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## **THE ROLE OF PUBLIC BRANDS ON CITIZEN RELATIONSHIP MANAGEMENT**

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# THE ROLE OF PUBLIC BRANDS ON CITIZEN RELATIONSHIP MANAGEMENT

## 1. INTRODUCTION

Since the 1980s, public administration has been dedicated to transforming the management of services provided to society, both as a response to economic crises and as a way to improve the population's quality of life (Bresser, 1996; Hood, 1991; Medeiros & Demo, 2021; Pollit & Dan, 2013). The New Public Management (NPM) aims to increase the quality of public services based on the private sector's management strategies such as productivity, service orientation, decentralization, efficiency in the provision of services, use of market mechanisms (marketization), and accountability (Du et al., 2007; McColl & Ritch, 2020; Secchi, 2009).

This trajectory of administrative transformations in the public sector was intensified in the 1990s with the use of information and communication technologies (ICTs) to provide electronic public services (Diniz et al., 2009; Lara & Gosling, 2016; Lustosa, 2008). The use of new technologies boosted NGP in the late 1990s, facilitated access to public sector information and services for citizens, companies, and servers, and increased the speed and efficiency of processes, improving the quality of services and reducing costs (Lara & Gosling, 2016; Medeiros & Demo, 2021).

In this scenario, the concept of Citizen Relationship Management (CiRM) emerges as the replication of Customer Relationship Management (CRM) strategies and values for the public sector, in an effort to develop and improve the relationship between public institutions and citizens (Reddick, 2010; Schellong, 2005). While in the private sector the adoption of CRM focus on maintaining fruitful and lasting relationships with customers for greater profitability, in the public sector CiRM seeks to strength the relationship between citizens and government, improving transparency, quality, and speed in the provision of services, enhance the image of institutions and encourage citizenship (Medeiros & Demo, 2021). Research on CiRM shows its impacts on the development of integrative management models, the evaluation of availability and effectiveness of public services, the quality and the speed of public service, and the role of technology in managing the relationship between public organizations and citizens (Carvalho et al., 2021).

One gap indicated in Carvalho's et al. (2021) literature review was the lack of knowledge on the antecedents of CiRM. On the private sector, one important driver of CRM is brand personality (Scussel & Demo, 2019; Delmondez et al., 2017), which could be a fruitful path to explore in the context of public brands, since public brands management has been a topic of major interest for public managers (Stevens et al., 2020), with the aim of developing strong public brands capable of creating an affective bond with citizens (Carvalho et al., 2022). Brand personality is a marketing construct that aims to evaluate how consumers perceive a brand's personality, using the same heuristics of human personality (Aaker, 1997). Despite initial criticism, public sector research started to conceive brand personality as a viable metaphor for public brands due to the role of reputation, credibility, and performance (Carvalho et al., 2022; Leijerholt et al., 2019; Waeraas, 2008). On that basis, we raised the following research question: does citizens' perception of public brands' personality impact how they relate to such public brands?

Based on two constructs initially used in the private sector, but which are being increasingly studied in the public sector, the present article aims to analyze the influence of public brands' personality on the perception of the relationship citizens have with those brands. To the best of our knowledge, this is the first proposition of a measurement model considering public brand personality and CiRM, which engenders the main contribution of this research.

## **2. THEORETICAL BACKGROUND**

### **2.1 Brand Personality**

Scholars on public sector management indicates the increasing interest in the perception of public services users, due to the relation between public brand image and the quality of the services provided (Chiusoli & Rezende, 2019; Santos et al., 2019; Souza et al., 2021). In this stream of research, the concept of brand personality emerges as public organizations have names and brands, demanding from public managers the identification of strategies to enhance the image of such institutions (Ponte, 2015). According to Brito (2010), brand personality in the public sector indicates how citizens/users perceive public brands, which will have an impact on the relationship with the institution.

Despite its origins in psychology studies, brand personality has been an important marketing construct since the 1990s, used to evaluate associations of human characteristics and traits that allow the consumer relationships with brands (Aaker, 1997). In other words, brand personality is a set of human characteristics associated with a brand (Aaker, 1997). Whereas human personality is evaluated on individuals' characteristics, attitudes, beliefs, and demographic characteristics, brand personality arises from any interaction between consumer and a brand, in which the consumer evaluates the brand as if it was a person.

