CRITICAL PPP/PFI PROJECT SUCCESS CRITERIA FOR PUBLIC SECTOR CLIENTS

Danijel Kušljić, Saša Marenjak

Original scientific paper

This paper examines PPP/PFI project success measuring concept for Public sector Clients. Relevant PPP/PFI project characteristics and generic project success measuring aspects have been recognized. Public sector Client is recognized as important PPP/PFI project stakeholder who has immense interest to measure project's success. Current research practice of measuring PPP/PFI projects has been scarce with considerable inherited limitations. Proposed hypothesis states that is possible to identify relevant success criteria and structure success dimensions of PPP/PFI projects for Public sector Clients. Interpretation of these dimensions has been presented and recommendations for further research are proposed.

Keywords: client, criteria, dimensions, PFI, PPP, project success, success evaluation

Kritični kriteriji uspjeha JPP/PFI projekata za naručitelje

Izvorni znanstveni rad

Ovaj rad istražuje koncept mjerenja uspjeha JPP/PFI projekata za naručitelje. Prepoznate su relevantne karakteristike JPP/PFI projekata i bitni općeniti aspekti mjerenja uspjeha. Naručitelj je identificiran kao važni sudionik JPP/PFI projekata koji ima veliki interes za mjerenje uspjeha projekata. Trenutna istraživačka praksa mjerenja uspjeha JPP/PFI projekata je oskudna s prisutnim velikim ograničenjima. Predložena hipoteza rada navodi da je moguće identificirati relevantne kriterije i dimenzije uspjeha JPP/PFI projekata za naručitelje. Prezentirana je analiza definiranih dimenzija te su navedene preporuke za daljnja istraživanja.

Ključne riječi: dimenzije, JPP, kriteriji, naručitelj, ocjena uspjeha, PFI, uspjeh projekta

1 Introduction

Public Private Partnership (PPP) is a partnership between the public sector and the private sector for the purpose of delivering a project or a service traditionally provided by the public sector [1]. Two main forms of PPP can be distinguished: PPPs of a purely contractual nature, in which the partnership between the public and the private sector is based solely on contractual links, and PPPs of an institutional nature, involving cooperation between the public and the private sector within a distinct entity [2]. Contractual PPPs can be further distinguished as "Concession model" which is characterised by the direct link that exists between the private partner and the final End user and "Private Finance Initiative (PFI) model" in which the remuneration for the private partner does not take the form of charges paid by the End users of the works or of the service, but of regular payments by the public partner. Public sector Clients have a role of employer with the goal of delivering public service to End user and private sector subjects have a role of Contractor with the task of providing services specified in PPP contract to the Public sector Client [3]. Government's objective is to deliver world class public services and to achieve the sustained increases in investment and matching reforms are needed to deliver efficient and responsive services, which meet public expectations throughout the country [4]. Strong and dependable public services lay the foundations for a flexible and productive economy and they also promote opportunity and security for all, helping to tackle poverty and social exclusion and improving the quality of life. It can be stated that public sector has a generic tendency to improve success of PPP/PFI projects which are important leverages to achieve public sector objectives. There are still no accepted frameworks for assessing project success and there is no agreement on a standard, or even an operative framework for assessing project success [5, 6]. Need for further research of measuring PFI project's success is identified and development of an evaluation template for retrospectively assessing the success of PFI schemes is recommended [7, 8, 9].

1.1 Research methodology

Research hypothesis states that it is possible to measure success of PFI projects for Public sector Clients and to identify relevant criteria and structure dimensions for success evaluation of PFI projects for Clients. Research constraints are extent of literature review for development of generic set of success criteria and limited Croatian practice of PFI model application for delivering public service that leads to moderate Public sector Client's familiarity with PFI concept for structuring success dimensions. Research methods of analysis, synthesis, survey and statistical data analysis which encompass descriptive statistics and multi-criteria statistical analysis – factor method are applied for hypothesis conformation. Recognition of important success determinants of PFI project success for Public sector Clients is conducted with application of analysis method which implies analysis of complex concepts to their simpler constituent's parts and study of each part itself and in relation to other parts. Identification of relevant success criteria is conducted with application of synthesis method which implies merger of parts or elements or simple constructs in the whole constructs. Statistical analysis and survey with questionnaires with visual analogue scale (VAS) based on licert scale (1 ÷ 7) has been applied for critical success criteria identification and dimension structuring in accordance with present research practice. Questionnaires have been delivered to population subjects by electronic mail and survey has been conducted from June to August 2011. Research

population contains 106 Public sector Client's representatives familiar with PFI concept and 38 representatives responded to survey which is 35,8 % response rate. Reliability of data in questionnaires is assessed using the Cronbac'h alpha coefficient whose value is 0,93 and is acceptable.

