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# EVALUATING THE SUCCESS OF PFI PROJECTS IN CROATIA APPLYING SUCCESS CRITERION "STARTING DATE OF OPERATION"

*Danijel Kušljić, Saša Marenjak*

Subject review

Private Finance Initiative (PFI) is a model of Public Private Partnership (PPP) used to deliver public services which are not commercial in nature. Naturally, clients want to achieve successful PFI projects and they need to have a tool for evaluating the achieved success. Generally there are still no accepted frameworks for assessing project success but several recommendations for development of an evaluation template for assessing the success of PFI schemes exist. To enable success assessment there is a need to identify adequate success criteria. In this paper, important PFI project success criterion for client called "Starting Date of Operation" will be identified. Model for its application on evaluating PFI project success will be recommended and its empirical applicability on suitable PFI projects in Croatia will be demonstrated. Descriptive statistics indicator will be calculated and referent base for success evaluation of PFI projects in Croatia applying "Starting Date of Operation" success criterion will be established.

***Keywords:*** *PFI, PPP, project success, success criteria, success evaluation, time*

## Ocjena uspjeha PFI projekata u Republici Hrvatskoj primjenom kriterija uspjeha "Datum početka uporabe"

Pregledni članak

Privatna Financijska inicijativa je ugovorni oblik Javno-privatnog partnerstva koja se koristi za nabavu javnih usluga koje nisu komercijalne naravi. Prirodno, naručitelji žele realizirati što uspješnije PFI projekte te trebaju raspolagati sa alatom za ocjenu ostvarenog uspjeha. Općenito, još uvijek ne postoji prihvaćeni okvir za ocjenu projektnog uspjeha, ali postoje preporuke za razvoj okvira za ocjenu uspjeha PFI projekata. Da bi se omogućila ocjena uspjeha potrebno je identificirati odgovarajuće kriterije. U ovome radu, identificirati će se važni kriteriji uspjeha PFI projekta nazvan "Datum početka uporabe" (DPU). Slijedno će se predložiti model za njegovu primjenu kod ocjene uspjeha PFI projekta i prikazati će se primjenjivost na odgovarajuće PFI projekte u Republici Hrvatskoj (RH). Analizirati će se pokazatelji deskriptivne statistike te će se postaviti referentna osnova za ocjenu uspjeha PFI projekata u RH primjenom DPU kriterija.

***Ključne riječi****: JPP, kriteriji uspjeha, ocjena uspjeha, PFI, projektni uspjeh, vrijeme*

## 1 Introduction

A 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]. It can be stated that PPP presents a method of realizing public projects which apply the resources of private sector under control of public sector. Public sector has a role of a Client with a goal of delivering public service to the User and private sector has a role of a Contractor with a task of providing services specified in PPP contract to the Client [2]. PPP is also recognized in Croatia as a framework for long term sustainable economic development and higher level of public services to the population [3]. PPP concept dates from 18$^{th}$ century in the form of concessions [2], while in 1970 and 1980 follows the development of BOT (Build, Operate, Transfer) models and their derivates [4]. New PPP model for delivering noncommercial public services called Private Finance Initiative (PFI) was introduced in 1992 in the United Kingdom (UK) [5]. Since then there are no accepted frameworks for assessing project success and there is no agreement on the standard, or even an operative framework for assessing project success [6], [24] and development of an evaluation template for retrospectively assessing the success of the PFI schemes has been recommended [7, 8, 9]. The need for further research of measuring the PFI projects success has been identified. Using extensive literature review and application of research methods "analysis and synthesis" and "induction and deduction" [10] key aspects of measurements of the PFI projects success have been identified. Starting Date of Operation (SDO) has been identified as one of the key success criteria for PFI projects and the model for its application on evaluating PFI project success for Client has been recommended. The PFI projects realized in Croatia which are in operational phase and suitable for empirical test of the recommended model, have been identified by applying "questionnaire survey" [10]. The identified PFI projects constitute case studies for this research. All of these PFI case studies are realized according to the relevant regulatory framework in Croatia.

