

1           **Assessment of the Role of Owner’s Representative on**  
2           **Construction Performance: An Owner’s Perspective**

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7   **Abstract.** The modern construction industry is complex and heterogeneous. The  
8   three major players in this industry are: owners, constructors, and  
9   architects/engineers. However, there is a fourth party that can also be involved  
10   on construction projects: the owner’s representative (OR). ORs are individuals or  
11   firms hired by an owner to manage the construction project in the owner’s stead.  
12   They have a relationship contractor, architect/engineer, and the owner and  
13   provide a range of services depending on the needs of the owner. Given the  
14   important role ORs can play in this industry, there is a dearth of literature today  
15   concerning them, and extant literature is significantly biased with shortcomings  
16   including: authors’ perspectives and overall lack of industry-driven data. The  
17   objectives of this research are to gain an understanding of when an owner is likely  
18   to hire an OR and what impact ORs have on project performance. This study  
19   placed a priority on remaining unbiased, and was conducted from the owner’s  
20   perspective using data from projects with and without ORs.

21   **Keywords:** Owner’s Representative, Construction Industry, Project  
22   Performance.

23           **1 Introduction**

24           Please The body of literature which concerns modern construction is well saturated  
25           with documentation of the role and impact that contractors, architects, and engineers  
26           may have on any given construction project. However, since the impetus for any  
27           construction effort is the owner’s need to build, construct, or renovate something, an  
28           understanding of the responsibilities and impacts that an owner or owner’s  
29           representative (OR) may have is needed. The exigent literature concerning ORs is  
30           fraught with bias and subjectivity, given that a large portion of it is written by ORs  
31           themselves. Furthermore, the use of an OR to manage construction is not universal, and  
32           many owners do not use one. Therefore, it must be understood why owners choose to  
33           hire ORs, and what impacts they have on projects once retained.

34           The literature that exists provides two conflicting views on ORs, but does not  
35           provide to the owner an objective assessment of the value of an OR. Contractors have  
36           mixed opinions on OR – some view them as a hindrance to completing work, while  
37           others note the benefit of an OR handling project tasks. However, literature concerning

38 ORs that is published by ORs is understandably partial and does an inadequate job of  
39 examining the decision to hire an OR and their potential impact.

40 Owners deserve to understand the return they receive from their investment of hiring  
41 an OR. OR can cost between 3%-5% of the overall project cost [1], which can add up  
42 to a substantial sum, depending on the size of the project. The construction industry as  
43 a whole can also benefit from understanding why owners hire ORs on their projects.  
44 This research gives insight into the current use of ORs on construction projects, the  
45 value they provide, and the responsibilities they perform.

## 46 **2 Literature Review**

47 [2] said that “owner involvement is essential to project quality. Success or failure is, in  
48 many cases, related directly to the level of owner involvement.” This still rings true in  
49 modern construction, and many owners understand the importance of involving  
50 themselves on construction projects. Many times, owners decide to hire an OR to act in  
51 their stead. An OR is best described as “an individual tasked with controlling the design  
52 and development process while protecting the best interest of the owner” [3].

53 ORs have become prevalent in today’s construction industry, particularly as project  
54 sizes and complexity continue to grow. Owners choose to hire ORs to act on their  
55 behalf, however, the exact duties of and extent of responsibilities for an OR can vary  
56 from owner to owner and project to project. It is common for ORs to make decisions,  
57 solve disputes, and manage changes and coordination with multiple parties on a  
58 construction project [4].

59 There are several articles written by ORs about their general importance to  
60 construction, although each owner has their own individual reasons for hiring an OR.  
61 ORs argue they are important because they help with complex, expensive, and risky  
62 projects. These projects are prone to significant financial and schedule impacts from  
63 the design and construction teams, which may be difficult for an owner to understand  
64 and navigate. In this scenario, an OR can facilitate communication and increase owners’  
65 understanding of the project, which can improve outcomes, reduce risk, and prevent  
66 unnecessary expenses [1]. ORs can also assist in contract negotiations to help owners  
67 get the best price possible (Res 2016).

