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SYNERGISTIC WORK SYSTEM AND PROJECT OUTCOMES OF OIL/GAS FIRMS IN RIVERS STATE: A RESOURCE-BASED VIEW APPROACH

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ABSTRACT:

Motivated by the high rate of project abandonment, high cost of project implementation, and exigent volatilities facing projects in the oil and gas firms, the study employed the resource-based view in accessing the nature of relationship between synergistic work systems and project outcomes in oil and gas firms in Rivers State. The study covers the operation of 33 registered oil and gas firms in Rivers State and employed a sample size of one hundred and sixty-eight. Primary data was gotten through a structured questionnaire and was analyzed using confirmatory factor analysis and structural analysis. The study hypothesized the relationship between dimensions of synergetic work system such as the administrative integration, sequential integration, and synergistic alignment of operations as against two core measures of project outcomes which are project schedule success and project cost minimization as prescribed by the resource-based view. Results showed that the three dimensions of synergistic work systems have a high statistical significance on project schedule success. On project cost minimization, the effect of administrative integration was statistically insignificant while sequential integration and synergistic alignment had a significant effect. Based on these outcomes, it is recommended that firms in the oil and gas industry can improve their project success by adopting and implementing synergistic work systems, but with more emphasis on sequential integration and synergistic alignment which covers the creation of the right team members, ensuring that all activities are covered in the project scope, realistic milestones should be created and adequate time estimates should be implemented. Firms should ensure they allocate the right team members and provide high technical support to record, track and manage materials and synergistic operations, which are core leverages for optimal project success.

Keywords: Administrative Integration, Project Cost Minimization, Project Schedule Success Sequential Integration and Synergistic Alignment.

INTRODUCTION:

The oil and gas industry contributes a lot to the growth and development of the global economy by providing economic/monetary benefits, employment generation, personal income creation, profit tax revenues for the government, and also contributing to approximately 80 percent of the aggregate gross domestic product and social benefits in the country (Haidar, 2019). It can be expressed that

the country's oil industry is a big dominant force in Nigeria and the sector accounts for more than 80% of its principal profits (Wambaya, Oketch, Namusange, & Sakwa, 2018). As the sector accounts for around 40% of global energy needs, the demand for productivity in the oil industry is very high. In today's hypercompetitive market, the individual action of a firm is not enough to win and achieve better quality, decrease costs, and maintain flexibility. To obtain these competitive advantages, companies have to search for synergistic work synergistic opportunities among efficient and responsive partners (Wu et al., 2014). The collection of different processes, resources, and institutions, needed in customer value creation forms a work system (Piňosová, Andrejiová, & Lumnitzer, 2018). In creating customer value, a lot of institutions are involved, and if these institutions fail to see the strategic benefits of synergism, joint success will not be achieved (Fawcett & Magnan, 2008). When two or more independent firms' corporates, by planning and executing work system processes to achieve joint objectives, based on some predetermined rules and regulations, we refer to such a work system as synergistic (Cao & Zhang, 2011; Ramanathan, 2012).

Studies (Tantalo & Priem, 2016) examined the relationship between synergistic work systems and competitive advantage among textile work system partners in the Indian textile industry. The research showed that there is a positive relationship between synergistic work systems (i.e. administrative integration, organizational structure among work system partners, risk and reward system) and competitive advantage. Other studies examined the relationship between synergistic tendencies on organizational performance, they all concluded that administrative integration, sequential integration, and Synergistic Alignment have a positive influence on project cost minimization (Zaheer & Castañer, & Souder, 2013; Simatupang & Sridharan, 2004; Martín Marcos, 2011), on profitability (Mathuramaytha, 2011; Stenström & Tynjälä, 2009) and operational flexibility (Beutell, 2010; Feldman & Hernandez, 2020). This study adopted administrative integration, sequential integration, and Synergistic Alignment as dimensions of synergistic work systems, considering its continuous validation by various scholars (Wambaya, Oketch, Namusange, & Sakwa, 2018; Simaptung & Sridharan, 2008; Mathuramaytha, 2011; Zacharia et al., 2009; Cao & Zhang, 2011 and Hudnukar et al., 2014) and the peculiarities of Oil and gas firms in Nigeria, with various players in and out of the country. Project cost minimization and operational flexibility were used as measures of project success because of their measurability and validity in literature (Beutell, 2010; Feldman & Hernandez, 2020). This study also examined the moderating result of the organizational structure on the relationship between administrative integration, sequential integrations, Synergistic Alignment, and project cost minimization and operational flexibility.

The resource-based view theory observes that the employment of a firm's strategic resources it's the keyway for such a firm to compete favorably in the market in terms of project cost minimization and operational flexibility. Project cost minimization is getting things done at a minimal cost with optimal results, while operational flexibility is the capability of responding to uncertainty either proactively or reactively. Institutions, processes, and procedures can adapt to the changes in the business environment (Tantalo & Priem, 2016). This, therefore, shows that the oil and gas sector stands to benefit from this.

The struggle for survival by many Oil and gas firms in Nigeria, which transcends into fluctuation in project execution parameters concerning stakeholders (Lu, Lin, Wang, & Li, 2019), has been a source of worry to the current researcher, perhaps this might be a result of not properly adopting administrative integration, sequential integration, and Synergistic Alignment.

Previous studies on synergistic work systems (Simatupang & Sridharan, 2004; Stenström & Tynjälä, 2009; Martín Marcos,., 2011; Fawcet & Magnan, 2008; Mentzer et al. 2000; Monczka et al., 1998; Vanathi & Swamynathan, 2014), related administrative integration, sequential integration, and synergistic alignment to competitive advantage (Simatupang & Sridharan, 2004; Mentzer et al. 2000), Customer satisfaction (Vanathi & Swamynathan, 2014; Martín Marcos,., 2011) none have examined the relationship between goal congruence, administrative integration, sequential integration, Synergistic Alignment on project cost minimization and operational flexibility in the Oil and gas firms. This study adopted the resource-based theory, which has been used by few researchers (Fawcett & Magnan, 2008) in the study of synergistic work systems. This theory is considered appropriate for this study since the adoption of the oil and gas firms is a shift from the conventional ways of operation. It is on this backdrop that the current researcher wants to go into this study, to fill the knowledge gap that exists. To undertake the study, a synergistic work system is represented by core dimensions such as; administrative integration, sequential integration, and synergistic alignment, while project success is measured using the project schedule success and project cost minimization of oil and gas firms as prescribed by the resource-based view. This is conceptually represented below as follows.

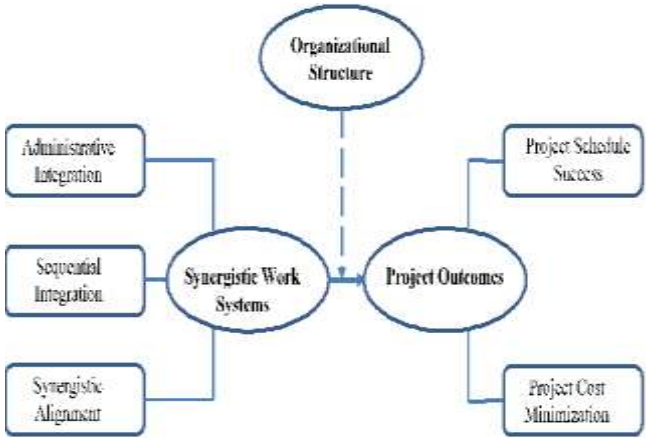

Figure 1: Conceptual Model of Synergistic Work systems and Project Outcomes.

Source: Dimensions are adapted in light of the studies of Lai (1997), Nguyen, Rohaida, and Zainal (2016) and Aiken and Hodgson (1998). The measures of project success are captured in light of the studies of Shrnhur, Levy, and Dvir (1997), and De Wit, A. (1988).

The level of analysis in this study is the organizational level. The units of analysis of the study are the representatives of the oil and gas firms, such as production managers, distribution managers, management managers, procurement managers, customer service managers. These are the people that can access and provide the required data for the analysis of the study. While an overview has been provided above, the rest of this study is rendered in four parts. Section 2 offers the theoretical framework and literature review while section 3 deals with the materials and methods. Section 4 addresses the presentation of the results, while section 5 concludes the study with discussions, conclusions, and recommendations.