## 2 Measuring PFI projects success

### 2.1 PFI model

Private Finance Initiative is used to accomplish a certain public function which is not commercial in nature or cost-effective using profit criteria for private sector (e.g. public Schools or public Health care) and Client pays provision of contracted services during contract period to Contractor [11]. In PFI model, the remuneration for the private partner does not take the form of charges paid by the users of the works or of the service, but 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 [12]. The centre of any PFI project is a contract within which the public sector specifies the outputs it requires from a public service facility, and the basis for payment for those outputs [13]. PFI contract is a long term service contract (e.g. usually 25÷30 years) [11]. Phases in PFI project include feasibility analysis, contracting phase and contract management phase (including design, construction, maintenance and operation) [14].

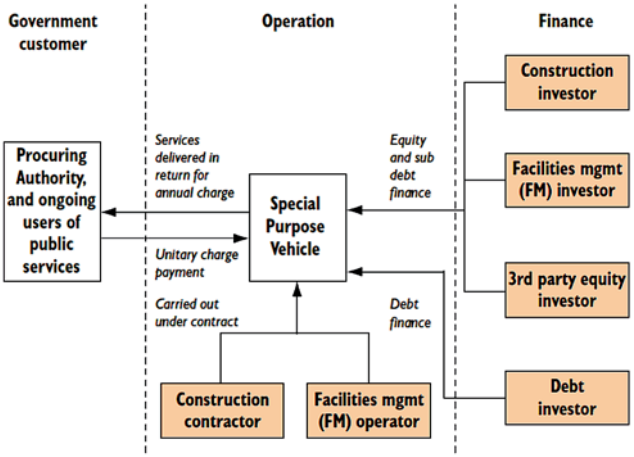


**Figure 1** Typical commercial structure of a PFI project [13]

## 2.2
## Measurement of success

Project success is probably the most frequently discussed topic in the field of project management, yet it is the least agreed upon [15, 16]. No clear definition of success existed and measuring project success is elusive [17]. Success measuring is a multidimensional concept [15, 18, 19, 20]. Measuring success basically needs to embrace success dimensions, such as project efficiency and product success or project contribution to defined goals [6, 18, 20, 21, 22]. To measure success in a particular dimension there is a need to identify adequate success criteria that will enable success assessment. Success criteria can be described as the standard, at which project success is judged [23, 24]. Decision of project success/failure is determined based on results measured by selected success criteria [23]. Furthermore, consolidated framework of success criteria for measuring construction project success has been presented [19].

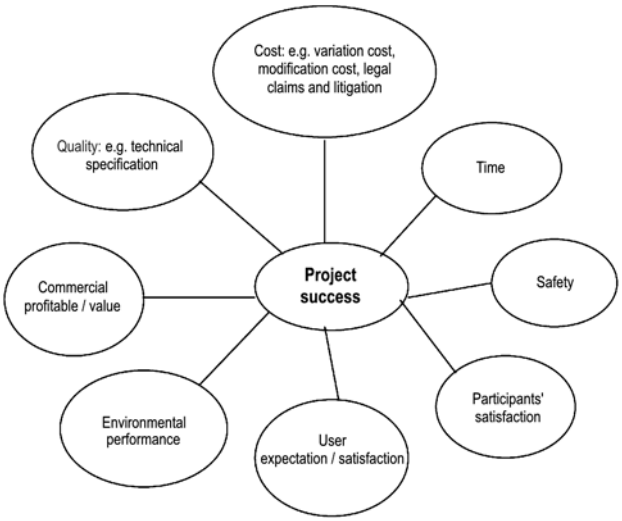


**Figure 2** Construction project success criteria framework [19]

## 2.3
## Measurement of success in PFI projects

For the awarding authority (Client) the identified PFI project success criteria mostly refer to delivery of project on time, to budget and to specification [25]. Brief review of the PFI project success criteria for Clients can be found in few specialized publications in UK without any scientific confirmation of presented data [13, 26, 27]. For Public Sector clients, a PFI project can be described as successful if it delivers value for money (VfM) in the form of cost effective, reliable and timely services at agreed prices and to agreed quality, as defined in the contract [13, 26, 27]. Measuring PFI project success applying VfM concept leaves open questions of the selected success criterion output interpretation (e.g. how far time overdue of starting date of operation represents failure based on this success criteria or how to apply time as success criteria in PFI project context). From the stated observations time can be recognized as important success criterion for PFI projects, and also the potential research area regarding its application as success criterion in the context of PFI projects.