On the private sector, brand personality can be the driver of perceived quality, brand attitude, behavioral intention, brand connection, brand commitment, and brand trust (Malik & Naeem, 2013). Brand personality affects brand preference, brand strategy and brand market positioning (Scussel & Demo, 2016). Based on the notorious contribution of the brand personality in the managerial perspective and the importance of enhancing public brands in the eyes of citizens, Carvalho et al. (2022) developed and validated the Public Brand Personality Scale (PBP Scale), a scientific instrument specific for the measurement of brand personality.

The PBP Scale is composed by 15 traits of public brand personality grouped into three dimensions – efficiency, relevance, and credibility, reflecting distinct characteristics that allows the analysis of how citizens perceive the brand personality of public institutions, conforming the scale used in this study to measure public brand personality in our research model integrating public brand personality and CiRM.

### **2.2 Citizen Relationship Management**

In the private sector, Customer Relationship Management (CRM) arises as a response from marketing scholars and practioners to a new paradigm of marketing, under which more than the commercial transaction, firms and brands must seek the development of a relationship with customers, emphasizing aspects related to loyalty, personalization, and relational benefits (Berry, 1995; Sheth & Parvatiyar, 2000; Payne, 2012). In this sense, CRM became a business philosophy customer-centric, supported by information systems and technology, contributing to firms' profitability and customer retention (Mishra & Mishra, 2009; Payne, 2012).

The replication of this business philosophy in the public sector, which goes beyond an organizational practice, is represented by the concept of Citizen Relationship Management (CiRM). CiRM is a set of management practices that seek to optimize the interaction between government and citizens, made possible by technological advances and new forms of social participation, surpassing the mere relationship between customers and products (Denhardt & Catlaw, 2017; Schellong, 2008). From this perspective, CiRM makes strategic use of new technologies to make it possible to increase the governments' efficiency and effectiveness in interacting with citizens and generating better service provision (Fulla, 2007). Unlike the use of CRM in the public sector, the objective of CiRM is not profit, even if the results from CiRM strategies result in efficient use of public resources (Al-Raisi & Al-Khour, 2010).

In this regard, CiRM also engenders as an alternative to overcome public sector challenges related to budget constraints; complex electoral processes; the need to comply with public policies combined with the decline in citizen satisfaction; and falling confidence in governments (Wu, 2020). Additionally, CiRM consists of enabling the government to provide citizens with democratized access to public services in a timely, consistent, and responsive manner, using multichannel strategies to develop a 360° view of the citizen (Larsen & Milakovich, 2010). In this way, the State uses CiRM to improve public services and bring public managers closer to social needs and, thus, strengthen the relationship between government and citizens.

However, putting CiRM into practice is not an easy task. Among the barriers of implementing CiRM, literature points out obtaining resources and investments, appropriate leadership, institutional arrangements, and the fact that information from the various levels of government is often not integrated, leading to information mismatches and inefficiency in decision making (Kannabiran et al., 2004). The appropriate implementation of CiRM requires a change in the public management culture encompassing intergovernmental collaboration and communication, adequacy of organizational processes and practices, and an organizational mindset citizen-centric (Carvalho et al., 2020; Larsen & Milakovich, 2010; Medeiros & Demo, 2021; Schellong, 2005).

In addition to the CiRM's purpose, it is fair and legitimate for citizens to expect to receive public services with the same quality as those provided in the private sector, since demographic, technological and knowledge changes have increased their expectations together with the reluctance to pay taxes (Larsen & Milakovich, 2010). Thus, there is a need for instruments capable of measuring government actions (Fulla, 2007). Regarding the CiRM, Demo and Pessoa (2015) developed a scale capable of measuring the citizens' perception of their relationship with public institutions, the Citizen Relationship Scale (CiRS). As pointed out by the authors, in times when citizens are demanding more from their representatives, the adoption of the CiRM philosophy can help public managers to better understand the perception of citizens regarding the services provided, identifying areas where improvements are needed.

Recently, Medeiros and Demo (2021) proposed a new validation for such scale (CiRS Exec), a scientifically validated instrument, providing the qualification of the research process and the relationship between government and citizens, which was the chosen instrument for measuring citizen relationship perception in our research model integrating public brand personality and CiRM.

