

Innovations in museum financing: Potential of Civic Crowdfunding

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Abstract— Recently, museums have been experiencing sharp decline in public funding worldwide. Innovative classes of financing are required to fulfill the gaps in museums' budgets. This paper examines a particular technology-enabled class of financing – civic crowdfunding – as a potential mechanism for the attraction of sponsorships and donations for the museum operations. A specific questionnaire was designed to collect primary data on the potentials of civic crowdfunding of a specific project – the renovation of the Memorial Museum of Nadežda and Rastko Petrović. As indicated by the respondents (N=284), civic crowdfunding can be additional mechanism and viable alternative to the classical forms of public financing.

Keywords - innovative financing, civic crowdfunding, museum management

I. INTRODUCTION

Museum management has been recently developing as an important field of scholarly interest [1]. A number of external and internal factors have affected the age-old industry of museums, thus changing the paradigm of conservatism in the museum management. For instance, museums as public institutions generally suffer from low managerial efficiency of museum managers [2]. The new role of museum directors requires a change from museum being 'predominantly custodial institutions to becoming increasingly focused on audience attraction' [3].

Additionally, museums worldwide face cutbacks in their budgets and governmental financial support. Some studies report on the immense budgetary constraints of museums in the last few years [4]. The other studies, nonetheless, report on a progressive decline in the governmental funding of museums in the last few decades [5].

Finally, museums are faced with the development of novel technologies. For instance, blockchain technolo-

gies are used for tracking system for the loan of cultural objects, thus facilitating the circulation of cultural items and artefacts [6]. Even from a grand scheme of things, the paradigm of digitalization has touched upon museums [7].

Overall laggard management of public institutions, coupled with budgetary constraints that museums nowadays face, create a need for additional sources and ways of financing. Technology advancement, however, enable new mechanisms for donations and sponsorships. A particularly suitable solution might be civic crowdfunding.

Civic crowdfunding is a specific sub-genre of crowdfunding [8]. Civic crowdfunding is an alternative public financing instrument [9], used to finance quasi-public assets and projects [10]. In the context of this paper, 'quasi-public assets' refers to the cultural heritage.

As in other forms of crowdfunding, participation of small-scale investors is crucial for the success of the project posted on a crowdfunding platform such as Kickstarter or IndiGoGo. Unlike other crowdfunding projects, civic crowdfunding is used for fundraising for public assets or projects. The success of a civic crowdfunding project is usually attributable to the participation of citizens as investors.

The concurrent body of knowledge has already delineated a possible direction of the greater citizen participation in financing public cultural institutions [11]. Also, direct financial participation of citizens in financing public goods and services has a long tradition in Serbia [12]. The use of technology-driven methods of financing public goods, such as civic crowdfunding, on the other side, has not been vastly implemented in Serbia [13].

The aim of this paper is to examine the potential of civic crowdfunding as an alternative financing instrument for the museums. More precisely, this study is focused on

the examination of the main drivers (antecedents) of the investors' decision to invest either time or money in civic crowdfunding projects.

This study is focused on a single business case study of required renovation and refurbishment of the Memorial Museum of Nadežda and Rastko Petrović in Belgrade. Using a specifically developed questionnaire to address this aim, we collected responses from 284 respondents. The data were used to test the main factors that could affect either time- or monetary-related investments in the above-mentioned civic crowdfunding project.

The remainder of this paper is organized as follows. Section 2 briefly explains the business case for the civic crowdfunding project of the Memorial Museum of Nadežda and Rastko Petrović, which is part of the National Museum of Serbia). Section 3 delineates the methodology (research instrument, variables, measures, sampling procedure and data processing). Section 4 explains the results. Section 5 contextualizes the findings in the form of discussion and conclusions.