# 3
# Application of criterion "SDO" to assess PFI project success

## 3.1
## "SDO" as a relevant success criterion for Clients

Due to the fact that VfM implies timely services as defined in the contract [26] Client is interested exclusively in starting date of operation. Contract obligations of Contractor imply designing and constructing the facility, by acquiring acceptance from Client that the constructed facility satisfies the approved design solutions and is appropriate for service provision, and that conditions are met for starting the facility operation, as defined in the contract. Consequently the important PFI project success criterion for Client called "Starting date of operation" (SDO) is identified. SDO describes if facility is constructed on time so that service provision to user could begin in agreed time specified in the contract. By approving and accepting the constructed facility, Client confirms that all contract requirements regarding designing and constructing the facility are achieved and Contractor has acquired conditions for leasing the facility, when Client begins payments of unitary charges to the Contractor [28, 29]. Any prolongation of SDO from contracted deadline represents delay in provision of public service to Users which can endanger the realization of the PFI project goals (e.g. in education, if the contracted deadline is the starting date of school year then the delay of facility construction leads to the impossibility to conduct classes in expected facility classrooms, which is one of main goals of this particular PFI project). Usually a PFI contract contains security directive that contractor must ensure substitute classrooms during the time period in which the facility is unavailable and can cause organizational problems for class conduction and results in lowering the user satisfaction. This success criterion can be measured quantitatively and can be described as objective criterion [19]. In the context of PFI project it can be measured by reviewing contract documentation and documentation about Client's facility approval and acceptance.

## 3.2
## Adjustment model for "SDO" criterion in PFI context

Assessment of SDO prolongation from contracted deadline is based on the proposed differentiation of deviations from the agreed deadline completion of the project [30]:

- Non significant deadline prolongation
- Deadline prolongation within 3 months
- Deadline prolongation of 3 months
- Deadline prolongation over 3 months
- Deadline prolongation over 1 year.

Because every success criterion in the context of PFI projects contains inherent characteristics for Clients and different measuring methods are used for each success criterion, in order to enable integration of different success criteria results in comprehensive success assessment results of each success criterion will be modeled to universal scale based on Likert-style scale and so called Local Measure Scale (LMS). Detailed clarification of reasons for the need of this transformation model in success evaluation is beyond scope of this paper and will not be discussed here. Because 5 degree Likert-style scale (1÷5) is used in similar research topics [21, 22, 24, 31] the same will be used here in development of this transformation model.

**Table 1** Likert-style scale (1÷5) which is used for modeling success criteria in LPS

| Likert-style scale (1÷5) | Success grade |
|---|---|
| 5 | Completely successful |
| 4 | Mostly successful |
| 3 | Partially successful |
| 2 | Mostly unsuccessful |
| 1 | Completely unsuccessful |

LMS scale for SDO success criterion has been derived by integrating influence of time overrun at project goals realization, PFI project characteristics, Client interest in project and project goals.

**Table 2** LMS scale for PFI project success assessment with SDO criteria

| Success grade | Contracted deadlines achievement |
|---|---|
| 5 | Contracted deadline achieved |
| 4 | Contracted deadline prolongation within one month |
| 3 | Contracted deadline prolongation between one to three months |
| 2 | Contracted deadline prolongation between three months to one year |
| 1 | Contracted deadline prolongation over one year |

**Success grade (5)** implies that the contracted deadline is achieved. Facility is designed and constructed in the time agreed in contract and service provision is within the contracted timetable. It could be stated that according to the SDO success criteria the PFI project is completely successful.