### **3. METHOD**

This article reports a descriptive, exploratory, and quantitative study with the main objective of testing a research model between public brand personality and citizen relationship perception. The models comprises the public brand personality as the predictor, exogenous, or independent variable, whereas citizen relationship perception is the criterion, endogenous, or dependent variable. In this work, perception is understood as a psychological concept, which refers to the process by which stimuli are selected, organized, and interpreted, translating them into a meaningful and coherent image (Endo & Roque, 2017), constituting a possible reality to study phenomena in scientific research (Berkeley, 2010).

#### **3.1 Research Context**

The research context is the *Na Hora*, which means “on time” in Portuguese Language, an one-stop public service desk in Federal District in Brazil, a subnational unit in an entity of the Federative Republic of Brazil that accumulates state/municipal attributions and performs subnational public services in an expanded way, offering services of federal and district public agencies in a single service desk.

There are currently 8 *Na Hora* stations spread across the Federal District, agglutinating the provision of public service from 11 public institutions: *Banco Regional de Brasília* (bank), *Companhia de Saneamento Ambiental do Distrito Federal* (environmental sanitation Company), *Companhia Energética de Brasília* (energy company), *Defensoria Pública do Distrito Federal* (public defense), *Departamento de Transito do Distrito Federal* (traffic department), *Transporte Urbano do Distrito Federal* (urban transport), *Secretaria de Estado de Fazenda do Distrito Federal* (tax services), *Secretaria de Justiça do Distrito Federal* (justice services), *Secretaria do Trabalho* (labor law services), *Polícia Civil do Distrito Federal* (police department), and *Instituto de Defesa do Consumidor* (consumer protection institute).

### 3.2 Research Instrument

The research instrument was a questionnaire composed by two measurement scales: the Public Brand Personality Scale – PBP Scale (Carvalho et al., 2022) and the Citizen Relationship Scale – CiRS Exec (Medeiros & Demo, 2021). These scales were chosen because they are the most recent in the scientific literature, validated in the national context, presenting reliable psychometric indices. For both measures, a 5-point Likert-type response scale was used, ranging from 1 (strongly disagree) to 5 (strongly agree).

The questionnaire consisted of 34 items, an invitation letter explaining the research objectives with guidelines on how to fill out the form and an informed consent form. It is worth noting that, according to the Sole Paragraph of Article 1 of Resolution No. 510/16 of the CNS (2016) in Brazil, consultative public opinion surveys that have the anonymity of the subjects and the confidentiality of guaranteed data, as was the case in this research, are waived of ethical analysis by the Research Ethics Committees (CEP) and by the National Research Ethics Commission (CONEP).

### 3.3 Sample and Data Collection

A non-probabilistic for convenience sample, since the number of citizens tends to infinity (Cochran, 2007), was obtained through an online questionnaire on Google Forms platform. For tests of structural models, Cohen (1992) defends a minimum sample that has statistical power greater than 0.80, in the case of behavioral sciences. Thus, using the G-Power 3.1 software and considering the three factors of the predictor variable (PBP Scale), a minimum sample of 132 subjects was recommended for a statistical power of 0.95.

The initial sample was composed by 324 subjects. The data were imported into the Statistical Package for Social Sciences (SPSS 22) program to perform preliminary data treatment. We identified 26 missing values, which were eliminated following the listwise method proposed by (Tabachnick & Fidell, 2019). Next, considering the Mahalanobis distance (Field, 2020; Hair et al., 2018), we excluded 14 outliers, resulting in a final sample of 284 respondents. Then, the analysis of multicollinearity and singularity were performed, using the criterion of tolerance values greater than 0.1 and values of variance inflation factor (VFI) less than 5.0 (Hair et al., 2018). The criteria were met, indicating no multicollinearity problems.

Afterwards, we verified the assumptions for multivariate analyses, using normal probability plots and residual plots (Tabachnick & Fidell, 2019). We examined the linearity, normality, and homoscedasticity of the data, confirming all the assumptions. Finally, using the Amos software, which is linked to SPSS, uni and multivariate normalities were also attested, since the values, in module, of asymmetry ( $sk$ ) and kurtosis ( $ku$ ) were within the expected range, that is,  $|sk| < 3$  and  $|ku| < 10$ , with statistical significance (Marôco, 2018). After processing the data, the final sample consisted of 284 subjects, a number well above the minimum recommended in the sample calculation.