THEORETICAL FRAMEWORK/LITERATURE REVIEW:

The study will be guided by the Resource-Based View theory and the Lean Theory.

Resource-Based View (RBV) Theory:

The study adopts this theory to emphasize the internal capabilities of a firm in formulating a strategy to achieve a sustainable competitive advantage in markets and industries. Resources are considered central to understanding firm performance. A match between the internal organizational capabilities and the external environment must exist to facilitate this competitive advantage. Resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge, among others, controlled by a firm that enables to conceive and implement strategies that improve its efficiency and

effectiveness (Skinner, Bryant, & Richey, 2008). The theory considers a bundle of tangible and intangible resources (Bohnenkamp, 2013). The resources of a firm avail it a competitive advantage for higher profit and project cost minimization. Firms are required to adopt strategies to achieve this differentiation. An oil and gas firm may adopt synergistic work systems with the dimensions as strategies to impact the project success through greater utilization of resources such as Synergistic Alignment and waste minimization (administrative integration and sequential integration) therefore reducing costs.

The Lean Theory:

This study is also leveraged the lean operation theory, which is a management philosophy that addressed specific issues in times of economic troubles. The concept was developed by Womack and Jones (1996). Its main goals were to eliminate waste, reduce inventories, optimum quality management, customer satisfaction, value creation, and cost reduction (Ciarniene & Vienazindiene, 2012). Lean is a philosophy of operation that incorporates a collection of principles, tools, and techniques into the business processes to optimize time, human resources, assets, and productivity while improving the quality level of products and services to customers (Ronald, 2001). Applying lean operation philosophy is one of the most important concepts that help enterprises to gain a competitive advantage in the world market. Lean philosophy, therefore, subscribes that the purpose of the elimination of wastes leads to cost minimization and organizational efficiency. This also would be achieved through a high level of information sharing and rapid performance with work system actors enabled by Organizational Structure (LIT). Lean thinking shares the philosophy of a time-based strategy JIT (just-in-time). JIT work systems focus on time-definite deliveries. Just-in-time manufacturing is focused on efficiency, while a lean operation is focused on using efficiency to add value for your customer.

The Concept of Synergistic Work System:

The synergistic work system is the coming together of two or more independent individuals or firms, to work harmoniously to plan and execute a work system to achieve some set goals by agreeing on some predetermined rules and regulations which will guide mutual relationship (Cao & Zhang, 2011; Ramanathan, 2012). Synergistic work systems can also be seen as a business understanding between two or more organizations operating at the same level in the work system or network to make works flow smoothly and cooperatively towards achieving a common objective (Bahinipati et al. 2009). Applying synergistic work systems techniques can drastically reduce operating costs (Adams et al., 2014), enhance decision making (Swink et al. 2007; Kim & Lee 2010), and strengthen time-and-place utility provision to target customers (Randall et al. 2010). Hence, managing resources and synergistic behavior within partnering organizations in a work system effectively is the main focus of synergistic work systems (Hudnukar et al.2014).

There are different levels and dimensions to synergistic work systems. The first is administrative integration which covers team management and communication. The objective of this level is to enhance productivity and enable administrative integration through simple managerial interplay. This level is focused on productivity, allowing members to make enhanced decisions, thereby leading to improved delivery rates, fewer inventories, etc. This level focuses on dealing with constraints of the physical work system (Kampstra, et al., 2006). The emphasis here is on increased involvement of the work system members to

improve the strategic management decision-making and enhance innovation in the chain (Kampstra, et al., 2006). Intensified synergism creates an avenue for more open dialogue amongst synergistic entities and this is transferred to other areas of the enterprise other than those related to logistics. Here the emphasis is paid to dealing with policy constraints. The second dimension is sequential integration, which emphasizes the coordination of intra- and inter-organizational processes. The focus at this level is to harmonize flows and to automate certain routine decision-making processes to enhance the level of speed and accuracy (Kampstra, et al., 2006). To achieve this, the following tools can be used; strategic positioning and sizing of capacities and buffers, and development of simple decision-making regimes. Here the focus is on dealing with both physical and policy constraints. It normally involves additional investments in IT infrastructure (Kampstra, et al., 2006). The third dimension is known as synergistic alignment. This involves more resource linkages, such as sharing of investments and profits. The goal here is improved knowledge sharing between work system members and minimization in time spent on R&D. Thereby building new capabilities to handle new market needs and remove any market constraints present (Kampstra, et al., 2006). Synergistic work systems dimensions include administrative integration which covers joint decision making, incentive sharing, the synergistic alliance also known as goal congruence or joint knowledge creation (Simaptung & Sridharan, 2008; Zacharia et al., 2009; Cao & Zhang, 2011; Hudnukar et al., 2014).

The Concept of Project Success:

The work system consists of linked processes that affect each other regarding information and physical flow from the supplier to the end customer. The success of every business organization lies in the attainment of its set goals and objectives to be achieved in a period and at a percentage or amount. Supportively, Davis and Jeineke (2003) asserted that project success and performance are meant to be used interchangeably because both are related and evaluated in terms of their contribution to the goal of the organization. From the resource-based view angle, project success is measured in terms of resource minimization through project schedule success and overall project cost minimization.

Project Schedule:

The project schedule in this study can also be referred to as delivery precision. It is a measure of process and works system efficiency which measures the number of finished goods or services delivered to customers on time and in full (Levinson, 2018). It determines if products are delivered within a specified time window or not. Project schedule refers to the ratio of customer order lines shipped on or before the requested delivery date or customer promised date versus the total number of order lines (Sundström & Tollmar, 2018). It helps determine how efficiently customers' demands or returns are attended to on agreed deadlines. The project schedule is a very simple measure but sometimes overlooked in many organizations, and it is simply calculated as the number of units or shipments delivered on time versus total orders shipped (Levinson, 2018). An improvement of the Project schedule (OTD) requires optimization of processes across multiple departments in the organization. Pereira, Sellitto & Borchardt (2018), in a study on flexibility and work system, affirmed that flexibility is influenced by labor, equipment cost, and competitiveness. They used operational flexibility, tactical, strategic, and work system flexibility as measures of flexibility. Flexibility has been defined as the capability and ease

(range and response) of systems to change from one state to another (Slack, 2005).

Project Cost Minimization:

synergism has been observed to reduce uncertainty in a relationship, thereby reducing transactional costs that are associated with it (Muckstadt, et al 2001). Sharing information (e.g. Electronic Data Interchange - EDI) contributes to the improvement of information processing capabilities and thereby reduces uncertainty and transaction costs, which translates into high marketing performance (Tan, et al 2010). The strategic importance of administrative integration cannot be overemphasized, scholars have referred to it as the lifeblood (Stuart & McCutcheon, 1996), major ingredient (Min et al., 2005), foundation (Lee & Whang, 2000) an essential requirement (Sheu et al., 2006) of synergistic work systems. Synergistic work systems minimize the cost of the transaction (Cao & Zhang, 2011) because specific assets increase with contract frequency and higher levels of interdependence (Bunduchi, 2008). Negotiated volumes are greater, information exchange is more intense, and contract renegotiation is facilitated.