2   PPP/PFI concept analysis

Private Finance Initiative (PFI) is used for delivery of roads, bridges, hospitals, schools, prisons, police stations, government departments, social housing, waste projects, IT projects and buildings of similar purpose [10]. PFI is generally used for projects whose aim is to deliver non-commercial public service which is not payable for private sector [10, 11]. Centre of every PFI project is the main Contract [4, 12]. PFI contracts are usually concluded to period longer than 25 years and usually up to 30 years [10, 13, 14]. Generic contract structure of PFI project and associated stakeholders is presented in Fig. 1. PFI project life cycle encompasses feasibility stage, procurement and contracting stage and contract management stage [11]. Since building and associated services are the main object of PFI project these stages are aligned with building life cycle stages that consist of acquisition, use and maintenance, renewal and adaption and disposal of building [15]. In this model Contractor is obligated to deliver requested services over entire contract period [13]. Remuneration for the private partner takes the form of regular payments by the public partner.

These payments may be fixed, but may also be calculated in a variable manner, on the basis, for example, of the availability of the works or the related services, or even the level of use of the works [2]. Private finance contracts are built around a performance regime that outlines service levels and applies penalties to providers if they fail to deliver them [10].
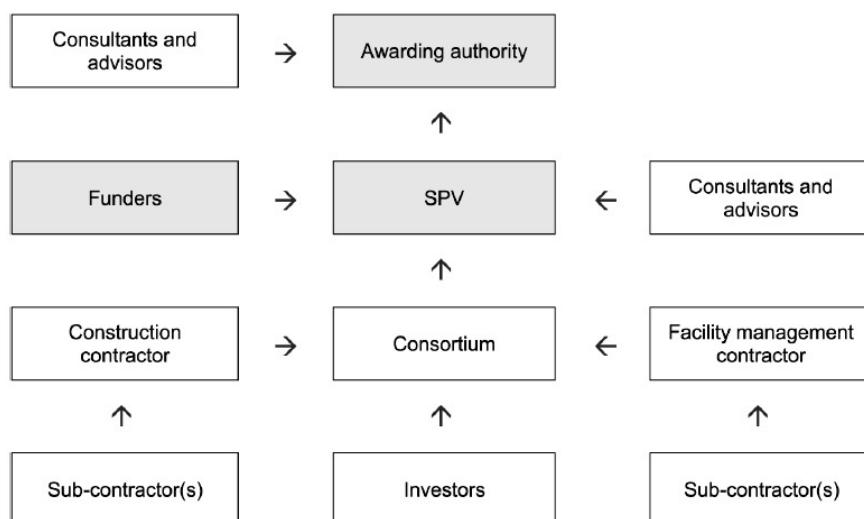

Figure 1 PFI project structure [17]
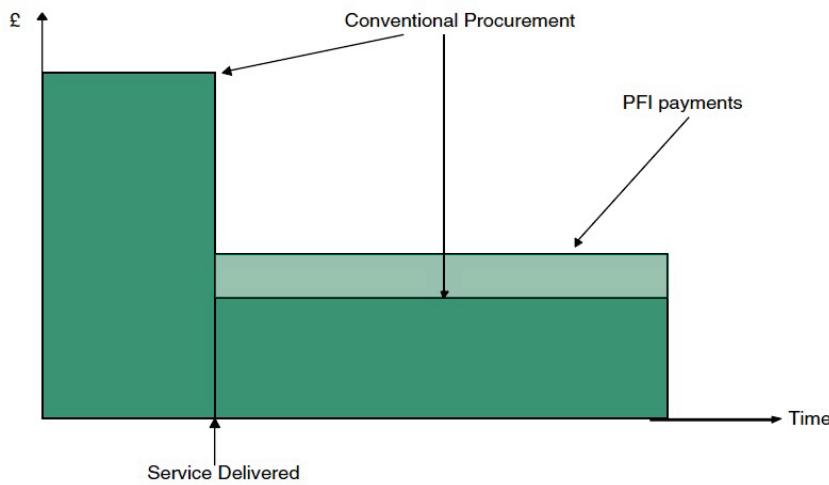
Figure 2 Timing of payments under the PFI and conventional procurement [32]

Payment regime in PFI and traditional procurement is shown in Fig. 2. Focuses of PPP/PFI project are on output specification of services, risks allocation and integrating design, construction and maintenance phases [14]. Output specifications are the main mechanism for protecting Clients interest in PPP/PFI project [14]. Client is responsible for risks identification and evaluation in PPP/PFI projects which result in proposed risk allocation matrix [16]. Whole life costs analysis which is essential for PPP/PFI models also encourages better quality of design solutions and quality of construction works due to the fact that Contractor is responsible for maintenance and

administration of the facility during long term contract period [13]. Client is a public sector authority that initiates and conducts realization of PFI project [3, 17]. The prime responsibility of the public sector is to ensure value for money for society and the main aim is to realise cost effective infrastructure and public services [1]. The Client is under a constant obligation to secure best value with PFI project [12]. In this model most important stakeholder for Public sector Clients is End user for whom PFI project is realized. Important stakeholders for Public sector Clients in PFI model are also politicians, media and public [18]. It can be stated that prime goal for Public sector Client is to deliver public service to End user.

