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AN ANALYSIS ON CHOOSING A PROPER ECOMMERCE PLATFORM

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Choosing an electronic trading platform is a very important decision when opening an online store. A suitable platform must be able to meet many of the requirements as to not confuse the user. It should provide an online business operation providing tools for managing back-office of technically. There are dozens maybe hundreds of electronic ecommerce platforms available to create an online store, so the decision to choose a platform is difficult. In this article, we tried to compare 19 of the most popular open source ecommerce platforms using a mathematical model based on the platform functionalities. Each of these allows parameterization of an online store in a very short time, with some relatively low cost or close to 0.

Keywords: ecommerce, Jaccard index, online platforms

JEL Classification: C8, L8

Introduction

"Retailers sticking with existing solutions are struggling to keep up with the rest of the industry, leaving money on the table, degrading the customer experience and ultimately shrinking revenue." - Michael Kliger, Managing Director International, eBay Enterprise

At this time, on the market there are many electronic trading platforms, situation generated by the growth in online retail trade. Due to increasing competition between global electronic stores, choosing the platform right is closely linked to the future success of commerce store. For some traders opening small electronic store may mean just a fun or a method of promoting physical store, for others are successful business and can get very large profits. [1][3]

In reality, when we already have an online shop that works on the platform is quite difficult to move to another platform taking all information about our products.

Virtually any e-commerce platform offers retailers a compromise between low cost and flexibility.

For installation of the platform ecommerce efforts are needed to parameterization, importing data and products, configuration templates design, methods of payment and transport etc. Flexibility occurs when an online retailer wants something special than other competitors in the same segment, thus gaining a competitive advantage. [2]

The power of these applications is clear from the use of Internet standards and reliability, security and availability of content, core business processes and existing applications. E-business is a comprehensive strategy, including e-commerce and other intranet applications. [7]

E-business conducts business transactions, business planning and control, communications and information, sharing the platform of a common computer system through the web. [7]

The need for a top ecommerce platform

A good ecommerce platform allows adding tools to help your business to grow, and to release significant part during administration.

Some platforms are designed to help an online store only up to a certain point. Once the user reaches this level requires a more advanced and flexible platform.

Some top ecommerce platforms (such as Shopify or Magento), allow the possibility of developing additional functions that can be installed on the shop online. For some platforms these functions are called extensions, for others are called applications. Elements of these functions are common regardless of platform or on their behalf that automates some processes, making use easier. [5]

The most common functions that can be added to an online shop are: [6]

- Sales and Marketing
- Shipping / Fulfillment
- Inventory / Order Management
- Customer Service
- Accounting
- Reporting and Analytics

Accounting function integrates online shop with the accounting software used to keep the organization accounting. Usually these functions automatically export data in the accounting program.

Accounting function will allow to the online store to be in constant connection with accounting software. This way, financial data are automatically linked, saving hours of work per month and eliminates the possibility of making mistakes when input data.

Orders management - Typically customer orders products are exported in an Excel spreadsheet and then returned to the warehouse to ship your order. In some cases applications allow you to print labels with all customer data for delivery. An orders management application allows to the online store to communicate orders to warehouse delivery center in a correct format. So deliveries are met without having to do any administrative work. In some cases, the application can automatically aggregate all customer shipping addresses, coupled with a printing software, and automatically starts printing shipping labels, with an accuracy of 100%.

All of these tools increase the rationalization and automation of manual labor, so when an order takes place, all these functions will be performed automatically, without the need for careful follow-up of orders.

These advanced tools are not necessary at first, but if the business begins to grow they will need to optimize work. This is why choosing an ecommerce platform is particularly important.

Similarity indices - Jaccard index

Jaccard index, also known as the Jaccard similarity coefficient is a statistical indicator used to compare the similarity of several sets. Jaccard index of similarity measure between sets of finite sentences, and is defined as the intersection of the sets divided by the sample sets meeting:

$$J(A,B) = \frac{|A \cap B|}{|A \cup B|}.$$

If A and B are empty, define J (A, B) = 1

$$0 \leq J(A,B) \leq 1.$$

The Jaccard distance measures the dissimilarity between sample sets. The Jaccard distance is complementary to the Jaccard coefficient and is obtained by subtracting the Jaccard coefficient from 1:

$$d_J(A,B) = 1 - J(A,B) = \frac{|A \cup B| - |A \cap B|}{|A \cup B|}.$$

Information about the features the shopping carts offer - General features [6]

	Source Code Provided	Ajax Usage	Digital Downloads	Multiple Skins	Point of Sale Order Management	Subscriptions	Taxation	Template Engine	Jaccard index
AbleCommerce	1	1	1	1	1	1	1	1	1
Apache OFBiz	1	1	1	1	1	1	1	1	1
Avactis	1	1	1	1	1	0	1	1	0.875
Avactis	1	1	1	1	1	0	1	1	0.875
Sana Commerce	1	1	1	1	1	1	1	1	1
IzzoNet	0	1	1	0	0	0	1	1	0.5