As for demographic data, 50% are female and 50% are male, with ages ranging between 16 and 79 years, and with an average age of 40, with 25% aged between 25 and 34 years, and 31.5% between 35 and 44 years old.

### **3.4 Data Analysis**

To estimate the models of linear relationships between the variables, we performed path analysis, using structural equation modeling (SEM) and the maximum likelihood test (Hair et al., 2018; Kline, 2015). Considering also 406 observations and 64 parameters of the proposed research model, there are 342 degrees of freedom, which constitutes a recursive model, classified as identified (just identified), and therefore suitable for testing through structural equation modeling.

## **4. FINDINGS**

### **4.1 Statistical parameters for measurement and structural models**

To examine the validity and reliability of the scales used in the structural model, the variables corresponding to the public brand personality and citizen relationship were submitted to Confirmatory Factor Analysis (CFA), through structural equation modeling (SEM). We used the Maximum Likelihood Estimation method, the most used estimation method in MEE and the more robust to possible normality problems (Hair et al., 2018).

The MEE makes it possible to measure how the constructs are represented (measurement model) and how the constructs relate to each other (structural model). To determine its acceptability of the model, Hair et al. (2018) recommend the use of at least one incremental index and one absolute index, in addition to the chi-square value and associated degrees of freedom. A model that presents the values of normed  $\chi^2$  (CMIN/DF or NC, being CMIN the  $\chi^2$  statistic and DF the degrees of freedom of the model), CFI (Comparative Fit Index or fit index), and RMSEA (Root Mean Square Error of Approximation or root mean square error of approximation) or SRMR (Standardized Root Mean Square Residual or residual standardized root mean square) will have sufficient information for its evaluation. Satisfactory fit values for a structural model are: NC (CMIN/DF) of 2.0 or 3.0 and at most up to 5.0; CFI equal to or greater than 0.90; and the SRMR, which shows the difference between observed and predicted normalized correlations, is an absolute measure and must have a value  $<0.08$  (Byrne, 2016; Marôco, 2018).

To evaluate the internal validity of the scales, we analyzed the quality of the factor loadings of the scales' items, as the factor loadings refer to the correlation of the items with the respectively associated factor (Hair et al., 2018; Tabachnick & Fidell, 2019). According to Comrey and Lee (2013), the quality of factor loadings can be classified as insignificant (loads  $<0.3$ ), poor (loads  $\geq 0.32$  and  $\leq 0.44$ ), reasonable (loads  $\geq 0.45$  and  $\leq 0.54$ ), good (loads  $\geq 0.55$  and  $\leq 0.62$ ), very good (loads  $\geq 0.63$  and  $\leq 0.70$ ), and excellent (loads  $\geq 0.71$ ). To evaluate the reliability of the factors, we analyzed by the Jöreskog's Rho, a more accurate measure than Cronbach's alpha for MEE, based on factor loadings and not in the correlations observed between the variables, with values above 0.7 considered satisfactory and values above 0.8 very satisfactory (Chin, 1998).

The exam of construct validity covered convergent, divergent, and nomological validity. Convergent validity indicates whether the dimensions of a scale effectively represent the construct to which they refer, using the parameters: Jöreskog's Rho  $> 0.7$ ; factor loadings  $> 0.5$ ; and extracted variance  $> 0.5$  or 50% (Byrne, 2016; Chin, 1998; Hair et al., 2018; Kline, 2015; Marôco, 2018). Divergent validity indicates the degree to which each scale factor measures a distinct construct, using the following parameter: the estimated variance extracted from each factor is greater than the square of the correlation between them (Fornell & Larcker, 1981). Nomological validity indicates the ability of a scale to behave as indicated in the theoretical and empirical literature concerning the relation with other constructs (Hair et al., 2018; Kline, 2015; Marôco, 2018).