Synergistic Work Systems and Project Success:

Where organizations collaborate with others to ensure that their work system can respond to dynamic market needs, synergistic work systems have a high potential to improve project success (Cao & Zhang, 2011). Trading partners (e.g., suppliers and customers) exchange and integrate information in a synergistic SCM to make strategic or tactical joint decisions (e.g. supply and demand forecasts). The general idea is that partners can gain a lot from collaborating with other members of the work system. The benefits of synergism schemes (e.g., CPFR, VMI, joint forecasting, and ECR) on firm performance have been discussed in previous studies, and they generally consist of improved forecasting accuracy, reduced bullwhip effect, increased revenues and earnings, increased responsiveness, reduced stock-outs, and greater transparency in the work system (Claassen et al., 2008; Panahifar, et al 2015). Among the synergism approaches, large-scale projects such as CPFR and VMI have provided significant benefits to firms that successfully implement them. It is also agreed that trading partners who practiced a higher level of synergism were able to achieve greater project success (Simatupang & Sridharan, 2005). Previous research has examined the relationship between synergistic work systems and project success (Eng, 2006; Cao & Zhang, 2011; Prajogo & Olhager, 2012; Wu et al., 2014). A positive relationship between synergistic work systems and project success has been widely accepted. Wu et al. examined the effects of administrative integration and synergism on project success (2014). Project success refers to how well a company meets its market-oriented and financial objectives in comparison to its primary competitors (Li et al., 2006; Cao & Zhang, 2011). Eng (2006) asserted that “project success refers to the firm's perceived profitability and market performance at the corporate or firm-level.” The success of a project can be measured at the firm or corporate level. Following these descriptions, we measure the firm's success in this study using perceived accounts of its sales growth and overall operational flexibility.

Empirical Review:

Many studies have been carried out on synergistic work system concepts, adoption, and practices. Previous empirical studies on the subject under investigation confirm a significant and positive relationship existing between synergistic work systems and business performance. Studies by Simatupang & Sridharan, 2004; Nyaga, Judith & Daniel,2010; Derek et al., 2011; Pairach & Disney, 2012; Ueki,

2013; Vereecke & Muylle, 2006; will be discussed. Mbovu and Mburu (2018) examined the influence of synergistic work system practices on enhancing competitiveness in oil and gas firms in Kenya. The study adopted synergistic operations and warehouse management as the dimensions for synergistic work system practices. The study population was 240 staff in the department of logistics Procurement and Finance at East Africa Breweries Limited. The study adopted descriptive statistics and multiple regression analysis to analyze and establish the relationship between the independent and dependent variables. Based on the study findings, the study concludes that the competitiveness of the oil and gas firms is affected by synergistic work system practices. The study recommends that the oil and gas firms should collect used products to repair workshops from customers to make new products. The firms should train their employees on repair and refurbishing of the products to meet customers' expectations. Nwaura, Letting, Ithinyiand Orwa (2016) in their study, synergistic work system practice and their effect on the competitiveness of food oil and gas firms in Kenya. A cross-sectional survey was conducted among 130 food oil and gas firms that are listed in the Kenya Association of Manufacturers directory. Factor analysis was used to examine the construct validity while multivariate linear regression was employed to test criterion validity. The results of this research indicated that the adoption of synergistic work system practices would enhance the competitiveness of Kenya's food oil and gas firms. Further, this study found that due to a lack of awareness on the importance of sustainability, there is a low level of adoption of synergistic work system practices in Kenya. Relatedly, Salim (2016) studied the Effect of a Synergistic Work System on the Operational Performance of Liquefied Petroleum Gas Companies in Kenya. The study used a descriptive cross-sectional survey. The population of the study comprised 34 liquefied petroleum gas companies in Kenya listed under the Cylinder Exchange Pool list. A census was conducted since the population was small. A multiple regression analysis was used in establishing the effect of a synergistic work system on the operational performance of liquefied petroleum gas companies in Kenya. Remanufacturing, reusing, recycling, and repackaging practices were the dimensions the study used for synergistic work system practices. The findings revealed that liquefied petroleum gas companies in Kenya have adopted synergistic work system practices to appreciable levels with repackaging practices being the most adopted and recycling practices being the least adopted. From the results, it was also noted that synergistic work system practices had a significant relationship with cost and quality, while flexibility and speed were insignificant.

According to Ruphesh (2013), in his work synergistic work system: strategy to achieve total customer satisfaction and enhancing competitive performance, adopted the convenient sampling method. The sample consisted of diverse elements of the targeted population so that the quantum of bias is mitigated to some extent. With the use of factor analysis and ANOVA as the statistical methods in the research, the study concluded that reverse work system leads to total customer satisfaction and cost reductions.

Mogaka (2015) in a study, the influence of "Synergistic work system Practice of Returned New Products on Performance of Pharmaceutical Firms in Nairobi City country, Kenya. The study made use of reuse, recycle and landfill as the dimensions of synergistic work system practices. The population of the study consisted of 23 pharmaceutical oil and gas firms as per the Export Processing Zones. The

research design was a descriptive cross-sectional research design. Data was collected using semi-structured questionnaires administered through emails and drop and pick later methods. Multiple regression was used to analyze the data. The study affirmed that the adoption of synergistic work system practices has a significant impact on market share and sales growth. Gowir, Nitty, Zainal, and Amin (2014), in their study, aim to investigate the level of synergistic work system adoption by food retailers in Malaysia. Economic, social, and environmental determinants were used as dimensions of a synergistic work system in the study. The sample frame of the study consisted of 236 food retailers from Klang Valley, Malaysia. The study made use of descriptive analysis, mean ranking analysis, chi-square analysis, and binary logistic regression analysis. The findings were that a synergistic work system is a solution to the challenges encountered by food retails worldwide. Also, the results showed that retailers mainly practice synergistic work system practices without familiarization with the term 'synergistic work system'. A partial application of reverse practices has been revealed in the study. Inventory management, product take-back, and waste management are some of the major practices followed by the retailers under a synergistic work system. Print and visual/audio media are the major sources of information on synergistic work systems for retailers. Mandota (2015) investigated the impact of synergistic work systems on work system performance in the Malawi oil and gas industry. The study methodology had embarked on both inductive and deductive research approaches. The study also used both qualitative and quantitative data. A sample of 40 was used to represent a population of 200. Data was collected from managers and other top officials of the firms. Data collection instruments used in the study were questionnaires and interviews. The sampling procedure used was non-probability sampling (Purposive/ judgemental sampling). Data were analyzed using Statistical Package for Social Sciences (SPSS) and Microsoft-excel. The study found out that a synergistic work system gives economic advantages and a good image. Carrus and Pinna (2007) studied how Information and Communication Technologies (ICT) are being used by a fourth-party logistics provider (4PL) to support an effective synergistic work system. The results show that the IT capability of 4PL allows trading partners to exchange information electronically in a very compact, concise, and precise way to handle synergistic work systems efficiently. Methamba (2016) postulated the relationship between synergistic work systems and operational performance of oil and gas firms in Kenya. This study was anchored on three organizational theories that were examined to understand how companies adapt and develop reverse logistic practices. This study used a descriptive and cross-sectional survey design, also employed a stratified random sampling technique. Regression modelling was used to estimate the relationship between synergistic work systems and operational performance. Study results revealed that third-party logistics significantly and positively influenced the operational performance of oil and gas firms. Ueki Yasushi (2013) assessed the impact of synergism and firm performance in the Thai Automotive and electronics industries. The survey was done on 2057 firms but was able to retrieve only 195 valid responses. Seven hypotheses were developed and an ordinary least square regression model of synergism promotion factors was formulated. The findings revealed that administrative integration and Synergistic Alignment significantly predict business performance in the aspect of on-time delivery, responsiveness to fast procurement, flexibility to customer need, and profit. Pariach and Disney

(2012) carried out an empirical study on synergism, inter-firm organizational structure, and logistics performance in the real tourism sector.

