2017

Institutionalizing the Principles of Partnering

Milagros Pinto-Nunez
Iowa State University

Douglas D. Gransberg
Iowa State University, dgran@iastate.edu

Institutionalizing the Principles of Partnering

Abstract
The benefits that formal partnering on commercial building construction projects regarding the reduction of claims is widely recognized. However, there are no recent formal studies that describe the overall impact of formal partnering in terms of minimizing legal disputes in the transportation sector. A recent American Association of State Highway and Transportation Officials (AASHTO) survey found that a number of public agencies have dropped formal partnering because they found that the costs no longer were offset by the value of minimizing the legal conflicts. Using classic organizational management theory as its backdrop, this paper hypothesizes that those agencies that discontinued formal partnering have fully institutionalized the salient principles of partnering, such as increased collaboration, communication, and trust-building and no longer need to invest the resources to perpetuate a formal project-level partnering process. The paper bases this assertion on the analysis of the claims history found in four state departments of transportation. The study compared the mean project claims the cost of the two agencies that formally partner most major projects to the claims record of the two that no longer employ formal partnering. The analysis finds that there is no statistically significant difference in the cost of claims between the two groups. Hence, the paper concludes that the two agencies that stopped using formal partnering had successfully institutionalized the precepts of partnering.

Disciplines
Construction Engineering and Management

Comments
This is a manuscript of a proceeding published as Pinto-Nunez, Milagros, and Douglas D. Gransberg. "Institutionalizing the Principles of Partnering." Paper no. 17-00994. In *TRB 96th Annual Meeting Compendium of Papers*. Transportation Research Board 96th Annual Meeting. Washington, DC. January 8-12, 2017. Posted with permission.

Final Draft

Institutionalizing the Principles of Partnering.

Milagros Pinto-Nunez*
Graduate Research Assistant
Iowa State University,
Department of Civil, Construction, and Environmental Engineering
494 Town Engineering Building
Ames, Iowa 50011
515-735-6673
mpinto13@iastate.edu

Douglas D. Gransberg, PhD, PE
Professor
Iowa State University,
Department of Civil, Construction, and Environmental Engineering
494 Town Engineering Building
Ames, Iowa 50011
515-294-4148
dgran@iastate.edu

Submission Date:
Word Count = 4804
Figures and Tables = 1 figure and 5 tables @ 250 = 1250
Total Word Count =6304

*Corresponding author

Final accepted manuscript: Published as:
Pinto-Nunez, M. and Gransberg D.D., “Institutionalizing the Principles of Partnering,” Compendium, 2017 Transportation Research Board Annual Meeting, Paper 17-00984, January 2017.

ABSTRACT

While the benefits that formal partnering is widely recognized to reduce claims on commercial building construction projects, there is no recent research on the topic in the transportation sector. A recent AASHTO survey found that a number of public agencies have dropped formal partnering because they found that its costs no longer were offset by the value of minimizing the legal conflicts. Using classic organizational management theory as its backdrop, this paper hypothesizes that those agencies that discontinued formal partnering have fully institutionalized the salient principles of partnering, such as increased collaboration, communication, and trust-building, and as a result, no longer need to invest the resources necessary to perpetuate a project-level formal partnering process. The paper bases this assertion on the analysis of the claims history found in four state departments of transportation. The study compared the mean project claims cost of two agencies that formally partner most major projects to the claims record of the two that no longer employ formal partnering. The analysis finds that there is no statistically significant difference in the cost of claims between the two groups. Hence, the paper concludes that the two agencies that stopped using formal partnering had successfully institutionalized the precepts of partnering.

INTRODUCTION

Partnering in the transportation sector is a program that is about two decades old. Most public agencies and contractors agree that partnering has beneficial aspects that have been found to improve project performance. While the literature is seemingly rich with papers on partnering (1, 2, 3, 4, 5, 6), the few large scale rigorous research studies in the record are all over 10 years old. Organizational management theory maintains that once a new business practice, such as partnering, is adopted that it takes a period of years before it becomes "institutionalized" (7, 8). This status is first defined by the organization having codified the practice in its policy and procedure documents, implemented the practice on a wide-scale, and then revised those documents based on lessons learned in field. Full institutionalization of a practice is achieved when working-level members of the organization accept it as standard operating procedure (8). In the book *Seven Pillars of Partnering* (9), the authors detail the benefits of what they call "second generation partnering" (i.e. projects partnered after full implementation) predicting that with time "third generation partnering" will transform the "building process into a cycle of fundamental activities linked by co-operative decision making activities." Partnering is one of those business practices that one might argue has been thoroughly institutionalized in the highway construction industry and in the two decades since *Seven Pillars of Partnering* was published and that the US highway construction industry has probably reached its "third generation" state. So the present question then becomes what does the "third generation" of partnering look like and does it still include the formal partnering workshops initiated as the catalyst to culture change in partnering's "first generation?"

