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BUILD YOUR CITY! – ENGAGING CITIZENS IN CROWD-FUNDING PROJECTS

Research paper

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Abstract

Crowdfunding has become an increasingly popular financing instrument. Research in the field of crowdfunding mainly focusses on broadening access to finance for businesses, in particular young and innovative companies and SMEs. Our study looks beyond the potential of crowdfunding for businesses and focuses on crowdfunding as a digital government strategy. Applying insights from the literature on relationship marketing, donation behavior and crowdfunding, we develop a structural model which contains trust towards a city, commitment towards a city and the intention to fund a crowdfunding project initiated by a city as its core elements. Based on an online survey, we find that trust towards a city has a positive impact on commitment towards a city and that commitment towards a city has a positive impact on the intention to contribute to a city's crowdfunding campaign. Certain benefits individuals perceive during a crowdfunding campaign (demonstrable, familial and societal benefits) have a positive impact on the commitment towards a city. Finally, communication has a positive impact on trust towards a city. Our study contributes to the literature on digital government, crowdfunding and relationship marketing and has practical implications. From our results, we derive specific recommendations for cities.

Keywords: Crowdfunding, Digital government, Citizen participation, Establishing trust.

1 Introduction

Crowdfunding (CF) has become an increasingly popular financing instrument in recent years. The current focus of research lies on broadening access to finance for businesses, in particular young and innovative companies and SMEs. Some scholars have pointed out that the very idea of CF is not a new concept. A common example in this context is the fundraising campaign initiated by Joseph Pulitzer in the late 19th century, in which he called for small contributions from citizens to finance the pedestal for the Statue of Liberty (Harris, 1985). It is striking that this early example of CF does not relate to a business project but rather enabled the realization of a project of public interest. Inspired by this historical example and encouraged by the call in CF literature to examine how the idea of CF can be applied in other fields (Beaulieu *et al.*, 2015), our study will look beyond the potential of CF as a source of financing for businesses and focus on CF as a digital government strategy.

CF can be defined as an open call – mostly through the Internet – for the provision of financial resources by a group of individuals instead of professional parties either in form of donations, in exchange for a future product or in exchange for some form of reward (Belleflamme *et al.*, 2014; Schwienbacher and Larralde, 2012). CF campaigns typically involve three stakeholders: a project initiator who seeks funding for a project; funders who contribute to a project; a CF platform acting as intermediary (Belleflamme *et al.*, 2014; Gierczak *et al.*, 2015). Depending on the return a funder re-

ceives for a contribution, four types of CF can be distinguished: (1) reward-based CF (involving a material return); (2) equity-based CF (involving a financial return, e.g. dividends or equity); (3) lending-based CF (involving a financial return in the form of interest); (4) donation-based CF (involving only non-material, non-financial returns, e.g. a feeling of benevolence) (Bradford, 2012).

The emergence of the Internet has played a crucial role as a driver for the development of CF in the past decade (Harrison, 2013). The development of Web 2.0 technologies has enabled the evolution of new and innovative business models, in which the user plays an increasingly important role. The digital user is no longer located at the end of the value chain but is an integral part of it, a co-decision-maker. New information and communication technologies (ICTs) are changing the society in which we live and work fundamentally (Verdegem and Verleye, 2009). These changes also affect the public sector, a development referred to as digital government. ICTs open up new ways for governmental institutions to interact and collaborate with citizens (Bekkers and Homburg, 2007; Verdegem and Verleye, 2009) and to actively integrate them in local decision-making as collaborative partners rather than customers (Bonsón *et al.*, 2012). It helps to enhance and strengthen the communication and relationship between those parties as well as to increase transparency, effectiveness, efficiency and productivity (Yildiz, 2007). All of these factors can increase citizens' trust in governmental institutions (Bonsón *et al.*, 2012). CF is one way of how citizens can be empowered to participate in a city's decision-making process. CF strengthens the capabilities of cities to address the real needs of citizens in the local context, where tight budgets otherwise constrain the city's scope of action. Cities have already started to run CF campaigns for public projects, such as parks, playgrounds, and memorials. Moreover, platforms focusing on CF for cities have emerged (e.g. *citizinvestor.com*; *neighborly.com*).

The idea of engaging citizens through CF has thus far not been addressed in the relevant literature, neither from the perspective of digital government research, nor from the perspective of CF research. Related research in the field of digital government has, for instance, investigated different channels of digital government provision (Wirtz and Kurtz, 2016), the determinants of trust in digital government adoption (Warkentin *et al.*, 2002; Bélanger and Carter, 2008), and the role of social media (Khasawneh and Tarawneh, 2016; Mossberger *et al.*, 2013). Research in the field of CF covers, for instance, the effective use of CF (Schwienbacher and Larralde, 2012), different types of customers (Ordanini *et al.*, 2011), project-specific selection of CF platforms (Belleflamme *et al.*, 2013) and determinants of project success and failure (Mollick, 2014; Kunz *et al.*, 2016).

Our study examines how cities can successfully and sustainably use CF as a financing instrument. It will contribute to the body of literature on CF, digital government and relationship marketing. It will further have practical implications for cities that are interested in initiating CF campaigns. As a first step, we outline the core theory base of our study and develop our hypotheses. Next, we describe our methodology and present the results of our study. Finally, we discuss our results and indicate the main implications our research entails as well as the limitations our study is subject to.

