

# The Impact of Digital Presence on Competitive Advantage

## *A Study Applied to Brazilian Bank Industry*

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Abstract: This pilot study analyses the impact of Digital Presence on the competitive advantage of the Brazilian banks. The research reinforces previous findings. It verifies high correlations of digital variables and business results. The study also introduces the Digital Presence Index (DPI) to consolidate the digital metrics. Additionally, the paper proposes new forms to visualize the variables. These contributions may improve the decision-making process of marketing analysts, business executives, and Internet professionals.

## 1 INTRODUCTION

The impact of digital presence on sales, brand recall and profit has often been confirmed (Pauwels et al. 2012; Harrison, 2013; Westerman et al. 2012). However, the executives face difficulties to make decisions based on complex online metrics (Kaushik, 2007). The objective of this paper is to describe the steps in the construction of a simplified digital presence index (DPI). We intend to clarify the following research questions:

- How can we measure the digital presence and business results of the largest Brazilian banks?
- Which variables of the digital presence affect the business results most?
- Is it possible to consolidate these variables in a DPI representing the competitive advantage of banks?

This pilot study aims to analyze the relationship between digital presence (Haj-Bolouri et al., 2014; Thibeault, 2012) and competitive advantage (Porter, 2001), considering a limited set of the largest banks in Brazil. We chose the Brazilian banking industry because 40.6% of the Brazilian online users accessed internet banking in 2013 vs. 32.7% of the users worldwide (ComScore, 2014). Moreover, almost half of the banking transactions happens on the site or mobile applications in Brazil (Febraban, 2014). Future studies must include a larger set of companies from different industries.

A research with the 12 leading banks in Brazil suggests that the digital presence variables have high

correlation with business results as profits, assets and deposits. The DPI captured these correlations as well as the performance of each bank. Additionally, we represented the DPI of a bank in an importance-performance matrix (Martilla and James, 1977, Slack, 1994) as a recommendation to a decision-making process to improve the digital presence.

## 2 RELATED WORK

Brands and companies aim to be exposed in the digital world. The digital presence is a broad concept that encompasses the company exposure as a whole on the Internet, whether controlled by the corporation or not (Haj-Bolouri et al., 2014; Thibeault, 2012). Interactive marketers define the digital presence as a set of channels with the consumer on the Internet and, furthermore, such conversation between consumers about brands and companies. They classify the channels as paid, owned and earned media (Pauwels et al., 2012; Corcoran, 2009). The owned media are the channels controlled by the company (e.g., website applications). The paid media are communication efforts to leverage the enterprise channels (e.g., display ads, paid search). The earned media occurs when consumers become the channel (e.g., social networks, blogs) (Corcoran, 2009).

The digital presence is compounded by three levels of media: paid, owned and earned (Pauwels et al., 2012; Corcoran, 2009). The owned media is controlled by the companies; it is formed by the

website, mobile apps, blogs and social media accounts. The paid media is the investment to leverage an owned channel as displays ads, paid search, and sponsorships. The buzz and viral replication of messages, when consumers become the channel is earned media (Corcoran, 2009), as well as the trend of the searches of the brand in search engines as Google; this trend represents the unaided brand recall (Kaushik, 2012).

Pauwels et al. (2012) observed that paid, owned, and earned media metrics add explanatory power to a sales response model that already includes marketing mix actions. Harrison (2013) measured the impact of these metrics on brand recall.

Westerman et al. (2012) observed the most digitally mature companies are 26% more profitable than their industry competitors. This digital maturity is compound by digital intensity, the investment in technology-enabled initiatives to change how the company operates, and the transformation management intensity, the leadership capabilities necessary to drive digital transformation in the organization. Westerman et al. (2012) also described the possibility of executives in every industry for gaining digital advance.

Executives analyze multiple information systems to monitor the market and prepare the company for competition (Davenport and Harris, 2007). Although, only a few companies capable to analyze the increasingly amount of information (Kaushik, 2007; Goes, 2014). The importance-performance matrix helps executives to make better decisions based on multiple indicators (Martilla and James, 1977; Slack, 1994).

