RESEARCH STUDY

Best Practices for Organizational Change Management within Electrical Contractors

by

Abstract

Insert Few studies have investigated best practices for organizational change management (OCM) within the electrical contracting industry. This study had two research questions: first, to determine whether there is a relationship between electrical contractor usage of OCM practices and successful change adoption; second, to identify whether electrical con- tractors have recommendations for how to effectively implement OCM practices within their companies. The first research question was assessed via a national survey of 94 electrical contractors who had recently adopted an organizational change. The second question was explored through 11 in-depth interviews of electrical contractors who had implemented organizational changes such as prefabrication, management team realignment, new software, paperless mobile technology, payroll automation, and entering into a new market. Results showed OCM practices were associated with successful change adoption. OCM practices that had a direct association with successful change adoption included change agent effectiveness, a realistic timescale, providing change-related training, senior leadership commitment, measuring performance benchmarks, providing sufficient resources, and effective change message communication. Interviewees recommended best practices for executing these OCM practices. Contributions include being the first study to investigate OCM practices specifically within the electrical contracting industry and identification of how practitioners can implement OCM practices for their change initiatives.

Research Details

INTRODUCTION

Electrical contractors are faced with numerous organizational change opportunities that hold the potential to increase productivity, reduce waste, and improve their competitiveness. Within the context of this study, organizational change is defined as a planned effort to implement a new program, practice, or policy within an organization (Shea, Jacobs, Esserman, Bruce, & Weiner, 2014). Within electrical contractors, several organizational changes have been acknowledged in the literature. For example, Lewis and Ozbek (2012) studied the growing role of electrical contractors in integrated project delivery (IPD) and warned that electrical contractors who were “inexperienced” with IPD face may substantial risks. Rowings, Federle, and Rusk (2000) studied electrical

contractor adoption of design-build project delivery. Previous research has considered the electrical contracting industry's adoption of building information modeling (BIM) (Hanna, Boodai, & El Asmar, 2013). Other studies have focused on best practices for electrical contractors to implement a prefabrication facility (Bogus, Jones, & Rounds, 2009; Said, 2015). Valentin (2015) summarized information technology solutions for electrical contractors and commented upon the challenges that face contractors who attempt to adopt new technologies.

Despite the number of organizational change opportunities in the electrical contracting industry, the contributions of previous studies have predominantly focused on the technical aspects of each change rather than the organizational change management (OCM) process of making the transition from one organizational state to another. OCM is defined as the structured approach and sequential steps to planning, managing, and transitioning individuals, teams, and organizations from a current state to a desired future state (Burnes, 2009; Hallencreutz & Turner, 2011). Within the organizational behavior literature, it is widely recognized that organizational change stimulates trepidation, resistance, and other defense mechanisms from the company's personnel (Argyris, 1993; Armenakis & Harris, 2009). Achieving successful adoption of an organizational change is therefore understood to be directly related to the effectiveness of the OCM practices the organization employs (McNulty & Ferlie, 2004; Self & Schraeder, 2009). Yet within the electrical contracting literature, previous studies have not focused on the OCM practices that are most effective to facilitate organizational change adoption.

This study focused on two research questions related to the gap of OCM research within the context of electrical contractors. The first research question was whether a relationship exists between electrical contractor usage of OCM practices and their corresponding ability to successfully adopt organizational change. The second research question was whether electrical contractors who have successfully adopted organizational changes can provide recommendations for how to effectively OCM practices. A national survey of 94 organizational changes within electrical contractors was conducted to address the first research question. In-depth interviews of executives who oversaw 11 separate organizational changes were conducted to address the second research question. Results identified a rank order of OCM practices most associated with successful organizational change adoption: change agent effectiveness, following a realistic timescale, providing sufficient change-related training, senior leadership commitment, establishing and tracking performance benchmarks, providing sufficient resources and financial support, and ensuring the change message emphasized each employee's personal benefits within the change. Recommendations for implementing OCM practices within electrical contractors were also identified and discussed based on interview results. Contributions include being the first study to focus on OCM specifically within electrical contractors and practical OCM recommendations for practitioners to utilize within their future organizational change efforts.

LITERATURE REVIEW

The literature review is organized into three sections. First, concepts of OCM from the field of organizational behavior are described. Second, views of OCM within the architecture, engineering, and construction (AEC) industry are discussed. Third, OCM topics that have been identified within the electrical contracting industry are reviewed.

