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RESEARCH ARTICLE

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ONLINE ADVERTISING PERFORMANCE: FACEBOOK AND GOOGLE

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ABSTRACT

Objective: analyze the use of online advertising on Facebook and Google to amplify an organization's awareness and sales. **Methodology:** used consisted of collecting data from the most used analytics platform in the professional environment, within a nine-month period, with consistent investment over time in Facebook and Google. So that after this time, it is possible to collect data and analyze what generated a higher Return on Advertising Spend - ROAS. The results show more efficiency in sales and notoriety in the Facebook ecosystem, compared to Google, especially when compared to ads on the search engine. And Facebook's big influence on sales through other traffic sources. **Methodological and management contributions:** demonstrate the importance of using Facebook as the main social network to create advertising campaigns for an online store, making use of social commerce, so that users can comment and see opinions of third parties on the social network. **Conclusions:** Facebook is the best known and most visited social network by internet users, and research attests to its importance and relevance in people's daily lives, both personally and professionally.

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INTRODUCTION

The e-commerce platform www.vascomarques.digital was launched in 2018, with the objective of focusing on the sale of Vasco Marques' four books and on low-cost online courses, normally directed towards quick decision purchases. Additionally, there is the company's online store www.web2business.pt and numerous landing pages with the aim of capturing qualified leads for face-to-face training or higher investment online training. Additionally, on the website www.vascomarques.com a history of actions taken and future events is available. In any digital marketing strategy where you want to sell products or services, it is necessary to define a budget for online advertising and distribute it through the main platforms: Google and Facebook. There is increasing interest and demand for the topic of digital marketing. E-commerce has been growing a lot in Portugal and Europe, around the world it is expected to double the value of transactions.

However, the question that arises is: what budget distribution should be made? Will it be 50% for each platform or should it be distributed with another proportion?

As a rule, when someone has identified the need, they tend to Google it. Ads on social networks, on the other hand, aim to arouse the need through correct targeting for the target audience.

Therefore, it is necessary to create several campaigns on both platforms, over a significant period of time and with a sufficient sample to draw conclusions. After that, it will be analyzed on which platform the most results are being generated. As a result, the budget may be readjusted later. This investigation will allow us to analyze real data and draw specific conclusions about which is the most efficient investment. This article will provide an additional contribution to small-scale e-commerce scenarios related to digital marketing training. This article aims to analyze the use of online advertising on Facebook and Google to amplify an organization's awareness and sales.

It is intended to bring new knowledge related to the proportion of investment per platform, under certain conditions, with the objective of sales and notoriety. So that other organizations that are in similar conditions can use this knowledge as a basis to make better strategic decisions. Thus, the need to understand the proportion of budget to be allocated to each channel led to the formulation of the following questions, as study hypotheses:

- **Hypothesis 1:** Does Facebook get more sales than Google?
- **Second-Level Hypothesis 1.1:** Does Facebook Advertising Positively Impact Sales Through Other Channels?
- **Hypothesis 2:** Does Facebook get more notoriety than Google?

METHODS

a) Problem Analysis: In a digital marketing strategy it is essential to set a budget for online advertising. One usually thinks of the two main ecosystems: Google and Facebook.

Each of them is made up of several channels.

Google:

- Google Search – text ads on the search engine;
- Google Display – visual ads on partner websites and apps;
- Google Shopping – product ads in search and elsewhere;
- YouTube – advertisements on YouTube;
- Apps – ads to promote Apps.

Facebook:

- Facebook – ads in various places on Facebook;
- Instagram – ads on Instagram feed and Stories;
- Messenger – ads on Facebook Messenger;
- Audience Network – ads on partner sites and Apps.

If you are just starting out, if you don't have experience or history, you will start with relatively low values, even advised by experienced companies or professionals, in order to discover the most efficient tactics. Organizations that already have a track record will be able to make decisions more easily based on the results of the previous period. However, in one scenario or another, it will be necessary to know the ideal percentage of budget for each ecosystem (and in a more rigorous strategy, by channel of each platform), depending on the results obtained. Therefore, based on real data analysis, in a specific business, it is intended to know which of the ecosystems allows to obtain more results based on the ROAS indicator. ROAS was chosen because it represents the value obtained for each monetary unit invested in advertisements. Allows you to see if the investment made in a particular ad platform is attractive. It can be calculated by dividing the total income by the amount invested in the same period of time and in the same channel.