### 3 METHODOLOGY

The research is descriptive in nature, and we used the following methodological procedures: bibliographic research, access to multiple databases, interviews, workshops and multivariate analyses.

We used bibliographic research to explore the concept of digital presence, its variables and to exploit its link with business strategy.

The data about digital presence variables was collected in multiple databases as Brazilian Central Bank, ComScore, Google Trends and Social Bakers.

We interviewed six banking executives and two social media researchers to explore the digital presence and business results variables of banks. These interviews were complemented with workshops about e-metrics with marketing

executives of 10 companies.

We used multivariate analyses to measure the correlation between variables. Finally, we developed a quantitative model to consolidate and calculate the DPI based on these correlations.

Despite efforts to produce a scientific contribution, this research has some limitations:

- the study represents the result of banking, not allowing generalizations for other industries.
- the Brazilian bank market is formed by large companies, not allowing the comparison with small and medium business;
- it was not possible to monitor the broad historic of internet buzz of banks due to budget limitations, so we used Google Trends data about searches on Google;
- for the same reason, we monitored only number of likes and followers on Facebook and Instagram. However, there are other relevant social media sites as Instagram and Youtube;
- the number of likes on Facebook is questionable because fake users inflate the statistics (Krombholz et al., 2012)

## 4 IMPLEMENTATION

### 4.1 The Digital Presence and Business Results of Banks

To clarify the first question “how can we measure the digital presence and business results of the largest Brazilian banks?”, we need to problematize the digital presence concept (Haj-Bolouri et al., 2014; Thibeault, 2012) classifying its channels as paid, owned and earned media (Pauwels et al., 2012; Corcoran, 2009). We selected the banking industry considering the massive use of these channels.

The owned media of banks have an expressive role. About 28 million people use the internet banking applications in Brazil (ComScore, 2014). The internet is the main channel for banking transactions, 41% of the transactions occur on the Internet. Mobile operations correspond to 6% according to the Brazilian Federation of Banks (Febraban, 2014). These numbers show that internet banking is a critical tool to maintain a competitive advantage in Brazil. Brazilians use 8% more internet banking than the global average (ComScore, 2014). There are some historical reasons to explain this difference. Due to hyperinflation in the 90s, the banks invested in automated teller machines (ATM) to deal with the huge movement of Brazilian branches. This

technology platform boosted internet banking sites. Brazilian consumers trust the security of internet solutions because they are used to performing virtual operations at ATM's.

Brazilian banks are heavy media buyers. They are the third industry in communication investments in Brazil, buying almost USD 700 million in media in the first semester of 2014 (Ibope, 2014). An expressive share of this investment is destined to online paid media.

The importance of earned media is fostered by the Brazilians' behavior on social media. Brazilians spend 13 hours per month on social networks vs. 6 hours of users worldwide (ComScore, 2014). The buzz about banks is expressive; one million tweets mentioned the term "bank" in February of 2015 (Topsy, 2015).

The DPI aims to reinforce this contribution by calculating the contribution of each e-metric to the business results. The importance of each variable will be proportional to the correlation between the e-metric performance, and business results; comparison with the company and other players will form the performance scale of the variables.

## 4.2 Variables of Digital Presence

To address the second question: "Which variables of the digital presence affect the business results most?", we accessed the performance data of banks on the site of the Brazilian Central Bank. We collected data about 10 business results indicators. After interviews with bank executives, we selected 3 indicators:

- B1 - Net profit: the net profit generated by all banking operations.
- B2 - Total assets: the size of a bank is usually associated with the total assets managed (Exame.com, 2014).
- B3 - Total deposits: representing the funding capacity of the bank;

This set of bank results indicators are defined as the independent variables in the multivariate analyses (Johnson and Wichern, 2002).