Organizational Change Management

Concepts of OCM originated in the field of organizational behavior, which is an inter- disciplinary study of managing people within the workplace (Kinicki & Kreitner, 2006). OCM was first conceptualized by Lewin (1947), who proposed a planned approach to change that followed the phases of unfreezing, moving, and refreezing. Subsequently, beliefs that organizational change can be managed matured into numerous models that recommended specific OCM practices to more successfully adopt change. Specific OCM practices were recommended by several of the more well-known organizational change models (Burnes, 2009; Galpin, 1996; Hunsucker & Loos, 1989; Judson, 1991; Kanter, 2003; Kotter, 1995; Luecke, 2003). Within these models, the most commonly recommended OCM practices included the establishment change agents to guide the transition, protocols to monitor the effectiveness of the change, establishment of top management commitment, communication of the change vision and benefits, and change-related training for employees. Despite the usefulness of these recommendations, a limitation of these models is their broad applicability that is not specific to particular industry sectors. This raises the need to investigate OCM practices within the context of the AEC industry, which has been noted to pose several challenges to organizational change adoption due to the industry's project-based nature (Barrett & Sexton, 2006; Lines, Sullivan, & Wiezel, 2016) and complexity and diversity of the design and construction process (Bygballe & Jahre, 2009; Pheng & Teo, 2004; Slaughter, 2000).

Organizational Change Management Within the AEC Industry

Numerous studies have focused on the implementation of an organizational change within the AEC industry. These studies have predominantly concentrated on the adoption of a single type of organizational change or distinct organizational change objective. For example, many researchers have studied BIM adoption, whether specifically in design firms (Arayici et al., 2011; Ding, Zuo, Wu, & Wang, 2015; Son, Lee, & Kim, 2015), construction firms (Farzad & Arayici, 2012; Lee, Yu, & Jeong, 2015; Won & Lee, 2013), or owner organizations (Barlish & Sullivan, 2012). BIM adoption has also been extensively studied through a geographic perspective; for example, BIM adoption has been studied within AEC firms located in the United Kingdom (Eadie, Browne, Odeyinka, McKeown, & McNiff, 2013), the People's Republic of China (Bo & Chan, 2012), Denmark and Iceland (Jensen & Johannesson, 2013), and Malaysia (Rogers, Chong, & Preece, 2015), to name but a few. Organizational efforts to adopt other forms of information technology have also been studied, such as web-based PM software (Dossick & Sakagami, 2008; Peansupap & Walker, 2006) and radio-frequency identification technology (Li & Becerik-Gerber, 2011). Management-focused organizational changes have also been researched, including the adoption of six sigma (Pheng & Hui, 2005), program management practices in design firms (Shehu & Akintoye, 2010), human resource practices for safety management (Lai, Liu, & Ling, 2011), enterprise risk management (Zhao, Hwang, Low, & Wu, 2015), quality management programs (Sullivan, 2011), knowledge management systems (Tan, Carrillo, & Anumba, 2012), and alternate procurement approaches (Hurtado, Smithwick, Pesek, & Sullivan, 2017). The literature has primarily focused on the technical aspects of these changes rather than OCM practices.

Several studies have centered on OCM practices within the context of the AEC industry. Erdogan, Anumba, Bouchlaghem, and Nielsen (2014) proposed a theoretical framework of organizational change stages within construction organizations, which they referred to as the management of organizational changes (MOCHA) framework. Xerri, Nelson, and Brunetto (2014) studied workplace relationships and attitudes toward orga- nizational change specifically within engineering asset-management companies.

Their study concluded that change agents must prioritize the establishment of a positive working relationship with employees who are affected by an organizational change. A broad study of OCM practices in the AEC industry was conducted by Lines and Vardireddy (2017). The main contribution of the study was to develop a ranking of OCM practices that had the greatest relationship with organizational change adoption. The broad nature of the dataset limited more granular understanding of OCM practices for specific types of AEC organizations; for example, contractors who participated in the study were not categorized into specialty versus general contractors, let alone a specific industry subsector such as electrical contractors.

Organizational Change Management within Electrical Contractors

Little research exists for OCM practices specific to electrical contractors. Said (2015) studied best practices for adopting prefabrication within electrical contractors. Although the study only tangentially touched upon the topic of OCM, it identified the typical phases that electrical contractors followed to implement prefabrication. The study identified the importance of OCM practices such as having dedicated staff to act as change agents and providing change-related training to affected staff. Wong, Zwar, and Gharaie (2017) studied drivers of prefabrication in construction. However, their study included all construction organizations and therefore was not exclusive to electrical contractors. Despite this limitation, the study provided several relevant OCM findings for implementing prefabrication, namely the importance of resourcing, performance measurement, and communication of the change's benefits across the organization. Other studies have tangentially considered OCM related to electrical contractors. Perrenoud and Sullivan's (2016) analyzed executive succession planning and found that electrical contractors achieved more satisfactory executive succession when they followed best practices to manage the transition. In Valentin's (2015) study of various information technology opportunities, several OCM-related barriers to electrical contractor adoption of technology were identified.