2 Theoretical Background and Hypotheses Development

The motivations for cities to run CF campaigns can be diverse. Beside the apparent motivation of raising funds to realize projects, CF is an instrument to engage citizens. Similar to social media (Khasawneh and Tarawneh, 2016; Mossberger *et al.*, 2013), CF can be used to improve interactions with citizens and to increase direct citizen involvement. Against this background, we consider CF for cities as a strategy that goes beyond the short-term objective of raising funds for a specific project. Rather, we see CF as a long-term strategy that aims at encouraging citizens' participation. Due to this consideration, we base our research on literature in the field of relationship marketing, a marketing concept that focusses on long-term relationships with stakeholders.

Relationship marketing has been defined as “[...] attracting, maintaining and – in multiservice organizations – enhancing customer relationships” (Berry, 1983). In our research, the commitment-trust theory will be of relevance. According to Morgan and Hunt (1994), the existence of the determinants re-

relationship commitment and trust is essential for the success of relationship marketing as they encourage marketers to work at preserving relationship investments, to resist attractive short-term alternatives and to view potentially high-risk actions as being prudent. Morgan and Hunt (1994) define relationship commitment as “[...] an exchange partner believing that an ongoing relationship with another is so important as to warrant maximum efforts at maintaining it; that is the committed party believes the relationship is worth working on to ensure that it endures indefinitely” and consider trust as “[...] existing when one party has confidence in an exchange partner’s reliability and integrity”. Next to achieving objectives in a commercial context (Anderson and Weitz, 1989; Dwyer *et al.*, 1987, Gounaris, 2005), relationship marketing has also proven to be applicable in the context of non-profit organizations (Arnett *et al.*, 2003). Sargeant *et al.* (2006) were the first to develop an empirically based marketing model of the perception of givers and the resulting impact on donations.

The commitment-trust theory serves as a basis for our research model. We adapted the model to the context of CF for cities by incorporating CF-specific factors that may influence either the commitment of citizens towards a city or on trust of citizens towards a city. As funders may be motivated by a variety of different goals, including profit-oriented and altruistic motivations (Mollick, 2014), we will apply insights generated in both, a commercial and a non-profit context.

In the following, we develop our hypotheses based on literature. The first set of hypotheses (H1a to H1f) relates to benefits that potentially influence an individual’s commitment towards a city. The second set of hypotheses (H2a to H2c) relates to factors that may influence an individual’s trust towards a city. Finally, H3 relates to the influence of commitment towards a city on trust towards a city and H4 to the influence of commitment on the intention to support a CF campaign initiated by a city.

Morgan and Hunt (1994) consider product profitability, customer satisfaction and product success as relationship benefits. As such factors are not applicable in the context of non-profit marketing, MacMillan *et al.* (2005) replace them with the factors material and non-material benefits. For the purposes of this study, we distinguish benefits in line with the returns that are provided depending on the CF model. The returns offered in lending-based CF and equity-based CF are considered as financial benefits. The rewards offered in reward-based CF are considered as material benefits. Where funding of a CF campaign is rewarded with financial or material benefits, parallels can be drawn to other types of transactions (such as commercial lendings or investments and the sale of goods). Similarly, to such commercial transactions, we expect financial and material benefits to increase the commitment of an individual to a city. We hypothesize:

H1a: A financial benefit for an individual has a positive influence on the individual’s commitment to a city.

H1b: A material benefit for an individual has a positive influence on the individual’s commitment to a city.

A contribution to a donation-based CF campaign is incentivized by non-material benefits. Non-material benefits may – in addition to financial or material benefits – also occur in lending-based, equity-based and reward-based CF (Belleflamme *et al.*, 2014; Bretschneider and Leimeister, 2017). According to social exchange theory, donors expect some sort of benefits as a result of their donation. Such benefits may be categorized as demonstrable benefits, emotional benefits and familial benefits Sargeant *et al.* (2006).

Demonstrable benefits relate to selfish economic considerations (Sargeant and Lee, 2004). A donation that is visible to a donor’s social group can increase the reputation of the donor. Following the same rationale, we assume that individuals intend to generate prestige among their peers by contributing to a CF campaign initiated by a city. We therefore expect that individuals feel more commitment to a city if their support is noticeable to their social group and if knowledge about their contribution will increase their standing in that group.

A further benefit from donating to a charitable cause relates to the positive emotions such behavior creates (“warm-glow-effect”). Where a city initiates a CF project that promises to provide benefits to

the community, we presume that a similar emotional benefit may be yielded. We therefore expect that individuals feel more committed to a city if their support contributes to a socially relevant purpose.

As a third category of benefits, donors may derive utility from a personal link to the cause they donate to. We assume that a similar benefit may be derived in CF projects run by cities. We therefore expect that individuals feel more committed to a city if the city initiates CF campaigns that directly or indirectly benefit a friend or family member.

In addition, we assume that individuals derive utility from the benefits provided to society. We therefore expect that individuals feel more committed to a city if the city initiates CF campaigns that provide a benefit to society.

H1c: A demonstrable benefit for an individual has a positive influence on the individual's commitment towards a city.

H1d: An emotional benefit for an individual has a positive influence on the individual's commitment towards a city.

H1e: A familial benefit for an individual has a positive influence on the individual's commitment towards a city.

H1f: A societal benefit has a positive influence on an individual's commitment towards a city.

Trust of an individual towards a city can be influenced by a variety of factors. For the purposes of this study, we have chosen factors that we consider to be of relevance in the field of CF for cities.

As a first factor, we include communication into our model, a factor which has frequently been addressed in the relevant literature (MacMillan *et al.*, 2005; Morgan and Hunt, 1994; Sargeant *et al.*, 2006). It has been found that in addition to the perceived quality of information provided, also the presentation of the campaign material is important for supporters (Sargeant *et al.*, 2006). Sargeant and Lee (2002) found that the quality of a service provided by an organization to its supporters influences the donation behavior. MacMillan *et al.* (2005) argued that communication needs to be reciprocal, i.e. needs to involve communication to identify the needs and motivations of donors as well as communication to inform donors. Sargeant (2008) found a positive influence of communication on commitment. CF is usually concerned with projects that are still to be created and are therefore characterized by a lot of uncertainties. We expect communication by a city to increase the trust of potential funders towards the city.