3 Measuring project success

Success is the achieving of the result that is wanted or hoped [19]. Project success is difficult to define and trying to explain the meaning of project success can be compared with the attempt of a group of individuals to achieve the definition of good art [20, 21]. Concept of project success is still indefinitely defined in construction industry [22]. Present research does not contain a consensus about determinant of project success and there is still no commonly accepted framework for evaluating project success [6]. Project success can be evaluated only when valorisation criteria are adequately defined [23]. Criterion is a principle or standard by which something may be judged or decided [24]. Decision about project success or failure is based on achieved results measured when applying certain success criteria [25]. Measuring project success is recognized as a multidimensional concept [5, 6, 22, 26]. Consequently project success should not be measured by applying only one criterion, but success evaluation should encompass different criteria and aspects of success [27]. Diversity and number of success criteria has led to the possibility of grouping criteria in several clusters with common determinants [28]. It is possible to determine relationship between success criteria and dimensions in a manner that dimensions represent clustering framework where success is evaluated by applying certain success criteria. Correlation between adequate success criteria and project type is presented and importance of respective criteria is different for different projects [5, 6, 29, 30]. Perception of project success differs depending on point of view and project success has a different meaning for different stakeholders [20, 22, 27, 29, 30].

3.1 Current research practice of measuring PPP/PFI project success for public sector clients

Insufficiently has been written about measuring the success of PFI projects apart from few expertise and research remarks. Expertise in United Kingdom [4, 31, 32] states that success of PFI project for Public sector Clients means delivering public service to End user during contract period in accordance with contract conditions, A PFI project can be described as successful if it delivers value for money in the form of cost effective, reliable and timely services at agreed prices and to agreed quality, as defined in the contract. Appliance of value for money concept for measuring success leaves open issues of embracing all important aspects of PFI project success for Client, vaguely results interpretation of respective success criteria and ambiguity importance of each criterion for Client. Expertise in United Kingdom [33] states that majority of PPP/PFI reports contains statement about success or failure of considered projects. It can be recognized that there is no further elaboration on what basis those kinds of statements are made. According to [17] in PPP/PFI project different stakeholders apply different criteria for success evaluation and Clients in assessing PPP/PFI project success consider project delivery on schedule, in line with budget, according to specifications and End user opinion. It can be recognized that use of these criteria for measuring success leaves open issues like those of value for money appliances, etc.

4 Success criteria for PPP/PFI project public sector clients

Due to the prior research [34] the authors have examined relationship of PPP/PFI project characteristics, Client's interest in project and important project success measuring aspects which result in reorganization of PPP/PFI project's representative success criteria for Public sector Clients. Those findings are used as preliminary base for development of generic set of success criteria as follows. Since successful PPP/PFI project implies cost effectiveness [31] and the cost of PFI project for Client is anticipated in Public Sector Comparator with appliance of economical analysis in the form of Net Present Value, success criteria "Economical effectiveness (EF)" is identified. "Financial effectiveness (FE)" is often considered an aspect of PPP/PFI projects [35] and it is recognized as success criterion. Effective procurement is one of key success factors for PPP/PFI projects [36] and duration of this procurement process is identified as success criterion "Date of PFI contract signature (DCS)". Since successful PPP/PFI project implies timely services [31] and it is important for Client that service provision begins according to plan [13], success criterion "Starting date of operation (SDO)" is identified. Clear service specification if key for successful PPP/PFI project [14] and success criterion "Required services definition (RSD)" is identified. Adequate design solution is essential for successful PPP/PFI project [37] and success criterion "Specification achievement (SA)" is identified. Contractor's ability to provide service and associated effectiveness is essential for successful PPP/PFI project [7] and success criterion "Usage effectiveness (UE)" is identified. Due to application of output specifications in PPP/PFI projects encourage innovations [10], success criterion "Innovation level (IL)" is identified. In number of research PPP/PFI projects are recognized as successful if high satisfaction levels are present [33]. As a result of considerable correlation between project success and Client satisfaction [6] success criterion "Client satisfaction (CS)" is identified. "End User satisfaction (EUS)" is essential for a successful PPP/PFI project [38] and it is identified as a success criterion. For reason that project applicability components are one of key success factors for PPP/PFI projects [36] which influence Contractor's engagement in fulfilling