METHOD

Research Questions

This study was conducted in partnership with the National Electrical Contractors Association (NECA), the largest electrical contractors' association in the United States. The first research question examined whether electrical contractor usage of OCM practices was associated with more successful organizational change adoption. The second research question was to identify whether best practices could be identified for effectively implementing OCM practices within electrical contracting companies. A sequential research design was followed to investigate the research questions. The first question was investigated by a national survey of NECA contractors to establish the relationships between OCM practices and change adoption. The second research question was then explored via in-depth interviews with NECA contractors related to their organizational change experience. The intent of the interviews was to understand *how* electrical con- tractors have effectively implemented OCM practices to guide their change efforts. Figure 1 provides a graphical representation of the research design.

Survey Method

An online questionnaire was designed to address the first research question and collect feedback from NECA contractors regarding their experiences with implementing organizational change. The questionnaire consisted of four sections and is provided in Appendix A. First, respondents were asked to identify a single, specific organizational change initiative their company implemented and provide a brief description of the change. Respondents were instructed that all subsequent sections would refer to the specific change initiative they chose. In the second section, respondents rated the effectiveness with which their company implemented various OCM practices. These questions represented the survey's independent variables and were measured on a 7-point Likert-like ordinal scale (1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = neutral; 5 = somewhat agree; 6 = agree; 7 = strongly agree). Based upon the literature review prior to survey distribution, seven distinct OCM practices were included within the survey. Seven hypotheses (abbreviated as H1–H7) were developed to state that each OCM practice had a directly proportional relationship with change adoption. The definitions of each OCM practice were modified from the previous industry-wide survey conducted by Lines and Vardireddy (2017) and are listed below along with the respective abbreviations and hypotheses used throughout this paper. The OCM practices included the following: senior leadership was committed to making the change a success and "walked the talk" (abbreviated as Leadership Commitment, H1), the company ensured employee understanding of action steps needed to adopt the change within their specific job functions (Job-Specific Training, H2), the timescale and speed that the company implemented the change was realistic (Realistic Timescale, H3), sufficient resources and financial support were provided (Sufficient Resources, H4); the company ensured each employee had understood how the change would benefit them personally (Understanding of Benefits, H5), the change agents responsible for managing the change were effective (Change Agent Effectiveness, H6), and the company established clear performance benchmarks to measure success (Performance Benchmarks, H7).

The questionnaire's third section asked respondents to rate the success with which their company adopted the organizational change initiative. Organizational change adoption was measured across three items, defined as follows: the organizational change was adopted as intended (Adopted as Intended), the organizational change achieved the beneficial impacts and performance gains that were desired (Achieved Beneficial Impacts), and the company was able to sustain the change within their long-term operations (Sustained Long Term). The internal reliability of these items was assessed via Cronbach's alpha. Principal component analysis was used to create a composite measure of these three items, abbreviated as the Change Adoption Construct, which served as the overall rating of success for each organizational change initiative captured within the survey.

The fourth section asked each respondent to provide demographically based information about themselves and their companies. Each respondent was asked to provide their years of professional experience, their generational affiliation, and the job title that best described their current role within their company. Respondents were also asked to estimate their company's annual revenue and number of full-time employees.

A snowball sampling technique similar to Zuo, Read, Pullen, and Shi (2012) and Wong et al. (2017) was used due to the fact that not all electrical contractors may have recently implemented a significant organizational change. NECA provided a list of all chapter managers across the United States. The online questionnaire was distributed accordingly and each chapter manager was asked to forward the survey to appropriate companies within their membership. A total of 94 survey responses were received. Table 1

provides a demographic breakdown of the responses. Within the research population, a range of company sizes were collected. The majority of respondents represented executive-level job positions and 85% of respondents had amassed more than 20 years' experience in electrical contracting.

Table 1. Survey demographics.

Category	Frequency	Percentage (%)
Company revenue		
< $10M	23	27
$10–30M	19	22
$30–100M	20	24
$100M+	23	27
Company full-time employees		
< 20	12	14
21–100	21	25
101–500	35	42
500+	16	19
Respondent's experience		
< 20 years	12	15
20–29 years	19	23
30–39 years	25	30
40+ years	26	32
Respondent's job position		
Nonexecutive	28	35
Executive	52	65
Respondent's generation		
Traditionalist (< 1946)	3	4
Baby Boomer (1947–1964)	47	57
Generation X (1965–1978)	28	34
Generation Y (1979–1997)	4	5
Generation Z (1998–2017)	0	0

Interview Method

NECA's research organization, ELECTRI International, assisted with identifying contractors who experienced significant organizational changes and who were willing to participate in the study's interview process. A total of 11 executives from electrical contractors volunteered to participate in the interviews. Descriptive information of the 11 interviewees is provided in Table 2. The companies were located across the United States with multiple contractors representing the East Coast, Midwest, and West Coast, respectively. The interviewees held professional experience ranging from 20 years to more than 50 years, with the majority holding more than 40 years of experience.