	Source Code Provided	Ajax Usage	Digital Downloads	Multiple Skins	Point of Sale Order Management	Subscriptions	Taxation	Template Engine	Jaccard index
IzzoNet	0	1	1	0	0	0	1	1	0.5
Jigoshop	1	1	1	1	1	1	1	1	1
LemonStand	1	1	1	1	1	1	1	1	1
Magento	1	1	1	1	1	1	1	1	1
Drupal Commerce	1	1	1	1	1	1	1	1	1
0pCommerce	1	1	1	1	0	1	1	1	0.875
pimcore	1	1	1		1	1	1		0.75
osCMax	1	1	1		1	1	1		0.75
osCommerce	1	1	1		1	1	1		0.75
PrestaShop	1	1	1	1	1	1	1	1	1
Shopify	0	1	1	1	1	0	1	1	0.75
Zen Cart	1	0	1	1	0	1	1	1	0.75
SupaDupa	0	1	0	1	1	0	1	1	0.625

Discosure index computation

Simple cardinal valuation method

The decision maker establishes correlative relationships between the criteria ranked in importance, which progressively increase the share value associated. Evaluation algorithm is:

Step 1. Sort ascending criteria based on increased importance. Whether this order C1, C2, ..., Cn, (C 1 being the least important criterion).

Step 2. We attribute the weight criterion C1 value x, $w_1 := x$.

Step 3. The decision maker considers the more important criterion C2 to C1 by objective determination of the value of the ratio

$$\Delta w_2 = \frac{w_2}{w_1}$$

($\Delta w_2 \geq 1$ and equality occurs if one considers that C1 and C2 are of equal importance).

The process is applied to each criterion compared to the previous one. it based on:: Δw_j, for $j = 2,3,...,n$.

Step 4. The condition leads to the equation

$$\left(1 + \Delta w_2 + \Delta w_2 \cdot \Delta w_3 + \Delta w_2 \cdot \Delta w_3 \cdot \Delta w_4 + ... + \Delta w_2 \cdot \Delta w_3 \cdot ... \cdot \Delta w_{n-1} \cdot \Delta w_n\right) \cdot x = 1$$

It must solve the equation and obtain the value of x.

Step 5. It must calculate the weights of the n criteria:

$$w_j = w_{j-1} \cdot \Delta w_j, \text{ cu } j = 2,3,...,n \text{ şi } w_1 = x$$

Numerical example. We consider four criteria that the decision maker arranges them according to the growth of importance: C1, C2, C3 and C4. Analyzes and subjective decision-maker considers that at this moment:

- C2 is 50% more important than C1, then $\Delta w_2 = 1.5$
- C3 and C2 are equally important, so $\Delta w_3 = 1$
- C4 is two times more important than C3 (and, obviously, than C2), so $\Delta w_4 = 2.$

$$\left(1 + \Delta w_2 + \Delta w_2 \cdot \Delta w_3 + \Delta w_2 \cdot \Delta w_3 \cdot \Delta w_4\right) \cdot x = 1$$
$$\left(1 + 1.5 + 1.5 \cdot 1 + 1.5 \cdot 1 \cdot 2\right) \cdot x = 1$$

so $x = 0.1428$.

On calculate the weights of the four criteria:

w_1	w_2	w_3	w_4
0.1428	0.2143	0.2143	0.4286

We note that

$$\sum_{j=1}^{4} w_j = 1$$

The sort criteria for ecommerce platforms

Order no.	Name	wj	Growth of importance
1	Customer features	0.1732	1
2	Search engine optimization features	0.1732	1
3	Payment gateway support	0.1732	1
4	General features	0.1732	2
5	Customer reward features	0.0866	1.1
6	Administration area features	0.0787	2
7	Alternative checkout support	0.0394	1.5
8	Real time shipping calculation	0.0262	1
9	Shipment booking integration	0.0262	1
10	Shipment tracking integration	0.0262	1.1
11	Data storage	0.0239	x

$$\left(1 + \Delta w_2 + \Delta w_2 \cdot \Delta w_3 + \Delta w_2 \cdot \Delta w_3 \cdot \Delta w_4 + \ldots + \Delta w_2 \cdot \Delta w_3 \cdot \ldots \cdot \Delta w_{n-1} \cdot \Delta w_n\right) \cdot x = 1$$

so, x= 0.023855

	Data storage	General features	Customer features	Customer reward features	Administration area features	Search engine optimization features	Payment gateway support	Alternative checkout support	Real time shipping calculation	Shipment booking integration	Shipment tracking integration	FINAL SCOR E
AbleCommerce	0.25	1	0.91	0.71	1	0.67	0.37	1	1.00	0.33	1.00	0.76
Apache OFBiz	1	1	0.91	0.71	1	0.67	0.11	0	1.00	0.00	1.00	0.68
Avactis	0.25	0.875	0.65	0.86	1	0.67	0.84	0.5	0.67	0.00	0.67	0.74