68 When owners make the decision to hire an OR, they must first define what precisely  
69 the role of the OR will be. This is important as not all ORs are the same, not all projects  
70 are the same, and the skills and effectiveness of the OR will affect the project  
71 performance. [5], an engineer and attorney who acts as an OR, says that “the OR should  
72 have sufficient experience working for owners, but also for contractors and  
73 subcontractors. Credentials as an engineer or architect are helpful, but it is more  
74 important that the OR has worked intimately with the owner’s organization to the  
75 greatest extent possible”. It is also said that the best ORs have experience working for  
76 the owner, facilities, and design. The best way to find qualified ORs is talk to industry  
77 experts, board members and associations [1]. Lastly, having a proactive OR is  
78 significantly better than having a reactive OR. The proactive ORs will be the ones  
79 taking initiative to be a leader, while the reactive will deal with issues and opportunities  
80 only after they have presented themselves [6].

81 From the limited amount of literature available for review, an understanding can be  
82 gained about who ORs are, what their job is, and why they are important. However,  
83 there are shortcomings to the available literature regarding authors' perspectives and a  
84 lack of data. This paper introduces data from projects that both have and do not have  
85 ORs, and analyzes it to understand the impact that ORs have on projects. This paper  
86 also looks at the responsibilities and characteristics of what makes an effective OR on  
87 a project from collected data, all of which is lacking in today's literature. Looking at  
88 the impact of ORs from an outside perspective allows an unbiased evaluation of their  
89 significance.

### 90 **3 Methodology**

91 A question many in the construction industry have is: why do owners decide to hire an  
92 OR and what is the true value of hiring one? The opinions on ORs vary in the industry  
93 and it is not uncommon to hear contractor's mixed feelings about ORs. However, the  
94 ultimate decision to hire an OR lies with the owner. There is inadequate data supporting  
95 or opposing ORs' value on construction projects, which makes one question why they  
96 are hired. This paper introduces data from projects that both have and do not have ORs  
97 and analyzes it to understand the impact that ORs have on projects. This paper also  
98 looks at the responsibilities and characteristics of what makes an effective OR on a  
99 project from collected data, all of which is lacking in today's literature. Looking at the  
100 impact of ORs from an outside perspective allows an unbiased evaluation of their  
101 significance. The methodology of this research encompasses three distinct stages.

#### 102 **3.1 Stage A: Project Performance**

103 This stage is meant to define key performance variables to help understand the impact  
104 that ORs have on overall project outcome. Five qualitative project performance  
105 variables that are measured at the end of the project were included in this research:  
106 budget performance, schedule performance, change performance, owner satisfaction,  
107 and user satisfaction. These factors were assessed by the owner using a five- or seven-  
108 point Likert scale. Likert scales ask respondents to rank the strength/intensity of their  
109 experiences on a linear scale. Using Likert scales makes it possible to perform  
110 nonparametric tests on the results, and to find correlations between aspects of the  
111 project, particularly focused on ORs. The specific scales used to measure performance  
112 of the different metrics are as follows:

- 113 • Budget Performance was measured on a seven-point Likert scale ranging from  
114 "Extremely lower than budgeted" to "Extremely higher than budgeted"
- 115 • Schedule Performance was measured on a seven-point Likert scale ranging from  
116 "Extremely shorter than scheduled" to "Extremely longer than scheduled"
- 117 • Change Performance measured on a five-point Likert scale ranging from "None  
118 at all" and "A lot"
- 119 • Owner Satisfaction measured on a seven-point Likert scale ranging from  
120 "Extremely dissatisfied" to "Extremely satisfied"

- 121 • User Satisfaction measured on a seven-point Likert scale ranging from  
122 “Extremely dissatisfied” to “Extremely satisfied”.

### 123 **3.2 Stage B: Survey**

124 In order to better understand the opinions owners hold about ORs, and to gain insight  
125 into why they do or do not choose to hire one, a survey was distributed to a variety of  
126 owners and facility managers who were asked to respond concerning a recent project.  
127 The survey was broken into three sections: First, the survey asked respondents about  
128 project characteristics and whether or not they hired an owner representative. Their  
129 answer to the latter questions led to a separate set of follow up questions which  
130 investigated the decision to hire or not hire an OR. Finally, respondents were asked  
131 about the overall project performance. 137 respondents (61%) reported hiring an OR,  
132 and 88 respondents (39%) did not.