The interview objective was to identify effective OCM practices each contractor utilized to adopt an organizational change within their company. Prior to each interview, interviewees received a briefing on the study's research questions and were asked to select a significant organizational change their company had recently adopted. As shown in Table 2, a wide variety of organizational changes were

captured by the interviews. Five organizational changes focused on contractors who were restructuring their operations to utilize prefabrication. Two organizational changes included management team realignments where the interviewed companies underwent a planned transition in senior leader- ship personnel for strategic and non-succession purposes. Three organizational changes focused on the integration of new technologies and another interviewee discussed their company's journey to enter an entirely new market sector.

A semi-structured interview process was used similar to previous studies of electrical contractors (Perrenoud & Sullivan, 2016; Said, 2015; Wong et al., 2017). The interviews followed Barriball and While (1994) recommendations for collecting data via semi-structured interviews. The semi-structured interviews consisted mainly of open-ended questions that were developed beforehand (Merton, Riske, & Kendall, 1990; Patton, 2002; Randell & Proctor, 2008). The interview questions are shown in Appendix B. The interviews were organized into four sections and a total of 10 questions. The first section focused on the background of each organizational change, where interviewees were asked to describe the specific change their company implemented along with overall duration. The second section guided interviewees through the methodology their company used to implement the change. The third section focused on barriers each company encountered and specific best practices for OCM practices that were implemented to drive successful change adoption. Finally, the fourth section asked about general lessons learned the interviewees would recommend other electrical contractors be aware of. Each interview lasted for approximately 45–90 min.

The interviews were manually transcribed for qualitative analysis and a content analysis approach was used to codify data from the transcriptions. Content analysis is an observational research method used to analyze the meanings and relationships of certain words, phrases, and concepts within transcribed communications (Fellows & Liu, 2008; Kolbe & Burnett, 1991; Neuendorf, 2002). The first section of interview questions was reviewed to determine the organizational change timeline within each company. The maximum, minimum, and mean durations are reported by the interviewee's provided in the Phases of change adoption and typical timelines section. The second, third, and fourth sections of the interview questions were analyzed via a qualitative content analysis in accordance with Fellows and Liu (2008) guidelines to determine content meaning by grouping the data into categories. These sections were assessed to identify instances where interviewees referenced how their company implemented one of the seven OCM practices (from the surveys). Interview comments were grouped for each of the seven OCM practices and summarized along with relevant quotations. Finally, the transcriptions were assessed to note the frequency with which interviewees discussed the topic of resistance to change. Interviewee comments on resistance to change were summarized in the results along with relevant quotations. In addition to formal qualitative content analysis groupings, another step was taken to verify the reliability of interview results by presenting the study findings at the ELECTRI Council's July 2017 meeting. The interview results were reviewed and accepted.

Survey results and discussion

Reliability of The Change Adoption Construct

The study-dependent variable, noted as the Change Adoption Construct, was determined using the three measures of change adoption noted previously (Adopted as Intended, Achieved Beneficial Impacts, and Sustained Long Term). First, the internal reliability of the dependent variables was assessed via Cronbach's alpha. The resultant value ($\alpha = .872$) was above the acceptable threshold of .7 (Cronbach, 1951; DeVellis,

2003; Kline, 2005). Second, a principal component analysis with a varimax rotation was performed to create the Change Adoption Construct as the linear composite of the optimally weighted original variables (Thurstone, 1947). A single factor was extracted on the basis of visual inspection of the scree plot, which revealed only a single point above the inflection point. The resulting Change Adoption Construction was then used in all correlation analysis along with the three separate dependent variable measures.

Hypothesized Bivariate Relationships Between Organizational Change Management and Change Adoption

The hypothesized bivariate relationships between OCM practices and change adoption were investigated using Spearman's rank-order correlation (Spearman, 1904). As shown in Table 3, all bivariate relationships between OCM practices and the Change Adoption Construct were found to be directly proportional. These results lead to the acceptance of the seven hypotheses, due to the fact that each bivariate relationship was directly proportional and statistically significant at the 99% confidence interval. Upon first glance, the high degree of statistical significance was surprising; however, the associations appeared reasonable upon consideration of the moderate and weak correlation coefficients. The authors note that positive correlations found between OCM practices and successful change adoption were logical; by way of explanation, this study's correlation results are analogous to finding that more effective project management practices tend to result in greater project success. Listed in terms of decreasing rank order, several moderate relationships were found between OCM practices and the Change Adoption Construct, including change agent effectiveness (H6, $r_s = .633$, $p < .01$), realistic timescale (H3, $r_s = .551$, $p < .01$), and job-specific training (H2, $r_s = .522$, $p < .01$). Weaker yet statistically significant relationships were found for leadership commitment (H1, $r_s = .493$, $p < .01$), performance benchmarks (H7, $r_s = .445$, $p < .01$), sufficient resources (H4, $r_s = .389$, $p < .01$), and understanding of benefits (H5, $r_s = .354$, $p < .01$). Bivariate relationship strength was interpreted based on Keller and Warrack (2000) guidelines.