The dependent variables came from the workshops with marketing executives and consulting of online researchers as ComScore, Social Bakers, and Google Trends. ComScore is a market research that follows almost 150 thousand internet users in Brazil to monitor websites audience behavior and media investment. Social Bakers is a global monitoring company that collects data on social media for a diversity of industries. Google Trends is the tool to monitor trends in terms searched on

Google. As Google does not provide absolute numbers about the searches in its engine, it is necessary to compare the companies to know which one is the top of mind for users of Google Searches. We selected metrics we could compare with all institutions in order to calculate the performance ratio of the players (1).

Regarding paid media, two variables that were included in the model came from ComScore:

- V1 – Media Investment: the amount of investment in online media.
- V2 – Media impressions: the number of times the bank ads appeared to internet users.

We considered 4 variables (V3 to V6) to owned channels because of the complexity of this kind of media. The variables represent owned presence in websites and social media. The reports of audience of ComScore offered 22 metrics about the website audience, although, we selected 2 representative ones in order not to overestimate the role of site audience in the model:

- V3 – Average visits per month: the total of visits (sessions) on the website per month.
- V4 – Average visits per visitor: the number of visits per unique visitor, it is a hint of usability, because the user returned to the site.

We did not find any metrics about mobile applications use in Brazil; however, the executives consider important to measure the user behavior on mobile apps.

The owned presence in social media was represented by two variables, the number of followers in Twitter, and the number of fans on Facebook page, both measured by Social Bakers. We selected these two social network sites because of their audience in the Brazilian market:

- V5 – Facebook likes: number of likes in the company page. When the company had two or more pages, we considered the pages with more followers.
- V6 – Twitter followers: the number of followers of the company Twitter account. The same procedure used for Facebook was used for Twitter in the case of multiple accounts.

The marketing executives cited the importance of the volume of buzz and the feelings expressed in the posts. However, we did not include these variables due to the difficulty in monitoring them. Interviews with social media researchers indicated that a reliable monitoring of the posts would encompass the buying of an enormous volume of data and a task force to classify the posts by feeling. Considering the volume of posts for the banking industry, almost 1 million per month, this

monitoring was not possible for the scope of this study. However, we included the variable searches in Google to indicate the brand recall (Kaushik, 2012):

- V7 – Searches in Google: the number of brand searches performed in Google by internet users.

This variable may also be a proxy for the buzz, because it can capture social phenomena with precision, being used even to forecast 7 to 10 days before conventional centers (Carneiro & Mylonakis, . When some topic is broadly commented on social media, the same trend can be noted on Google. For example, comparing the Oscar related terms, the Oscar 2015 winner “Birdman”, and the term “Oscar” on google searches and tweets (Topsy, 2015), we see similar trends (Figure 1).

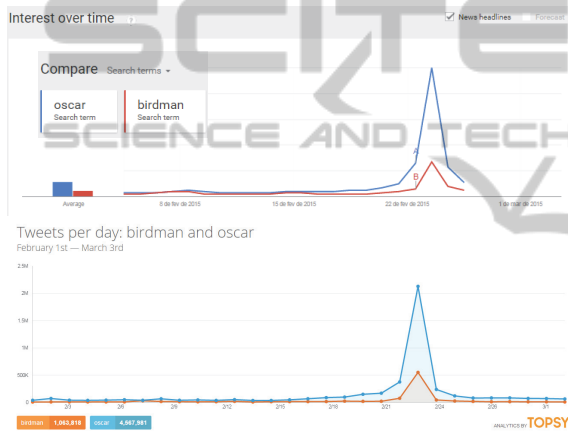


Figure 1: Google searches monitored by Google Trends and Tweets by Topsy for the terms “Birdman” and “Oscar”

We tracked these 7 variables for 9 months from January 2014 to September 2014. Although we have data from the entire 2014, the Brazilian Central Bank provided data until the quarter closed on September 2014. Table 1 shows the way the data was collected and consolidated, each variable has a specific periodicity, points of measure, and aggregation. For example, the number of visits is collected monthly counting 9 points of measure from Jan/15 to Sep/15, the average of these points is variable 3 – Average number of visits per month. The Brazilian Central Bank shows the results of the 50 largest banks, from the original list we excluded the banks that had no digital presence data or those that missed too many data in the nine months. The final list contains 12 banks.

