Support for Creativity and Innovation, Resistance to Change, Organizational Commitment and Motivation

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Abstract**—***Some managers view innovative product development and convenient service delivery as necessary to business survival. However, unmotivated employees might negate any gains from the use of innovation. The purpose of this correlational study, grounded in diffusion of innovation theory, was to assess the relationship between creativity and support for innovation, resistance to change, and organizational commitment and employee motivation. A random sample of 81 information technology (IT) professionals from telecom service centers completed an online survey. Simultaneous multiple linear regression was the statistical technique used to analyze these data. The results indicated a poor model with low R^2 to significantly predicted employee motivation, $F (3, 78) = 5.481$, $p < .002$, $R^2 = .174$. In the final model, support for creativity and innovation were significant contributors to employees' motivation. Resistance to change was not a significant predictor to employees' motivation. Ultimately, a manager's ability to motivate workers is vital for implementing change, particularly when the introduction of technological innovation frequently occurs within an industry.*

Keywords**—***employees support, creativity, innovation, resistance to change, organizational commitment, motivation.*

I. INTRODUCTION

Employees' levels of trust and motivations are important factors for creating value and achieving organizational effectiveness ([1}. Employee's behaviors could lead to organizational failures when the employee exhibits a lack of trust of managers' decisions. Organizational failures could also occur when the employee needs motivation, or when the employee resists the introduction of innovative technologies. Technology is a platform for integrating computerized systems in association with innovative management decisions that enable employees to contribute to greater operational efficiency. Achieving success in the telecom industry is dependent upon managers who can efficiently adopt innovative technologies in their workplaces. The effective infusion of innovation in the telecom industry is critical when managers' goals include improved service quality, service differentiation, refinement of business offerings, and business performance enhancements.

II. BACKGROUND OF THE PROBLEM

Despite the investments in new technology, managerial failures to use these technologies to create competitive advantages continue [2, 3]. However, the role employees play in adopting technological innovation remains understudied. Computer and digital technologies are integral to reshaping telecom employment practices. Managers use systems to streamline business processes in service centers. The streamlining of business processes includes replacing employees with automated systems; replacing employees with automated systems causes fear, low morale, and mistrust, which affect employees negatively. When managers use efficient technological innovation to replace employees, downsizing of the workforce becomes imminent. Concomitantly, employees' distrusts of managers increase and employees might perceive downsizing to be the ultimate goal of managers. These factors create an unstable business environment and decrease motivation among employees that could jeopardize support of management. The underlying factors contributing to failure or success in telecom service operations include technological innovation, managerial decision-making, employees' participation, and resource availability [4]. Of these factors, [5] determined adopting innovative technologies affects motivation of IT employees significantly. Employees involved in implementing or adopting the latest innovation can add value to the business; however, downsizing the labor force to meet efficiency goals creates problems.

A. Problem & Purpose statement

The general business problem is that the telecom employees may mistrust managers when managers introduce innovations to increase workplace efficiency and service performance [6]. The specific business problem is that some telecom managers do not know the relationship between support for creativity and innovation, resistance to change, organizational commitment, and employees' levels of motivation. The purpose of this quantitative correlational design was to examine the relationship between a linear combination of predictor variables and the dependent variable. The predictor variables were support for creativity and innovation, resistance to change, and organizational commitment. The dependent variable was employees' motivation in organizational settings. The target population was telecom employees in the United States; with service centers located in (a)

Dallas, Texas; (b) Denver, Colorado; (c) Middletown, New Jersey; and (d) Seattle, Washington.

B. Theoretical Framework

Diffusion of innovation was the theory for this research study. First published in 1962 as Diffusion of Innovations, [7] illustrated the five characteristics of innovation (compatibility, relative advantage, trialability, observability, and complexity) by focusing on the adoption and implementation of innovations in different company settings. Diffusion of innovations was the means of communicating innovation through established channels over time among members of a social system. The fundamental attributes of the diffusion of an innovation process included (a) innovation, (b) communication channels, (c) time, and (d) a social system [8, 9]. The theory of diffusion of innovation was effective for conceptualizing the advantages of using innovation as a competitive organizational strategy [10]. Understanding the factors that affect adoption of innovation by employees, coupled with management strategies to direct employees' performance was a critical factor in selecting this theory. The diffusion of innovation is relevant for understanding the features of the individual adopter, the implementation environment of the innovation, and the innovation itself [7]. Furthermore, this theory applied to the examination of the employees' understanding and support for innovation in the telecom service centers, the site of this study. [11] identified (a) relative advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability as the five factors critical for reducing uncertainties during the diffusion of innovation in an organizational setting. The telecommunications industry is an example of workplace where technological development and innovation deployment occur continuously.