contract obligations, "Contractor satisfaction (CS)" is identified as a success criterion. Public sector Client is responsible for defining PPP/PFI project goals and fulfillment of project requirements to assure delivery of public interest [39] and "Long-term development of public service (LDPS)" is identified as a success criterion. When evaluating PPP/PFI projects achievement of strategic benefits should be considered [10] and because this is associated with Client's political goals "Client's political goals fulfilment (CPGF)" is identified as a success criterion. Complexity of PPP project is increasing and need for development of new regulatory instruments exists [40] so "Contribution to Legal/Institutional framework development (CLIFD)" is identified as a success criterion. Since importance of whole life learning and knowledge acquiring is recognized in construction industry [41] and knowledge management is recognized as key for long-term PPP success [42] "Knowledge generation level (KGL)" is identified as a success criterion. Environmental influence is one of construction projects success criteria [29] and PPP/PFI projects are extremely complex and long-term [43] so "Environmental acceptance (EA)" is identified as a success criterion. Public sector finance source is public budget which is generated with taxpayer's obligation [16] spending strategy, including PPP/PFI projects realization, represent public interest and "Taxpayers approval (TA)" is identified as a success criterion. Due to most of public

sector activity being based on "Political support (PS)" [21] and PPP projects are highly exposed to political risks [16] this is identified as a success criterion. Due to the fact that the success of establishment, realization and development of PPP requires a wide public support [44] and the media are the main means of mass communication (television, radio, and newspapers) regarded collectively [19] success criterion "Media picture (MP)" is identified. Since project realization with appliance of public-private partnership has the objective of attracting private finance and know-how [1] success criterion "Market status (MS)" is identified.

4.1 Important success criteria for Clients

Mean importance values for success criteria are applied in similar researches [28, 36]. Mean importance for PPP/PFI project success criteria range from 4,257883 to 5,892472. For whole Client's population with 99 % statistical significance every criterion will have mean importance in upper half of VAS scale. It can be stated that all identified criteria are adequately significant for Clients and all criteria should be used to evaluate success of PPP/PFI project. Only by applying all of these criteria complete success of PPP/PFI project for Client can be perceived and evaluated. Descriptive statistics for survey results is presented in Tab. 1.

Table 1 Survey respondent's perception of the relative importance of success criteria in PPP/PFI projects

	Mean	Rank	Confidence 99,000 %	Confidence 99,000 %	Std. Dev.	Std. Error.
Economical effectiveness (EF)	5,833851	3	5,429564	6,238138	0,917797	0,148886
Financial effectiveness (FE)	5,403468	9	4,899479	5,907456	1,144134	0,185603
Date of PFI contract signature (DCS)	4,257883	20	3,682892	4,832875	1,305323	0,211751
Starting date of operation (SDO)	4,925637	16	4,391767	5,459508	1,211972	0,196608
Required services definition (RSD)	5,892472	1	5,494930	6,290015	0,902485	0,146402
Specification achievement (SA)	5,605994	6	5,110312	6,101677	1,125279	0,182544
Usage effectiveness (UE)	5,892210	2	5,445126	6,339294	1,014953	0,164647
Innovation level (IL)	4,738710	18	4,213077	5,264344	1,193273	0,193574
Client satisfaction (CS)	5,627898	4	5,239151	6,016645	0,882518	0,143163
End User satisfaction (EUS)	5,678818	5	5,276682	6,080953	0,912913	0,148094
Contractor satisfaction (CS)	5,305065	12	4,897063	5,713067	0,926230	0,150254
Long-term development of public service (LDPS)	5,473865	7	5,047309	5,900421	0,968350	0,157087
Client's political goals fulfillment (CPGF)	4,464641	19	3,783894	5,145389	1,545407	0,250698
Contribution to Legal/Institutional framework development (CLIFD)	4,753849	17	4,213925	5,293774	1,225715	0,198837
Knowledge generation level (KGL)	5,325179	11	4,872334	5,778024	1,028030	0,166769
Environmental acceptance (EA)	5,264761	13	4,814809	5,714713	1,021463	0,165703
Taxpayers approval (TA)	5,443218	8	5,034201	5,852235	0,928534	0,150628
Political support (PS)	5,040871	15	4,577259	5,504483	1,052474	0,170734
Media picture (MP)	5,120699	14	4,644670	5,596728	1,080662	0,175307
Market status (MS)	5,375858	10	4,905028	5,846688	1,068860	0,173392