Correlation analysis was also performed based upon the various respondent demo- graphics captured in the survey. Results are shown in Table 4, where all bivariate relation- ships were based upon the Change Adoption Construct-dependent variable measure. Several trends were observed based upon demographic characteristics. First, smaller companies tended to place greater importance on providing sufficient resources, whereas larger companies placed greater magnitude on senior leadership commitment, change agent effectiveness, and following a realistic timescale. As can be seen in Table 4, respondents with the least experience (less than 20 years) recognized job-specific training as being of utmost importance; in fact, this was the single strongest bivariate correlation found within the study ($r_s = .820$, $p < .01$). The most senior respondents (greater than 40 years' experience) placed priority on tracking performance benchmarks throughout a change initiative. Executive and nonexecutive respondents appeared to disagree on the importance of job-specific training, where executives felt it had a much weaker relation- ship with successful change adoption. Finally, no major differences were found among respondents based on generational divides.

Table 3. Correlation results for change management practices versus dependent variable measures of change adoption.

No.	Variable abbreviation	1	2	3	4	5	6	7	8	9	10

1	Leadership commitment										
2	Job-specific training	.583									
3	Realistic timescale	.404	.521								
4	Sufficient resources	.523	.463	.454							
5	Understanding of benefits	.267	.551	.323	.467						
6	Change agent effectiveness	.520	.602	.520	.421	.404					
7	Performance benchmarks	.548	.664	.382	.465	.516	.568				
8	Adopted as intended	.479	.521	.569	.376	.371	.636	.475			
9	Achieved beneficial impacts	.432	.491	.450	.291	.356	.638	.428	.809		
10	Sustained long-term	.476	.379	.469	.442	.178†	.372	.308	.597	.602	
11	Change adoption construct	.493	.522	.551	.389	.354	.633	.445	.921	.931	.764

† All bivariate relationships significant at the 99% confidence interval, except for this noted relationship which was not statistically significant.

INTERVIEW RESULTS AND DISCUSSION

Findings from the electrical contractor interview results are divided into three sections. First, contractor feedback regarding the main phases of change implementation are presented along with best practices for each phase. Second, contractor-recommended best practices for how to effectively implement each of the top-ranked OCM practices are provided. Finally, lessons learned related to employee reactions and resistance to change are described.

Phases of Change Adoption and Typical Timelines

Based on 11 interviews with NECA contractors, the typical electrical contractor's organizational change effort was found to consist of four phases (Figure 2). The average time span for organizational change was found to be 6 years, with a range from 3 years to 10 years. Once the need for change was identified within a company, the first phase consisted of planning and preparation activities. During this phase, companies were recommended to review their current practices, thoroughly communicate the vision to internal and external stakeholders, and evaluate internal acceptance of the proposed change before moving forward. The second phase consisted of initiating pilot tests. Interviewees recommended pilot testing as a "best practice" of OCM because it allows the company to uncover unforeseen "kinks" or issues, and develop solutions before engaging the entire company. This was particularly recommended for companies who implement new software; for example, Interviewee K said that "Jumping in all the way at the start was a mistake and we should have tested the software in parallel (with existing operations) for at least one full year."

Once the merits of the change are proven by pilot tests, the change can be expanded throughout the company. The duration of the expansion phase is highly variable depending on the complexity of the change. Prefabrication changes required an average of 3 years for full expansion, where the fastest example was accomplished in 2 years while the longest required more than 5 years. Technology-based

Table 4. Correlation results for the change adoption construct by respondent demographics.

Category	Subcategory	*N*	Leadership Commitment	Job-Specific Training	Realistic Timescale	Sufficient Resources	Understanding of Benefits	Change Agent Effectiveness	Performance Benchmarks
Revenue	< $10M	23	.490*	.513*	.631**	.472*	.392	.532**	.452*
	$10–30M	19	.244	.343	.490*	.307	.523*	.682**	.462*
	$30–100M	20	.408	.462*	.300	.306	.257	.524*	.233
	$100M	23	.686**	.622**	.648**	.305	.562**	.740**	.566**
Employees	< 20	12	.726**	.466	.356	.414	.281	.773**	.440
	21–100	21	.187	.488*	.685**	.479*	.594**	.400	.379
	101–500	35	.358*	.416*	.338*	.237	.323	.600**	.413*
	500+	16	.794**	.791**	.731**	.418	.691**	.658**	.445
Experience	< 20 years	12	.303	.820**	.679*	.438	.424	.627*	.289
	20–29 years	19	.579**	.347	.508*	.393	.118	.783**	.221
	30–39 years	25	.505**	.445*	.319	.122	.430*	.248	.299
	40+ years	26	.383	.455*	.576**	.476*	.507**	.749**	.685**
Position	Nonexecutive	28	.477*	.528**	.561**	.286	.380*	.606**	.357
	Executive	52	.509**	.385**	.525**	.377**	.291*	.632**	.450**
Generation	Baby Boomer	47	.526**	.492**	.464**	.363*	.488**	.682**	.424**
	Generation X	28	.477*	.528**	.561**	.286	.380*	.606**	.357

* Correlation is significant at the .05 level.