A survey of the members of the AASHTO Subcommittee on Construction in 2014 found a number of state departments of transportation (DOT) had tried and after a period decided not to continue formal partnering (10). The majority cited the inability to make a compelling business case for investing already limited resources to hire a professional facilitator, gather the members of the project delivery team, and engage in teambuilding workshops when many of the business relationships, both good and bad, were well-established and longstanding. The same respondents pointed to program-level initiatives such joint DOT/industry specifications review panels, etc. as having sufficiently provided the opportunity to identify systemic issues and resolve them before they devolved into project-level disputes. Thus, despite authoritative research touting the potential benefits of partnering, there remains a group of state DOTs that do not believe that

those benefits outweigh the costs based on their own experience. Hence this paper will explore the idea that partnering principles can potentially be institutionalized without the requirement to engage in formal project partnering workshops, and that agencies that institutionalize partnering's precepts can accrue similar project performance benefits.

BACKGROUND

Partnering lays the foundation for building trust, establishing common expectations, aligning each party's interests, communicating effectively, and resolving issues as they arise. The practice of formally partnering projects delivered by traditional project delivery is well documented as being effective at reducing disputes that result in claims (11,12,13,14). An analysis performed on 131 peer-reviewed journal papers on the topic of partnering found that only 12 of those papers actually quantitatively measured project performance in partnered projects, and 9 of them were for projects constructed outside the US. Therefore, a gap in the body of knowledge exists with regard to how implementing partnering has impacted the performance of projects in the US transportation sector, specifically in terms of claims history. Most of the literature posits that partnering is a successful technique for reducing claim costs. Chan et al. (15) conducted a study in Hong Kong and discovered that the number of claims on partnered building construction projects were equal to or less than number of claims on an average project 86.8% of the time. On the other hand, a survey conducted among Canadian provincial ministries of transportation and US state DOTs found that very few agencies employ partnering specifically to minimize claims (16) because of a perceived paradox. That paradox maintains that the very use partnering to eliminate claims essentially means the parties do not trust each other and as such is fundamentally in conflict with the spirit of partnering. As will be discussed later in the paper, this paradox leads to the practice of not recording project disagreements as they occur, depriving the agency of data regarding how successful its partnering program is in resolving the day to day project issues.

Table 1 summarizes DOT experience regarding the use of partnering from 2012 to 2015. As result of this comparison, twenty-six state DOTs currently use formal partnering. Documented motivations for stopping partnering vary by agency. However, the responses seem to merge in a common denominator surrounding the difficulty of measuring a positive return on the partnering resource investment.

Table 1: Change in partnering program usage (AASHTO SOC surveys from 2012 – 2015).

Never used partnering	Used partnering in 2012 but stopped	Did not use partnering in 2012 but now do		Continuing use of partnering since 2012	
New Mexico	North Dakota	Alaska	Massachusetts	California	Pennsylvania
Oklahoma	Oregon	Delaware	Minnesota	Colorado	South Carolina
Wisconsin	Montana	Idaho	Vermont*	Florida	Texas
		Iowa		Indiana	Virginia
				Ohio	Utah

***** Informal partnering only

Short History of Partnering

In 1993, the US Army Corps of Engineers (USACE) compared 19 partnered building construction projects to 28 similar projects where no form of partnering agreement was used (17). The study found that partnered projects tend to perform better than non-partnered projects. For example, it found that claims cost on partnered projects averaged 0.67% of the contract amount versus 5.01% on non-partnered projects. The USACE study quantifies and appears to verify the overall perception of the federal sector, but it is not directly translatable to the state sector because of the diversity of state-level procurement laws. The information available from public transportation agencies is diverse and inconclusive. For example, a 1999 Texas DOT partnering study of over 400 design-bid-build highway projects (6) found a much smaller range than USACE in claims cost percentages: 0.17% vs. 0.88% in partnered vs. non-partnered. The issue is further complicated by the fact that DOTs do not use the same unit to report claims experience. For example, Caltrans measures claims according to the number of arbitrations that resulted from their dispute resolution process (18). The Utah and Ohio DOTs use a ratio of the number of claims over a specific period of time over the total number of projects completed (19, 20). Finally, Maryland DOT uses the ratio between the number of claims and the cost of claims (21). While these and others all use a function of the number of claims as a unit to measure formal partnering benefits, there is not a standard policy among the agencies.

