate a third party theme in the website but the integration process and customisation of the theme were very challenging because of the lack of a proper documentation. The website also became too slow because of the theme and there was also a security risk therefore I decided not to use any such third-party themes for this new online store. There are still many possibilities for the new online store. The design could be improved, SEO could be set up in a more advanced way and the hosting package for a better performance of the online store could be upgraded.

By doing this project, I have learned many important things and improved my competence level. I have gained a deep knowledge of Magento CMS, hosting services and setting up and handling VPS. I have learned time management and how to deal with the client. I needed to do a lot of research and self-study during this project, which has helped me to broaden my mind. The experience and knowledge that I have gained from this project will help me a lot to work in the current IT world.

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