The survey of 109 firms in Thailand was chosen. Six (6) constructs were designed and a chi-square statistical tool and multiple regression analysis were employed to measure the degree of relationship. The findings revealed that firms can harness benefits from synergism when working jointly as a team (Synergistic Alignment). The findings also revealed that administrative integration and dedicated investment have a positive and significant relationship with organizational structure and the relationship was enhanced by Synergistic Alignment. Derek et al., (2011) attempted to examine the relationship between vertical synergism and physical distribution service quality of the soft drink industry in Kampala, Uganda. The cross-sectional research design was used. The research was limited to Kampala. The Sample size is 270 respondents. Four hypotheses were constructed and tested with Pearson correlation to determine the strength of the relationship. The findings of the study confirmed that sequential integration is significant in predicting physical distribution service quality, while administrative integration and Synergistic Alignment are not predictors. Nyaga, Judith, and Daniel (2010) embarked on an empirical study to examine the difference among work system relationship between buyer and supplier and performance in U.S industries, using two independent samples-the buying firms and supplier firms. The t-test and ANOVA statistical tools were used for the study. The findings reveal that dedicated investment has a significant relationship with commitment and not organizational structure in both buyer and supplier models. Administrative integration has a positive relationship with commitment and organizational structure in both models. While Synergistic Alignment showed a negative relationship with commitment and a positive relationship with organizational structure in both models. The organizational structure is the moderating construct that has a positive relationship with satisfaction with relationship satisfaction with result, performance, and commitment in both models. Vereeck and Muylle (2006) carried out an empirical investigation to test the impact of synergism and performance improvement in 374 firms from engineering and assembly industries in 11 European countries. The study made used two sample groups; suppliers and customers. Seven constructs were developed and the study adopted the used of factor analysis to examine the dimensions Pearson correlation was deployed to determine the statistical significance of the variables. The findings revealed that information exchange between suppliers or customers does not significantly predict performance improvement, but when information exchange is done between supplier and customer, it has partial empirical support for performance improvement. Finally, for companies with a higher level of synergism, there is strong empirical support for performance improvement in terms of cost, flexibility, quality, and procurement. Simatupang and Sirdhan (2004) conducted an empirical investigation to benchmark synergistic practices and operational performance of selected retailers and suppliers in New Zealand. A Survey of four hundred (400) firms was selected for the study which comprises 200 retail firms and 200 supply firms. However, 6 constructs were designed; correlation and the t-test of equality of means were adopted. The result shows that firms that greatly share information, synchronized decisions, and aligned incentives achieve better operational performance in fulfilment, inventory, and responsiveness than firms with low synergistic practices. The findings also revealed that sales, on-time delivery, and

inventory reductions were three major reasons for initiating synergistic strategies.

It could be seen from these empirical studies that the authors approached the construct of synergism from a holistic perspective, rather than a disaggregated angle. More so, non of these studies observed the nature of this operation of oil and gas firms in developing economies like Nigeria. These shortfalls necessitated this study; hence the hypotheses that:

H_0:1 Administrative integration has no significant relationship with project schedule in the oil and gas industry in Rivers State.

H_0:2 Administrative integration has no significant relationship with project cost minimization of oil and gas industry in Rivers State.

H_0:3 Sequential integration has no significant relationship with delivery flexibility in the oil and gas industry in Rivers State.

H_0:4 Sequential integration has no significant relationship with project cost minimization in the oil and gas industry in Rivers State.

H_0:5 Synergistic Alignment has no significant relationship with project schedule in the oil and gas industry in Rivers State.

H_0:6 Synergistic Alignment has no significant relationship with project cost minimization in the oil and gas industry.

H_0:7 Organizational Structure does not significantly moderate the relationship between synergistic work systems and project success in the oil and gas industry.

METHODOLOGY:

The study employed the Cross-Sectional Research Design, the Causal Research Design, and the Survey Design. Available records from businesslist (2021) show that there are a total of 33 registered oil and gas firms in Rivers State which constitutes the population of the study. This study adopted the census study because of the small size of the population. Six respondents from Each company were purposefully selected purposely drawn from each of the six functional departments: namely, management, procurement/purchasing, production, research and development, customer service, and quality assurance. This selection is based on their wealth of relevant experience and sufficient knowledge on the subject matter. Thus, our sample size for quantitative analysis was 198. Given the prevalence of Covid-19/Pandemic, the study distributed digital copies of questionnaires online to various respondents.

The study employed the confirmatory factor analysis to validate the data on the employed variables and to test the theoretical link between the items and the underlying constructs. A cross-sectional regression was further confirmed to empirically examine the structural relationships being investigated and all the specified hypotheses will be tested based on the results. The functional models for the relationship between synergistic work systems and project success are given as follows

$$PS = f(SWS) \quad (3.1)$$

$$PSC = f(ADI, SQI, SAL) \quad (3.2)$$

$$PCM = f(ADI, SQI, SAL) \quad (3.3)$$

$$OGS = f(SWSC, OGS, SWSC * OGS) \quad (3.5)$$

Where:

SWS = Synergetic Work System
PS = Project success
PSC = Project Schedule
PCM = Project cost minimization
ADI = Administrative integration
SQI = Sequential integration
SAL = Synergistic Alignment
ORS = Organizational Structure

PSC = Project success Composite (Mean composite of Project schedule and project cost minimization)

SWSC = Synergistic work system Composite (Mean composite of Administrative integration, Sequential integration and Synergistic Alignment)

SWSC ∗ OGS = The interaction between synergistic work system and organizational structure.

The statistical (empirical) models for these relationships are given as follows:

$PSC_i = \lambda_0 + \lambda_1 ADI_i + \lambda_2 SQI_i + \lambda_3 SAL_i + u_i$ (3.6)

$PCM_i = \phi_0 + \phi_1 ADI_i + \phi_2 SQI_i + \phi_3 SAL_i + e_i$ (3.7)

Where β_0, λ_0 and ϕ_0 in models are regression intercepts; $\beta's, \lambda's$ and ϕ'sare the slope parameters capturing the effects of ADI, SQI and SAL; and ϵ_{it}, u_{it} and e_{it} are the error terms representing all unmodelled factors. The results of models 3.6, 3.7 and 3.8 would be used to test hypotheses 1 – 9.

The statistical model for the moderating role of Organizational Structure is given by:

$PSC_i = \gamma_0 + \gamma_1 SWSC_i + \gamma_2 OGS_i + \gamma_3 SWSC * OGS_i + e_i$ (3.9)

Where γ_0 is the model intercept, γ_1 is the slope parameter that captures the effect of synergistic work system composite, γ_2 is the slope parameter that captures the direct effect of organizational structure and γ_3 is the slope parameter that captures the interaction between synergistic work system and Organizational Structure. The moderating role of Organizational Structure is captured through the interaction term, hence, the sign, size and significance of γ_3 determine the effect of Organizational Structure on the relationship between synergistic work system and project success.

RESULTS AND DISCUSSION:

Based on a retrieved sample of 168 respondents, this section is presented as follows:

Confirmatory Factor Analysis for Synergistic Work System Scale:

Figure 2 below presents the unstandardized and standardized solutions for the 15-item scale for three-factor synergistic work system CFA model. The three factors are administrative integration, sequential integration and Synergistic Alignment. For each factor, the first path ADI → ADI1, SQI → SQI1 and SAL → SAL1) was fixed at 1 for model identification. The three-factor model was estimated based on maximum likelihood estimation of the sample covariance matrix. The model fit was established using the Chi-Square (χ^2) and the root mean square error approximation (RMSEA). Composite reliability, convergent validity and discriminant validity were calculated based on the CFA results. The details for the CFA results are presented in Tables 1 while the inter-factor correlation matrix is presented in Table 2.