II. A BUSINESS CASE FOR THE MEMORIAL MUSEUM OF NADEŽDA AND RASTKO PETROVIĆ

The cultural institution Museum - Legacy of Nadežda and Rastko Petrović is a lasting memory of the greats of our culture and art. It was opened thanks to the noble gift of their sister Ljubica Luković. In 1967, she bequeathed all her immovable and movable property to the National Museum of Serbia, on the condition that this important legacy be permanently exhibited in her house [14].

The museum has a collection of the famous Serbian painter – Nadežda Petrović – a symbol of feminism and important artist and a nurse of WWI [15]. In addition to the collection of paintings by Nadežda Petrović, the donor bequeathed to the Museum the works of other Bulgarian and foreign artists from the collection of Rastko Petrović (such as I. Meštrović, P. Picasso, O. Rodin, A. Modigliani, E. Degas, J. Cocteau, etc.). A valuable segment of the legacy is also represented by the manuscripts of Rasta Petrović, his African and Mexican collection, travel films, gramophone records, his drawings and especially his large and rich library. This precious gesture of giving was the best way to permanently preserve an extremely valuable collection of paintings and other art objects, personal belongings and memories from the lives of great artists, which also complements our understanding and interpretation of various aspects of their personality and creativity [16][17].

This institution is of great importance for the general cultural heritage of Serbia. At the moment, the Museum-Legacy requires intense investment in renovation and refurbishment.

III. METHODOLOGY

A. Research model

For the purpose of this paper, we examined three variables that might affect the success of the civic crowdfunding project: 1) project difficulty (rewarded from [18]), 2) managerial experience (developed following [18]), and 3) emotional aspects (inspired by 3). These independent variables were developed following [19].

As for the dependent variables, we investigated possible investment of time or money towards the civic crowdfunding project following the scale developed by [20]. Investment in time means a consumption of a person's time to recommend, comment or in any other mean unforcefully communicate the idea of the project [21].

The set of hypotheses is graphically displayed in Fig. 1.

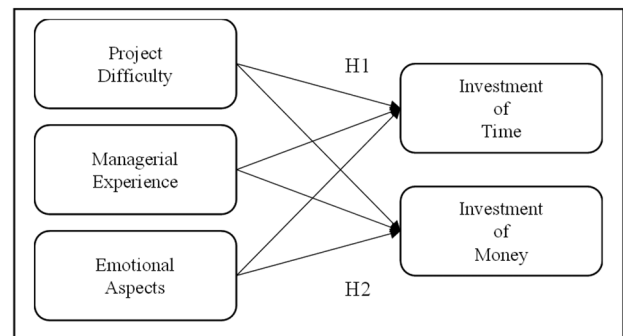


Fig. 1. The hypothesized model

B. Research instrument, variables and measures

We based our study on primary data collected via a specifically developed questionnaire. The questionnaire had six parts. The first part aimed at collecting demographic characteristics of the respondents. Parts 2-4 aimed at collecting data on independent variables (Project Difficulty, Managerial Experience, and Project Plan). Each independent variable was multi-itemed and measured at a Likert-type scale. Individual items of the independent variables are given in Table 1.

Table 1. Variables and measures (independent variables)

Item	Code	Inquiry
Project Difficulty (PD)	PD1	It is difficult for management to realize the plan
	PD2	It is difficult for management to complete project on-time
	PD3	Overall, the project is difficult to implement

Managerial Experience (MD)	MD1	Managerial team is experienced in carrying out this project
	MD2	Managerial team has competence to complete this project
	MD3	Managerial team has corresponding knowledge to implement this project
Emotional Aspects (EA)	EA1	Visiting this museum would be beneficial for learning
	EA2	Visiting this museum would be beneficial for amazement and surprise
	EA3	Visiting this museum would be beneficial for involvement
	EA4	Visiting this museum would be beneficial for identification with the historical period
	EA5	Visiting this museum would be beneficial for identification with the artists
	EA6	Visiting this museum would be beneficial for entertainment

Parts 4-5 of the questionnaire aimed at collecting data on the dependent variables (Investment of time and Investment of Money). The dependent variables were also multi-itemed and operationalized as: 1) probability, 2) readiness and 3) likelihood for the investment of time and/or money. Once again, the Likert-type scale was used.