** Correlation is significant at the .01 level.

changes—such as implementing new estimating software, payroll automation, and paperless mobile technology—required an average of just under 3 years for full expansion and adoption. Management team realignments were the fastest relative to other types of change, with expansion phases as rapid as a single year. Entering a new market sector had by far the longest expansion phase. Interviewee L's company chose to roll out their change from inside to outside operations over the course of more than 8 years.

Nearly every interviewee noted that making a change "stick" as a permanent part of a company's operations was not accomplished at a specific moment in time. Interviewee K noted that "Making it stick is absolutely a 'hearts and minds' question," and Interviewee C said "Making it stick is more of a mindset and not a tangible outcome." Furthermore, work is not done once the change has "stuck" because people will use it as a platform on which to build further change. Interviewee C also said that once their prefabrication change was implemented, their employees wanted to find "even more" areas to change within the company. The fourth phase of organizational change was therefore identified as "Ongoing Operations" to account for continuous improvement activities that would inevitably be pursued.

Best Practices for Implementing Organizational Change Management Practices

Interviewees were asked how OCM practices were implemented within their companies. Their responses are summarized for the five highest-ranked OCM practices.

Change Agent Effectiveness

Interviewees indicated that change agents were typically most effective when they are (1) positioned in key roles within the company, particularly at the operation level rather than senior executives, (2) highly respected by their peers and subordinates, (3) personally passionate and enthusiastic about the change, and (4) accountable for implementing the change as part of their day-to-day work responsibilities rather than simply treating the change as a "side project."

Selecting the right individuals to serve as change agents adds credibility to the change message. Interviewee A commented that "Part of making a change is finding the right individuals who are willing to foster and support the change, because executives can be committed and provide resources but ultimately you need the project teams to make the change happen." Several companies emphasized the need to communicate the change vision to middle managers, superintendents, and foremen, who then would carry the change message throughout the company's operations. Interviewee A also argued that "You can't assign someone to be the champion of a change who isn't committed to it and doesn't understand it."

Electrical contractors who implement prefabrication must take particular care in selecting the change agent(s) who will lead their prefabrication office. Interviewees identified several lessons learned in selecting the wrong change agents. One company started with a service truck driver who was in an accident and unable to work in the field with the thought that the prefabrication office would not be a physically demanding job; however, the company quickly learned that the individual was not qualified for the position. Other companies started with lesser skilled individuals because they thought it was easier work and should be a cheaper salary, which quickly proved to be incorrect. Finally, one company brought in an experienced field foreman who was ready to retire, yet in the end that individual was partially

motivated by finding a way to "cruise out" the end of their career. Most companies recommended selecting a highly skilled, innovative, and respected field leader to start an effective prefabrication office.

Realistic Timescale

As previously noted, the average organizational change effort within electrical contracting companies followed a 6-year time span. Larger organizational change efforts commonly required 9 years. As noted by Interviewee J, "You will always underestimate how long change will take. Don't get frustrated if it takes longer than you thought it was going to take. Stay the course." Several interviews recommended a slow, measured pace of change as an effective strategy because an incremental pace allows companies to avoid making a major mistake. As noted by Interviewee D, "The worst thing you can do is back off because you grew too fast. . . it will be difficult to regain the enthusiasm. . . [and] it gives ammunition for people to argue against the change." Interviewee D elaborated on this statement by explaining that "The worst thing you can do is to try to force-feed it because you'll get tremendous resistance."

Job-Specific Training

In any change initiative, employees must be trained in how to succeed within the new environment. When insufficient training is provided, employees who are unsure how to enact the change within their job functions will typically revert back to their traditional practices. Leadership may interpret this as employee resistance to change, when in reality it may indicate inadequate training. For example, Interviewee A commented that their company "found that people are willing to change but sometimes they don't know how." Interviewees indicated that training was most effective when delivered at two levels. First, up-front training is needed to provide basic development of new skills. Interviewee J noted that "Fear of the unknown was the biggest barrier for our people and caused a lot of hesitancy." Interviewee H met individually with each foreman before every new project to provide a job briefing process and ensure the project team's buy in before moving ahead. Second, on-the-job training is a supplement to show employees how to enact the change within their day-to-day job functions. Interviewee H found it effective to teach employees "in real time" and any time questions came up "We sat them down with someone else who was proficient to serve as a coach." Interviewee E gave a further example of on-the-job training when they hosted a weekly lunch and learn with their foremen to share thoughts and review updates related to their prefabrication process.