Assumptions: To solve the problem, and reach conclusions about which platform is more important, two hypotheses and a second level hypothesis were formulated.

Hypothesis 1: Does Facebook get more sales than Google?

With this hypothesis, it is intended to know if Facebook can bring more return in sales, compared to ads on Google.

Second-Level Hypothesis 1.1: Does Facebook Advertising Positively Impact Sales Through Other Channels?

The second level hypothesis, intends to delve into the impact that Facebook has on sales, trying to understand to what extent it will influence conversions in other channels (for example, direct traffic, referrals, on Google or others)

Hypothesis 2: Does Facebook get more awareness than Google?

With this second hypothesis, we intend to know if Facebook allows us to get more awareness for a lower cost, in order to make the brand better known, generate more trust, later impacting sales. Particularly important for lesser-known brands, which have to invest more in awareness.

Therefore, in this study it is interesting to analyze the awareness and conversions (sales in this case).

What indicators are best suited to help determine sales performance?

- ROAS; CTR; CPC; Sales; Transactions; Conversion rate.

Some of the main variables that can impact sales indicators are:

- Bounce rate; Ad quality and relevance; Page quality; Targeting or keywords; Content quality.

Variables can have a big impact on indicators, so they must be well optimized and A/B tests must have already been performed. In an e-commerce environment, the most important indicator from an investment efficiency point of view is ROAS.

In relation to awareness, the most important indicators are:

- Number of impressions; Cost of impressions.

The variables that can have an impact on these indicators and others related to awareness are:

- Bounce rate; Average session time; Pages viewed per session; Sessions.

All these variables that impact awareness will somehow influence sales in the future.

Methodology: To collect and process data, data from the Shopify analytics platform (the project's e-commerce platform), Facebook, Google Analytics, SEMRush and Google Trends were used. The most important tool of all in this case was Google Analytics. Because it will allow to know exact data of the explanatory variables and reach the indicators, to analyze the hypotheses.

Data: The main database is obtained through Google Analytics of the vascomarques.digital e-commerce platform. Google Analytics is a tool for analyzing detailed website (or other platform) metrics. Allows you to analyze various metrics, indicators and user behavior. The data will be extracted from Google Analytics, filtered and applied in a spreadsheet, in an objective way and oriented towards the most important indicators related to the hypotheses in question. They represent all visitors and all their aggregated behavior over nine months: from January to September 2019. Although the analytics platform generates some of the reports and allows concrete interpretations, it will not be enough to clearly analyze the hypotheses under study. Therefore, a customized model will be developed, in a spreadsheet, so that it can be filled with data and allow for unambiguous conclusions about the hypotheses to be reached.

Data Treatment Model: As a percentage of the budget, the formula shows the weight that this channel has in relation to the total budget for online advertising. In percentage of sales, the same logic was applied, to know what percentage of sales represents in the whole store. In ROAS, the amount in sales was divided by the amount invested in the budget, to know the return in euros for each monetary unit invested. The cost per impression results from dividing the investment in ads by the total number of impressions obtained. The Google Ads column, accumulates value from adjacent columns of ad placement. This division was necessary because they present very different metrics, as they have different objectives, deserving a more detailed analysis. The direct, organic and referrals columns allow a comparison of some data and because they benefit from sales from Facebook and Google ads. The total column represents the sum of the values, or the average, whichever is more suitable to calculate. Some cases are weighted on average, depending on the amount invested in advertising, such as the calculation of totals for CTR, CPC and cost per impression.

RESULTS

In order to present the results, reports and tables were created with the most relevant information. To achieve e-Commerce analysis, reports were used through Google Analytics' Enhanced e-commerce, providing information on sales and relationship with traffic sources and advertising campaigns.

The total budget for Google Ads was €3,154.29, but the amount invested for the project under review was €2046.57. It is this amount that must be compared with the investment made in the Facebook ecosystem, also related to the URL of the same store.

A personalized report was created, through the Facebook ad manager, to measure ads that had a direct impact on sales. All ads that generate at least 1 sale, add up to the value of €5039.88. Ads that have not generated any sales may have been excluded from this listing.

Database characterization:

- Sample: in this case, the sessions, which represent visits to the online store, totaling 22,285 sessions;
- Age and gender: 51% male and 48% female;
- Predominant ages: 33% of users are between 25-34 years old and 31% are between 35-44 years old.
- Interests: shopping, beauty, health, cooking, hobbies, and business.
- Country: 80% originate from Portugal
- Cities: 20% from Lisbon, 14% from Porto, 4% from Braga and 2% from Vila Nova de Gaia.
- Devices: 68% access via mobile devices.