Beside communication, the psychological distance of a CF project to the potential supporter appears to be of particular relevance. Bekkers (2010) finds that the collective well-being of a local community is more important for individuals than global topics or distant beneficiaries. He explains this finding with the fact that it is easier to observe and control a contribution to the common good in local projects. Similarly, we expect that the initiation of local projects increases trust towards a city.

As CF projects are normally carried out online, we consider it important to examine an individual's trust into the Internet as a medium to securely and effectively transfer their money. In line with Shier and Handy (2012), we expect that an individual's perception of the Internet as a trustworthy medium to transfer money can positively influence trust towards a city.

H2a: The communication of a CF campaign has a positive influence on the trust towards a city.

H2b: A low perceived distance between a potential supporter and the CF project has a positive influence on trust towards a city.

H2c: Increasing trust into the Internet has a positive influence on the trust towards a city.

Trust not only includes the perceived ability to keep a promise but also the perceived willingness of the other party to behave in a way that respects the interests of all parties and the perceived willingness to voluntarily avoid opportunistic behavior (Selnes and Sallis, 2003). In the context of donations, trust can be understood as a state of mind, the belief that a non-profit organization will fulfil the expectation of a donor, even if the donor is not able to influence the organization (Naskrent and Siebelt, 2011). Trust plays a crucial role with respect to credibility and legitimacy of non-profit organizations

(Sargeant and Lee, 2004; Mendeléz, 2001) and is therefore a means to create commitment. We expect a similar effect in the context of CF projects.

H3: Trust towards a city has a positive influence on commitment towards a city.

We expect that as the commitment of an individual towards a city increases, the likelihood that the individual contributes to a CF campaign initiated by that city increases as well.

H4: Commitment towards a city has a positive influence on the intention to contribute to a CF campaign initiated by a city.

Previous research indicates that a variety of other factors influence donation behavior (Sargeant and Woodliffe, 2007). According to Sargeant (1999), the socio-demographic profile of potential supporters is a crucial factor. Socio-demographic variables such as age, gender, income, professional status and level of education have been found to influence donation behavior (Sargeant, 1999); Bekkers and Wiepking (2011) and are therefore considered in our model. Figure 1 visualizes our structural model.

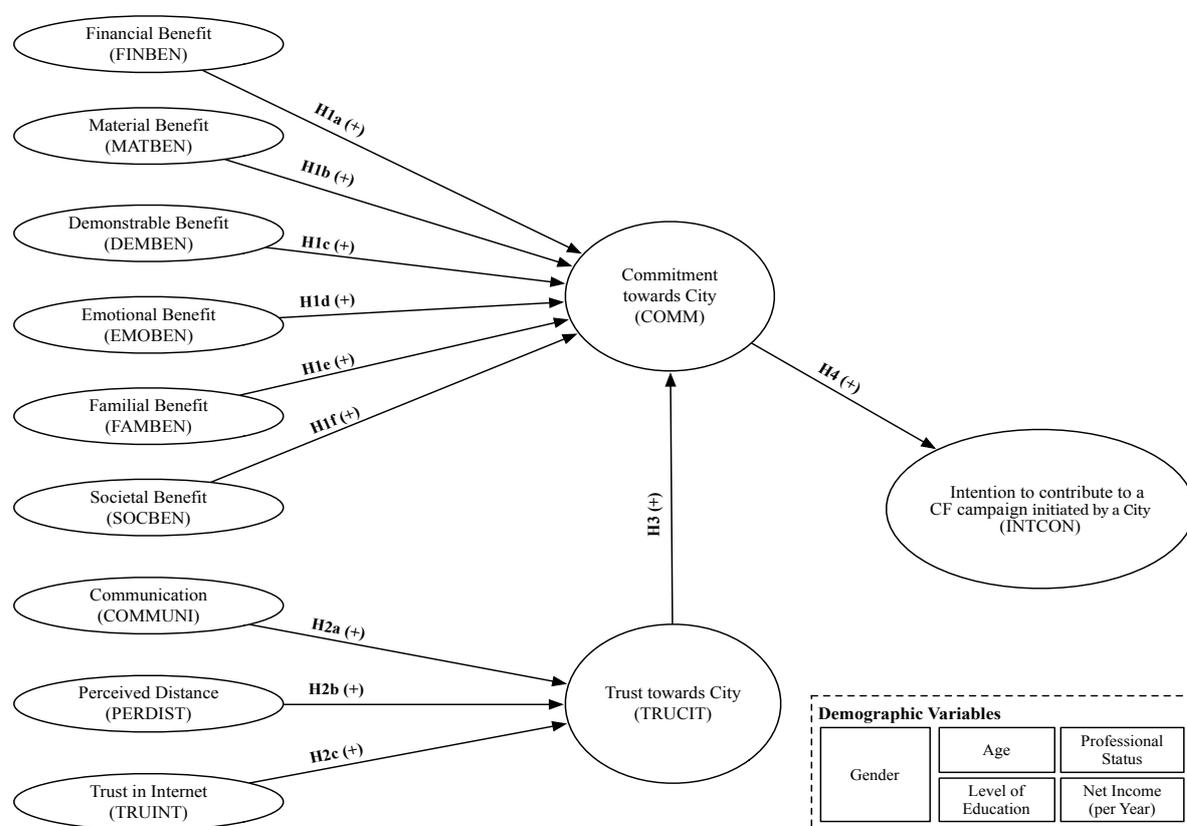


Figure 1. Structural model and demographic variables

3 Methodology

We conducted an empirical study using data from a standardized online survey distributed among German nationals in the third quarter of 2015. The questionnaire was designed in a digital form to reach a large number of potential participants. We promoted the questionnaire over social media and in several university courses. Moreover, we personally contacted potential participants to reach a higher number of responses and to achieve greater diversity among respondents. All participants were asked to distribute the questionnaire to their friends and families. The data collection took four weeks. In the beginning of the questionnaire, we provided two examples of CF campaigns as a reference point to ensure that individuals had a sufficient understanding of the subject matter.