III. DISCUSSIONS

The deployment of innovation by telecom managers is strategic to business value creation. The unintended outcome resulting from the use of technological innovation includes downsizing of workers and resistance of employees to support innovation, resulting in an unmotivated workforce in the telecom service centers. In this study, the goal was to fill the gap in the literature by examining (a) the role of innovation in telecom service centers; (b) the use of innovation to gain strategic or competitive advantage; and (c) how innovation practices might influence employees' behaviors. The results of this study added clarity to linkages among existing literature findings, business theories, and management practices as an avenue to understand reasons for differences in employees' motivations, despite the positive use of innovation to improve tasks. Filling this gap in the literature required an extensive review and study of the role of innovation in telecom service centers, and of employees' support for creativity and innovation, tolerance for change, organizational commitment, and motivations in telecom service centers. Information from the study adds clarity to managerial options or strategies to moderate employees' behaviors affected by organizational change. The results from this quantitative study may become relevant in identifying gaps in management capabilities and strategies in relation to the use of innovation in the telecom service centers.

A. Strategic Role of Innovation and Technology

Manager's value creation and strategic growth, service quality enhancement, preferred customer satisfaction, financial stability, service efficiency, productivity, and transformation of telecom business processes were dependent on innovation [12]. Return on investment and financial growth were important indicators and reasons why investors and managers acquired new technologies to promote business development. The organizational focus on return on investment encompassed the use of the latest innovation to influence consumers' preferences. A consumer's patronage and preference to use the services depended on equipment functionality, level of services, and reliability; a consumer's retention was important to the competitive nature of telecom survival. Providing quality services using high-end technology minimized the loss of revenues and investment risks associated with customer turnover. The deployment of broadband technologies was an important factor in the digitalization telecom services; digitalization involved the migration of fixed lines to the mobile system used in initiatives to support future synergies in the industry [13]. Incorporations of systems and technologies help telecom leaders meet longer-term future transformation at lower costs (23). The rise in use of modern technologies began in the post deregulation era in the United States' telecom sector in the late 1980s. Before legislators deregulated the industry, monopolistic operators determined the levels and quality of services that consumers received [14]. The telecom companies operating under the monopolistic conditions minimized the roles of innovation in the development of competitive strategies. American Telephone and Telegraph (AT&T) was one of the prominent companies operating under such monopolistic condition [15]. Federal legislators used the Telecommunication Deregulation Act of 1984 to break up monopolistic companies into smaller telecom companies and stimulated competitiveness between the well-established service operators and the newer rivals [16]. The result was the perception of forcing service providers to embrace innovation in modern technology as means to survive competition [17, 18] The implementation of transitional change created opportunities for the introduction of different types of innovation in the telecom industry. With the newly introduced technologies and innovations, job markets and the human capital needs of companies changed; employers sought workers who had computer skills to

support the changes in the sector. The ability to provide optimal customer services requires organizational leaders to embrace innovations. Automation consisted of technological platforms used for customer self-support services without human intervention. With the effective implementation of automation, managers required fewer employees to manage work; concomitantly, managers eliminated repetitive tasks as a cost reduction strategy. Adding self-service tools was a way to offer customers choices for problem resolution when they (customers) followed instructions given through automated systems. Managers deployed enhanced technological systems to maintain effective global operations and to develop economies of scale. Additionally, managers improved global operational capabilities by supporting the corroborative capabilities of employees from different geographic regions. Managers relied on indicators of service quality to improve telecom services and deliver services in ways that were critical to acquiring and retaining customers. From the managers' perspectives, the linkage between service quality and customer satisfaction depended on the use of new technology and innovation to achieve service sustainability, profitability, and competitiveness.