After data consolidation, we performed the multivariate analyses using the SPSS software. We used statistic descriptive analyses calculating the

Table 1: Summary of earned, owned and paid media variables.

Variable	Data source	Consolidation procedure
B1 Net Profit B2 Total assets B3 Total deposits	Central Bank of Brazil	Periodicity: quarterly Points of measure: 3 Agregation: sum
V1 Media Investment V2 Media impressions	ComScore	Periodicity: monthly Points of measure: 9 Agregation: sum
V3 Average visits per month V4 Visits per visitor	ComScore	Periodicity: monthly Points of measure: 9 Agregation: Average
V5 Facebook likes V6 Twitter Followers	Social Bakers	Periodicity: daily Points of measure: 1 Agregation: None*
V7 Searches in Google	Google Trends	Periodicity: daily Points of measure: 270 Agregation: Average

Bn (Independent variables)

Vn (Dependent variables)

\* Registered only the last day of year representing the total of likers/followers of the page/profile

correlation matrix. We also tried to produce a regression analysis; however, we did not achieve trustworthy results in the regression due to the limited sample of 12 companies.

### 4.3 The Digital Presence Index (DPI)

To answer the third question “Is it possible to consolidate these variables in a DPI representing the competitive advantage of banks?”, we create an equation to calculate the DPI. This equation combines the performance of the bank in each variable (Pnx) with the weight of the variable (Wn). We calculated the bank performance for each variable using equation 1. The weight of the variables is the average of the correlations of the 3 business results variables. The weights are balanced so that the DPI result varies from 0 to 10 (equation 2). We learned with the executives that an index from 0 to 10 is easier to communicate, perhaps because of a similarity to a school grade. Other advantage, by maintaining the index within a range, it is easier to compare the present result with a time series.

$$Pnx = \frac{Vnx}{(\text{Max}(Vn) - \text{Min}(Vn))} \quad (1)$$

Pnx: Performance of variable n for bank x

Vnx: Value of variable n for bank x

Vn: Variable n

$$DPIx = \frac{(\sum_{i=1}^n Pnx \times Wn) \times 10}{(\sum_{i=1}^n Wn)} \quad (2)$$

DPIx: Digital Presence Index of bank x

Wn: Average of the correlation of Vn to R1, R2, R3

Figure 2 summarizes the method to calculate the DPI. For a better visualization of the competitive advantage of a bank, we propose to plot the data in an importance-performance matrix to exploit the performance and relevance of each variable.

## 5 RESULTS

### 5.1 Multivariate Analyses

To validate the relationship between the digital presence variables (Vn) and business results variables (Bn), we considered the following assumptions for the Pearson correlation test:

- Null hypothesis (H0): there is no correlation between the variables.
- Alternative hypothesis (H1): there is a significant correlation.

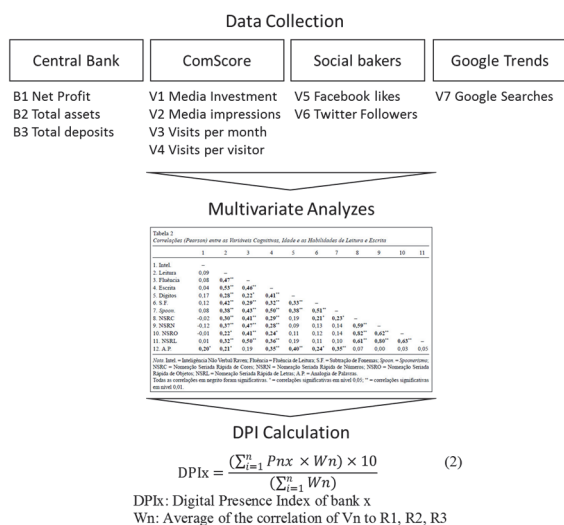


Figure 2: The DPI calculation.