**Success grade (4)** implies that the contracted deadline is prolonged within one month over the contracted deadline. If facility is completed and ready for service provision within this time period, then users will have one month delay in public service provision and for the Contractor it will mean one permanently lost payment which represents a minor delay compared to a long term contract period of 25 to 30 years and can be explained by negligible inconveniences. It could be stated that according to the SDO success criteria the PFI project is mostly successful.

**Success grade (3)** implies that the contracted deadline is prolonged within one to three months over the contracted deadline. If facility is completed and ready for service provision within this time period, then users will have a few months delay in public service provision and for the Contractor it will mean a few permanently lost payments. Although this represents minor delay compared to a long term contract period of 25 to 30 years it can indicate potential source of problems in Contractor's competence for facility construction completion. In this situation Client needs to activate protection mechanisms from the contract regarding SDO. It should be emphasized that the contractor is still in a situation where the potential exists for the facility construction completion and the contract protection mechanisms can be interpreted as a warning alarm and motivation trigger for the Contractor. For this reason it could be stated that according to the SDO success criteria the PFI project is partially successful.

**Success grade (2)** implies that the contracted deadline is prolonged within three months to one year over the contracted deadline. If facility is completed and ready for service provision within this time period, then users will have several months delay in public service provision and for the Contractor it will mean several permanently lost payments. Although this also represents minor delay compared to a long term contract period of 25 to 30 years it clearly indicates the existence of problems in Contractor's competence for facility construction completion. In this situation Client needs to fully activate protection mechanisms from the contract regarding SDO. It should be emphasized that in this situation the project goals are threatened (mainly public service provision to users) and Contractor is losing control over the project course and if intervention actions for correction of construction process are not taken, further PFI project realization is seriously endangered. In a situation when the contract protection mechanism represents the base on which Client's interest in PFI project will be protected (often means the possibility of involving backup contractor or intervention in the contractor's financial model or application of exit clause, etc.) For this reason and due to the fact that there is still some possibility that Contractor will be able to regain control over the project flow it can be stated that according to the SDO success criteria the PFI project is mostly unsuccessful.

**Success grade (1)** implies that the contracted deadline is prolonged over one year over the contracted deadline. If the Contractor constructs the facility in time period of more than one year delay regarding the contract deadline, then users will have more than a year delay in public service provision and for the Contractor it will mean great amount of permanently lost payments which endanger the contractor project cash-flow. This delay represents significant delay compared to the contract period of 25 to 30 years and it can be stated that the contractor is not competent to complete the facility construction regardless of the cause of problems (e.g. inability to finance construction, inability to construct technical solutions from design, etc.) In this situation the project goals are seriously threatened and the Contractor has lost control over the project course, and it is needed to fully activate all possible contract protection mechanisms that will be the primary base on which the Client's interest in the PFI project will be protected. For this reason and due to the fact that there is a very small possibility that Contractor will be able to regain control over the project flow according to the SDO success criteria the PFI project is completely unsuccessful.