The literature review identified the use of formal partnering practices in twenty-six state DOTs. However, making a direct comparison is challenging due to the lack of standardization in partnering tools across the nation. To address the difficulty, the research team turned to those common practices found in DOT construction manuals. The study found that agencies have neither created key performance indicators nor performance objectives regarding claims reduction. This leads one to infer that formal partnering's desired improvement of working

relationships and dispute resolution is assumed to eliminate claims/disputes and the need to measure performance is unecessary (22, 23).

Two agencies that have unquestionably institutionalized partnering are the Utah and Ohio DOTs. UDOT bases its program on the following premise: “For contractors, unresolved claims mean fewer funds to reinvest in other enterprises, and, in extreme cases, may even threaten their companies’ existence. Affecting both owners and contractors, beyond money and often even more damaging, are the negative attitudes and damaged working relationships that result when issues and claims remain unresolved” (19). Hence, UDOT sees the practice as a means to not only reduce disputes but also create healthier working relationships for future projects.

The Ohio DOT (ODOT) published a *Partnering Handbook* (20) to promote quality and consistency in its statewide partnering program. It uses a three-step dispute resolution and administrative claims process as follows:

Step 1 - written on-site determination.

Step 2 - district level determination by a District Dispute Resolution Committee.

Step 3 - central office level determination, using either a Director’s Claim Board or a dispute resolution board or a dispute resolution advisor.

The Handbook requires the partnering facilitator to assist both parties in the process of avoiding and resolving the claims, “but not to act in lieu of or as a member of the dispute resolution board or dispute resolution advisor” (20).

On the other hand, the Montana DOT (MDT) uses a formal an issue resolution process not linked to partnering that is documented in the MDT Local Agency Guidelines (LAG) Manual (24). The details of the process are shown in Figure 1. This an example of institutionalizing partnering’s principle of dispute escalation by codifying a standard process in an agency policy document. MDT experimented with partnering in the late 1990’s and determined that the time and expense was not justified in a market where longstanding relationships existed and where construction claims litigation was infrequent (25).