We adopted research scales from previous studies, where possible and modified them, where necessary. We operationalized the constructs by using reflective measurement models. Where possible, the operationalization of the latent constructs was based on three or more indicators, as recommended in the relevant literature (Bollen, 1989; Chin *et al.*, 2003). Considering on the one hand that multiple-item measurement is the most appropriate approach to measure complex sociological constructs (Diamantopoulos *et al.*, 2012; Gardner *et al.*, 1998) and on the other that too many indicators can result in a high complexity of the overall model (Anderson *et al.*, 1987) and may cause respondents' tiredness due to the number of questions, resulting in a potentially inaccurate measurement of latent constructs (Henseler *et al.*, 2009), we formulated 32 items to measure the variables (Table 1). The participants indicated their agreement with the statements on a 5-point Likert scale, ranging from "I strongly agree" (5 points) to "I strongly disagree" (1 point). The majority of operationalization approaches are taken from English-speaking studies and therefore had to be translated into German. The questionnaire was translated into German by one native speaker and translated back by another native speaker to ensure consistency. The questionnaire was pre-tested and checked by experts aiming for a doctoral degree (Neuman, 2010; Ritchie *et al.*, 2013).

Name of variable	Number of items	Source of scale, adopted from or based on:
FINBEN	1	Mollick (2014); Schwienbacher and Larralde (2012); Beaulieu <i>et al.</i> (2015)
MATBEN	3	Mollick (2014); Schwienbacher and Larralde (2012); Beaulieu <i>et al.</i> (2015)
DEMBEN	3	Sargeant (1999); Sargeant <i>et al.</i> (2006)
EMOBEN	2	Sargeant <i>et al.</i> (2006); Wegener and Petty (1994)
FAMBEN	2	Sargeant <i>et al.</i> (2006)
SOCBEN	4	MacMillan <i>et al.</i> (2005)
COMMUNI	4	Sargeant <i>et al.</i> (2006)
PERDIST	2	Bekkers (2010)
TRUINT	1	Shier and Handy (2012)
COMM	3	Sargeant <i>et al.</i> (2006)
TRUCIT	6	MacMillan <i>et al.</i> (2005); Naskrent and Siebelt (2011); Sargeant <i>et al.</i> (2006)
INTCON	1	Sargeant <i>et al.</i> (2006)

Table 1. Scales to measure research variables.

We measured the dependent and independent variables using self-reported methods (Sharma *et al.*, 2009). The validity of responses collected through this method can be critical (Podsakoff *et al.*, 2003). As there is no established method for measuring the Common Method Variance (Chin *et al.*, 2012; Liang *et al.*, 2007), we applied the recommendations by Podsakoff *et al.* (2003) to minimize the appearance of this error, including an assurance of anonymity of participants, the implementation of procedural remedies related to the questionnaire and our item design (e.g. elimination of item ambiguity), and a random order of items.

To test the research model, we use structural equation modeling (SEM) (Hair *et al.*, 2011). Compared to other statistical techniques, the advantages of SEM include more flexible assumptions and less measurement errors (Hong *et al.*, 2013). Furthermore, applying partial least square SEM (PLS-SEM) helps to examine the relevant relationships even based on smaller sample sizes (Hair *et al.*, 2011). We use SmartPLS 2.0 following the guidelines proposed by Hair *et al.* (2012).

4 Data Analysis and Results

4.1 Quality assessment of the model

According to Chin (1998b) the sample size for PLS-SEM should be at least “(...) 10 times the maximum of the number of indicator variables of the block with the largest number of indicators (...)”. A sample size between 30 and 100 is recommended in the literature (Reinartz *et al.*, 2009). The sample of this study should be at least 60. We carefully checked each individual questionnaire for consistency and the number of missing values (answer option “no answer”). In line with Hair *et al.* (2012), we excluded questionnaires if (a) the proportion of missing values was above 15% or (b) the proportion of missing values within one construct was above 50%. Based on the recommendations provided by Hair *et al.* (2014), we applied the Mean Value Replacement procedure for those individual questionnaires with a small amount of missing values (5% or less). A total set of 101 questionnaires (out of 195) remained for examination.

4.2 Demographics

There was a balanced result of respondents in terms of gender (50.5% male, 49.5% female). Regarding age, 4 out of 6 categories were represented: 20-29 (72.3%), 30-39 (13.9%), 40-49 (10.9%) and 50-59 (3.0%). A high proportion of participants indicated a high school or secondary school degree (29.7%) or a university or college degree (64.4%) as their highest level of education. Nearly the half of the participants were employees or self-employed (50.5%), followed by 47.5% students and 2.0% not employed at the moment. Regarding the net income per year, 34.7% of the participants earned €10,000 or less, 26.7% earned between €10,001 and €39,999, and 17.4% earned more than €40,000. The age range, the high proportion of participants with either a high school or university degree, the high proportion of students as well as the high number of participants with a net income per year at €10,000 or less are attributable to the university environment in which this research took place.