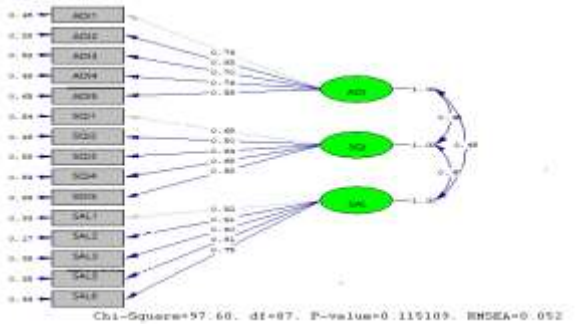

Figure 2: Standardized CFA Solution for Synergistic Work System

Source: LISREL output

Table 1: Standardized CFA Results for Synergistic Work System Model

Item	Factor	Beta	R^2	Error	AVE	RAVE	CR
ADI 1	Administrative integration	0.74	0.55	0.45	0.717	0.84 7	0.887
ADI 2	Administrative integration	0.85	0.72	0.28			
ADI 3	Administrative integration	0.70	0.49	0.51			
ADI 4	Administrative integration	0.74	0.55	0.45			
ADI 5	Administrative integration	0.59	0.35	0.65			

SQI 1	Sequential integration	0.68	0.46	0.54	0.675	0.822	0.731
SQI 2	Sequential integration	0.80	0.64	0.36			
SQI 3	Sequential integration	0.64	0.41	0.59			
SQI 4	Sequential integration	0.68	0.46	0.54			
SQI 6	Sequential integration	0.58	0.34	0.66			
SAL 1	Synergistic Alignment	0.82	0.67	0.33	0.818	0.904	0.911
SAL 2	Synergistic Alignment	0.91	0.83	0.17			
SAL 3	Synergistic Alignment	0.80	0.64	0.36			
SAL 5	Synergistic Alignment	0.81	0.66	0.34			
SAL 5	Synergistic Alignment	0.75	0.56	0.44			
$\chi^2 = 97.60$, p-value = 0.115109					RMSEA = 0.052		

Source: LISREL output based on research data

Table 2: Inter-Factor Correlation Matrix for ADI, SQI and SAL

FACTOR	ADI	SQI	SAL
ADI	1.000	0.95	0.48
SQI	0.95	1.000	0.47
SAL	0.48	0.47	1.000

Source: LISREL output based on survey data

Table 1 shows that the estimated three-factor CFA model is adequate for the data, with the Chi-square ($\chi^2 = 97.60$, p-value = 0.1151) and the RMSEA (= 0.052) both failing to reject the model. For a good CFA model, the Chi-square statistic should be insignificant (i.e. p-value > 0.05) while the RMSEA should be less than or equal to 0.08 (Matsunaga, 2010; Marsh et al., 2004). Thus, our model fits our data adequately and can be used to calculate composite reliability, convergent and discriminant validity. From Table 1, we can see that for all factors, the average variance extracted (AVE), which is 0.717, 0.675 and 0.818 for administrative integration, sequential integration and Synergistic Alignment respectively, is well above the 0.50 cut-off point. The corresponding composite reliability coefficients of 0.887, 0.731 and 0.911 are also well above 0.70 threshold value. Therefore, there is evidence that our CFA results satisfy the convergent reliability requirement. The square root of average variance extracted (RAVE) is 0.847, 0.822 and 0.904 for administrative integration, sequential integration and Synergistic Alignment respectively. These values are also substantially above all off-diagonal elements of the inter-factor correlation matrix in Table 2. Thus, our results have also satisfied the condition for discriminant validity. Overall, the three-factor CFA model for synergistic work system has acceptable validity and a clearly interpretable structure.

From Figure 2, we can see that all items load equally high on their respective factors, with factor loadings ranging 0.58 and 0.91. The squared multiple correlation in Table 1 shows that the proportion of the item variance explained by the underlying factor ranges between 34% and 83%, with SQI5 ($R^2 = 0.34$) and SAL2 ($R^2 = 0.83$) having the lowest and highest explained variance respectively. Further, the correlation matrix in Table 2 shows that inter-factor correlations ranged from moderate to very high, with the correlation between administrative integration and sequential integration being the strongest.

Confirmatory Factor Analysis for Project success Scale:

Figure 3 presents the unstandardized and standardized solutions for the 14-item scale for three-factor project success CFA model. The three factors are project schedule and project cost minimization. For each factor, the first path (PSC → PSC1 and PCM → PCM1) was fixed at 1 for model identification. The three-factor model was estimated based on maximum likelihood estimation of the sample covariance matrix. The model fit was established using the Chi-Square (χ^2) and the root mean square error approximation (RMSEA). Composite reliability, convergent validity and discriminant validity were calculated based on the CFA results. The

details for the CFA results are presented in Table 3 while the inter-factor correlation matrix is presented in Table 4.

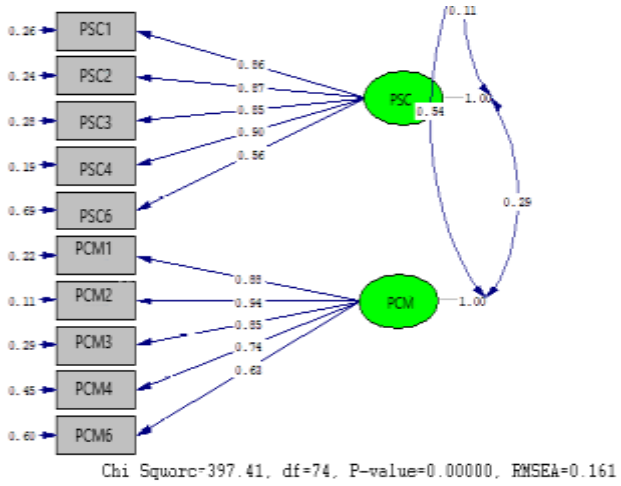

Figure 3: Standardized CFA Solution for Project Success Model

Source: LISREL output

Table 3: Standardized CFA results for Project success Model

Item	Factor	Beta	R^2	Error	AVE	RAVE	CR
PSC1	Project schedule	0.86	0.740	0.260	0.653	0.808	0.902
PSC2	Project schedule	0.95	0.903	0.098			
PSC3	Project schedule	0.85	0.723	0.278			
PSC4	Project schedule	0.72	0.518	0.482			
PSC6	Project schedule	0.62	0.384	0.616			
PCM1	Project cost minimization	0.71	0.504	0.496	0.627	0.792	0.870
PCM2	Project cost minimization	0.79	0.624	0.376			
PCM3	Project cost minimization	0.87	0.757	0.243			
PCM5	Project cost minimization	0.79	0.624	0.376			
$\chi^2 = 397.41$, p-value = 0.0000					RMSEA = 0.161		

Source: LISREL output based on research data

Table 4: Inter-Factor Correlation Matrix for PSC and PCM

FACTOR	SSF	PSC	PCM
PSC	0.32	1.000	0.54
PCM	0.19	0.54	1.000

Source: LISREL output based on survey data

Further, Table 3, we can see that for all factors, the average variance extracted (AVE), which is 0.670, 0.673 and 0.627 for project schedule and project cost minimization respectively, is well above the 0.50 cut-off point. The corresponding composite reliability coefficients of 0.907, 0.902 and 0.870 are also well above 0.70 threshold value. Therefore, t our CFA results satisfy the convergent reliability requirement. The square root of average variance extracted (RAVE) is 0.818, 0.808 and 0.792 for project schedule and project cost minimization respectively. These values are also substantially above all off-diagonal elements of the inter-factor correlation matrix in Table 4. Thus, our results have also satisfied the condition for discriminant validity.

However, Table 3 also shows that the estimated three-factor CFA model is adequate for the data, with the Chi-square ($\chi^2 = 397.41$, p-value = 0.0000) and the RMSEA (= 0.161) both clearly rejecting the model. For a good CFA model, the Chi-square statistic should be insignificant (i.e. p-value > 0.05) while the RMSEA should be less than or equal to 0.08 (Matsunaga, 2010; Marsh et al., 2004). Thus, although, our model satisfies both convergent and discriminant validity, it does not fit our data adequately, hence, would require modification for improvement.

From Figure 4, we can see that adding some error covariances, as suggested by modification indices, substantially improves the model fit. The error covariances added are between: PSC2 and PSC1; PSC4 and PSC1; PSC6 and PSC2; and PSC6 and PSC4. The Chi-square ($\chi^2 = 71.16$, p-value = 0.1754) is now statistically insignificant while the RMSEA (= 0.024) is well below its threshold value. Therefore, the modified CFA model is a good to the data.

Overall, although, the two-factor CFA model for project success has acceptable

validity it is accepted with some modifications in terms of error covariances.