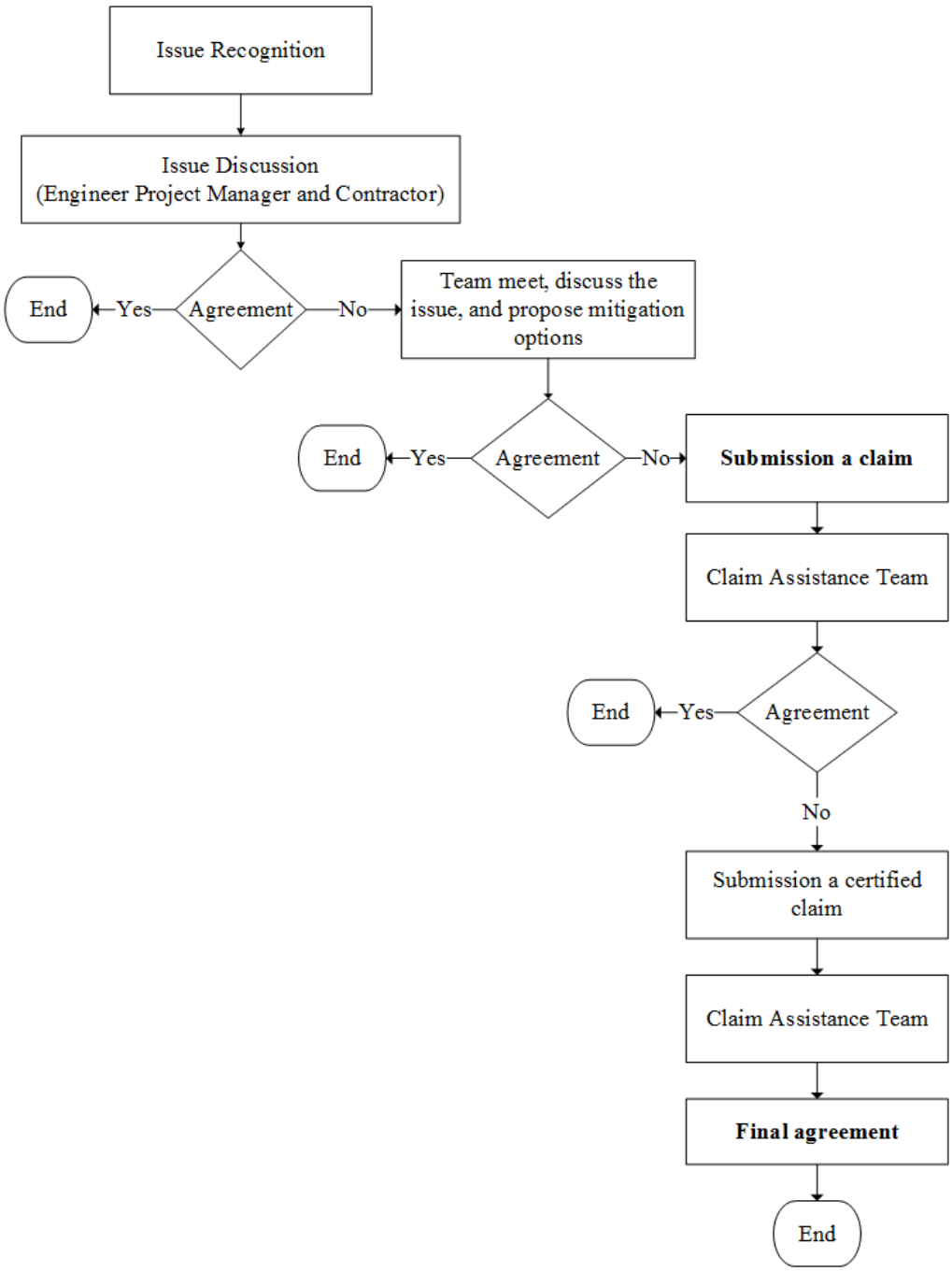

Figure1. Montana DOT Claim Resolution Process Chart
(Adapted from MDT LAG Manual 2013)

The Oklahoma DOT also used formal partnering on its projects in the 1990's, but eventually reached a point where upper management felt it had become redundant to other ongoing industry outreach initiatives. The agency credits its close relationship with the construction industry for it enviable history of low contract cost growth. Oklahoma reported that

it annual average contract cost growth has been less than 4.0 % every year for the past two decades (26). A major contributor to this outcome is the fact that very few claims reached litigation. Hence, this agency is another example of how the principles of partnering have been institutionalized into the Oklahoma DOT culture without the need to perpetuate formal project partnering activities.

The above discussion is not meant to cast doubts on the reliability of formal partnering process but rather to indicate the importance of understanding the key tools, components, and practices of partnering that need to be addressed in order to have a successful internal dispute resolution process that preempts the appearance of claims in transportation projects.

Construction Claim Avoidance

While the literature is full of examples of the benefits that a successful partnering program generates, the functional objective of a partnering program has to ultimately be resolving the many disagreements, issues, and disputes found on every construction project without resorting to the courts (27). As stated by Naoum (28), "The construction industry has identified the principles of an agreed dispute resolution process as being a systematic approach to problem solving based upon *the ''win–win'' philosophy inherent in the partnering process* [italics added]." Therefore, since this one aspect is easily measured, the remainder of the paper will be devoted to evaluating partnering's impact on reducing construction claims litigation.

The question essentially becomes one of whether or not a formally facilitated workshop is required to create the necessary business cultures that actively resolve disputes at the lowest possible level, the key partnering principle. Meyer and Rowan (8) put this question into its theoretical context

> "Institutionalized products, services, techniques, policies, and programs function as powerful myths, and *many organizations adopt them ceremonially*. But conformity to institutionalized rules often conflicts sharply with efficiency criteria and, conversely, to coordinate and control activity in order *to promote efficiency undermines an organization's ceremonial conformity* and sacrifices its support and legitimacy… building gaps between their formal structures and actual work activities [italics added]."

To put Meyer and Rowan's quote in the context of this paper, formal partnering workshops represent the 'institutionalized program' that has been 'ceremonially adopted' and the idea that regularly performing the ceremony minimizes or eliminates claims is potentially the 'powerful myth.' The experience gained by the Montana and Oklahoma DOTs with formal partnering is an example of the ceremony conflicting with efficiency criteria to the point where those agencies stopped practicing the ceremony. The issue to be addressed in the remainder of the paper is whether or not perpetuating the ceremony has created a gap between the institutionalized principles of partnering and the actual performance of partnered projects.