## 4.2 Measurement Models Test

### 4.2.1. PBP Scale's confirmatory validation, internal validity, construct validity and reliability

Initially, considering the need of parsimony, we followed Byrne's (2016) guidance and compared the results of the unifactorial and multifactorial models, as Table 1 shows. The one-factor model presented did not meet the parameters when compared to the multifactorial model. Thus, the three-factor model showed a satisfactory fit, since the CMIN/DF, the CFI, and the SRMR were within the reference values. The chi-square difference of the models was also significant, revealing that the public brand personality construct is, in fact, multidimensional.

**Table 1** – PBP Scale's confirmatory analysis adjustment indices

Parameters	Reference	Unifactorial Model	Multifactorial Model
CMIN/DF	< 5.0	9.012	3.944
CFI	$\geq 0.90$	0.828	0.935
SRMR	< 0.08	0.090	0.060
$\Delta \chi^2 (87)=343.110; p<0.001$			

Next, to verify the internal validity of a scale, we must observe the factor loadings, according to the classification proposed by Comrey and Lee (2013). In the confirmatory factor analysis of the PBP Scale, one item presented a very good load and the other 14 items were excellent, contributing significantly to the explanation of the construct (Hair et al., 2018), attesting the quality of the scale items and their internal validity. All variables were significant considering the p-value <0.01 and the Critical Ratio (CR) greater than |1.96|, as Table 2 presents.

To verify the reliability of the scale, we analyzed the Jöreskog's Rho index. The factors obtained the following indices: Efficiency  $\rho=0.95$ ; Relevance  $\rho=0.92$ ; and Credibility  $\rho=0.84$ , being considered very satisfactorily (Chin, 1998), confirming the high reliability of the three factors of the scale.

As for construct validity (convergent validity), all items presented a factor loading greater than 0.50; the Jöreskog's Rho of all factors was greater than 0.70; and the variance extracted from the factors was 0.95 for Efficiency, 0.92 for Relevance, and 0.84 for Credibility 0.84, all above 0.50, thus confirming the convergent validity of the three dimensions.

**Table 2** – PBP Scale's Confirmatory Factor Analysis

Factor	Item	Estimative	Standardized error	R.C.	Standardized estimate (Factor Load)		Factor load quality
Efficiency	Q8PBP – Innovative	1			0.767	**	Excellent
	Q11PBP – Helpful	1.255	0.073	17.114	0.903	**	Excellent
	Q12PBP – Proactive	1.132	0.071	15.937	0.855	**	Excellent
	Q10PBP- Organized	1.221	0.073	16.732	0.888	**	Excellent
	Q2PBP – Competent	1.078	0.068	15.803	0.849	**	Excellent
	Q4PBP – Efficient	1.111	0.072	15.441	0.833	**	Excellent
	Q13PBP – Quality	1.161	0.07	16.704	0.886	**	Excellent
	Q14PBP – Fast	1.122	0.077	14.614	0.797	**	Excellent
Relevance	Q15PBP – Useful	1			0.824	**	Excellent
	Q6PBP – Important	0.969	0.049	19.939	0.943	**	Excellent

	Q5PBP – Essential	0.982	0.051	19.09	0.904	**	Excellent
Credibility	Q3PBP – Reliable	1			0.811	**	Excellent
	Q1PBP – Admired	0.938	0.065	14.454	0.749	**	Excellent
	Q7PBP – Inclusive	0.826	0.069	12.039	0.651	**	Very good
	Q9PBP - Fair	1.037	0.064	16.261	0.814	**	Excellent

Note: \*\*p-value<0.01

Table 3 shows enables us to confirm divergent validity. Considering Fornell-Larcker's (1981) criterion, the estimated variance extracted from each factor was greater than the squared value of the correlation between them (values below the diagonal), proving that the three factors of the scale measure different constructs and can be used independently.

**Table 3 – PBP Scale's Divergent Validity**

Factor	Efficiency	Relevance	Credibility
<b>Efficiency</b>	<b>0.95<sup>a</sup></b>	-	-
<b>Relevance</b>	0.19	<b>0.92<sup>a</sup></b>	-
<b>Credibility</b>	0.70	0.28	<b>0.84<sup>a</sup></b>

Note: <sup>a</sup> Variance Extracted.

On that basis, the PBP Scale has internal validity, reliability, and convergent and divergent validities, according to the recommended parameters. Nomological validity was verified in the structural model test.