B. Innovation Failures in Telecom Service Centers

The use of innovation by managers created opportunities for enhanced operational efficiency and increased business success but the implementation of innovation in a technologically-based workplace had significantly negative effects on individuals, teams, and organizational dynamics. The displacement of experienced and well-trained employees by implemented innovative technology connoted exit of organizational memory; displacement was disadvantageous for meeting the success goals of the company. The retention of knowledge to manage technologically-based businesses remained a strategic factor in defining business success. The loss of employees with expert information had a negative impact on the flow of information and creativity.. The exit of highly skilled employees from the workplace signified loss of technical knowledge that is not transferrable. Employees served as information repositories as well as subject-matter experts who were capable of promoting workplace efficiency. Telecom companies were highly competitive and capital-intensive businesses, and managers typically downsized employee bases as a ploy to achieve short-term savings of operational costs [19]. Given the savings accruable from using fewer employees to manage business problems in the service centers, it becomes clear that increased turnover motivated employees to seek employment elsewhere. People sought employment in other companies known for appreciating or desiring the employees' technical skills. Notwithstanding the positive or negative results of employee downsizing, managers should recognize individuals' feelings and the unintended consequences of the innovation of new technologies before adopting them in a business setting.

C. Strategic Management and System Thinking

The roles of employees in implementing innovation, change management processes, and management support were interrelated and relevant in the study of system theory relative to technological change. While addressing the strategic role of employees in an organizational setting, [20] contended that employees, as part of a larger organization, created the technical knowledge used by other members of the same company. Using a similar approach to examine management responses to unpredictable innovation outcomes, therefore managers must understand the significance of employees' motivations in the context of managing uncertainties caused by the adoption of innovation. Adding to this debate, [21] recommended that a manager's appreciation of the uncertainties in moderating employees' attitudes introduced new considerations for positively stimulating business practitioners, organizational leadership, other managers, and promoted academic inquiry for understanding transformation objectives. The prominent biologist Ludwig von Bertalanffy introduced the general systems theory to describe the interactions and relationships between components in a system. Managing and delivering telecom services involves the use of complex attributes. Using the values of input and output within an organization, especially where two sets of activities (closed and open systems) exist in a system, [22] described the closed system as the internal interaction between the input and output activities within a group without effecting the performance of the larger system. The interactions between innovation climate, employees' levels of commitment, and the management of the unexpected consequences of the innovative potentials of businesses were good examples of the general system.

D. Organizational and Transformational Leadership

In distinguishing the role of management from the responsibilities of organizational leadership, [23] defined leadership in the context of personal power to influence workers in getting work done. In an organization undergoing innovative change, leadership roles included the identification and removal of barriers impeding success from effective change. Leadership relationship had a profound effect on employees' performance levels, especially in articulating an organization's desire to achieve the results by creating participatory opportunities for employees [23]. A participatory opportunity for employees created an environment of creativity that supported employee-oriented leadership practices as exemplified in the telecom service centers. The ability to lead an organization by building employees' levels of trust, motivation, and commitment to achieve

organizational goals remained an attribute in this leadership style.

Despite the use of innovation to streamline business processes, [24] reported that the low morale and distrustful relationship among and between employers and employees were common causes of innovation failures, especially when employees were apprehensive about negative outcomes of using new technology. The key challenges facing business leaders who manage innovation at organizational levels included the lack of knowledge of how to reduce failures or how to make innovation significant to the business and the employees. Organizational leaders must reduce the risks associated with excessive focus on technology by providing managers meaningful practices that motivate employees to achieve the successful implementation of innovation.

Workplace transformation resulting from the use of innovative practices prompts businesses to embrace experienced leaders who offer the knowledge of the business and ability to lead change effort. A drive for strategic corporate vision that promoted result-oriented changes across organizations remained an important leadership attribute in a business environment. The goals of transformational leaders included motivating followers to achieve significant results and removing roadblocks to organizational successes.