Leadership Commitment

Although project-level change agents should be in charge of day-to-day implementation of the change, the role of senior leadership is still critical. Interviewees indicated that senior leadership must be clearly visible in their unwavering support for the change; otherwise, employees may not feel the need to follow through. Interviewee F recommended senior leadership assemble the entire staff and thoroughly communicate the change vision, including what the change was and reasons for why the company was implementing it. Senior leadership also has a unique vantage point to oversee the entire company, which allows leaders to break down silos within the company. Interviewee G said their senior leadership "had to

get groups together to explain the bigger picture. For example, something that saves time in the field is a bigger impact to the bottom line than something that saves time in the office." Interviewee D noted that senior leadership holds the keys for providing necessary resources to implement the change and can encourage their change champions throughout the process.

Performance Benchmarks

During change implementation, measuring performance benchmarks are beneficial in several ways. First, performance benchmarks quantify whether the change is truly being successful. Interviewee A said, "You can eliminate resistance by showing success in what you're doing." Second, showcasing "early victories" can help build momentum. For example, Interviewee G noticed that the company was accomplishing so much but the results were not getting shared for the entire company to see. When they began having regular meetings to share successes, "We found that success built more success." Finally, quantifiable performance benchmarks can help answer the questions of "What's in it for me?" for individual employees. Several interviewees felt that company-level performance benchmarks were ineffective because many folks will not care so long as they receive their paychecks. Interviewee J found that "People want to win, so if there's something that can help them personally win, be sure to measure it because they'll listen up and grasp it."

Resistance to Change

Every interviewee indicated that they encountered some form of resistance to change from within their company. Interviewee C indicated that "Only about 5% of the company will say there's no way they're making the change, 25–30% will buy-in up front, and the rest will go along with it and do what they are told so long as they're lead properly." Resistance to change can become a significant hurdle particularly since it can be hidden from view. For example, Interviewee G commented "We noticed that individuals would say the right things in meetings and they seemed to understand the change. But as they went out and continued everyday business, their actions did not align with their words."

Nearly half of companies interviewed indicated that they had to fire at least one resistive employee in order to implement organizational change. Another company stated that although they did not fire anyone, they did have to wait for certain employees to retire from key positions. Interviewee C warned that "When some people resist, there can be a temptation to coddle them, to talk it through. . . in reality, sometimes the best thing is just to let the person go." Interviewee C expanded upon their statement to say that that "If someone is adamantly opposed, they will poison your company."

SUMMARY OF RESULTS AND COMPARISON WITH PREVIOUS LITERATURE

There were several key findings from this study. First, the survey identified a rank order of OCM practices associated with successful organizational change adoption among 94 electrical contractors. The top-ranked OCM practices were the presence of effective change agents to guide the change, following a realistic timeline for change implementation, and providing adequate change-related training to ensure staff were comfortable and equipped to enact the necessary changes in their job functions. The interviews

expanded upon the survey by providing specific case-based examples of how electrical contractors have effectively implemented OCM practices to lead a company-wide change initiative. Interviewees also commented upon the timeline their companies followed when implementing the change as well as examples where the initiative encountered resistance from the company's employees.

There were several differences between OCM practices within electrical contractors versus the AEC industry at large. Electrical contractors more strongly emphasized the importance of adequate change-related training to achieving successful change adoption. This study found Adequate Training to be among the top three most important OCM practices within electrical contractors, whereas a previous AEC-wide survey by Lines and Vardireddy (2017) placed training resources as the least important of all OCM practices ranked. A possible explanation is the technical nature of the work that the skilled electrical trades perform, whereas the AEC industry as a whole consists of a broader range of positions within design, construction, and owner organizations. Another difference between can be observed based upon demographics. Across the AEC industry, smaller companies placed greater emphasis on the importance of change agents and senior leadership; conversely, larger electrical contractors more strongly identified the importance of change agent effectiveness. Yet an overall a similarity between electrical contractors and the AEC industry at large was that both populations rated change agent effectiveness as the most influential OCM practice and identified senior leadership commitment as a top-five ranked OCM practice moderately associated with change adoption.

In instances where previous electrical contracting literature has touched upon the topic of organizational change, it has generally been consistent with this study's findings. For example, Said's (2015) study of prefabrication specifically identified the importance of having dedicated staff to act as change agents and the need to provide change-related training to affected staff, which was consistent with the top-ranked OCM practices identified within this study. Perrenoud and Sullivan's (2016) study of electrical contractor executive succession planning, which can be roughly equated to the management team realignments investigated within the current study, advocated for the importance of senior leadership commitment to the change and measuring performance benchmarks before and after the succession transition. Valentin (2015) identified resistance to change as a hindrance to the adoption of new technologies within electrical contractors, a finding which was reflected in this study's interview results.