#### 4.2.2 CiRS Exec's confirmatory validation, internal validity, construct validity and reliability

Considering that CiRS Exec has a unifactorial structure (Medeiros & Demo, 2021), there is no need to test for parsimony (Byrne, 2016). In the following, we analyzed the modification indices (M.I.) to improve the adjustment of the measurement model (Kline, 2015). Two double arrows were introduced between errors, indicating a positive correlation between them. First, the correlation between errors E3 and E4 deals with the items Q3CiRS (The attendants can answer all my questions) and Q4CiRS (The attendants solve my requests). These two items with excellent factor loading deal with the perception related to the need interaction with attendants, whether in answering questions or solving requests (Mels et al., 1997; Parasuraman et al., 1988; Siu & Cheung, 2015).

Second, the correlation between errors E10 and E12 concerns the items Q10CiS (The Institution encourages the exercise of citizenship) and Q12CiRS (The Institution recognizes the importance of the citizen), regarding the perception of the appreciation of the importance and the exercise of citizenship. Medeiros and Demo (2021) point out the interdependence between these items due to the importance of the citizen in the process of co-production and provision of public services, encouraging the exercise of citizenship.

Table 4 presents the adjustment parameters and the indices of the one-factor model after the above-mentioned changes, revealing the scale's good fit, since all parameters are within the recommendations of Kline (2015) and Marôco (2018).

**Table 4 – CiRS Exec's confirmatory analysis adjustment indices**

Parameters	Reference	Values
CMIN/DF	< 5.0	3.710



CFI	$\geq 0.90$	0.946
SRMR	$< 0.08$	0.043

As for the internal validity exam, three items had a very good factor loading and the rest had an excellent loading (Comrey & Lee, 2013; Hair et al., 2018) and all the variables were significant considering the p-value  $< 0.01$  and the Critical Ratio (CR) greater than  $|1.96|$ , thus attesting the quality of the scale items and confirming its internal validity. In the test for reliability, the ERCi Jöreskog's Rho was  $\rho=0.95$ , considered quite satisfactory for being above 0.9 (Chin, 1998).

Considering it is a unifactorial scale, construct validity is only tested through convergent and nomological validity (Hair et al., 2018). In the analysis of convergent validity, all factor loadings were above 0.50 and were significant, considering the p-value  $< 0.01$  (Hair et al., 2018). Additionally, the Jöreskog's Rho was 0.95 and the average variance extracted was 0.62, above 0.50, thus attesting to the convergent validity of the scale (Chin, 1998). Table 5 presents summarizes the results for the CiRS's confirmatory factor analysis.

**Table 5 – CiRS Exec's Confirmatory Factor Analysis**

Item	Estimative	Standardized error	R.C.	Standardized estimate (Factor Load)	Factor load quality
Q1CiRS – The attendants are attentive and helpful.	1.000			0.689 **	Very good
Q2CiRS – The institution has an effective telephone service.	1.082	0.098	11.038	0.688 **	Very good
Q3CiRS – The attendants can answer all my questions.	1.170	0.098	11.918	0.746 **	Excellent
Q4CiRS – The attendants resolve my requests.	1.227	0.097	12.669	0.796 **	Excellent
Q5CiRS – The attendants are quick to resolve my requests.	1.262	0.096	13.117	0.827 **	Excellent
Q6CiRS – The institution deserves my trust.	1.444	0.104	13.942	0.883 **	Excellent
Q7CiRS – I have to go to the institution only a few times to resolve my requests.	1.271	0.114	11.128	0.694 **	Very good
Q8CiRS – The institution listens to my doubts, suggestions, and complaints.	1.314	0.104	12.627	0.793 **	Excellent
Q9CiRS – I am satisfied with the quality of services provided by the institution.	1.477	0.103	14.367	0.913 **	Excellent
Q10CiRS – The institution encourages the exercise of citizenship.	1.160	0.095	12.207	0.766 **	Excellent
Q11CiRS – The institution offers personalized service.	1.162	0.098	11.889	0.744 **	Excellent
Q12CiRS – The institution recognizes the importance of the citizen.	1.360	0.100	13.597	0.859 **	Excellent
Q13CiRS – The institution has a positive image in society.	1.349	0.105	12.903	0.812 **	Excellent

Note: \*\*p-value $<0.01$

These findings enable us to confirm CiRS Exec's internal validity, reliability, and convergent validity, according to the exposed parameters. Once again, nomological validity was verified in the structural model test.