We observed that women were more likely to support donation-based CF campaigns, whereas men tended more towards supporting reward-based campaigns. Participants aged in the range of 30 to 39 years were more likely to contribute to a CF campaign than participants in the age between 20 to 29 years. Participants aged between 50 to 59 years had the greatest willingness to contribute. Participants with a university degree or higher were more likely to contribute to a campaign than participants with a lower educational degree. With increasing net income participants were more likely to contribute.

4.3 Results on the measurement level

As we exclusively use reflective measurement models, the quality assessment is based on the indicator reliability, construct/factor reliability, convergence, and discriminant validity (Henseler *et al.*, 2015). The values identified for indicator reliability, construct/factor reliability, and average variance extracted (AVE) are indicated in Table 2.

To assess the indicator reliability, we determined the factor loading of the indicators. Factor loadings with a value ≥ 0.7 can be described as significantly different from zero, and thus make tests on the significance unnecessary (Hair *et al.*, 2014). If an indicator has a factor loading < 0.4 , it must be eliminated from the reflective measurement model (Hulland, 1999). Therefore, the indicators FAMBEN_1 and COMMUNI_2 were removed. Indicators with a factor loading between 0.4 and 0.7 should only be eliminated if they are not of decisive relevance for the construct and if without the respective indicator a substantial increase in construct reliability can be achieved (Henseler *et al.*, 2009). The indicator MATBEN_1 has been eliminated, resulting in a substantial increase in construct reliability. Further indicators with a factor loading between 0.4 and 0.7 (shaded in gray in Table 2) have been retained as they have a decisive importance for their respective construct and eliminating them would result in no or only an insignificant increase in construct reliability.

The values for construct reliability range from 0.702 (MATBEN) to 0.937 (TRUCIT). All constructs are above the required threshold of 0.6. Overall, the construct reliability can be evaluated as very good (Götz et al., 2010).

The AVE is used as a further criterion for verifying the convergent validity. Each construct reached the minimum threshold of 0.5 (Hair et al., 2014), i.e. at least half of the construct variance can be explained by the assigned indicators or the convergence validity, construct reliability and AVE considered together. Hence, convergence validity on the measurement level can be assumed.

The figures in bold in Table 3 indicate the square roots of AVE. All other figures are the correlations between the reflectively measured constructs. The Fornell-Larcker criterion requires the square roots of AVE to be the maximum of their respective line and column (Fornell and Larcker, 1981). The Fornell-Larcker criterion is fulfilled in all cases except one. The correlation between COMM and TRUCIT (highlighted in gray in Table 3) slightly exceeds the square root of AVE for COMM. In addition to the Fornell-Larcker criterion on a construct level, the discriminant validity can be assessed on an indicator level by examining cross loadings (Chin, 1998a; Hair et al., 2012). Without exception, the cross loadings of the indicators have the highest value within the construct they belong to. We assume discriminant validity in almost all cases on a construct and in all cases on an indicator level.

Construct	Indicator	Indicator reliability > 0.7	Construct reliability >0.6	AVE > 0.5
DEMBEN	DEMBEN_1	0.792	0.749	0.513
	DEMBEN_2	0.838		
	DEMBEN_3	0.457		
EMOBEN	EMOBEN_1	0.873	0.794	0.660
	EMOBEN_2	0.746		
COMM	COMM_1	0.855	0.899	0.748
	COMM_2	0.854		
	COMM_3	0.886		
COMMUNI	COMMUNI_1	0.818	0.778	0.551
	COMMUNI_2	Eliminated		
	COMMUNI_3	0.495		
	COMMUNI_4	0.860		
PERDIST	PERDIST_1	0.987	0.787	0.663
	PERDIST_2	0.592		
TRUCIT	CONF_1	0.812	0.937	0.713
	CONF_2	0.863		
	CONF_3	0.868		
	CONF_4	0.867		
	CONF_5	0.769		
	CONF_6	0.884		
TRUINT	TRUINT_1	1.000	1.000	1.000
FINBEN	FINBEN_1	1.000	1.000	1.000
SOCBEN	SOCBEN_1	0.885	0.827	0.555
	SOCBEN_2	0.874		
	SOCBEN_3	0.566		
	SOCBEN_4	0.593		
FAMBEN	FAMBEN_1	Eliminated	1.000	1.000
	FAMBEN_2	1.000		
MATBEN	MATBEN_1	Eliminated	0.702	0.574
	MATBEN_2	0.441		
	MATBEN_3	0.970		
INTCON	INTCON_1	1.000	1.000	1.000

Table 2. Evaluation of the quality criteria of the reflective measurement models.

	PERDIST	EMOBEN	COMM	FAMBEN	FINBEN	INTCON	COMMUNI	MATBEN	DEMBEN	SOCBEN	TRUCIT	TRUINT
PERDIST	0.814											
EMOBEN	0.283	0.812										
COMM	0.399	0.354	0.865									
FAMBEN	0.277	0.310	0.503	1.000								
FINBEN	0.005	0.101	0.302	0.260	1.000							
INTCON	0.227	0.448	0.625	0.339	0.188	1.000						
COMMUNI	0.243	0.482	0.458	0.299	0.131	0.324	0.742					
MATBEN	0.284	0.248	0.334	0.307	0.385	0.182	0.276	0.758				
DEMBEN	0.350	0.396	0.495	0.394	0.367	0.437	0.428	0.470	0.716			
SOCBEN	0.333	0.424	0.344	0.180	0.036	0.324	0.388	0.202	0.280	0.745		
TRUCIT	0.206	0.497	0.431	0.274	0.127	0.337	0.744	0.274	0.368	0.254	0.845	
TRUINT	-0.083	-0.031	0.002	-0.048	0.061	0.112	0.243	0.018	-0.027	-0.067	0.142	1.000
Fulfilment	Fornell-Larcker Criterion											
	Square roots of AVE > Correlation (in row and column)											
	+	+	+	+	+	+	-	+	+	+	+	+

Table 3. Test of discriminant validity (Fornell-Larcker criterion).