Very little research has been done in transportation projects to specifically measure the impact of minimizing claims. For this study's purposes, claims are defined as "contract disputes that are settled above District level" (6). A change in attitude towards the relationship among partnering and claims may be warranted as increasing evidence in the practice shows that some agencies have recorded measurable positive impacts on the claims costs by reforming their business culture instead of a formal partnering project program.

In formal partnering, one of the key elements is the dispute resolution ladder (3). This tool is created during the partnering workshop. Each agency has its own methodology but essentially the rungs of the ladder escalate up through parallel agency and contractor organizations. At each level, representatives with an increasing level of authority attempt to resolve the issue if possible. The escalation plan is among the two primary parties to the contract. The process is designed to be both swift and equitable, avoiding having to divert both parties' resources from be expended on litigation with its attendant distractions and emotions.

However, the concept of dispute resolution through organizational escalation is not necessarily specific to formal partnering. A number of DOTs, like MDT, have appropriated the strategy of issue escalation without the benefit of a formal partnering charter due to lessons learned regarding the potential negative impact of claims, and the result has been positive. It is logical that a state agency should do its best to expend its annual budget on improving the transportation system rather than unproductively defending itself against contract claims.

The remainder of the paper will compare the claims history of DOTs that actively utilize formal partnering to those that do not. The information comes from the Ohio and Utah DOTs who formally partner most, if not all, their projects and the Montana and Vermont DOTs who do

not. The analysis seeks to determine if there is a statistically significant difference in the cost of claims between the two types of programs.

METHODOLOGY

A number of research instruments were used to elicit information on how formal partnering could impact the reduction of claims. A comprehensive literature review was first conducted. It found that there are few established protocols for quantifying partnering's impact construction claims. It also found that there seems to be no standard definition for key terms like issue, dispute, claim, etc. Since each agency has its own terms, it is difficult to compare the information contained in each report in the literature to a common base-line with reasonable confidence.

Interview findings

The second research instrument was structured interviews performed in accordance with the protocols specified by the US Government Accountability Office (29). The information gathered during interviews with staff formed the current state-of- practice on formal and informal partnering at AASHTO Subcommittee of Construction. This was used as validation to evaluate the usefulness of the proposed methodology in this research. Key points of information gathered included:

- Some of the perceptions found in the survey for choosing to not use formal partnering are: lack of familiarity with the process, limited resources to commit to a formal partnering program, and the difficulty in measuring tangible results from partnering.
- The term claims varies between public agencies. Current practices used to evaluate the claim costs are not standard and often rely only on the claims register kept at the project work site.
- Agencies that do formally partner projects don't always enter every potential claim brought to their attention, because they perceive that the very act of recording every issue violates the spirit of partnering. This paradox was confirmed in the literature (12).
- Weekly partnering meetings are held at Utah DOT to review current project status and to evaluate the partnering work effort. According to them, this meeting can help the

parties to understand the schedule, coordinate work, identify and resolve issues, discuss the status of the project, and plan the week ahead.

- The partnering workshop training helps teams work together in an amiable way. The formal partnering process causes teams to proactively make commitments to each other. They collectively decide to put the project first and to resolve all project issues as a team in a timely manner.
- According to the workshop participants, partnering does not eliminate claims, but the majority perceived that formal partnering does help to reduce them.

Case Studies

The case study selection procedure considered the size of the DOT's geographic area of responsibility, its typical annual construction budget, and the number of heavy highway general contractors (GC) in the state. From an original list of 22 proposed states, four DOTs were selected. All four case studies furnish examples of the successful reduction of claims using one common component: a formal dispute resolution process. Data was collected on the agencies' formal partnering procedures and summary of claims history were obtained. Table 2 summarizes the demographics of the four case study. The table attempts to demonstrate that annual construction budget for each state expressed as a function of population, land area, and most importantly for this topic, as a function of the number of different contractors with which the DOT is able to do business. A state with a large land area and relatively small population, like Montana, has a relatively low dollar ($) per number of contractor. Since highway construction costs are a function of the mobilization distance, this differs greatly from smaller states with denser populations, for instance Utah with higher dollar per number of contractors.