The Pearson correlation indicates strength and direction of (positive or negative) of the correlation, the correlation value can vary from -1 to 1. For example, a correlation of 0,943 between V3 - Average number of visits per month and the variable B2 – Total Assets is very strong, because the value is close to 1.

The Sig. (2-tailed) is the probability in which you

would see a correlation of this size just by chance. If the Sig. (2-tailed) is less than 0.05, it means that the correlation is significant at the 0.05 level. We consider only correlations with Sig. (2-tailed) less than 0.05, because smaller values indicates more confidence.

The correlation matrix (table 2) shows the value of the Pearson correlation and the Sig. (2-tailed) for each pair of variables. The N value indicates the considered sample with valid values.

The “B1 – Net Profit” variable correlates with all the Digital Presence values with the exception of “V4 – Average number of visits per visitor”. It could indicate that returns to the website could not be so important to net profit. On the other hand, the remaining 6 digital presence variables have a strong relationship with profits indicating the digital presence is crucial for the net profit in every channel: paid, owned and earned. “V5 – Facebook likes” represents the strongest relationship (0.901), although it is considered by literature as an owned channel (Corcoran, 2009), the Facebook likes may indicate a good brand reputation as the user demonstrates his appreciation by liking the Facebook brand page. “V3 - Average number of visits” has the second highest correlation (0.853), indicating that high audience is important for business. “V6 – Twitter followers” has the third highest correlation (0.794), maybe by the same reasons of the correlation of “V5 – Facebook likes” because the variables are very similar. “V2 – Media impressions” has a correlation of 0.782, probably because campaign efforts bring more visits, and more visits are correlated with more profits. “V1 Media Investment” and “V7 Searches on Google” have high correlations, but not at the same level of the variables mentioned before.

Variables “B2 – Total Assets” and “B3 - Total Deposits” have a strong relationship with “V3 – Average visits” as expected because a large audience means more operations and consequently more deposits, more assets and more profits. However, the correlations of “V7 – Searches on Google” with B2 and B3 (0.832 and 0.882) are slightly different from the correlation from V7 to “B1 – Net Profit” (0.639). It could mean that brand recall on Google (Kaushik, 2012) is very relevant for new businesses (total deposits) and consequently for total assets, as B2 and B3 are closely correlated (0.976).

### 5.2 DPI Calculation

As exposed in the methodology, the next step is the DPI calculation. The DPI is based on the weight and performance of each variable. The weight is

proportional to the variables correlation with business results (table 2). The bank performance is comparable to the performance of its competitors.

The DPI demonstrates the ranking of the digital presence of banks with grades from 0 to 10. Each grade is detailed in the 7 variables that measure the digital presence. The colors expose the performance of the banks and ease the visualization of a comparative picture (figure 3).

Itaú is the first bank in digital presence followed closely by Bradesco. Caixa, Banco do Brasil and Santander compose an intermediary set. The other banks had DPI's lower than 1. This classification illustrates the concentrated competitive scenario of Brazilian banks.

The DPI can be updated every month because some variables have monthly consolidation (table 1). The dynamic process of monitoring and continuous improvement of digital variables can contribute to competitive advantage.

### 5.3 The Importance-performance Matrix

In order to produce a clear picture of the DPI contribution to competitive advantage we used the classic reference of the importance-performance matrix used in relevant fields as marketing (Martilla and James, 1977) and operations management (Slack, 1994). The matrix explores the DPI of each bank, presenting the importance of each variable and the performance based on a comparative evaluation.

To illustrate the matrix application, we used the example of "Caixa Econômica Federal", a government bank simply referred to as Caixa. The majority of variables are on the urgent actions region (figure 4). Variables related to social media followers and likers (v5 and V6) are important and low performance, so are the variables related to campaigns (V1 and V2); it suggests improvements in social media management and the necessity of best investments in paid media. On the other extreme, "V3

Table 2: The correlation matrix of digital variables and business results.