5 PPP/PFI project success dimensions for public sector clients

Inherited clustering structure of presented criteria is identified by application of multi-criteria statistical analysis "factor method". Correlation matrix of 20 community variables from the research survey data was calculated, as shown in Tab. 2. The value of the Bartlett test of sphericity is large in total of 627 360 and associated significance level was small suggesting that the population correlation matrix is not an identity matrix. All the variables demonstrate a significant correlation at the 5

% level, suggesting that there is no need to eliminate any of the variables for the principal component analysis. The value of the KMO statistic is 0,617, which is according to similar researches [5, 26, 36] satisfactory for factor analysis. Principal component analysis produced six factors with eigenvalues greater than 1,000 explaining total of 79,0546 % of the variance, as shown in Tab. 3. Based on Kaiser Criterion all of six factors can be used in further analysis and Varimax raw rotation is applied for obtaining clearer view of factor structures and easier factor interpretation.

Table 2 Correlation matrix of factor analysis

	EF	FE	DCS	SDO	RSD	SA	UE	IL	CS	EUS	CS	LDPS	CPGF	CLIFD	KGL	EA	TA	PS	MP	MS
EF	1,000																			
FE	0,862	1,000																		
DCS	0,442	0,413	1,000																	
SDO	0,462	0,408	0,659	1,000																
RSD	0,650	0,568	0,231	0,301	1,000															
SA	0,499	0,464	0,536	0,289	0,683	1,000														
UE	0,532	0,464	0,293	0,320	0,772	0,823	1,000													
IL	0,328	0,354	0,422	0,189	0,330	0,417	0,237	1,000												
CS	0,444	0,469	0,499	0,310	0,466	0,651	0,444	0,476	1,000											
EUS	0,402	0,475	0,328	0,195	0,449	0,503	0,494	0,337	0,665	1,000										
CS	0,330	0,386	0,397	0,304	0,339	0,519	0,305	0,450	0,743	0,586	1,000									
LDPS	0,434	0,598	0,316	0,364	0,386	0,283	0,200	0,213	0,428	0,485	0,573	1,000								
CPGF	0,111	0,176	0,380	0,008	0,322	0,466	0,194	0,235	0,538	0,177	0,442	0,395	1,000							
CLIFD	0,413	0,465	0,507	0,455	0,411	0,434	0,360	0,250	0,396	0,420	0,313	0,517	0,511	1,000						
KGL	0,477	0,620	0,451	0,145	0,510	0,511	0,379	0,297	0,565	0,599	0,350	0,451	0,431	0,539	1,000					
EA	0,403	0,493	0,382	0,257	0,458	0,481	0,363	0,302	0,485	0,496	0,429	0,664	0,545	0,531	0,624	1,000				
TA	0,563	0,614	0,425	0,427	0,487	0,545	0,345	0,304	0,474	0,227	0,544	0,499	0,324	0,329	0,422	0,483	1,000			
PS	0,393	0,359	0,419	0,236	0,322	0,474	0,329	0,224	0,522	0,262	0,506	0,363	0,462	0,216	0,310	0,532	0,773	1,000		
MP	0,355	0,462	0,466	0,352	0,397	0,593	0,504	0,323	0,459	0,605	0,324	0,294	0,285	0,526	0,617	0,502	0,494	0,385	1,000	
MS	0,533	0,662	0,482	0,399	0,291	0,517	0,365	0,284	0,625	0,540	0,445	0,389	0,210	0,310	0,646	0,411	0,521	0,362	0,667	1,000

Table 3 Initial and rotated factors variance explained of PPP/PFI projects success criteria for Public sector Clients

Factors	Initial eigenvalues				Rotation sums of squared loadings		
	Eigenvalue	% Total variance	Cumulative eigenvalue	Cumulative %	Eigenvalue	% Total variance	Cumulative %
1	9,292632	46,46316	9,29263	46,4632	3,399965	16,9998	16,9998
2	1,596596	7,98298	10,88923	54,4461	2,978405	14,8920	31,8918
3	1,394998	6,97499	12,28423	61,4211	2,966275	14,8314	46,7232
4	1,251755	6,25877	13,53598	67,6799	2,819692	14,0985	60,8217
5	1,173904	5,86952	14,70988	73,5494	2,545548	12,7277	73,5494
6	1,101043	5,50521	15,81093	79,0546			
7	0,944870	4,72435	16,75580	83,7790			
8	0,763907	3,81953	17,51970	87,5985			
9	0,573151	2,86576	18,09286	90,4643			
10	0,409968	2,04984	18,50282	92,5141			
11	0,345186	1,72593	18,84801	94,2401			
12	0,283994	1,41997	19,13200	95,6600			
13	0,262961	1,31480	19,39496	96,9748			
14	0,174327	0,87163	19,56929	97,8465			
15	0,141182	0,70591	19,71047	98,5524			
16	0,111985	0,55992	19,82246	99,1123			
17	0,085354	0,42677	19,90781	99,5391			
18	0,057685	0,28843	19,96550	99,8275			
19	0,019580	0,09790	19,98508	99,9254			
20	0,014923	0,07462	20,00000	100,0000			