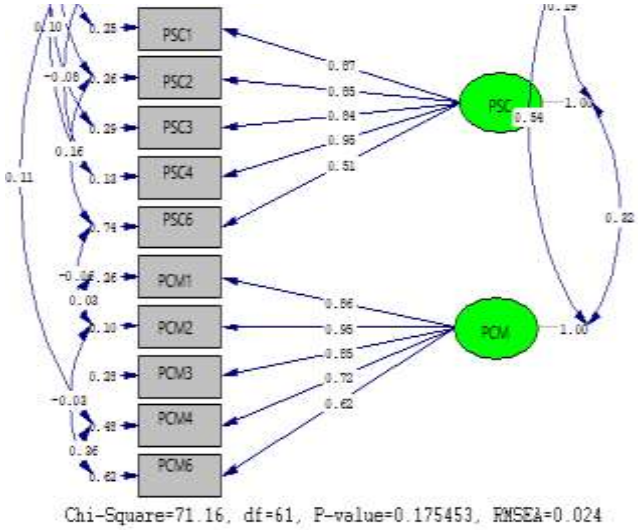

Figure 4: Modified CFA Model for Project Success

Source: LISREL output

Structural (Multiple Regression) Analysis

Estimation and Analysis of Model 1

For empirical Model 1, project schedule (PSC) is specified to depend on the three dimensions of synergistic work system; namely, administrative integration (ADI), sequential integration (SQI) and Synergistic Alignment (SAL). Project schedule is one of the two measures of project success. Table 5 presents the model estimation results and goodness of fit statistics.

Table 5: Model 1 Estimation Results: DV = Project schedule

Variable	Beta	P-value
Intercept (λ_0)	0.1359	0.6994
ADI (λ_1)	0.3209	0.0000
SQI (λ_2)	0.3822	0.0000
SAL (λ_3)	0.2272	0.0035
Statistic		**Value**
R^2		0.4025
$\overline{R}^2$		0.3916
F-Statistic		36.837
Prob(F-Statistic)		0.0000
Durbin-Watson		1.4440

Source: EViews Output Based on Research Data

From Table 5, we can see that the three synergistic work system dimensions; ADI ($\lambda_1 = 0.3209$), SQI ($\lambda_2 = 0.3822$) and SAL ($\lambda_3 = 0.2272$), all are associated with positive coefficients, indicating that they are all positively related to project schedule. This implies that an improvement in synergistic work system practices in terms of administrative integration, sequential integration and Synergistic Alignment would improve project schedule. The associated p-values of 0.0000, 0.0000 and 0.0035 indicate that the effects on project schedule of administrative integration, product of recovery and Synergistic Alignment all are highly statistically significant. The intercept term ($\lambda_0 = 0.1359$, p-value = 0.6994) is also associated with a positive but insignificant coefficient, indicating that the sampled firms would, on average, not be flexible in delivery without the influence of synergistic work system. The adjusted R-squared ($\overline{R}^2 = 0.3916$) indicates that approximately 39% of the variance of project schedule are due to the joint influence of administrative integration, sequential integration and Synergistic Alignment. Thus, the estimated model is moderately fitted as factors not considered in the model account for approximately 61% of the variance in project schedule. However, the F-statistic (p-value = 0.0000) is associated with a zero probability, indicating that the estimated project schedule model is highly significant. Therefore, the joint effect of the three independent variables on project schedule is highly statistically significant. Further, the Durbin Watson statistic of 1.4440 is very much higher than the R-squared ($R^2 = 0.4025$), an indication that our regression results are meaningful. Although, not directly related to cross-sectional regression, relationships are said to be spurious if R^2 is greater than the

Durbin-Watson statistic (Granger & Newbold, 1974).

Estimation and Analysis of Model 2:

For empirical Model 2, project cost minimization (PCM) is specified to depend on the three dimensions of synergistic work system; namely, administrative integration (ADI), sequential integration (SQI) and Synergistic Alignment (SAL). Project cost minimization is one of the two measures of project success. Table 6 presents the model estimation results and goodness of fit statistics.

Table 6: Model 2 Estimation Results; DV = Project Cost Minimization

Variable	Beta	P-value
Intercept (ϕ_0)	2.2973	0.0000
ADI (ϕ_1)	0.0367	0.5822
SQI (ϕ_2)	0.1594	0.0371
SAL (ϕ_3)	0.2563	0.0003
Statistic	**Value**	
R^2	0.2121	
$\overline{R}^2$	0.1977	
F-Statistic	14.724	
Prob(F-Statistic)	0.0000	
Durbin-Watson	1.6780	

Source: EViews output based on Research Data

From Table 6, like the previous cases, we can see that the three synergistic work system dimensions; ADI ($\phi_1 = 0.0367$), SQI ($\phi_2 = 0.1594$) and SAL ($\phi_3 = 0.2563$), all are associated with positive coefficients, indicating that they all move in the same direction with project cost minimization. This implies that an improvement in synergistic work system practices in terms of administrative integration, sequential integration and Synergistic Alignment would improve project cost minimization. The associated p-values of 0.0371 and 0.0003 indicate that while the effect of administrative integration on project schedule is statistically insignificant, the effects of sequential integration and Synergistic Alignment are significant at 5% and 1% levels respectively. The intercept term ($\phi_0 =$ 2.2973, p-value = 0.0000) is associated with a positive and highly significant coefficient, indicating that delivery in the oil and gas firms meets high quality standards even without the influence of synergistic work system. The adjusted R-squared ($\overline{R}^2 = 0.1977$) indicates that approximately 20% of the variance of project cost minimization are due to the joint influence of administrative integration, sequential integration and Synergistic Alignment. Thus, the estimated model is poorly fitted as factors not considered in the model account for as much as approximately 80% of the variance in project cost minimization. However, the F-statistic (p-value = 0.0000) is associated with a zero probability, indicating that the estimated project cost minimization model is highly significant. Therefore, the joint effect of the three independent variables on project schedule is highly statistically significant. Further, the Durbin Watson statistic of 1.6780 is very much higher than the R-squared ($R^2 = 0.2121$), an indication that our regression results are meaningful. Although, not directly related to cross-sectional regression, relationships are said to be spurious if R^2 is greater than the Durbin-Watson statistic (Granger & Newbold, 1974).

Hypothesis Testing:

The hypothesis testing is based on the results of our multiple regression analysis in section 4.3 and p-value associated with the t-statistic would be used. The chosen level of significance for decision making is 5%.

Hypothesis 1: Administrative integration and Project schedule success:

H_{01}: There is no significant effect of administrative integration on project schedule in the oil and gas firms in Rivers State.

Results show that administrative integration has a positive and highly statistically significant effect on project schedule. This

evidence is reported in Table 5, which shows that λ_1 is estimated at 0.3209 with a p-value of 0.0000, indicating that the effect of administrative integration on project schedule is positive and significant at 1% level. Thus, the above hypothesis, which was tested at 5% level of significance, was strongly rejected. The relatively large size of λ_1 also implies that the effect of administrative integration is economic significant. This result implies that efficient and effective management of administrative integration makes the project delivery less cumbersome and more flexible. This result also agrees with Steveson et al. (2009) that it is of necessity that administrative integration activities at all the strategic levels be flexible in operation and can be regarded as a metric for ensuring adequate project schedule success and success (Bai & Sarli, 2012). The Resource Based View theory considers a bundle of tangible and intangible resources (Bohnenkamp, 2013) of which the resources of a firm through administrative integration also avail it a higher profit opportunity, project cost minimization and product differentiation (Srivastava & Srivastava, 2006).

Hypothesis 2: Sequential Integration and Project Schedule:

H_{02}: There is no significant effect of sequential integration on project schedule in the oil and gas firms in Rivers State.

Results show that administrative integration has a positive and highly statistically significant effect on project schedule. This evidence is reported in Table 5, which shows that λ_2 is estimated at 0.3822 with a p-value of 0.0000, indicating that the effect of sequential integration on project schedule is positive and significant at less than 1% level. Thus, the above hypothesis, which was tested at 5% level of significance, was strongly rejected. The relatively large size of λ_2 also indicates that the effect of sequential integration is economically significant. This finding, therefore, agrees with many empirical studies including Nwaura, Letting, Ithinyi and Orwa (2016) and Mbovu and Mburu (2018).

Hypothesis 3: Synergistic Alignment and Project Schedule:

H_{03}: There is no significant effect of Synergistic Alignment on project schedule in the oil and gas firms in Rivers State.