E. Employees' Motivation and Commitment Practices

The indispensable value of motivating employees included the creation of an environment for achieving optimal performance and increased productivity (Motivational techniques commonly used and relevant to management practices in workplaces included wage increases, incentives, recognitions, trainings, promotions to promote job satisfaction [25]. Motivation of employees. There was an absence of creativity and participation among employees in un-motivating work environments; this problem occurred when employees disliked a result associated with the introduced technology. The capabilities of employees included (a) attraction to learn innovation, (b) role in disseminating the innovation by recommending it to others, and (c) involvement using the technology to solve business-related problems. The type and nature of the business, the business environment, and workforce skill level were important factors in managing employee motivation. Employees with technical expertise were typically the first members of an organization to embrace innovation; as the earliest adopters, technical employees were the ones who shared acquired knowledge [26]. The adoption of innovation could create unintended consequences like employees' diminished collaborative behaviors and destruction of trust in the workplace. Commitment of employees. Companies' leaders manage technology effectively when employees feel empowered and committed to embracing new skills to support the implemented technology. In technologically-based business environments, employees' levels of commitment to executing assigned daily functions were dependent on factors like perceived job satisfaction, resistance to innovation, and adaptability to an introduced change. Employees' levels of commitment, with respect to embracing innovation, depended on the skills, technical expertise, and exposure to the experiences in the work environment. Regarding the levels of employees' technical skills in IT-based service centers, [27] claimed employees who were subject-matter experts in information systems management or computer science related fields received training on costly emerging technologies regularly. Managers who focused on meeting business challenges using innovation manned by well-trained employees, invested resources to train, hire, and pay these IT employees [27]. The costs of maintaining an experienced professional occurred frequently were significant and were financial burdens for telecom managers. From a cost perspective, downsizing of these highly skilled employees to realize cost savings for the implementation of innovation may have been a strategic quest to lower operational costs, but this calculated risk created an environment of an uncommitted workforce [28]. Business adoption of innovation required managers to train employees on new, complicated, computerized systems that could challenge the levels of commitment of employees. An employee's commitment to adopt and support innovation also depended on the conduciveness of the environment or the climate permitting innovation practices. In addressing the environmental effect on employees' levels of commitment. The relationship between the strategic use of innovation to create organizational value and employee's wrongful perception for its implementation tended to affect motivation and commitment levels. The lack of management options to address the ambiguous relationship between adopting innovation and employees' levels of commitment has the potential to heighten employees' negative attitudes toward supporting organizational goals. The heightened negative attitudes among the employees toward adopting innovation exacerbated the possibilities of degrading services and acts of sabotage in service centers [29]. Job satisfaction was a vital factor influencing employees' levels of dedication and commitment to the support of organizational goals. [30] defined job satisfaction as the overall sense of devotion an employee had for a business situation. [30] suggested that managers should engage strategies to develop and improve employees' motivations. A happy employee tended to show significant dedication, higher commitment, and employment longevity because of the perceived benefits accruable. Resistance to change. An employee's resistance to innovation materialized in conflicts with organizational service goals; therefore, resistance could result in potential business failures. Within the

context of employees' perceptions, [31] illustrated resistance as the behavior preceding conflict or as a person's attitudinal objection to an event. The employees' acts of resistance to innovation often manifested from the negative responses associated with poor perceptions of the effect of implemented innovation on individuals' careers or states of wellbeing. The resistance to implementing innovation could affect an employee's motivation and exacerbate an environment conducive to confrontation.

Employee knowledge. The transfer of technological knowledge occurred by an employee's socialization with another in a given work environment by sharing of tacit knowledge transfer and knowledge retention were important with respect to the creative abilities of the employees; the deliberate hoarding of technological knowledge affected productivity. Hoarding and disruption of innovation knowledge management remained the most commonly used resistive strategy employees adopted in retaliation to management's institution of innovation. Hoarding of information could affect overall productivity and resource support for innovation that were critical for achieving competitive advantages. When an employee's negative perceptions resulted in the hoarding of technical information, there were shifts in teams' dynamics that increased the likelihood of inefficiency and poor organizational performance. Regarding the strategic importance of knowledge transfer in technological change, it is essential therefore that managers match the tacitness and learnability of employees to support positive results and to meet business performance targets.