### 4.3 Structural Model Test

The test of the structural model encompasses public brand personality as the predictor of citizen relationship perception. Thus, the endogenous variable of the model is citizen relationship perception, while the exogenous variables are the three dimensions of the public brand personality, namely, efficiency, relevance, and credibility.

First, we analyzed the correlations between the variables to verify if they are significant, positive, and presented as weak ( $r < 0.3$ ), moderate ( $0.3 < r < 0.5$ ), or strong ( $r > 0.5$ ), according to Cohen (1992). Results confirm the feasibility of testing a prediction model among the variables (Field, 2020), as Table 6 shows.

**Table 6** – Correlation between the variables of the model

	Efficiency	Relevance	Credibility
<b>Citizen Relationship Perception</b>	0.849**	0.514**	0.779**

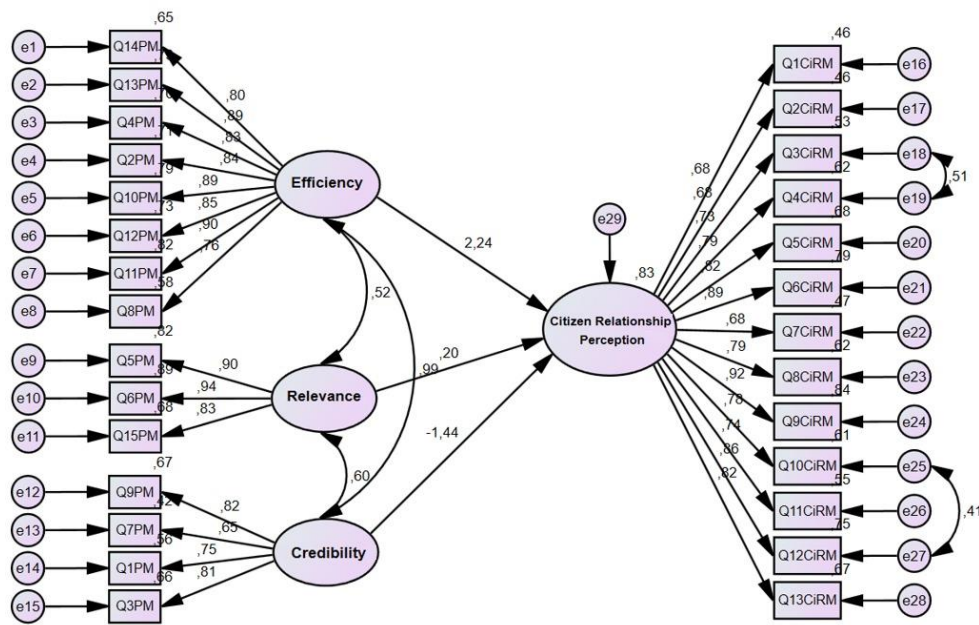
Note: \*\* $p < 0.01$

A significant, positive, and strong correlation was obtained between all the public brand personality factors and citizen relationship perception, thus attesting the nomological validity of the two scales (PBP Scale and CiRS Exec). These findings corroborate the positive association between the two constructs in the private sector (Delmondez et al., 2017; Scussel & Demo, 2019; Demo et al., 2018; Moreno et al., 2020; Moreno et al., 2021).

Next, we performed a path analysis to test the structural model using Structural Equation Modeling (SEM). According to Table 7, all fit indices presented adequate values, as recommended by the literature (Kline, 2015; Hair et al., 2018; Marôco, 2018), thus revealing the validity of the structural model. Figure 1 illustrates the final model.

**Table 7** – Fit indices of the structural model

	Reference	Values
CMIN/DF	$< 5.0$	2.793
CFI	$\geq 0.90$	0.921
RMSEA	0.08	0.080
SRMR	$< 0.08$	0.054



**Figure 1. Structural Model**

Note:  $\chi^2(342)=955.129$ ;  $p<0.001$ ;  $NC(CMIN/DF)=2.793$ ;  $CFI=0.921$ ;  $RMSEA=0.080$ ;  $SRMR=0.054$ .