Results show that Synergistic Alignment has a positive and highly significant effect on project schedule. This evidence is obtained in Table 5, which shows that λ_3 is estimated at 0.2272 with a p-value of 0.0035, indicating that the effect of Synergistic Alignment is positive and statistically significant at 1% level. Therefore, the above hypothesis, which as tested at 5% level of significance, was strongly rejected. The relatively large size of λ_3 also indicate that the effect of Synergistic Alignment is economically significant. This implies that Synergistic Alignment has a beneficial effect on project success of the sampled oil and gas firms.

Hypothesis 4: Administrative integration and Project cost minimization:

H_{04}: There is no significant effect of administrative integration on project cost minimization in the manufacturing industry in Rivers State.

The result shows that administrative integration has a positive but not statistically significant effect on project cost minimization. The evidence in Table 6 shows that $\phi_1$is estimated at 0.0367 with a p-value of 0.5822, indicating that the effect of administrative integration is statistically insignificant. Therefore, in contrast with our expectation, apriori, we do not reject the above hypothesis, which is tested at 5% level. The relatively small size of ϕ_1 also implies that the effect of administrative integration is economic insignificant. This result may imply inefficiency

in the management of administrative integration. This finding, however, disagrees with Salim (2016) that synergistic work system practices had a significant relationship with cost and quality of delivery.

Hypothesis 5: Sequential integration and Project Cost Minimization:

H_{05}: There is no significant effect of sequential integration on project cost minimization in the oil and gas firms in Rivers State.

Consistent with our expectation, Results show that sequential integration has a positive and highly significant effect on Project cost minimization. This evidence is obtained in Table 6, which shows that ϕ_2 is estimated at 0.1594 with a p-value of 0.0371, indicating that the effect of sequential integration is positive and statistically significant at 5% level. Therefore, we rejected the above hypothesis, which is also tested at 5% level. The relatively large size of ϕ_2 also indicates that the effect of sequential integration is economically significant. This finding is also consistent with Kabergery et al. (2015) and Yu, Tianshan and Din (2018).

Hypothesis 6: Synergistic Alignment and Project Cost Minimization:

H_{06}: There is no significant effect of Synergistic Alignment on project cost minimization in the oil and gas firms in Rivers State.

Results show that Synergistic Alignment has a positive and highly significant effect on project cost minimization. This evidence is obtained in Table 6, which shows that ϕ_3 is estimated at 0.2563 with a p-value of 0.0003, indicating that the effect of Synergistic Alignment is positive and statistically significant at 1% level. Therefore, the above hypothesis, which as tested at 5% level of significance, was strongly rejected. The relatively large size of ϕ_3 also indicates that the effect of Synergistic Alignment is economically significant. This implies that Synergistic Alignment has a beneficial effect on project success of the sampled oil and gas firms. This finding is consistent with the view by Patnayakuni, Rai and Seth (2006).

Hypothesis 7: The Moderating Role of Organizational Structure:

H_{07}: There is no moderating effect of Organizational Structure on the relationship between synergistic work system and project success.

Results show that Organizational Structure has a positive and highly significant effect on the relationship between synergistic work system and project success. This evidence is obtained in Table 4.26, which shows that γ_3 is estimated at 0.4936 with a p-value of 0.0000, indicating that the effect of moderating effect of Organizational Structure is positive and statistically significant at less than 1% level. Therefore, the above hypothesis, which as tested at 5% level of significance, was strongly rejected. The relatively large size of γ_3 also indicates that the moderating effect of organizational structure is economically significant. This implies that Organizational Structure enhances the beneficial effect of synergistic work system on project success of the sampled oil and gas firms. The finding is therefore consistent with the view of De Brito (2003) and Meyer (1999).

CONCLUSIONS AND IMPLICATION:

The study concludes that administrative integration has a positive relationship with the two project success dimensions; project schedule and project cost minimization. However, while the effect of administrative integration on project cost minimization is statistically insignificant, its effect on project schedule success is highly significant. Therefore, we conclude that improving administrative integration process can make delivery of products more flexible but cannot not make it more predictable and more standardized except it is complemented with other synergistic work

system strategies. There is evidence that sequential integration has a positive relationship with project success dimensions, project schedule and project cost minimization. The effect of sequential integration on these dimensions is also found to be significant. The effect of Synergistic Alignment on these dimensions is also found to be significant. Finally, there is evidence that Organizational Structure plays a positive and highly significant moderating role in the relationship between synergistic work system and project success.

These hold strong implication for theory and practice. First, the findings show that the resource base theory holds true for oil and gas firms in Nigeria who would witness significant project success if they operate in a synergistic manner. Second, managers and organizations that will dare to collaborate synergistically, will achieve great improvement in their project outcomes; especially as they pertain to project schedule success and project cost minimization.

RECOMMENDATIONS:

Based on the findings and conclusion drawn from this research, we do the following recommendations for the oil and gas industry's effectiveness.

i. The effects of project schedule of administrative integration, sequential integration and Synergistic Alignment are very significant. A continuous improvement in synergistic work systems of the firms would improve project schedule. Members of Oil and gas work system should endeavor to share, risk, cost, as well as rewards, with other members of the work system, in order to enhance cost efficiency and project schedule success through operational flexibility.
ii. Project cost minimization is an essential factor in manufacturing activities, despite synergistic work systems, quality remains a standard for accessing the operations of firms. Thus, this study recommends that the oil and gas industry must maintain high quality standards during project execution. The policy on warranty/guarantee should be a common practice. Induced delinquencies on warranty should be exterminated in order to improve customer's confidence on the Nigerian oil and gas firms.
iii. Firms should ensure they allocate the right team members and provide high technical support to record, track and manage materials and synergistic operations, which are core leverages for optimal project success.

REFERENCES

1) Adams, F.G., Richey, R.G., Autry, C.W., Morgan, T.R. & Gabler, C. B. (2014). Work system synergism, Integration, and relational technology: how complex operant resources increase performance outcomes. Journal of Business Logistics 3(5), 299-317
2) Aiken, P., & Hodgson, L. (1998). Synergy between business process and systems reengineering. Information systems management, 15(4), 55-67.
3) Bahinipati, B .k., Kanda, A. & Deshmukh. A. (2009). Horizontal synergism in semiconductor industry work system: An evaluation of synergism intensity index. Comput. Ind. Eng., 5(7):880-895
4) Bai, C. & Sakis J. (2012). Flexibility in Synergistic work system: A framework and evaluation approach. Journal of Cleaner Production (47(20), 306-318.
5) Beutell, N. J. (2010). Work schedule, work schedule control and satisfaction in relation to work-family conflict, work-family synergy, and domain satisfaction. Career Development International.
6) Bohnenkamp, T. (2013). The Effect of the Resource Based View on Decisions in

Supply Management. 1st IBA Bachelor Thesis Conference, Faculty of Management and Governance, University of Twente the NetheSWSnds.