Table 1. ***Population, Land Area and Highway Contractor Information (U.S. Census Bureau 2015 & AGC of America)***

Part-nering	Agency	Annual Budget ($M)	Popu-lation (M)	Budget per capita ($M)	Land area (SM)	Budget per SM ($M)	GCs	GC Density (SM/ GC)	Budget/ GC ($M)
Formal	Utah	$1,400	2.99	$0.47	82,170	$17.04	45	1826	$31.11
Formal	Ohio	$3,100	11.6	$0.27	40,948	$75.71	123	333	$25.20
None	Vermont	$685	0.63	$1.09	9,249	$74.06	40	231	$17.13
None	Montana	$667	1.03	$0.65	145,552	$4.58	50	2911	$13.34
M = million; SM = square miles; GC = highway general contractor									

Current Practices to Reduce Claims

Structured interviews with case study DOTs and survey responses indicate that not all DOTs use a formal partnering process to resolve contractual disagreements with general contractors in transportation projects. In the cases where the agency does not partner, a special process based on lessons learned from settled or closed claims to improve contracts and specifications is put in place to expedite dispute resolution. The study collected dispute data that was statistical analyzed measure the effectiveness of partnering in reducing claims costs in the case study DOTs. The process relies on trend analysis between the claims costs and the final cost of completed projects using descriptive statistics. The following hypothesis is tested:

Claims costs are lower for agencies partner than those that do not.

Data was collected from four state DOTs. Because of differences in agency internal policies and procedures, each agency is evaluated as a stand-alone case, and no attempt is made to aggregate the total pool of projects to avoid the potential for missing unrecognized factors between agencies such as the project delivery method or the complexity of the project, and to relieve the need to test for skewing of the results due to unequal sample populations. The researchers also felt that in doing so it would allow a loose comparison between this study and previous ones in the literature (6, 17).

Data over a period of 10 years was collected from each of the agencies in the sample. The interviews found that the process to a construction claim typically begins when the agency rejects a contractor's change order request. The claims cost (CC) is the ratio between the total cost of claims and the original contract cost as shown in Equation 1.

$$CC = \text{Total Cost of claims} / \text{Original contract cost} \qquad \text{Eq. 1}$$

DATA ANALYSIS

Previous research finds that award price of $5,000,000 is a threshold to group claim costs. Projects that are lower than this value are highly sensitive to the amount of claim cost when expressed as a percentage of the original cost in partnered projects (6), which introduces unintended skewing of the sample output.

The Montana and Vermont DOTs have a history of claims of roughly the same magnitude as the Utah and Ohio DOTs who partnered most project since 10 years. A statistical analysis was conducted with the T-test and One-way ANOVA test to identify and confirm the

trends found in the data. The Tukey-Kramer formula are used to permit the multiple comparison of results having unequal observations in the samples (30). Table 3 shows the descriptive statistics of the data. The Montana DOT had the highest mean claim cost is and the lowest value is from Utah DOT. Nevertheless, the data with the highest standard error is from Utah DOT. The mean claim cost for the four agencies are in the same range, for that reason, it was tested the following null (H_o) and alternative hypothesis (H_A):

- $H_{o:}$ *The mean claim cost for Ohio Dot is the same as the mean claim cost from Utah DOT, Montana DOT, and Vermont DOT. There is no difference in the quality evaluation requirements*
- H_A: T*he mean claim cost is not the same across the four agencies.*

Table 3. Mean and Standard Error of the claim cost of the case study agencies.

Program	Agency	Mean Claim Cost	Std Error Claim Cost
Formal Partnering	Ohio (ODOT)	2.70%	1.223%
	Utah (UDOT)	1.70%	2.446%
None	Montana (MDOT)	4.13%	1.934%
	Vermont (VDOT)	3.69%	2.233%

As can be seen in Table 4, since the p-value for the seven comparisons are higher than the significance level (0.05), we failed to reject the null hypothesis. There is not enough evidence that suggest that the mean claims costs are statistically different among the four agencies.

Table 4. Mean Claim Cost comparisons using Tukey-Kramer HSD Method.

Level	- Level	p-Value
MDOT	UDOT	0.8647
VDOT	UDOT	0.9313
MDOT	ODOT	0.9244
ODOT	UTAH	0.9832
VDOT	ODOT	0.9796
MDOT	VDOT	0.9989

A second statistical analysis grouping the agencies by the type of program was conducted. It compared the mean claim cost of the two agencies that formally partnered with the mean claim cost of the two that do not. The results are shown in Table 5. Because p value >

0.05, there is enough evidence that suggest that the main claim cost for both groups of agencies is the same.