		B1 Net Profit	B2 Total assets	B3 Total deposits	V1 Media investment	V2 Media impressions	V3 Average visits per month	V4 Visits per visitor	V5 Facebook likes	V6 Twitter followers	V7 Searches in Google
B1 Net Profit	Pearson Correlation	1									
	Sig. (2-tailed)										
	N	12									
B2 Total assets	Pearson Correlation	.876**	1								
	Sig. (2-tailed)	.000									
	N	12	12								
B3 Total deposits	Pearson Correlation	.776**	.976**	1							
	Sig. (2-tailed)	.003	.000								
	N	12	12	12							
V1 Media investment	Pearson Correlation	.694*	.531	.391	1						
	Sig. (2-tailed)	.038	.141	.298							
	N	9	9	9	9						
V2 Media impressions	Pearson Correlation	.755**	.509	.385	.932**	1					
	Sig. (2-tailed)	.019	.161	.307	.000						
	N	9	9	9	9	9					
V3 Average visits per month	Pearson Correlation	.853**	.943**	.920**	.525	.523	1				
	Sig. (2-tailed)	.000	.000	.000	.147	.149					
	N	12	12	12	9	9	12				
V4 Visits per visitor	Pearson Correlation	.497	.532	.541	.592	.492	.505	1			
	Sig. (2-tailed)	.100	.075	.069	.093	.179	.094				
	N	12	12	12	9	9	12	12			
V5 Facebook likes	Pearson Correlation	.901**	.662*	.516	.655	.704*	.710**	.386	1		
	Sig. (2-tailed)	.000	.019	.086	.055	.034	.010	.215			
	N	12	12	12	9	9	12	12	12		
V6 Twitter followers	Pearson Correlation	.794**	.670*	.548	.379	.339	.741**	.430	.885**	1	
	Sig. (2-tailed)	.002	.017	.065	.314	.373	.006	.162	.000		
	N	12	12	12	9	9	12	12	12	12	
V7 Searches in Google	Pearson Correlation	.639*	.832**	.882**	.383	.423	.911**	.387	.419	.418	1
	Sig. (2-tailed)	.025	.001	.000	.309	.256	.000	.214	.176	.176	
	N	12	12	12	9	9	12	12	12	12	12