### 133 **3.3 Stage C: Analysis**

134 Two types of analyses were performed on the collected data. Univariate analysis was  
135 used to describe, explore, and summarize some of the research questions. A variable in  
136 univariate analysis is a subset of the collective data that requires further investigation.  
137 The second type of analysis employed in this research is the bivariate analysis. This  
138 type analysis was performed on the collected data to compare the two groups of projects  
139 –projects where owners hired an OR and projects where owners did not hire an OR and  
140 test whether ORs have an impact on project performance. Three tests were used to  
141 provide a comprehensive comparison between the two groups: (1) the Pearson’s Chi-  
142 Square test, (2) the nonparametric Kruskal-Wallis test, and (3) the Mann-Whitney-  
143 Wilcoxon (MWW) test. The Pearson’s Chi-Square test is used for qualitative analysis  
144 when the independent variable is a nominal variable and when no more than 20% of  
145 the expected values are less than five. The Kruskal-Wallis test is employed when the  
146 independent variable is ordinal. The MWW test is a nonparametric test used to assess  
147 the statistical significance between two sample means. All testing procedures were  
148 carried out based on a 95% confidence interval and statistical significance was  
149 concluded when the p-value was less than or equal to 0.05.

## 150 **4 Analysis**

### 151 **4.1 Reasons for hiring or not hiring an Owner’s Representative**

152 The literature has identified various reasons for hiring OR. In an attempt to overcome  
153 bias present in the body of literature concerning the hiring decision, the survey  
154 distributed as part of this research asked owners who hired an owner representative to  
155 select the reasons for which they hired an OR. The survey included 12 possible reasons:  
156 improved communication, cost savings, heavy workload, lack of technical knowledge,  
157 create budget, create schedule, quality assurance/quality control (QA/QC), avoid

158 conflict of interest, provide value engineering, conduct constructability analysis,  
159 control contingency money, and approval of change orders. In addition to these reasons,  
160 respondents had the option to write in any additional influencing factors that were not  
161 enumerated. The factors that were written in by owners included: risk management,  
162 helping with selection of contractor and architect, oversight management, and assure  
163 maintainability – however, no added factor was written in multiple times. The five most  
164 common reasons why owners chose to hire an OR are: improved communication  
165 (87%), approval of change orders (83%), QA/QC (83%), heavy workload (81%), and  
166 providing value engineering (76%). However, most of the reasons listed above are still  
167 important for a large number of owners, with over 50% of respondents indicating that  
168 they played a role in the decision. Avoiding conflict of interest was the only reason that  
169 less than 50% of respondents felt hiring an OR was required.

170 Similarly, there are many reasons why owners may decide not to hire an OR  
171 including: owner’s prior experience with the project team, in-house capacity to manage  
172 project, could not find qualified OR, did not want to lose control of project, cost/value  
173 perceived of OR, overlap between ORs responsibilities, and general contractor can  
174 perform same tasks. The owners were also encouraged to write in any additional  
175 comments they had about reasons they decided not to hire an OR, which included  
176 having a well-qualified senior manager, or an in-house project manager on staff. The  
177 results show that the major reason why most owners decide not to hire an OR is because  
178 they have the in-house capacity to manage the project (94%), with the second highest  
179 reasoning being the cost/value perceived from hiring an OR (79%). This shows that  
180 companies are less likely to hire ORs if they feel they can handle the responsibility  
181 themselves, and that many owners question how many benefits they receive from hiring  
182 an OR compared to the cost.

183 This research also investigated who represents the owner when an OR is not hired  
184 and found that 84% of owners who choose not to hire an OR represented themselves.  
185 This can be explained in several ways the owner may have enough time, experience,  
186 and willingness to represent themselves, or the owner trusts the general contractor fully  
187 and does not think he/she needs an OR. On the other hand, 9% of owners who did not  
188 hire an OR reported that they chose the architect/engineer to represent them, and another  
189 8% chose a construction manager.