7) Bunduchi, R. (2008). Organizational structure, Power and Transaction Costs in B2B Exchanges—A Socioeconomic Approach. Industrial Marketing Management, 3(5), 610–622.
8) Bussinesslist (2021). List of registered oil and gas firm in River State Nigeria. Retrieved on 12-4-2021 from https://www.businesslist.com.ng
9) Cao, M. & Zhang, Q. (2011). Synergistic work systems: Impact on Synergistic Advantage and Firm Performance. Journal of Operations Management, 2 (3), 163–180.
10) Ciarniene, R. & Vienazindiene, M. (2012). Lean operation: Theory and Practice. Journal of Economics and Management 17(2), 2029-9338.
11) de Brito. (2003). Synergistic work system - A Framework. Econometric Institute Report Series EI 2002-38, Erasmus University Rotterdam, The NetheSWSnds.
12) De Wit, A. (1988). Measurement of project success. International journal of project management, 6(3), 164-170.
13) Fawcett, S. E., Magnan, G. M., & McCarter, M. W. (2008). A three-stage implementation model for supply chain collaboration. Journal of Business Logistics, 29(1), 93-112.
14) Fawcett, S. E., Magnan, G. M., & McCarter, M. W. (2008). Benefits, barriers, and bridges to effective supply chain management. Supply chain management: An international journal.
15) Feldman, E. R., & Hernandez, E. (2020). Synergy in Mergers and Acquisitions: Typology, Lifecycles, and Value. Academy of Management Review, (ja).
16) Golicic, S. L., Skinner, L. R., Bryant, P. T., & Richey, R. G. (2008). Examining the impact of reverse logistics disposition strategies. International Journal of Physical Distribution & Logistics Management.
17) Haidar, J.I. (2019) Trading economics, Nigeria GPS from manufacturing, sectors contributions to GPS remain static, https:// allafrica.com.
18) Kampstra, R.P, Ashayeri, J. & Gattorna, J.L. (2006).Realities of synergistic work systems. The International Journal of Logistics Management. 17 (3) 312 – 330.
19) Lai, L. S. (1997). A synergistic approach to project management in information systems development. International Journal of Project Management, 15(3), 173-179.
20) Lee, H.L, & Whang, S (2000). Administrative integration in a work system. International Journal of Manufacturing Technology and Management.1 (1) 79-93.
21) Levinson, C. (2018). Definition of the Management Industry. (Bizfluet.com/facts - 6853113 definition-manufacturing-industry. Html.
22) Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S. & Rao, S.S. (2005). Development and validation of a measurement for studying work system management practices, Journal of Operations Management, 23: 618-41.
23) Lu, J., Lin, C., Wang, J., & Li, C. (2019, November). Synergy of database techniques and machine learning models for string similarity search and join. In Proceedings of the 28th ACM International Conference on Information and Knowledge Management (pp. 2975-2976).
24) Martín Marcos, D. (2011). El Papado y la Guerra de Sucesión española. El papado y la guerra de sucesión española, 1-252.
25) Mathuramaytha, C. (2011, February). Supply chain collaboration–what's an outcome?: a theoretical model. In International Conference on Financial

Management and Economics IPEDR, IACSIT Press, Singapore (Vol. 11, pp. 102-108).

26) Mentzer, J.T., DeWitt, W., Keebler, J.S., Min, S., Nix, N.W., Smith, C.D. & Zacharia, Z.G. (2001). Defining work system management. Journal of Business Logistics. 22 (2). 1-25.

27) Min, S., Roath, A.S., Daugherty, P.J., Genchev, S.E., Chen, H., Arndt, A. D. & Glenn, R. R (2005). Synergistic work systems: what's happening? The international journal of logistics management 16.237 -256.

28) Mohr, L. B. (1971). Organizational technology and organizational structure. Administrative science quarterly, 444-459.

29) Monczka, R., Petersen, K., Handfield, R., Ragatz G. (1998), "Success factors in strategic supplier alliances: The buying company perspective", Decision Sciences Journal, Vol. 9, Iss. 3, pp. 553-577.

30) Mu, R. & Ma, Y. (2014). The design and implementation of synergistic work system management formation system. Journal of Chemical and Pharmaceutical Research, 6(5): 2024-2027. ISSN: 0975-7384, www.jocpr.com.

31) Muckstadt, J. A., Murray, D. H., Rappold, J. A. & Collins, D. E. (2001). Guidelines for Synergistic Work system System Design and Operation. Information System Frontiers, 3 (4), 427–453.

32) Nguyen, N. T., Rohaida, S., & Zainal, M. (2016). Synergistic high-performance work system and perceived organizational performance of small and medium-sized enterprises: A review of literature and proposed research model. International Journal of Business and Social Science, 7(11), 145-154.

33) Nigeria Directory and Search Engine, (2016). www.finelib.com

34) Nyaga, G.N., Whipple, J.M. & Lynch, D.F., (2010). Examining work system relationships: Do buyer and supplier perspective on synergistic relationships differ? Journal of operations management. (28). 101-114.

35) Patnayakuni, R., Rai, A. & Seth, N. (2006). Relational antecedents of information flow integration for work system coordination. Journal of Management Information System, 23(1), 12-49, ME. Sharpe Inc, 0742-1222/0200659.50 + 0.00.

36) Pereira, G.M., SelOGSo, M.A. & Borchardt, M. (2018). Flexibility and Orientation for Two Work systems Fashion Industry Markets: Analysis and Model for Future Research. Gestao and Producao, (25)2, 319-330.

37) Piňosová, M., Andrejiová, M., & Lumnitzer, E. (2018). Synergistic effect of risk factors and work environmental quality. Calitatea, 19(165), 154-159.

38) Ramanathan, U. (2012) Synergistic work systems for improved forecast accuracy of promotional sales. International Journal of Operations & Production Management 3(2) 676-695.

39) Salim, K.G. (2016). Effect of Synergistic work system on Operational Performance of Liquefied Petroleum Gas Companies in Kenya, University of Nairobi.

40) Sheth, J. N., & Parvatiyar, A. (2002). Evolving relationship marketing into a discipline. Journal of relationship marketing, 1(1), 3-16.

41) Sheu, C., Rebecca Yen, H, & Chae, B. (2006). Determinants of supplier-retailer synergism: evidence from an international study. International Journal of Operations & Production Management. 26 (1)24-49.

42) Shrnhur, A. J., Levy, O., & Dvir, D. (1997). Mapping the dimensions of project success. Project management journal, 28(2), 5-13.

43) Simatupang, T. M. & Sridharan, R. (2004). The Synergistic Work system. International Journal of Logistics Management. 1(3), 15–30.

44) Simatupang, T. M. & Sridharan, R. (2005). The Synergism Index: A Measure for Supply Chain Synergism. International Journal of Physical Distribution & Logistics Management, 35 (1), 44–62.

45) Srivastava, R. K. & Srivastava S.K (2006) Managing Product Lecturers for Synergistic work system. International Journal of

Physical Distribution and Logistics Management. http:///www.resarchgate.net/publication/2282965983.

46) Stenström, M. L., & Tynjälä, P. J. S. F. C. (2009). Towards integration of work and learning. Strategies for connectivity and transformation. Amsterdam.

47) Stuart, F. I. & McCutcheon, D (1996). Sustaining strategic supplier alliances: profiling the dynamic requirements for continued development. International Journal of Operations & Production Management 16. 5-22.

48) Swink, M., Narasimhan, R. & Wang, C. (2007). Managing beyond the factory walls: effects of four types of strategic integration on manufacturing plant performance. Journal of Operations Management 25 pp 148-164.

49) Tan K. C., Kannan V.R., & Hsu C.C. (2010). Work system Information and Relational Alignments: Mediators of EDI on Firm Performance. International Journal of Physical Distribution & Logistics. 40,(56). 377– 394.

50) Tantalo, C., & Priem, R. L. (2016). Value creation through stakeholder synergy. Strategic Management Journal, 37(2), 314-329.

51) Vanathi R, & Swamynathan R (2014). Competitive advantage through work system synergism: An empirical study on the Indian industry. FIBRES & TEXTILES in eastern Europe 4(106) 8-13

52) Wambaya, A.K; Oketch, J; Namusange, G. & Sakwa, M. (2018). Effect of Synergistic work system on Procurement Performance among State Corporations in Kenya (A case of Kenya Medical supplies Authority-KEMSA) IOSR. Journal of Business and Management (IOSR-JBM),e ISSN: 2278-487x, p-ISSN: 2319-7668. 20 (1), 87-94.

53) Yu, Z; Tianshan, M. & Din, M.F (2018). The importance Reverse/Logistics on Operational Performance America. Journal of Mechanical and Industrial Engineering. 3(5) 99-104 ISSN: 2575-6079(Print); ISSN: 2575-6060 (online).

54) Zacharia, Z.G., Nix, N.W. & Lusch, R.F. (2009). An analysis of synergistic work systems and their effect on performance outcomes. Journal of Business Logistics 30(1)101–123.

55) Zaheer, A., Castañer, X., & Souder, D. (2013). Synergy sources, target autonomy, and integration in acquisitions. Journal of Management, 39(3), 604-632.