C. Sampling procedure

In total we sent the questionnaire in the e-form to more than 1.200 email addresses. The snowball sampling technique was used, following the recommendations given in [22]. The total of 295 were returned and 284 marked as valid.

D. Data processing

Data were entered in the Statistical Package for Social Science. The descriptive statistics were used for the pre-analysis. Cronbach Alpha was used for the internal reliability of the multi-itemed constructs. Pearson moment two tailed correlation was used for the interdependence among the observed variables. Finally, two regression models were used to validate the hypotheses.

IV. RESULTS

A. Sample features

The sample was gender-disbalanced, since 60.3% of respondents were female. Most of the respondents were educated (16.7% holding college, 64.1% holding bachelor

or master, and 2.8% holding doctoral degrees). Only about 5% of respondents have not visited any museums in last five years, whereas 17.1% have visited 1-2 times, 43.6% have visited 3-5 times, and 34.5% have visited more than five times in the last five years.

B. Pre-analysis

Prior to testing hypotheses, we conducted pre-analysis, including means and standard deviations, internal reliability analysis and correlation analysis (Table 2).

Table 2. Means, standard deviations, internal reliability and correlation matrix

Variable	Mean	STD	CA	2	3	4	5
PD	4.23	1.74	.94	.83**	.79**	.79**	.75**
ME	3.86	1.84	.95		.92**	.80**	.76**
EA	3.59	1.73	.93			.84**	.79**
Inv-Time	4.16	1.94	.98				.85**
InvMon	4.12	1.62	.87				

** p < 0.01

As shown in Table 1, the respondents were relatively moderately interested into investing in the crowdfunding project either time (Mean=4.16, STD=1.94) or money (Mean=4.12, STD=1.62). All the multi-itemed constructs were scaled to analyze internal reliability using the Cronbach Alpha. All the values were highly above the traditional threshold of CA>0.70. Finally, we found a number of statistically significant correlations both between and among the independent and dependent variables. Moreover, all the correlation coefficients were strong (r>0.70).

C. Hypotheses testing

As we learned about the statistical significance and the strength of the relationship between and among the observed variables, we proceeded to hypotheses testing. The first regression model used Investment of Time (InvTime) as a dependent variable, and three independent variables (Project Difficulty – PD, Managerial Experience – ME, and Emotional Aspects – EA).

Prior to that, we examined the possible existence of auto- and multi-collinearity. As shown in Table 3, the value for Durbin-Watson test (DW=2.03) was in between the traditional threshold (1.5<DW<2.5). Also, Variance Inflation Factor (VIF) was below the threshold of VIF<10.00 for each observed independent variable (3.23, 7.66, and 6.57 respectively).

Finally, we confirmed H1 ($R^2=.75$, $p<.01$). In particular, two out of three observed independent variables were found to be statistically significant predictors of time investment in this potential civic crowdfunding project – project difficulty (Beta=.36, sig.<.01), and emotional as-

pects (Beta=.65, sig.<.01).

Table 3. Regression analysis for model 1

Dep.var.:	Unst.Coeff		St.Coeff.			
InvTime	B	SE	Beta	t	Sig.	VIF
(Constant)	.27	.15		1.78	.08	
PD	.40	.06	.36	6.74	.00	3.23
ME	-.09	.08	-.09	-1.12	.26	7.66
EA	.72	.08	.65	6.401	.00	6.57
P value	R	.87	Adj R²	.76	DW	2.03
<.001	R²	.75	SE	.96	F	292.81

Afterwards, we tested H2 (Table 4). Once again, we pre-checked for a possible auto- and multi-collinearity. Both Durbin-Watson (DW=1.99) and VIF (the same values as in the previous model) were within the standards, and we concluded that no auto/ or multi-collinearity is present in the model. We confirmed H2 ($R^2=.81$, $p<.01$). Once again, two out of three variables were found to be statistically significant predictors of time investment in this potential civic crowdfunding project – project difficulty (Beta=.32, sig.<.01), and emotional aspects (Beta=.51, sig.<.01).