4.4 Structural model and hypotheses testing

As a next step, we analyzed the coefficient of determination (R^2), the path coefficient, the effect size (f^2), the prognostic relevance (Q^2) and the predictive strength (q^2). Applying the Stone-Geisser criterion, we identify R^2 both including and excluding all exogenous variables (Geisser, 1974; Stone, 1974). Due to the structural composition of our model, endogenous variables are in part also exogenous precursors of other variables. Chin (1998b) classifies values of $R^2 \geq 0.67$ as substantial, $R^2 \geq 0.33$ as medium and $R^2 \geq 0.19$ as weak. The R^2 of the constructs INTCON (0.390), TRUCIT (0.556) and COMM (0.438) are therefore indicate a medium explanatory potential. The R^2 of COMM is affected by the exogenous construct TRUCIT and the upstream exogenous constructs assigned to it (Figure 2). Considering only the upstream exogenous constructs, the R^2 of COMM (0.407) remains at a medium level.

The standardized path coefficient values can range from 1 to -1. Usually a correlation can be assumed for values above +0.2 or below -0.2 (Chin, 1998a). However, Lohmöller (1989) already considers path coefficients ranging above +0.1 or below -0.1. As indicated in Figure 2, five path coefficients have either a value above +0.2 or below -0.2 and one path coefficient a value above 0.1. With this, a slight influence of the exogenous variable on the endogenous variables can be assumed. The other five path coefficients do not meet the required value.

The t-values were determined using bootstrapping methods. We followed the guidelines provided by Hair *et al.* (2014): individual sign changes, 101 cases (number of records) and 5,000 samples. To determine a significant influence with an error probability of 10% or below, a value below 1.65 had to be achieved in a two-sample t-test; for an error probability of 5% or below the minimum value should be at least 1.96 (Hooper *et al.*, 2008; Kline, 2015; Ullman and Bentler, 2003). As the path coefficients already suggested, a t-value below was not achieved in five path relationships (Figure 2). Hence, we found no significant relationship between EMOBEN and COMM, FINBEN and COMM, SOCBEN and COMM, PERDIST and TRUCIT, and TRUINT and TRUCIT. All other path relationships are significant with error probabilities of 5% or 1%.

According to Cohen (1988), f^2 -values of exogenous variables have the following influence on endogenous variables: $f^2 \geq 0.02$ is a low, $f^2 \geq 0.15$ is a medium and $f^2 \geq 0.35$ is a large influence. For five of the impact pathways f^2 falls below 0.02 (Figure 2). Further, the findings show that the f^2 of COMMUNI and TRUCIT has a very high impact. The f^2 of DEMBEN and COMM, FAMBEN and COMM, SOCBEN and COMM, and TRUCIT and COMM show only a weak influence.

We calculated the Stone-Geisser criterion based on the blindfolding procedure (Geisser, 1974; Stone, 1974). According to the recommendation of Fornell and Cha (1994), values of d (omission distance) between five and ten are appropriate. We followed the recommendation provided by Hair et al. (2014) and chose $d=7$ (not a factor of the total number of cases). Values of $Q^2 > 0$ allow the endogenous variables to be used as predictors. The figures show that all endogenous variables demonstrate a Q^2 greater than 0 (Figure 2). It follows that all variables have a predictive value.