## 190 **4.2 When and How an Owner’s Representative is Hired**

191 Deciding when to hire an OR is as important as the reasons for hiring one. The point in  
192 the project lifecycle at which an OR is hired varies from owner to owner: some hire an  
193 OR prior to design, while others wait until as late as after the GC is hired. The results  
194 of this study show that owners tend to hire OR before hiring the General Contractor  
195 (GC) or before the design phase of the project. The timeline of hiring an OR may  
196 depend on the responsibility that OR will perform: they may help with the selection of  
197 the general contractor, or work with the architects and engineers during the design  
198 phase.

199 As ORs are frequently hired prior to the general contractor, owners were also asked  
200 if their ORs were involved in the selection of the general contractor. 81% of owners

201 indicated that their ORs were involved in the selection of the general contractor. The  
 202 reason behind this could be the additional experience the ORs have with general  
 203 contractors and the advice that ORs may offer on the hiring process-a crucial project  
 204 decision.

205 As a large percentage of ORs are involved in the selection of the general contractor,  
 206 it was important to test if this involvement has a significant effect on the five project  
 207 performance metrics studied in this research. The MMW test was used to determine if  
 208 the involvement of the OR in selecting the general contractor had an impact on the each  
 209 of the five performance metrics. With p-values greater than 0.05, the results indicated  
 210 that there is no statistically significant impact for having the OR involved in the  
 211 selection of general contractors on project performance. Therefore, whether or not an  
 212 OR is involved in the selection of the general contractor, there will be no statistical  
 213 difference in the performance of the project.

214 How ORs are selected is also an important process. The survey included five major  
 215 criteria based on which the OR could have been selected including: bidding, negotiated  
 216 contract, previous contact, recommendation by others, and voting of key people. The  
 217 results showed that 27% of the ORs were selected by negotiated contract, 26% were  
 218 recommended by others, 24% were chosen based on previous contacts, 16% were  
 219 selected through bidding, and 7% were appointed by the voting of key people.

220 How the OR is selected can have an impact on the overall project performance. For  
 221 instance, if an OR is hired from previous contact, they may have already proven to be  
 222 successful, or if an owner selects an OR from bidding that may mean they are looking  
 223 at cost over quality. However, the results of the Kruskal-Wallis test showed that the  
 224 selection method of ORs has no significant impact on any of the project performance  
 225 metrics.

### 226 4.3 When and How an Owner's Representative is Hired

227 This research also aimed to explore nine project characteristics that are likely to affect  
 228 the decision of an owner to hire an OR. Respondents were asked to provide information  
 229 about the following variables: (1) project location, (2) project type, (3) project owner,  
 230 (4) delivery method, (5) project size (SF), (6) project cost, (7) owner's experience with  
 231 construction, (8) experience with general contractor in the past, and (9) if there are any  
 232 special conditions on the project. This study then investigated whether a correlation  
 233 exists between the decision of an owner to hire or not to hire an OR and each of the  
 234 abovementioned eight variables. Different statistical tests were used depending on the  
 235 nature of the variables. The results of this analysis are shown in Table 1.

236 **Table 1.** Project Characteristics Variables.

Variable	Type	Levels	Statistical Test	p-value
Project Location	Categorical – Nominal*	3 levels	Pearson's Chi-Square	0.2183
Project Type	Categorical – Nominal*	5 levels	Pearson's Chi-Square	0.7783
Project Owner	Categorical – Binary	2 levels	Pearson's Chi-Square	0.2619

Delivery System	Categorical – Nominal	6 levels	Pearson’s Chi-Square	0.1806
Project Size (SF)	Numerical	-	MWW	0.0093**
Project Cost	Numerical	-	MWW	0.0392**
Owner’s experience with construction	Categorical – Ordinal*	2 levels	MWW	0.0241**
Experience with general contractor in the past	Categorical – Binary	2 levels	MWW	0.9898
Special conditions on the project	Categorical – Binary	2 levels	Pearson’s Chi-Square	0.9112

237 \*A nominal variable does not have any intrinsic order whereas an ordinal variable does.

238 \* The owner’s experience with construction was measured on a 5-point scale from “no experience  
239 at all” to “a lot of experience”.

240 \*\* Indicates a statistical significance at the 0.05 level.

241 Out of nine project characteristics, three characteristics were found to be significant  
242 in the owner’s decision to hire or not hire an OR: project size (SF), project cost, and  
243 owner’s experience with construction. Project size (SF) and overall project cost are  
244 significant in this decision, as larger and more expensive projects are more likely to  
245 hire an OR than smaller cheaper projects. As for the owner’s level of experience with  
246 construction, the results showed that the more experience an owner has with  
247 construction, the less likely they are to hire an OR than an owner that has less  
248 experience.