F. Methodology

The objective of the study was to examine the relationship between a linear combination of predictor variables and the dependent variable. The predictor variables were support for creativity and innovation, the resistance to change, and organizational commitment. The dependent variable was employees' motivation. The target population included telecom employees who had experiences using computerized technologies in the service centers located in (a) Dallas, Texas, (b) Denver, Colorado, (c) Middletown, New Jersey, and (d) Seattle, Washington. The participants selected for this study were IT employees in supervisory and non-management positions working in telecom service centers. Access to the participants occurred through the prospective participants' e-mail addresses listed on each company's internal e-mail database. Random sampling was the method used for selecting participants, and this was based on a computed sample size using G*Power 3.1.7 statistical software [32], a minimum sample size of 77 participants was sufficient for this study (see sample size justification in population and sampling section). The survey response rate was a consideration, so the surveys were electronically available to a greater number of respondents to meet the minimum target sample size. This quantitative research method included (a) the use of close-ended questions in the survey instruments in order to collect data connected to the research topic, and (b) the application of SPSS statistical software in the data analysis process. The research design was correlational. The use of survey instruments to collect participants' responses were applied. [33] Climate of Innovation Measure, Resistance to Change Scale, Organization Commitment Scales, and WEIMS were the adapted instruments for collecting data from the target population who were telecom service center employees. Multiple linear regression was the selected data analysis technique to analyze the data, test the hypotheses, and confirm the relationship existing between quantifiable variables in the study.

G. Data Analysis

Multiple linear regression was the selected data analysis technique for this study. Multiple regression analysis was useful because of the technique's suitability for examining a quantitative variable in relation to any other factors aligned with the overarching research question. Multiple regression is a data analysis technique useful for examining the relationship between one continuous dependent variable and a number of predictor variables [34]. Correlational analysis forms the basis for multiple regression analysis; in the correlational analysis, the researcher examines the strength and direction of the linear relationship between two variables. Data was scrutinized from the participants' surveys for accuracy before uploading data into SPSS software for statistical testing. SPSS software was used for importing, aggregating, sorting, and analyzing data to determine statistical relationships in this study. The three phases of data analysis were (a) descriptive data analysis, (b) multiple linear regression analysis, and (c) acceptance and rejection of the hypothesis.

Phase 1: Descriptive data analysis. This phase includes conducting descriptive data analysis of the data gathered through a survey instrument. The use of SPSS to conduct tests of a series of descriptive statistics generated the mean, mode, range, standard deviation, kurtosis, skewness of the sample, and test of the normality. The use of descriptive statistics in this study provided a visual linkage between the responses from the participants and the variables.

Phase 2: Multiple linear regression data analysis. This phase of data analysis consists of two steps. First, the assumptions associated with the use of multiple linear regression approaches. The second step was execution of the multiple linear regression techniques.

Phase 3: Acceptance and rejection of the hypothesis. The third phase in the data analysis was the use of the derived results from the statistical

analyses to accept or reject the null hypothesis. The null and alternative hypotheses were:

*H*1o: There is no relationship between telecom employees' support for creativity and innovation, resistance to change, organizational commitment, and motivation.

*H*1a: There is a relationship between telecom employees' support for creativity and innovation, resistance to change, organizational commitment, and motivation.

The overall analysis of the data formed the basis for interpreting, presenting, and explaining the key consistencies for the purposes of answering the research question and discussing the implications for the population, leadership, and the wider research community.

H. Summary of Findings

The findings indicated that two independent variables (support for innovation and creativity, and organizational commitment) were significantly related to the motivation levels of telecom employees. The results indicated that employees' motivation tends to increase as support for creativity and innovation increases, while employees' motivation tends to decrease as organizational commitment increases. The findings also indicated that support for creativity and innovation, and organizational commitment were significant predictors of employees' motivation. The results further indicated a significant negative relationship exists between resistance to change and employees' motivation. The findings indicated a higher standardized regression coefficient for the predictor variable employee's support for creativity and innovation, indicating that support for creativity and innovation explained the most variance in the dependent variable. I rejected the null hypotheses based on the findings from the study.

I. Statistical Data

The research data collected from 81 completed surveys to conduct descriptive statistical analysis. **Multicollinearity**. Correlation coefficients of the predictor variables were useful for assessing multicollinearity. The collinearity statistics were within the acceptable values, and the bivariate correlations were small to medium. Therefore, results indicated no violation of the assumption of multicollinearity.