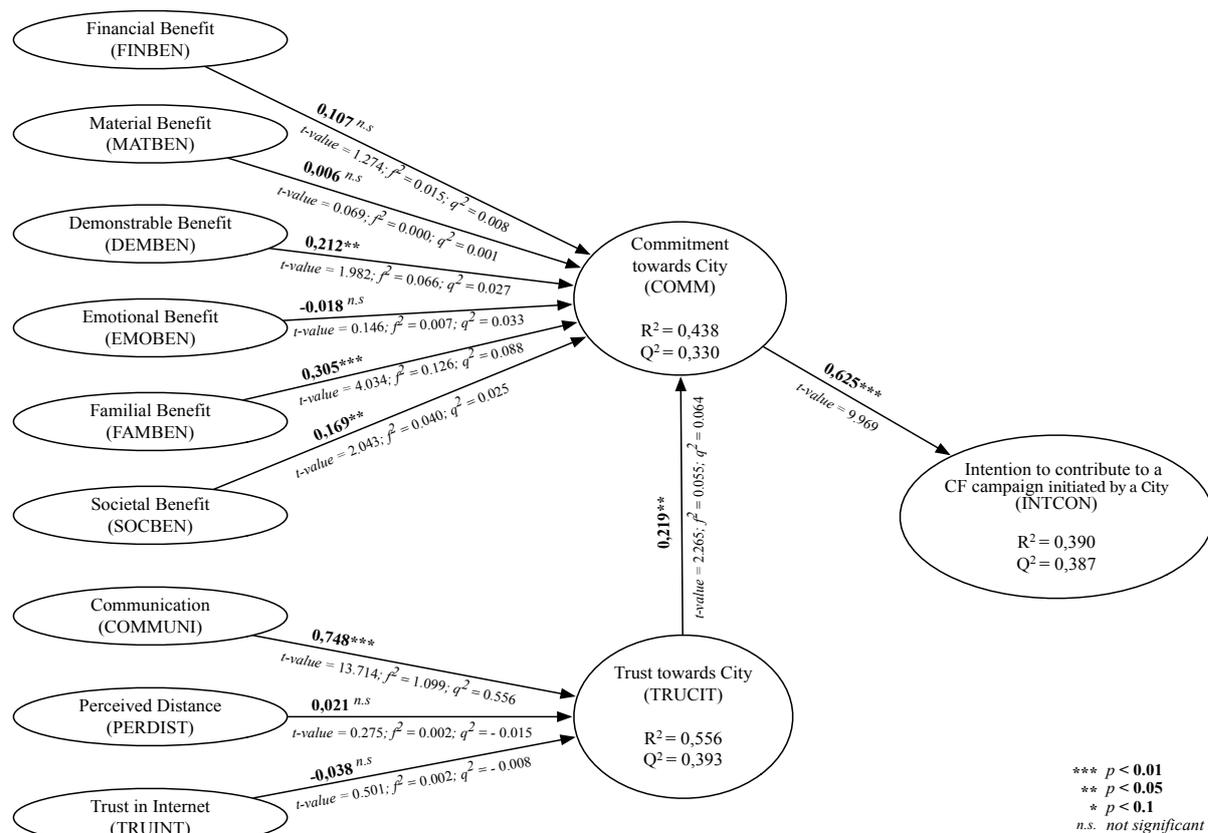


Figure 2. Results from the calculation of the structural model.

q^2 was calculated by including and excluding certain exogenous latent variables. The reference values were then used to calculate the f^2 . The results show that only the variable COMMUNI ($q^2 = 0.556$) has a great influence on the prognostic relevance of the endogenous latent variable TRUCIT. The variables DEMBEN, EMOBEN, FAMBEN and SOCBEN demonstrate a weak impact ($0.02 \leq q^2 < 0.15$) on the prognostic relevance of the endogenous latent variable COMM. The effect size and relative prognostic relevance could not be examined for the path correlation between COMM and INTCON, because the variable COMM influences the dependent variable INTCON as the only construct.

5 Discussion

The core assumptions of the commitment-trust theory can be confirmed in our study. As hypothesized, we find a significant positive influence of trust towards a city on commitment towards a city and a

significant positive influence of commitment towards a city on the intention to contribute to a CF campaign initiated by a city. These results provide evidence for our argument that generating trust is a means to strengthen commitment and that increased commitment leads to a higher intention to fund. The rest of the hypotheses that we developed and tested consider the influence of different variables on commitment/trust. As summarized in Table 4, we do not find empirical support for H1a, H1b, H1d, H2b, and H2c. This should not, however, be misinterpreted as implying that the respective variable cannot increase the intention to contribute to a CF campaign. It rather suggests that more research regarding the effect of these variables is needed. In the following discussion, we will focus on those variables for which we do indeed identify a significant effect on commitment/trust. As we have shown that trust towards a city has a significant positive influence on commitment towards a city and that commitment towards a city has a significant positive influence on the intention to fund a CF campaign initiated by a city, the variables identified indirectly affect citizens' intention to contribute to a CF campaign. Our results can help cities to increase the probability of success of their CF campaigns in the long term. In the following, we discuss the implications of our results for cities that intend to use CF as part of a long-term strategy. This discussion is based on the theoretical considerations and the empirical results presented in the previous sections.

Hypotheses		Path coefficients		Result
		Sign	Significance	
H1a	A financial benefit for an individual has a positive influence on the individual's commitment to a city.	+	not significant	X
H1b	A material benefit for an individual has a positive influence on the individual's commitment to a city.	+	not significant	X
H1c	A demonstrable benefit for an individual has a positive influence on the individual's commitment towards a city.	+	significant (5%)	√
H1d	An emotional benefit for an individual has a positive influence on the individual's commitment towards a city.	+	not significant	X
H1e	A familial benefit for an individual has a positive influence on the individual's commitment towards a city.	+	significant (1%)	√
H1f	A societal benefit has a positive influence on an individual's commitment towards a city.	+	significant (5%)	√
H2a	The communication of a CF campaign has a positive influence on the trust towards a city.	+	significant (1%)	√
H2b	A low perceived distance between a potential supporter and the CF project has a positive influence on trust towards a city.	+	not significant	X
H2c	Increasing trust into the Internet has a positive influence on the trust towards a city.	+	not significant	X
H3	Trust towards a city has a positive influence on commitment towards a city.	+	significant (5%)	√
H4	Commitment towards a city has a positive influence on the intention to contribute to a CF campaign initiated by a city.	+	significant (1%)	√

Table 4. Results of hypotheses test.

Our results – in line with H1c, H1e, H1f – indicate that certain benefits provided to individuals have a significant positive influence on an individual's commitment towards a city. These benefits are: demonstrable benefits, familial benefits and societal benefits. With these findings, we provide evidence for our argument that non-material benefits are important to strengthen the commitment towards a city.

Demonstrable benefits refer to individuals' abilities to enhance their reputation or local prestige through their funding. We provide evidence for our argument that the ability to make a contribution

visible increases the commitment towards a city. Cities initiating a CF campaign should therefore ensure that funders have the possibility to demonstrate the fact that they have made a contribution to their peers. This can, for instance, be achieved by making the name and the amount contributed public, e.g. by mentioning on a website or in a local newspaper. Further, rewards such as badges or stickers could be distributed to show that an individual has contributed to a CF campaign.