Table 4 Rotated factor matrix of PPP/PFI projects success criteria for Public sector Clients

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Usage effectiveness (UE)	0,876912				
Required services definition (RSD)	0,846953				
Specification achievement (SA)	0,686717				
End User satisfaction (EUS)		0,662243			
Clients satisfaction (CS)		0,630780			
Media picture (MP)		0,592031			
Market status (MS)		0,523199			
Innovation level (IL)		0,515107			
Contractor satisfaction (CS)		0,452091			
Long-term development of public service (LDPS)			0,755938		
Environmental acceptance (EA)			0,690992		
Knowledge generation level (KGL)			0,630616		
Contribution to Legal / Institutional framework development (CLIFD)			0,620391		
Political support (PS)				0,804779	
Client's political goals fulfillment (CPGF)				0,647801	
Taxpayers approval (TA)				0,638944	
Starting date of operation (SDO)					0,832371
Date of PFI contract signature (DCS)					0,602278
Economical effectiveness (EF)					0,571570
Finance effectiveness (FE)					0,538176
Expl. Variance	3,399965	2,978405	2,966275	2,819692	2,545548
Prp. Total	0,169998	0,148920	0,148314	0,140985	0,127277

Due to favourably inherited factor structures and interpretability, "*five factor*" solution is selected for further analysis. This factor solution retains 73,5494 % of the variance and each variable belongs to certain factor with eigenvalue greater than 0,5000 (except "Contractor satisfaction" criterion that has 0,452091 loading in factor 5 what is relatively close to 0,5000 and due to factor interpretability this criterion is retained) which is acceptable according to similar research [36]. Factor groupings for this solution based on Varimax raw rotation are presented in Tab. 4.

Due to the fact that "*Factor grouping 1*" accounts for 16,9998 % (Tab. 4) of total variances between success criteria and encompasses success criteria "EU" (Tab. 4: significance 0,876912), "RSD" (Tab. 4: significance 0,846953), "SA" (Tab. 4: significance 0,686717) that refers to service aspects it can be recognized that this factor accounts for most of the variances and service is primary domain of interest for Public sector Clients in PPP/PFI projects where preparation and delivery of service has similar importance for Clients. This factor becomes important success dimension for Public sector Client and can be named "Service realization (SR)". Due to the fact that "*Factor grouping 2*" accounts for 14,8920 % (Tab. 4) of total variances between success criteria and encompasses success criteria "EUS" (Tab. 4: significance 0,662243), "CS" (Tab. 4: significance 0,630780) , "MP" (Tab. 4: significance 0,592031), "MS" (Tab. 4: significance 0,523199), "IL" (Tab. 4: significance 0,515107), "CS" (Tab. 4: significance 0,452091) it can be recognized that this factor mostly refers to stakeholder satisfaction and project reputation aspects where End user and self-satisfaction are most important for Client as Contractor's satisfaction has smallest importance for Client. Since reputation is a generally accepted belief [19, 24] and satisfaction is usually associated with positive reputation it is possible to have common consideration of these criteria. This factor becomes important success dimension for Public sector Client and can be named "Public reputation (PR)". Due to the fact that "*Factor grouping 3*"" accounts for 14,8314 % (Tab. 4) of total variances between success criteria and encompasses success criteria "LDPS" (Tab. 3: significance 0,755938), "EA" (Tab. 4: significance 0,690992), "KGL" (Tab. 4: significance 0,630616), "CLIFD" (Tab. 4: significance 0,620391) that refers to project contribution to society development, it can be recognized that strategic improvement of public services is most important for Client and other development contributions have similar less importance for Client. This factor becomes important success dimension for Public sector Client and can be named "Public contribution (PC)". Due to the fact that "*Factor grouping 4*" accounts for 14,0985 % (Tab. 4) of total variances between success criteria and encompasses success criteria "PS" (Table 4: significance 0,804779), "CPGF" (Tab. 4: significance 0,647801), "TA" (Tab. 4: significance 0,638944) that refers to political aspects it can be recognized that PPP/PFI project status in political stage has greater importance for Public sector Client than fulfilling political goals with project and obtaining support of taxpayers. This can be explained with history of immense competition between political parties in Croatian society that can be a serious obstacle in capital projects realization. This factor becomes important success dimension for Public sector Client and can be named "Political reputation (Pol-R)". Due to the fact that "*Factor grouping 5*" accounts for 12,7277 % (Tab. 4) of total variances between success criteria and encompasses success criteria "SDO" (Tab. 4: significance 0,832371), "DCS" (Tab. 4: significance 0,602278), "EF" (Tab. 4: significance 0,571570), "FE" (Tab. 4: significance 0,538176) that refers to efficiency of project delivery it can be recognized that timely beginning of service provision is most important criterion of this PPP/PFI project realization stage for Public sector Client. According to [13] collective analysis of PPP/PFI project time and cost criteria is called "*Project delivery*" and they represent important indicator for Contractor's efficiency in PPP/PFI project. This factor becomes important success dimension for Public sector Client and can be named "Project delivery (PD)".