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

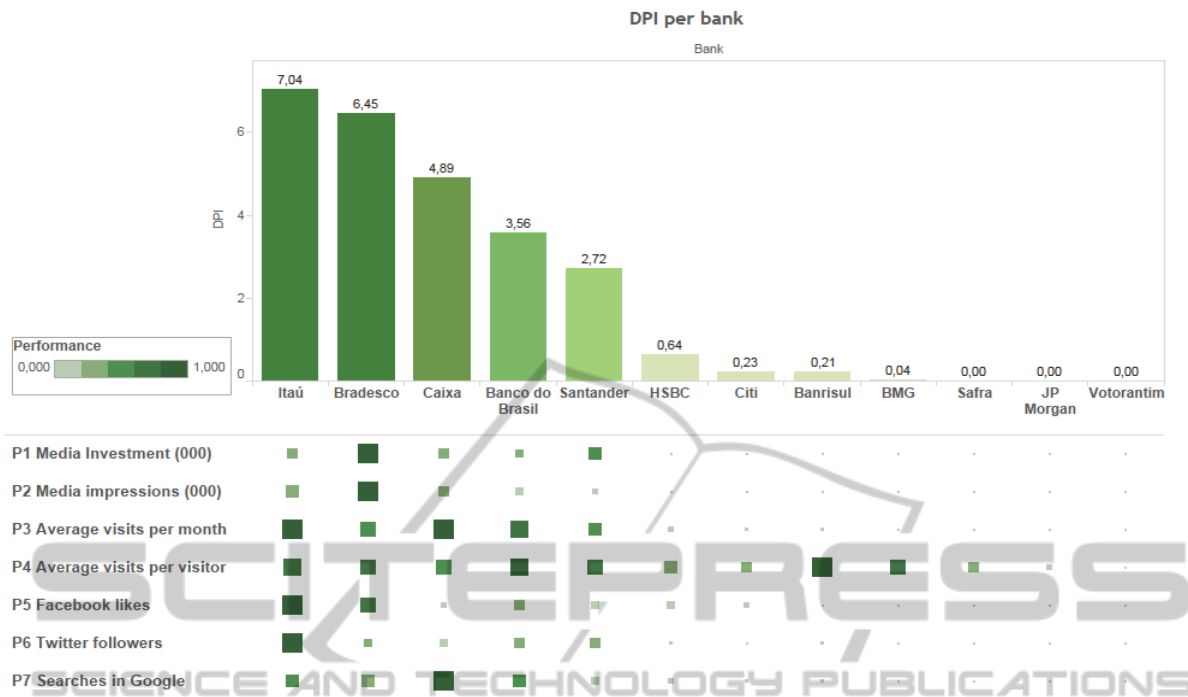


Figure 3: The DPI ranking of Brazilian banks.

Average visits” and “V7 Searches on Google” are in the appropriate area, because these are important high-performance variables comparable to the other banks. However, the performance of “V4 Average number of visits per visitor” is not so good, it is also plotted in the appropriate region because of its low importance to the DPI model; actually, the correlation of this variable with business results has a low level of confidence. As we can see, the matrix can be used as a practical tool to help executives in the decision-making process to improve the digital presence.

## 6 CONCLUSIONS

The DPI was calculated based on two factors: (i) the correlations of each variable to business results (Table 2); (ii) the performance of each company compared to the other players.

The high correlations observed were expected due to previous studies (Westerman et al. 2012; Pauwels et al. 2012). The impact of digital presence on business results is especially noted on banking because of the high digital maturity of this market (Westerman et al. 2012).

However, these results must be observed with caution because only one industry was analysed encompassing 12 companies. We intend to develop

further studies including other industries to reach more consistent results, preferable, industries combining large, medium and small companies, to observe the importance of digital variables in different sizes of business. The data collection must be broadened to include buzz monitoring and other social media sites like youtube and Instagram. Some procedures must also be implemented to avoid counting fake users of social media.

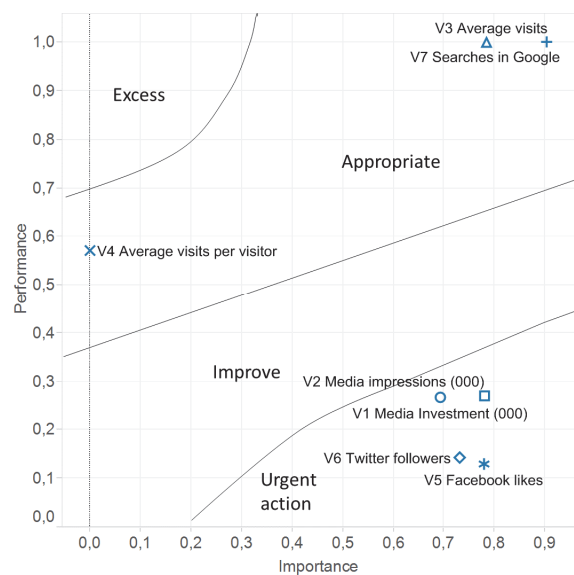


Figure 4: The importance-performance matrix.

Although the necessary improvements, the study verified the possibility to calculate a Digital Performance Index for the banking industry. It is a contribution to the decision-making process because consolidate the diversity of variables in a unified index. On the other hand, the DPI shows the perform of each variable comparatively to competitors. Complementary, the importance-matrix (figure 4) showed a clear vision of the digital variables that must be prioritized.

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