Table 5. T-test results for partnered and non-partnered mean claim cost (p = 0.05).

Factor	Value
Difference	-0.01437
Std Err Dif	0.01780
t Ratio	-0.80762
DF	37
Confidence	0.95
Prob > |t|	0.4245

The statistical analysis shows that the cost claims for the four agencies is not significant different (p =0.05) for the same range of projects Implementing a process to encourage collaboration, facilitation and negotiation skills for small agencies who do not partnered is same effective that for large agencies a formal partnering process in order to reduce the claim costs. This is because these methods are highly structured and do not rely primarily on personal judgment.

CONCLUSIONS

The research attempted to determine if the presence of formal partnering led a statistically significant difference in mean claims costs. The statistical data were drawn from four agencies, and as such, the results only apply to those agencies. The literature review found that some DOTs have stopped formal partnering because they do not perceive it has having a direct, measurable impact in reducing of claims. The statistical analysis showed that since there was not a significant difference in claims costs that both Montana and Vermont had institutionalized the precepts of partnering to the point where the investment in the catalyst provided by a formal partnering workshop was no longer justified.

The option of not using formal partnering to minimize claims in transportation sector is only viable after an agency has institutionalized the principles and values of partnering. The results suggest that a continuing investment in negotiation and facilitation training may be necessary to leverage achieve a desirable project performance rather than implement a formal partnering process at project level. Changing the construction business culture from an adversarial environment to a collaborative one requires the agency codify that change in its

policies, procedures, specifications, and contracts. Once the culture shift is truly made, the need for ceremonial adoption of rituals like the formal partnering workshop is overcome by the need to more efficiently use available capital on practices that generate a measurable return on investment. While this study is by no means comprehensive, it does lead one to infer that both Montana and Vermont may transcend to Bennet and Jayes (9) “third generation” of partnering.

ACKNOWLEDGMENTS

The authors acknowledge the members of Vermont, Montana, Utah, and Ohio DOTs, as well as the AASHTO construction subcommittee for their contribution to this study.

REFERENCES

1. McFadden, E. and Ernzen, J. (2003) Partnered Project Performance at the City of Phoenix. Construction Research Congress: pp. 1-9
2. Ali, A. S., Z. Mohd-Don, A. Alias, S. N. Kamaruzzaman, and M. Pitt. 2010. The Performance of Construction Partnering Projects in Malaysia. International Journal of Physical Sciences, 5(4): 327-333.
3. Black, Carolynn, Akintola Akintoye, and Eamon Fitzgerald. 2000. An Analysis of Success Factors and Benefits of Partnering in Construction. International Journal of Project Management, 18(6): 423-434.
4. Anderson, Lee L., and Brian D. Polkinghorn. 2011. “Efficacy of Partnering on the Woodrow Wilson Bridge Project: Empirical Evidence of Collaborative Problem-Solving Benefits.” Journal of Legal Affairs and Dispute Resolution in Engineering and Construction 3 (1): 17–27. doi:10.1061/(ASCE)LA.1943-4170.0000044.
5. Basham, Donald L., Robert E. Buhts, and Herbert F. Harback. 1994. “Partnering Paradigm.” Journal of Management in Engineering 10 (1): 23–27. http://link.aip.org/link/?QME/10/23/1.
6. Gransberg, D. D., W. D. Dillon, H. L. Reynolds, and J. Boyd. 1999. Quantitative Analysis of Partnered Project Performance. Journal of Construction Engineering and Management, 125(3): 161-166.
7. Campbell, J.L., 2006. Institutional analysis and the paradox of corporate social responsibility. American Behavioral Scientist, 49(7), pp.925-938.
8. Meyer, J.W. and Rowan, B., 1977. Institutionalized organizations: Formal structure as myth and ceremony. American journal of sociology, pp.340-363.
9. Bennett, J. and Jayes, S., 1998. The seven pillars of partnering: a guide to second generation partnering. Thomas Telford.
10. AASHTO Subcommittee on Construction, “Partnering Questionnaire Response Survey,” 2014, http://construction.transportation.org/Documents/Surveys/AASHTO%20SOC%20-%20Partnering%20Questionnaire%20-%20Response%20Summary.pdf