6 Conclusion

Public sector Clients perceive PPP/PFI procurement as the way to deliver public service and range of benefits to society. Number of criteria can be used to measure success of PPP/PFI projects ranging from traditional success criteria to strategically important criteria and political criteria. It is possible to identify important success criteria for Public sector Clients and to rank the relative importance of these criteria with application of descriptive statistics "*mean score values*" of response data from survey respondents where 20 important success criteria have been recognized. Clustering structures of five factor groupings for these criteria have been identified with application of multi-criteria statistical analysis "*factor method*" and they represent success dimensions of PPP/PFI projects for Public sector Clients which are: Service realization (SR), Public reputation (PR), Public contribution (PC), Political reputation (Pol-R) and Project delivery (PD). This research contributes in understanding of the PPP/PFI projects' success. Further research can focus on important success criteria identification for other key project stakeholders like End users or Contractors. Research focus can also be on modelling success criteria for application on PPP/PFI project success evaluation in the manner to reduce all measured scores to single scale so that the achieved success measured by certain criterion could be comparable. Based on identified and modelled success criteria for all key stakeholders generic regression model for success evaluation (criteria are independent variables and achieved overall success is dependent variable) can be explored which could have huge empirical appliance.

Along with some modifications this model could find application for evaluating success of PPP/PFI projects in EU member states as a common benchmarking tool.

7 References

[1] European Commission // Guidelines for successful Public-Private-Partnerships: Brussels, 2003.

[2] European Commission // Green paper on Public-private partnerships and community law on public contracts and concessions: Brussels, 2004.

[3] Marenjak, S.; Skendrović, V.; Vukmir, B.; Čengija, J. Public-Private Partnership and its implementation in Croatia. // Građevinar. 59, 7(2007), pp. 597-605.

[4] HM Treasury // PFI: meeting the investment challenge; HM Treasury Public Enquiry Unit: London, United Kingdom, 2003.

[5] Ahadzie, D. K.; Proverbs, D. G.; Olomolaiye, P. O. Critical success criteria for mass house building projects in developing countries. // International Journal of Project Management. 26, (2008), pp. 675-687.

[6] Shenhar, A. J.; Dvir, D.; Levy, O.; Maltz, A. C. Project success: A Multidimensional Strategic Concept. // Long Range Planning. 34, (2001), pp. 699-725.

[7] Audit Commission // PFI in Schools, London, United Kingdom, 2003.

[8] Association of Chartered Certified Accountants// Evaluating the operation of PFI in roads and hospitals; Research report no.84, The Association of Chartered Certified Accountants (ACCA): London, United Kingdom 2004.

[9] PartnershipUK // Schools PFI – Post-Signature Review by Partnership UK for Department for Education and Skills; Department for education and skills, Phase 2 Report: United Kingdom, 2005.

[10] National Audit Office // Private Finance Projects; Report, London: United Kingdom, 2009.

[11] Marenjak, S.; Horner, W. M.; El-Haram, M. Private investment in high-rise construction in Croatia. // Građevinar. 55, 7(2003), pp. 383-389.

[12] Dillon, M. Operating PFI contracts problems, pitfalls and their solutions. // Construction study centre London, United Kingdom, 2010.

[13] National Audit Office. // PFI: Construction Performance; National Audit Office, Report: London, United Kingdom, 2003.

[14] Scottish Executive. // Output Specification - Building our future: Scotland's school estate: Edinburgh, United Kingdom, 2004.

[15] ISO/DIS 15686-5 // Building and constructed assets – Service life planning – Part 5: Life cycle costing; International Organization for Standardization, 2004.

[16] Jurčić, D. Varijabilnost financijskog stanja i rizika u funkciji utvrđivanja dužničkog kapaciteta projekta javno-privatnog partnerstva; PhD Thesis, Faculty of Economics, University of Rijeka, Republic of Croatia, 2009.

[17] Dixon, T.; Pottinger, G.; Jordan, A. Lessons from the private finance initiative in the UK: Benefits, problems and critical success factors. // Journal of Property Investment & Finance. 23, 5(2005), pp. 412-423.