Outliers, normality, linearity, homoscedasticity, and independence of residuals. To ascertain the accuracy of the data used in this study, the data was screened for outliers prior to data analysis. The normal probability plot (P-P) of the regression standardized residual and the scatterplot of the standardized residuals was screened to address the assumptions of outliers, normality, linearity, homoscedasticity, and independence of residuals in this study. The results indicated that the residuals were standardized, and there was no identifiable outlier in the data.

The evidence from the normal probability plot (P-P) of the regression standardized residual indicated absence of violation of the assumption of normality. The scatterplot was assessed and computed 1000 bootstrapping samples at 95 confidence intervals to provide more appropriate confidence intervals and standard estimates of the data used in the data analysis. The findings indicated the appropriateness of the data used in data analysis, and no violation of the assumptions occurred in the sample. Preliminary analyses was conducted to ensure no assumptions of normality, linearity, multicollinearity, and homoscedasticity was violated. With the entry of the predictor variables, the model was inadequate to significantly predict motivation, F (3, 78) = 5.481, p < .002, R^2 = .174. The low R^2 (.174) value indicated that approximately 17% of variations in motivation was explainable by the linear combination of the predictor variables (support for creativity and innovation, and organizational commitment, and resistance to change); this was a poor model. In the final model, support for creativity and innovation, and organizational commitment variables were statistically significant with organizational commitment (beta = -.221, p < .044) accounting for a higher contribution to the model than support for creativity and innovation (beta = .307, p < .005). The predictor variable resistance to change (beta = -.030, t = -.285, p > .776) did not add to the unique predictive power or provide any significant variation in motivation. Based on the statistical significance of the two predictor variables (employees' support for creativity and innovation and organizational commitment), the null hypothesis was rejected.

Support for creativity and innovation. The positive slope for support for creativity and innovation as a predictor of employees' motivation indicated there was a .446 increase in employees' motivation for each one-point increase in the support for creativity and innovation. This outcome supported the deduction that employees' motivation tends to increase as support for creativity and innovation increases. The squared semi-partial coefficient ($.296^2$) indicated that .087 or 8.7%, of the variance in employees' motivation was predictable by support for creativity and innovation variable.

Organizational commitment. The negative slope for organizational commitment (-.172) as a predictor of employees's motivation indicated that a -.172 decrease in employees' motivation for each additional one-unit increase in organizational commitment. This indicated that motivation tends to decrease as organization commitment increases. The squared semipartial coefficient ($-.210^2$) estimation of how much variance in motivation was uniquely predictable from organizational commitment was .044. This indicated

that 4% of the variance in employees' motivation related directly to organizational commitment. The conclusion from the analysis is that support for creativity and innovation, and organizational commitment variables have significant standardized regression weights (support for creativity and innovation, beta = .307, t = 2.872, p < .005; organizational commitment (beta = -.221, t = -2.044, p < .044): that is, each of the two is a significant contributor to predicting motivation. Additionally, support for creativity and innovation, and organizational commitment variables provided useful predictive information about motivation. Based on these results, the null hypothesis was rejected.

IV. Conclusions

The fundamental objective of this quantitative study was to examine the relationship between variables involved in managing the adoption of innovation in telecom service companies in the United States. The findings linked to literature relating to the variables and the selected theoretical framework. Based on the findings of the study, the significant variables together with overall R2 to explain the model indicated the inadequacy of the model in predicting employees' motivation. A positive relationship exists between support for innovation and creativity, organization commitment, and employees' motivation; thus leading to the rejection of the null hypothesis. A negative relationship exists between resistance to change and employees' motivation. Incorporating additional variables such as rewards and incentives, team building activities, participation, recognition of individual differences, performance pay, have the potential to enhance communication and job enrichment. Comprehensive investigations using multiple variables could result in a higher R2 and thus be more predictive of employee motivation. Employees' motivation is critical for business success; promoting strategies that moderate individual support for innovation and creative enhances organizational effectiveness. This study offered the basis for continuing discussions on features of innovation creativity climate, role of employees, and the strategic role of managers in moderating resistance to change. Therefore, an appreciation of how adopters comprehend the organizational innovation through this quantitative study provides opportunities for improved management practices in addressing the conflicts. The theory of diffusion of innovation, as developed by [7], in conjunction with the findings from the regression models, provided valuable context for examining innovation adoption in the telecom service center in this study.

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