The standardized regression estimate ( $\beta$ ) represents the magnitude and the direction of the relationship between the endogenous variable (citizen relationship perception) and the exogenous variables (public brand personality factors). We observe a positive and significant relationship between the factors, as Table 8 disclosures.

Although all factors have positive  $\beta$ , the factors efficiency and credibility have a greater influence on citizen relationship perception, with betas of 0.857 and 0.172 respectively, while the beta of the relevance factor is 0.072. The coefficient of determination of a regression ( $R^2$ ) is used to evaluate the percentage of variance of the endogenous variable that can be explained by the exogenous variables. In this study, the  $R^2$  was 72.70%, revealing a very large prediction effect, as it is much above 26% (Cohen, 1992). In this article, the efficiency of public brands is the main predictor of citizen relationship perception.

**Table 8 – Path Analysis**

Relations	Estimative	Standardized error	R.C	Standardized Regression Estimation ( $\beta$ )	$R^2$
Efficiency → CiRM	0.648	0.064	10.131	0.857**	72.70%
Credibility → CiRM	0.117	0.027	4.395	0.172**	
Relevance → CiRM	0.052	0.025	2.039	0.072**	

Note: \*\* $p<0.05$

The structural model is confirmed, attesting to the predictive power of public brand personality on citizen relationship perception.

## 5. DISCUSSION

The main purpose of this article was to investigate the relation between public brand personality and citizen relationship perception. Through a survey with 284 public service users, we verified internal validity, construct validity, and reliability of both the used scales (PBP Scale and CiRS). The next step concerns in presenting an unprecedented structural model between the variables, confirming the relation between them, since more than 70% of citizen relationship perception is influenced by the personality of public brands, notably efficiency.

With this, this article contributes to strengthen studies in the area of relationship marketing with citizens in conjunction with brand personality in the public sector. The combination of these constructs in the research allowed us to expand investigations related to the brand personality as an antecedent of relationship perception, but with a focus on the public sector, filling a literature gap (Carvalho et al., 2019). Thus, this work attests to its originality and advances by indicating the potential of public marketing in the study of public brand personalities in the context of managing the relationship with citizens.

As practical and social implications, these findings can be used by public managers as an instrument to strengthen government action. Therefore, it will be possible to implement a management based on scientific evidence to develop policies and actions that really strengthen the relationship between government and citizens. In this sense, working on the dimensions of efficiency, credibility, and relevance of public brands to improve the relationship with citizens can become an effective communication strategy for the public sector.

The use of scales and the analysis of the structural model are important tools to understand the perception of the relationship with the citizen, which will allow public managers to monitor the citizens' perception to adjust the strategy in order to serve them more effectively and in a transparent way. This is especially important in times of crisis, recrudescence of corruption, and lack of trust in the institutions that provide public services and represent society.

Finally, regarding limitations and agenda for further research, we indicate the cross-sectional approach and the convenience sample. In this sense, the findings are restricted to the sample studied, preventing any possibility of generalization and causal inferences. Thus, future longitudinal studies are encouraged to enable the analysis of how the relation between variables behaves over time.

As the research was a first effort to relate the public brand personality and citizen relationship perception, the results are more indicative than conclusive. Therefore, the replication of the proposed relationships in different samples are a further step in providing greater robustness to the structural model. .

One last limitation concerns the exclusively quantitative nature of the study, which frustrates the possibility of advancing in the interpretation of the phenomena under investigation, beyond their measurement. Thus, multi-method studies and triangulation strategies are especially welcome in future studies.

## 6. CONCLUSION

This article reports a seminal study focused on testing an unprecedented model relating public brand personality and citizen relationship perception in the context of public administration, opening an avenue of possibilities for investigations associating public marketing and brand management strategies with relationship management.

Furthermore, we unveil the potential that public brands recognized as efficient, relevant, and credible have in the way citizens evaluate their relationships with public institutions. In other words, an effective positioning of public brands, considering the real needs and desires of the population, must be a priority agenda of public managers with the objective of improving the image of

institutions, delivering services with more value, and encouraging the exercise of citizenship, pillars of the CiRM.

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