Familial benefits refer to a personal link between the funder and the CF project supported. We provide evidence for our argument that personal links involved in CF campaigns, such as benefits to friends or family members, increase the commitment towards a city. Hence, we advise cities to create CF campaigns that affect a wide range of different people in order to ensure that a lot of citizens perceive a personal connection to the CF campaigns. In addition, when communicating a CF campaign, cities should put a particular focus on communication to the families and peer groups of those affected by the campaign.

Societal benefits refer to the impact of the CF campaign on society. We provide evidence for our assumption that individuals derive utility from the benefits provided to society. Cities should therefore put a special emphasis on the benefit a specific CF campaign has for society when communicating the CF campaign. We advise cities to highlight who benefits from a CF campaign and explain the positive impact of a successful realization of the CF campaign on society. In addition, cities could give citizens the opportunity to submit proposals for new CF campaigns.

We further provide evidence for our argument that the way a CF campaign is communicated affects the trust towards a city. Our results imply that a city can increase the probability of success of its CF campaigns in the long term through the communication of its campaigns to citizens. We therefore advise cities to put effort into the communication of their CF campaigns. This includes communication with potential supporters as well as regular updates for individuals who have contributed already.

Our findings indicate that certain aspects of CF campaigns can increase the commitment of citizens towards their city. We observe this effect both directly (H1c, H1e, H1f) and indirectly (H2a, through trust). By engaging citizens in local decision making, CF – potentially as part of a broader digital government strategy – can thus serve as a means to strengthen the ties between individuals and their cities.

6 Conclusion

Previous research has examined the influence of social, psychological and physical incentives as well as socio-demographic characteristics (Bekkers, 2010; Sargeant *et al.*, 2006; Gerber *et al.*, 2013) on the willingness to donate to an organization. The willingness to fund a CF project initiated by a city, however, has not been the subject matter of any research thus far. Our research examines factors that influence the intention of citizens to support a CF campaign initiated by a city. Overall, the results of the quality assessment of the present structural model show that the research model of this study is suitable to examine the intention to support a CF campaign of a city. In the following subsection, we will indicate the limitations our research is subject to and provide starting points for future research. Finally, we will outline the implications of our research for theory and practice.

6.1 Limitations

A first limitation relates to the sample used in this research. The distribution in certain demographic categories does not correspond to the distribution in the overall German population. A reason for the non-representative sample may be the procedure with regard to the distribution of the questionnaire. A distribution of the questionnaire on social media platforms and mainly in the university environment contributed to the participation of mainly students and trainees from the age group of 20-29 years in the survey. Further, our survey was conducted only in Germany and with German participants. Consequently, there is a possibility that the validity of the path model in other countries may differ due to, for instance, cultural limitations (Sargeant and Woodliffe, 2007). Secondly, in the course of our research, we only dealt with a one-time survey providing examination results only at one point in time.

Thirdly, our assessment of R2 indicates that the constructs trust, commitment and intention were only to a certain extent explained by their associated exogenous variables. A fourth limitation relates to the application of the PLS method, as it requires a complete dataset. This means that the missing values of the underlying dataset had to be replaced by averages, using the mean value replacement procedure. This, however, has the disadvantage that the possibility of finding meaningful relationships is reduced (Hair *et al.*, 2014).

Future studies should include a larger group of respondents with a representative number of individuals of all ages and look at individuals from different countries. Further, a long-term research on the willingness of individuals to provide financial support to a CF campaign launched by a city would reveal valuable insights (Naskrent and Siebelt, 2011). In addition, future research is required to explain the remaining factors determining trust, commitment and funding intention. For future studies, it would also be interesting to examine the subject matter with qualitative means. This could involve interviews with the representatives of a city conducted with the aim of identifying the conditions for initiating a CF campaign. This could yield valuable information about the financial ability of cities to conduct CF campaigns and show whether CF campaigns can be applied only within particular subject areas.

6.2 Contribution to theory and practice

To provide a first understanding of how CF can successfully and sustainably be used by cities, we drew on existing literature from two main research streams: relationship marketing theory and CF theory. By matching insights from both streams, we were able to identify factors that affect the intention of citizens to support a CF campaign initiated by a city. Our research contributes to both research streams. With respect to relationship marketing theory, our study shows the application of the commitment-trust model to a new subject matter. With respect to CF theory, our study examines a new field of application for CF. In addition, our results are relevant for e-government theory, as CF can be seen as a new form of active citizen participation in the decision-making process of cities or other governmental institutions. Thus far, e-government services have mostly been guided by supply side factors and technological developments and not by citizens' needs and expectations (Venkatesh *et al.*, 2012; Verdegem and Verleye, 2009; Ebbers *et al.*, 2008; van Dijk *et al.*, 2008). CF is one way of embracing citizens' values and ideas. Our study opens new pathways for researchers to provide a deeper understanding in this field. Future studies may evaluate, revise and extend this research model, to provide a deeper understanding.

From a practical perspective, our research helps cities to successfully use CF as a financing instrument. Our study shows that the commitment towards a city is an important determinant of an individual's intention to contribute to a CF campaign initiated by a city. Establishing a base of loyal supporters who desire a long-term successful development of their city should therefore be an important objective of cities. Our study identified factors which positively influence the commitment of an individual and therefore should be considered by cities intending to use CF. These factors include demonstrable, familial and societal benefits as well as trust. In the preceding section, we provided some concrete advice on how cities can use these insights for CF campaigns.

Our research shows that the benefits for cities of using CF campaigns go beyond the financing of a particular project. Certain aspects of CF campaigns can strengthen the ties between citizens and cities. Such strengthened ties, in turn, increase the likelihood that citizens will support future CF campaigns. Cities may therefore use CF campaigns as a long-term strategy to engage citizens. In doing so, they enable citizens to participate in the development of their own city and thereby to contribute to building their city.

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