Graphs of the characterization of the database can be consulted:

Store Conversion Rate and General Indicators: The online store's average conversion rate is 3.2%, above the Portuguese and world average of 2.4%. 713 transactions were generated, amounting to €21,937.99, corresponding to an average value per order of €30.77.

A summary of the main indicators of the online store www.vascomarques.digital, for the period from January 1st to September 30th, 2019, is presented:

In this period, the best-selling product is clearly the book *Digital Marketing A to Z*, standing out in first place with 69.5% of the sales volume.

Top traffic sources with associated indicators and metrics: The main sources of traffic, sorted by sales volume generated in the online store. But it is also possible to consult for each traffic source the respective sessions, bounce rate, transactions and revenues. First, Facebook stands out with about 50% of traffic and sales. Then referral traffic with 20% of turnover, followed by direct traffic with 17% and then search ads with 9%.

Impact on conversions between the intersection of multiple channels: The Social Network channel represents the highest percentage of conversions, but there is additionally impact on each other. However, between Social Network and paid search (Google Ads) there is an intersection of only 1.3%. And no intersection with Display Google Ads.

Indirect conversions: Indirect conversions are the number of conversions for which each channel appeared on the conversion path but was not the final conversion interaction. Each channel has an impact on indirect conversions. Considering the last click model, in which the channel that received the final click before conversion, it should be analyzed to what extent other channels had an impact on the final decision. For example, if someone sees an ad on Facebook or Instagram, for a book or course, can prompt the consumer to run a Google search to learn more or analyze and compare with competing options by clicking on ads or Google search results. Ads from the Facebook ecosystem represent 92% of the social network channel, in this table under analysis. Which in turn represent 46% of assisted conversions. Already paid search ads (Google Ads) represent only 6% of importance in assisted conversions. And display ads (Google Ads), only 0.3%. In this case, 70% of conversions occurred only with interaction in one channel, corresponding to 63% of sales volume. But about 17% converted after interacting with two channels, corresponding to 16% of sales volume. However 5% still needed to interact with three channels to generate a transaction, comprising 10% of the sales value.

Interaction path between channels: Going in depth, it is important to analyze the most frequent route of interaction between channels. The social network channel leads with the highest number of assisted conversions, especially associated with direct and referral traffic, with an additional impact of more than 40% on conversions in these complementary media. About 84% of conversions occur within the day, corresponding to 78% of the conversion value, due to the low cost of the product and the usually quick decision. In some circumstances it takes longer to convert. For example, in about 3% of cases, it takes 1 day to convert, corresponding to 5% of the sales. It means that the various digital channels can help the conversion, especially in the day itself, but also in cases where it takes several days.

Comparison of results in the main conversion models: linear, first click and last click: There are several models for measuring a conversion. The most traditional is the last click, which counts a conversion associated with the last click before the sale. Which can be unfair, considering that sometimes there are interactions with two or three channels, with a significant percentage. There is the first click model, which credits the conversion to the first click made. And the linear, distributes the credit for the conversion in an equitable way across the different channels involved in the interaction. The social network channel, in the three models, has a weight in conversions between 45% and 60%. Paid and display traffic together represent between 6.5% and 8%. The channel and the percentage in transactions of 63% and 9% respectively. In the case of the social networks channel, it subsequently generates, through direct and referral traffic, a large part of the transactions with two or three interactions, from the main conversion path.

CONCLUSIONS

In order to make the interpretation of the results simpler and more objective, the most relevant data were collected. The journey and data collection allowed us to arrive at a compilation of metrics and indicators that gives the possibility of obtaining concrete conclusions indexed to results. More than 60% of visitors are between 25 and 44 years old, an important conclusion to reinforce the importance of targeting for these age groups. Mainly residents in Porto and Lisbon, who access in 70% of cases via smartphone. It is necessary to optimize the user experience for these devices (checkout, simplicity of layout and content) and the possibility of enhancing events in Lisbon. The store's conversion rate indicates that it is well optimized for mobile and provides a good user experience. From the standpoint of investment in ads, Facebook represents 74% of the budget and Google 26%. The value of sales generated by Facebook corresponds to 52% and Google to 12%.

Hypothesis 1: Does Facebook get more sales than Google?