#### 249 4.4 Responsibilities the Owner’s Representative Perform During the Project

250 A primary goal of this research was to determine what responsibilities ORs have on  
251 construction projects. The survey sent out to owners asked if ORs held certain  
252 responsibilities during the design and construction phases. The results of owners who  
253 responded “yes” show that the most common responsibility of an OR during the design  
254 phase is to review the schedule, however less than half of the owners reported that the  
255 OR solicited bidders. During the construction phase of the project most ORs review the  
256 schedule, approve progress payments, and track the project program, while slightly  
257 more than half produce schedule updates. There was also the option for owners to fill  
258 in any other responsibilities they felt were important, and some respondents reported  
259 that ORs review and complete inspections, prepare project justifications, develop  
260 specification during the design phase, review cost, review proposals, and help with  
261 coordination.

262 Given that there are many responsibilities that ORs can have on a project, it is  
263 important to assess whether these responsibilities have an impact on project  
264 performance. Knowing this information can help owners determine how best to allocate  
265 responsibility to their OR. The performance of the projects on which an OR was hired  
266 was compared to the projects that did not have an OR using the MMW test to  
267 individually compare each of the 14 responsibilities to each of the five performance  
268 metrics. The results showed that only two OR responsibilities had a significant impact  
269 on the project performance: approving progress payments and approving change orders.

270 Both of these responsibilities are significant at the 95% confidence level, but their  
271 impact is only on budget performance: when ORs approve progress payments and  
272 change orders, the budget is lower than when ORs do not, indicating the positive impact  
273 of hiring an OR.

#### 274 **4.5 Greatest Benefits Perceived from Hiring an Owner's Representative**

275 It has already been discussed why owners hire ORs and the different responsibilities  
276 ORs can have on a construction project, however each owner has their own benefits  
277 they see most from hiring an OR. The results indicate that the greatest benefit owners  
278 receive from hiring an OR is avoiding or minimizing budget problems, however many  
279 other owners report (1) avoiding or minimizing schedule problems, (2) greater  
280 accountability to the owner, and (3) leadership to the project team as their greatest  
281 benefits. However, few owners reported implementing new technology as the greatest  
282 benefit received, and higher quality outcomes received as the second lowest number of  
283 responses.

### 284 **5 Conclusions**

285 Owner Representatives are an increasingly integral part of the construction industry,  
286 with an increasing number of owners choosing to hire one. The lack of research  
287 regarding ORs is alarming when compared to the substantial amount of research  
288 performed on contractors and architects/engineers. To study understand the decision to  
289 hire ORs and their impact on project performance, this research analyzed data collected  
290 from owners who did and did not hire OR on their projects. The analysis showed that  
291 owners decide to hire an OR for five major reasons: improved communication, approval  
292 of change orders, QA/QC, heavy workload, and providing value engineering. On the  
293 other hand, the collected data showed that the major reason why most owners decide  
294 not to hire an OR is because they have the in-house capacity to manage the project. It  
295 was also found that three project characteristics have an impact on owner's decision to  
296 hire or not hire an OR: project size (SF), project cost and the owner's experience level  
297 with construction. For larger projects, owners are more likely to hire an OR. Owners  
298 who have more experience with construction are less likely to hire an OR. The research  
299 also concluded that the only two responsibilities of ORs that were found to have a  
300 significant impact on budget performance are approval of progress payments and  
301 approval of change orders: when an OR is performing these tasks, the project is more  
302 likely to be on or under budget instead of over budget. Thus, it is concluded that the  
303 greatest benefit owners receive from hiring an OR is avoiding or minimizing budget  
304 problems.

305 It is understandable that each owner is different and will have unique circumstances  
306 that may influence their decision to hire an OR or not. This research is beneficial for  
307 the construction industry as a whole to better understand ORs and the value they add to  
308 a construction project, however, there are many more factors that can be considered for  
309 future research. Collecting quantitative data about ORs and their projects and increasing  
310 the sample size is an additional research step that can be conducted in the future.



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