	Data storage	General features	Customer features	Customer reward features	Administration area features	Search engine optimization features	Payment gateway support	Alternative checkout support	Real time shipping calculation	Shipment booking integration	Shipment tracking integration	FINAL SCOR E
Sana Commerce	0.25	0.875	0.87	0.71	1	0.67	0.42	0.25	0.67	0.00	0.67	0.68
Batavi	0.25	1	0.74	0.29	1	0.50	0.11	0	0.00	0.00	0.00	0.52
Drupal Commerce	0.5	0.5	0.70	0.57	1	0.67	0.26	0.25	0.67	0.00	0.00	0.54
KonaKart	1	0.5	1.00	1.00	1	1.00	1.00	1	1.00	1.00	1.00	0.91
IzzoNet	0.25	1	0.78	1.00	1	0.67	0.42	0	0.67	0.67	0.67	0.72
Jigoshop	0.25	1	0.74	0.86	1	0.00	0.00	0	0.67	0.00	0.00	0.48
LemonStand	0.25	1	0.87	1.00	1	0.83	1.00	1	1.00	0.00	1.00	0.90
Magento	0.25	1	0.91	0.86	1	1.00	0.37	0.75	0.00	0.00	0.00	0.76
0pCommerce	0.5	0.875	1.00	1.00	1	1.00	0.79	1	0.67	0.00	0.67	0.89
osCMax	0.25	0.75	0.65	0.86	1	0.00	0.37	0	0.00	0.00	0.00	0.47
osCommerce	0.25	0.75	0.74	0.43	1	0.67	0.53	0	0.00	0.00	0.00	0.59
pimcore	0.25	0.75	1.00	1.00	1	1.00	0.00	0	0.00	0.00	0.00	0.65
PrestaShop	0.25	1	0.96	1.00	1	1.00	0.63	1	0.67	0.00	0.67	0.87
Shopify	0.25	0.75	0.96	1.00	0.75	1.00	0.79	0.5	0.33	0.00	0.00	0.79
Zen Cart	0.25	0.75	0.78	0.71	1	0.67	0.63	0.5	0.67	0.00	1.00	0.70
SupaDupa	0.25	0.625	0.65	0.43	0.75	0.67	0.00	0	0.00	0.00	0.00	0.44

Final ranking:

Platform	FINAL RANKING
KonaKart	0.913
LemonStand	0.904
0pCommerce	0.886
PrestaShop	0.867
Shopify	0.785
AbleCommerce	0.758
Magento	0.757
Avactis	0.739
IzzoNet	0.721
Zen Cart	0.700
Apache OFBiz	0.682
Sana Commerce	0.682
pimcore	0.648
osCommerce	0.586
Drupal Commerce	0.536
Batavi	0.515
Jigoshop	0.478
osCMax	0.466
SupaDupa	0.439

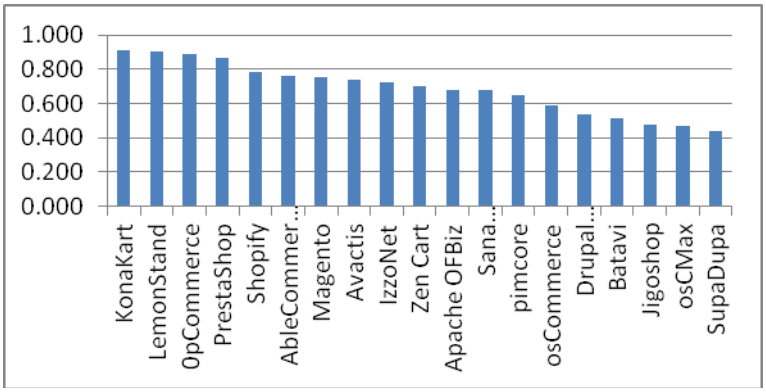

Fig. 01 – Final ranking for ecommerce platforms

Conclusion

Choosing an electronic trading platform is difficult if you want that your online shop to evolve, to have a large number of customers and orders, requiring automating many tasks and freeing up your time to focus on other aspects of the business. The online store developed by a software company specializing offering a flexible platform support is the best way to optimize business process online.

Although, there are available many ecommerce platforms that basically do the same thing, we notice that a closer analysis many differences between them. Depending on the business, we can choose and configure one of these platforms to achieve a successful electronic store.

In this article we have tried to provide a method of choice for ecommerce platform by comparing all specific components. Of course, choosing a platform involves a number of personal factors that cannot be measured and introduced in a mathematical model.

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