**Table 3** Success evaluation of Croatian case studies with SDO criterion

| PFI PROJECT | Contracted date of service provision beginning (day/month/year) | Realized date of service provision beginning (day/month/year) | Number of overdue days from contracted date | Success evaluation grade using LMS scale (1-5) |
|---|---|---|---|---|
| 1 | 01.10.2006 | 01.10.2006 | 0 | 5 |
| 2 | 30.12.2008 | 30.12.2008 | 0 | 5 |
| 3 | 15.11.2008 | 04.12.2008 | 19 | 4 |
| 4 | 03.09.2007 | 01.10.2007 | 28 | 4 |
| 5 | 03.09.2007 | 01.09.2007 | –2 | 5 |
| 6 | 31.12.2007 | 15.01.2008 | 15 | 4 |
| 7 | 30.04.2008 | 01.05.2008 | 1 | 4 |
| 8 | 31.12.2007 | 01.01.2008 | 1 | 4 |
| 9 | 15.10.2006 | 15.11.2006 | 30 | 4 |
| 10 | 30.03.2007 | 26.04.2007 | 26 | 4 |
| 11 | 30.04.2007 | 26.04.2007 | –4 | 5 |
| 12 | 15.01.2007 | 15.01.2007 | 0 | 5 |
| 13 | 30.06.2007 | 01.07.2007 | 1 | 4 |
| 14 | 15.01.2008 | 01.02.2008 | 16 | 4 |
| 15 | 01.11.2007 | 01.11.2007 | 0 | 5 |
| 16 | 15.01.2008 | 15.01.2008 | 0 | 5 |
| 17 | 01.9.2008 | 01.9.2008 | 0 | 5 |
| 18 | 01.01.2008 | 01.01.2008 | 0 | 5 |
| 19 | 01.09.2007 | 15.10.2007 | 44 | 3 |
| 20 | 01.09.2008 | 11.09.2008 | 10 | 4 |
| 21 | 15.09.2007 | 09.10.2007 | 24 | 4 |
| 22 | 15.09.2007 | 09.10.2007 | 24 | 4 |
| 23 | 15.01.2008 | 18.02.2008 | 33 | 3 |
| 24 | 14.09.2007 | 01.11.2007 | 47 | 3 |
| 25 | 15.10.2007 | 20.11.2007 | 35 | 3 |
| 26 | 15.11.2007 | 08.09.2008 | 293 | 2 |

## 4
## Croatia's PFI projects success evaluation using SDO criterion
### 4.1
### Identification of PFI projects in operational phase in Croatia

Applying "questionnaire survey" [10] with questionnaires administrated to Public Clients in Croatia, 29 different PFI projects in operation for three types of facilities (sport halls, administrative buildings and primary and secondary schools) which are suitable for the research are identified. Analytic data have been gathered for 26 of 29 suitable PFI projects which represent good research sample.

Descriptive statistics indicator "arithmetic mean" [32] has been calculated:

$$\overline{X} = \frac{X_1 + X_2 + \cdots + X_n}{n}, \quad (1)$$

where:
$\overline{X}$ – arithmetic mean
$X$ – variable value
$n$ – number of variables.

Calculated indicator represents referent base for success measurement of PFI projects in Croatia applying SDO success criteria. It can be stated that if PFI project has been delayed by SDO less than 25 days regarding

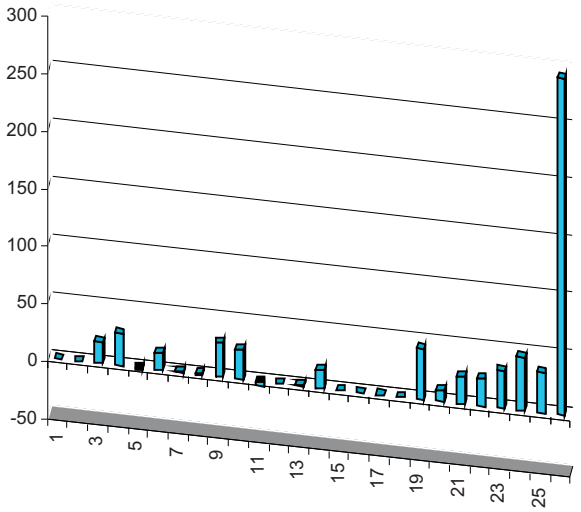


**Figure 3** Exceeding the contracted deadline of building completion in days for PFI projects in Croatia

**Table 4** Referent success indicator of PFI projects in Croatia for SDO success criterion

| | |
|---|---|
| Average delay in days of SDO for PFI projects in Croatia | 25 days |
| Mean of PFI projects in Croatia for SDO success criteria | 4,12 |

contracted time or has achieved success grade higher than 4,12 in presented model, then according to the SDO success criteria it is more successful than the PFI project average in Croatia. Due to the fact that the Government has to demonstrate responsibility to the public [33] and that the government activities represent public interest, this referent base can be applied for the government representatives as one of the bases for political presentation of delivered PFI project.