CONCLUSIONS

The objectives of this study were twofold: first, to identify the effectiveness of OCM practices in supporting successful organizational change within electrical contractors; second, to identify best practice guidance for how electrical contractors can more effectively implement leading OCM practices within their companies. To address these objectives, the study employed a sequential design wherein a national survey of electrical contractors first quantitatively developed a rank order of OCM practices most associated with achieving successful organizational change adoption. Next, 11 in-depth interviews were conducted with electrical contractors who had implemented a variety of different organizational change initiatives. The focus of the interviews was to understand how the companies applied OCM practices across their organizational change timeline and how the companies overcame internal resistance to change.

The survey findings show that, across a national sample of organizational change events within electrical contractors, change agent effectiveness held the strongest association with achieving successful organizational change adoption. The survey further found that following a realistic timescale for change implementation and providing sufficient job-specific training also had moderate relationships with organizational change adoption. Other OCM practices also had direct associations with organizational change adoption, including senior leadership commitment, establishing and tracking performance benchmarks, providing sufficient resources and financial support, and ensuring a change message communication strategy that emphasizes the personal benefit each individual employee will gain from the change. Survey results also identified minor differences in the rank order of OCM practices between small and large electrical contractors. Respondents with greater experience placed greater emphasis on performance benchmarks, whereas early-career respondents felt job-specific training was much more critical than their more experienced colleagues.

Interview findings revealed that organizational change initiatives require a substantial time commitment, with the average organizational change duration requiring nearly 6 years to achieve full and sustained adoption. The executives interviewed provided a number of recommended best practices for how to execute the top-ranked OCM practices within a range of organizational change initiatives that electrical con- tractors would commonly pursue. The interviews also revealed interesting lessons learned related to the internal resistance to change that electrical contractors can expect to encounter, particularly that more than half of the interviewed contractors had to let go resistance employees or wait for them to retire before the organizational change could be successfully adopted.

This study provides several contributions to the literature and industry practitioners. This is the first study to focus on the topic of OCM specifically within electrical contractors. Although previous studies of electrical contractors have focused on individual organizational change initiatives, such as how electrical contractors can implement prefabrication (Said, 2015; Wong et al., 2017), these studies strongly emphasized technical aspects of the specific change such as supply chain logistics, impacts on specific building assemblies, etc. Conversely, this study focused on soft-side OCM practices and considered these practices across a broad range of organizational change initiatives, including prefabrication, software and mobile technology implementations, management team realignments, and approaches to entering new market sectors, to name but a few. Other studies that have focused on the soft- side dynamics of OCM have tended to investigate the AEC industry as a whole (Lines & Vardireddy, 2017) rather than a specific subsector such as electrical contractors. Compared with the AEC industry at large, this study found that electrical contractors rated the OCM practice of change-related training as having a much greater association with change adoption. Furthermore, this study represents a practical contribution to industry practitioners who may be considering a substantial organizational change initiative within their electrical contracting company. Due to the lack of research found on OCM in the electrical contracting subsector, the authors recommend that practitioners review and incorporate the OCM practices presented within this article to assist future organizational change initiatives.

Limitations and Recommendations for Future Research

Several limitations of this study are acknowledged. First, the survey respondents and interviewees overwhelmingly represented highly experienced professionals and often held upper-level management positions. This respondent population may be somewhat removed from the day-to-day operations that

are affected by organizational change initiatives. Future research is recommended to seek feedback from early- and mid-career professionals within electrical contracting firms to develop a more thorough cross section of how the entire company experiences the organizational change journey. Second, the survey responses more frequently included instances of successful rather than unsuccessful organizational change adoption within electrical contractors, which introduce a positive bias. Future research may benefit from collecting a more balanced dataset of both successful and unsuccessful organizational changes. Also, future researchers may consider collecting multiple organizational change instances from the same electrical contractor to more completely control for environmental factors in each case. The fact that NECA and ELECTRI helped in identifying the contractors to be interviewed was a limitation in that only union contractors were interviewed. Further, within this population, the fact that all interviewees were senior executives may have introduced a positive bias in the interview findings. Executive interviewees may have been inclined to share their more successful organizational change initiatives. However, the authors felt the selection of executive-level interviewees was justifiable due to the company-wide perspective these individuals possessed based upon their hierarchical positions. Yet where possible, future research is recommended to include interviews from multiple perspectives within each individual electrical contracting company. The authors expect that input from less experienced employees as well as employees in nonexecutive positions may result in a different point of view, which would be interesting for future research to contrast with executive perspectives.

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