[18] Leach, G. The Private Finance Initiative IoD Policy Paper; Institute of Directors, London, United Kingdom, 2000.

[19] Cambridge University Press; Cambridge Dictionaries Online: Cambridge, United Kingdom, 2011. URL: http://dictionary.cambridge.org/

[20] Jugdev, K.; Muller, R. A retrospective look at our evolving understanding of project success. // Project management journal. 4, 36(2005), pp. 19-31.

[21] Jacobson, C.; Choi, S. O. Success factors: public works and public-private partnerships. // International Journal of Public Sector Management. 21, 6(2008), pp. 637-657.

[22] Chan, A. P. C. Framework for Measuring Success of Construction Projects; Report 2001-003-C-01 // School of Construction Management and Property, Queensland University of Technology; Brisbane, Australia, 2001.

[23] Diallo, A.; Thuillier, D. The success dimensions of international development projects: the perceptions of African project coordinators. // International Journal of Project Management. 22, (2004), pp. 19-31.

[24] Oxford University Press; Oxford Dictionaries, Oxford, UK, 2011, URL: http://oxforddictionaries.com/

[25] Lim, C. S.; Mohamed, M. Z. Criteria of project success: an exploratory re-examination. // International Journal of Project Management. 17, 4(1999), pp. 243-248.

[26] Al-Tmeemy, S. M. H. M.; Abdul-Rahman, H.; Harun, Z. Future criteria for success of building projects in Malaysia. // International Journal of Project Management, 2010.

[27] Chan, A. P. C. Determinants of Project Success in the Construction Industry of Hong Kong; PhD thesis, University of South Australia, 1996.

[28] Lipovetsky, S.; Tishler, A.; Dvir, D.; Shenhar, A. The relative importance of project success dimensions. // R&D Management. 27, 2(1997), pp. 97-106.

[29] Lam, E. W. M.; Chan, A. P.; Chan, D. W. M. Benchmarking success of building maintenance projects. // Facilities. 28, 5/6(2010), pp. 290-305.

[30] Muller, R.; Turner, R. The influence of Project Managers on Project Success Criteria and Project Success by Type of Project. // European Management Journal. 25, 4(2007), pp. 298-309.

[31] National Audit Office // Managing the relationship to secure a successful partnership in PFI projects, Report: London, United Kingdom, 2001.

[32] House of Lords // Government Response to Report on Private Finance Projects and off-balance sheet debt, Committee of Economic Affairs, United Kingdom, 2010.

[33] PartnerhipUK // Report on Operational PFI Projects by Partnership UK: United Kingdom, 2006.

[34] Kušljić, D.; Marenjak, S. Evaluating success of public private partnership projects. // Građevinar. 63, 12(2011), pp. 1079-1085.

[35] Smith Institute. // Public sector procurement and the public interest: United Kingdom, 2005.

[36] Li, B.; Akintoye, A.; Edwards, P. J.; Hardcastle, C. Critical success factors for PPP/PFI projects in the UK construction industry. // Construction Management and Economics. 23, (2005), pp. 459-471.

[37] Office of Government Commerce. // Green Public Private Partnerships: United Kingdom, 2002.

[38] CBI // Building on success: The way forward for PFI; The Voice of business: United Kingdom, 2007.

[39] Levinson, D.; Garcia, R. C.; Carlson, K. A framework for Assessing Public-Private Partnerships, Institutions and regulatory Reform in Transportation // Edward Elgar Publishers, 2006.

[40] Marenjak, S.; Kušljić, D. Legal framework of public-private partnerships. // Građevinar. 61, 2(2009), pp. 137-145.

[41] Završki, I.; Kušljić, D. Methodology for construction industry knowledge and information management survey. // Proceedings from 7th International Conference Organisation, Technology and Management in Construction / Republic of Croatia, Zadar, 2006.

[42] Agency for Public Private Partnership. // PPP Guide, Republic of Croatia, Zagreb, 2010.

[43] HM Treasury. // Making savings in operational PFI contracts – DRAFT, London, United Kingdom, 2011.

[44] Government of the Republic of Croatia // Strategic framework for Public private partnership development in Croatia, Ministry of Economy, Labor and Entrepreneurship, Republic of Croatia, 2009.

Authors' addresses

Danijel Kušljić, dr. sc., dipl. ing. grad.
Center for Monitoring Business Activities
in the Energy Sector and Investments
Miramarska ulica 24, 10000 Zagreb, Croatia
E-mail: danijel.kusljic@gmail.com

Saša Marenjak, prof. dr. sc., dipl. ing. grad.
Josip Juraj Strossmayer University of Osijek
Faculty of Civil Engineering
Crkvena ulica 21, 31000 Osijek, Croatia
E-mail: sasa@pppcentar.com