- The ROAS indicator, which means the return for each euro invested, allows you to compare results regardless of the budget allocated. In the case of Facebook Ads it is €2.11 and for Google Ads it is €1.34, thus validating the hypothesis that Facebook brings more results. Furthermore, the conversion rate is 3.96% on Facebook, against 1.19% on Google. If compared to Google Shopping, this presents a ROAS of €2.16, therefore slightly higher (see iii. and vii., results). But it has the limitation of only allowing physical products and there are a set of requirements to be able to advertise in this channel, which are a barrier and therefore not accessible for any organization.
- CTR on Google Search is far superior to Facebook, being explained by the nature of the ads. When someone clicks on an ad in the search engine, they already have the need identified and they've already asked the question in the search, so they're more willing to click. Also generating a higher CPC due to existing competition. However, despite a superior CTR, it cannot generate superior ROAS.

- CPC is lower on Facebook than on Google. The exception would be in the case of Google Display, which would achieve a lower average CPC, however ROAS is also much lower than the average for the Google ecosystem.

Second-Level Hypothesis 1.1: Does Facebook Advertising Positively Impact Sales Through Other Channels?

In terms of the impact of Facebook ads on conversions to other traffic sources, it has an impact of at least over 40% of those additional conversions through direct traffic and referrals. Meaning an additional billing, not accounted for ROAS in the main table (see iii., iv., v., vi. and vii., results). Proving the second-level hypothesis, where Facebook advertising positively impacts sales through other channels.

Hypothesis 2: Does Facebook get more awareness than Google?

In addition to sales, it is important to understand the impact on awareness and which platform allows it to be done at a lower cost. In the case of Facebook each impression has a cost of 0.0017€, against 0.0019€ for Google, so Facebook is slightly better, but the difference is not significant. However, in the case of Google Search the value is €0.0479, therefore much more expensive. On Google Display it is €0.0007, less than half the value of Facebook. On YouTube (video) the value per impression is €0.0009 and on Google Shopping it is €0.0045 (see iii., results). So this assumption is true when comparing Search and Shopping ads, but false if compared with Google Display and YouTube/video ads. Reinforcing the importance of investment diversification in the Google ecosystem.

The average visit time is better on Facebook, but compared to Google Search, this one is slightly better. The pages viewed metric also has a higher number on Facebook. The bounce rate is also slightly better (lower) in the case of the Facebook origin. All of these metrics are favorable to Facebook, to give more brand awareness and increase chances of additional conversions (in addition to sales). With this we can infer that the budget proportion can be maintained. These results were applied in this context, with specific variables, which may not be replicable in other environments where there are other types of variables, namely related to: country, type of product, advertisements, awareness, store layout or others. The fact that there is a chat in the store helps clarify questions for visitors and increases conversions across all channels of traffic sources. Comparing with results obtained by other investigations, it is consistent with the importance of Facebook as the most used social network (Azevedo, M., 2017). It was consistent with the results of the Balça survey (2018). And in this article it was also possible to prove that for Portugal it is possible to have greater profitability. Unlike Branquinho's (2014) research, which indicates that Google allows for greater profitability, this article proved that Facebook is more profitable, in a scenario of 100% digital advertising investment.

The total budget for Facebook and Google and the total for online advertising for all purposes (online store, landing pages, messages and for other sites) is shown. Of the total amount allocated to advertising (€14,248.04) about half (€6,917.85) is used to promote other products and services. Getting a monthly average of €814.47 to invest in the online store, analyzed in this article. From an organization's management point of view, regarding the Digital Marketing component, it is important to allocate a budget for online advertising. Assuming you are a small organization, you will probably have a monthly budget between €500 and €1000, as is the reality under analysis in this article. In this scenario, in the case of B2C professional activity and related to training services, you can allocate a 75% budget to Facebook and 25% to Google, if you have a website or landing pages. If you don't have a website or similar, you shouldn't make Google ads. It should also consider that the investment made in Facebook ads will impact conversions across other platforms. And you should also consider the importance of awareness in conversions, so you should also invest with this objective. There are always many variables with an impact on results, so this proposal is a starting point for those who are just starting out or have no track record. Must carry out tests and adjustments depending on the results obtained. Possibility of budget distribution depending on the type of business. We started from the base studied in this article, to extrapolate to other activities depending on the behavior in digital: if it is usual to search or be impacted with ads on social networks with adequate segmentation. These distribution probabilities are merely indicative and must be adapted to the particularities of the business.

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