11. Hong, Yuming, Daniel W. M. Chan, Albert P. C. Chan, and John F. Y. Yeung. 2012. "Critical Analysis of Partnering Research Trend in Construction Journals." Journal of Management in Engineering 28 (2): 82–95. doi:10.1061/(ASCE)ME.1943-5479.0000084.
12. Bresnen, M., 2007. Deconstructing partnering in project-based organization: Seven pillars, seven paradoxes and seven deadly sins. International journal of project management, 25(4), pp.365-374.
13. Crane, Travis G, Jennifer P Felder, Paul J Thompson, Matthew G Thompson, and Steve R Sanders. 1997. "Partnering Process Model." Journal of Management in Engineering 13 (3): 57–63. doi:10.1061/(ASCE)0742-597X(1997)13:3(57).
14. Khatib, J.M., B. Robinson, and Paul Watson. 2007. "The Impact of Procure 21 (P21) Partnering Process within the UK Construction Industry: Part Two: Influence on Principal Supply Chain Partners." Building Engineer 82 (1). The Association of Building Engineers: 28–31. https://www.engineeringvillage.com/share/document.url?mid=cpx_30c2211104a6ec6dcM66b72061377553&database=cpx
15. Chan, A. P. C., and Chan, D. W. M. ~2002!. ''Initial partnering workshop report for the construction of senior citizen residence at Jordan Valley, Kwun Tong.'' Rep. submitted, Hsin Chong Construction Co. Ltd., Hong Kong
16. Court, Kildeer, St Albert, and A B Canada. 2015. "Construction Partnering," 2015. doi:10.1002/9780470759660.
17. Weston, D.C. and Gibson Jr, G.E., 1993. Partnering-project performance in US Army Corps of Engineers. Journal of Management in Engineering, 9(4), pp.410-425.
18. California DOT. 2013. Field Guide to Partnering on Caltrans Construction Projects. http://www.dot.ca.gov/hq/construc/partnering/documents/Field_Guide_to_Partnering_on_Caltrans_Construction_Projects_final.pdf.
19. Utah DOT Partnering Field Guide. 2015. The Utah Association of General Contractors and Utah Department of Transportation Partnering
20. Ohio DOT Partnering Handbook. 2000. Donna K. Brown, Ph.D., Project Consultant and Handbook Author. Oak Wood Associates Ltd., Grand Rapids, Ohio.
21. Maryland DOT (2016). Maryland State Highway Administration Office of Construction (OOC). Sub-recipient Construction Manual.
22. Murdough, G., D. Drecksel, G. Sharp, and J. Ernzen. 2007. Performance in the Project Trailer: a Partnering Evaluation Tool. Transportation Research Record: Journal of the Transportation Research Board, 1994(1): 26-34.
23. Eriksson, P. E., and A. Laan. 2007. Procurement Effects on Trust and Control in Client-contractor Relationships. Engineering, Construction and Architectural Management, 14(4): 387-399Montana DOT. 2013. Local Agency Guidelines (LAG). FHWA approved State DOT Local Agency Guide. http://www.mdt.mt.gov/other/webdata/external/cdb/lag_manual/lag_manual.pdf
24. Montana DOT. 2015. Montana Department of Transportation Official state website. Disadvantaged Business Enterprise.

25. Montana Department of Transportation. (MDOT). 2015. “A review of UDOT’s Process and Discussions on MDT’s possibility of using partnering”. Unpublished working paper. 4 pp.
26. Gransberg, D.D. and Riemer, C. 2009. “Impact of Inaccurate Engineer's Estimated Quantities on Unit Price Contracts,” Journal of Construction Engineering and Management, ASCE, Vol. 135 (11). pp. 1138-1145.
27. Kululanga, G., Kuotcha, W., McCaffer, R., and Edum-Fotwe, F. 2001. "Construction Contractors' Claim Process Framework." J. Constr. Eng. Manage., 10.1061/(ASCE)0733-9364(2001)127:4(309), 309-314.
28. Naoum, S., 2003. An overview into the concept of partnering. International journal of project management, 21(1), pp.71-76.
29. Government Accountability Office (GAO) Using Structured Interviewing Techniques, GAO/PEMD-10.1.5, Government Accountability Office, Washington, D.C., June 1991, 191pp.
30. D., D. V. R., Velleman, P. F., & Bock, D. E. (2008). Stats: data and models. Boston: Pearson, Addison-Wesley.