Table 4. Regression analysis for model 2

Dep.var.:	Unst.Coeff		St.Coeff.			
InvTime	B	SE	Beta	t	Sig.	VIF
(Constant)	1.05	.15		7.17	.08	
PD	.30	.06	.32	5.23	.00	3.23
ME	.18	.08	.02	.28	.82	7.66
EA	.48	.08	.51	5.81	.00	6.57
P value	R	.81	Adj R²	.66	DW	1.99
<.001	R²	.66	SE	.94	F	186.15

V. DISCUSSION AND CONCLUSIONS

A. Key findings

The aim of this paper was to examine the potential of civic crowdfunding as an alternative financing instrument for the museums. More precisely, the objective was to specify what the main drivers (antecedents) are of the investors' decision to invest either time or money in civic crowdfunding projects. Three variables were tested – project difficulty, managerial experience, and emotional aspects of investing. For this purpose, a specifically developed questionnaire was used to collect 284 responses.

We confirmed that all project difficulty and emotional aspects play pivotal role in the citizens' decision to invest in civic crowdfunding project of the renovation of the Memorial Museum of Nadežda and Rastko Petrović (a part of the National Museum of Serbia).

B. Contributions and Implications

This paper adds to the concurrent body of knowledge in the field of civic crowdfunding by explaining the possible factors that affect the decision to invest in a specific project. From a grand scheme of things, this field is known as directing the wisdom of the crowd [23]. Hitherto, drivers of success for civic crowdfunding projects have been examined in the areas such as higher education [24], local government projects [25], or social work [26]. Very little has been known about museum financing via civic crowdfunding.

The specific novelty of this paper is the examination of specific drivers of investment decision for museum crowdfunding projects. As expected, the results indicate that the emotional aspect is a key factor for investment. This finding is in line with other crowdfunding studies that find emotions to be a vital force for investors, such as [27].

As for the managerial implications, this study has isolated emotions as the main predictor of the success in potential civic crowdfunding projects. Accordingly, emotional messages could increase the probability of the success of the elaborated project. It should be underlined that positive affective and perceptual language could increase the emotional connection and the sense of ownership of the investment. However, extensive use of social messages reduces the likelihood of the project success [28].

C. Limitations and further recommendations

This study has a number of flaws that could seriously affect the generalizability of the findings. First, the study is based on a limited sample size. An avenue for further research is the extension of the sample to generate a nation-wide conclusion regarding the innovations in financing museums in Serbia.

Second, the study included only a paucity of possible antecedents of investment decisions in civic crowdfunding projects. Also, the examined variables could be considered as a 'low-tension' and relatively obvious predictors. Follow-up studies should concentrate on additional and more intriguing factors.

Finally, this study was focused on a single and potential project. Other studies should focus on general readiness of Serbian people to invest in civic projects over crowdfunding platforms, and some ongoing projects of a public importance.

D. Concluding remarks

Although the aim of this study was to examine and explore the main drivers for the potential civic crowdfunding project, this paper addresses a more profound societal issue. Namely, traditional government-backed sources of financing museums are becoming scarser and scant-

er. Nevertheless, the direct financing (such as admission charging) might utterly jeopardize the number and range of visitors. In the world of today, it seems that free access to the cultural heritage might be a paramount factor for the preservation of cultural heritage.

This paper tackles a more profound social interrogatives and issues related to the preservation of the Serbian cultural heritage. In specific, we elaborate on the possibility of the diversification of financing museums via the use of novel technologies.

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