## 5 Conclusion

When evaluating the success of the PFI projects Client needs to implement different success criteria which make it possible to evaluate success in all important success dimensions. In this paper the success criterion "Starting Date of Operation" (SDO) has been identified as important success criterion for the application in Client success evaluation. The model for the SDO criteria application at the PFI project success evaluation has been suggested and its empirical applicability has been demonstrated. Applying the suggested model as referent base for success measurement of the PFI projects in Croatia applying SDO success criteria have been generated. Further research needs to identify more suitable success criteria for the PFI project's success evaluation and model their application on PFI projects. Interrelations between success criteria and relative importance also need to be explored. Finally a generic model for the PFI project success evaluation could be developed.

## 6 References


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

[2] Marenjak, S.; Skendrović, V.; Vukmir, B.; Čengija, J. Javno privatno partnerstvo i njegova primjena u Hrvatskoj. // Građevinar, 59, 7 (2007), 597-605.

[3] Ministarstvo gospodarstva, rada i poduzetništva, Strateški okvir za razvoj Javno-privatnog partnerstva u Republici Hrvatskoj, Republika Hrvatska, 2009.

[4] Vukmir, B.; Skendrović, V. Koncesije i ugovaranje BOT projekata; Hrvatski savez građevinskih inženjera, Zagreb, 1999.

[5] The Confederation of British Industry: Building on success - The way forward for PFI, United Kingdom, 2007.

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

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

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

[9] Partnership UK, Schools PFI – Post-Signature Review by Partnership UK for Department for Education and Skills, United Kingdom, May 2005.

[10] Zelenika, R. Metodologija i tehnologija izrade znanstvenog i stručnog djela, Ekonomski fakultet Sveučilišta u Rijeci, 2000.

[11] National Audit Office, Private Finance Projects, Report, London, United Kingdom, 2009.

[12] Commission of the European communities, Green paper on Public private partnerships and community law on public contracts and concessions, Brussels, 30.4.2004; COM (2004) 327 final.

[13] HM Treasury, PFI - meeting the investment challenge, United Kingdom, 2003.

[14] Marenjak, S.; Horner, W. M.; El-Haram, M. Privatno ulaganje u objekte visokogradnje u Hrvatskoj. // Građevinar, 55, 7(2003), 383-389.

[15] Shenhar, A. J.; Levy, O.; Dvir, D. Mapping the Dimensions of Project Success. // Project Management Journal, 28, 2(1997), 5-13.

[16] Lavagnon, A. I. Project Success as a Topic in Project Management Journals. // Project Management Journal, 40, 4(2009), 6-19.

[17] Hamilton, M. R. Benchmarking Project Success. // Journal of Construction Education, 2, 1(1997), 66-76.

[18] Wateridge, J. How can IS/IT projects be measured for success. // International Journal of Project Management, 16, (1998), 59-63.

[19] 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. Birsbane, Australia.

[20] Nelson, R. R. Project retrospectives: evaluating project success, failure, and everything in Between. // MIS Quarterly Executive, 4, 3(2005).

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

[22] Takim, R.; Akintoye, A.; Kelly, J. Analysis of Measures of construction project success in Malaysia. // 20th Annual ACROM Conference, 1-3 September, 2004, Heriot Watt University.

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

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

[25] 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.

[26] National Audit Office, Managing the relationship to secure a successful partnership in PFI projects; Press office, London, United Kingdom, 2001.

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

[28] National Audit Office, PFI - Construction Performance; report, London, United Kingdom, 2003.

[29] Vucelić, V. Ukupni životni troškovi kod JPP/PFI projekata u školstvu u Republici Hrvatskoj; Specijalistička radnja, Građevinski fakultet Sveučilišta u Zagrebu, 2010.

[30] Medanić, B.; Skendrović, V.; Pšunder, I. Neki aspekti financiranja i financijskog odlučivanja u građevinarstvu. Sveučilište Josipa Jurja Strossmayera u Osijeku, Građevinski fakultet Osijek, 2005.

[31] 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), 298-309.

[32] Šošić, I.; Serdar, V. Uvod u statistiku, Školska knjiga d.d., Zagreb, 1997.

[33] Hrvatski Sabor, Strategija održivog razvitka Republike Hrvatske, 2009. (NN 30/09).

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