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# Internal Control and the Public Sector: Review of Edo, Delta, Anambra and Enugu States

*Osagioduwa Lucky Ogbomo, Dr. Tella Adeniran Rahmon, Dr. Kolade Ayodele Bidemi  
Prof. Famous O. I Izedonmi & Dr. Isaac Ukarin*

## ABSTRACT

This study investigated comparatively but holistically the extent of adequacy and neglect of internal control in some state government sectors in Nigeria. The research was conducted in South-South and South-East Nigeria. Primary data were obtained through the Five Likert Scale (SA, A, U, D, SD) structured questionnaire. The Survey design was used in this work. A questionnaire on the adequacy of internal control was administered to accountants only. A questionnaire on the neglect of internal control in the public sector was administered to auditors only. A total of one hundred and sixty-two (162) accountants and 102 auditors with two years and above years of working experience were sampled. The Systematic Sampling Technique (SST) was employed. Descriptive statistical techniques such as frequency distribution, charts, tables, and percentages response analysis were used in analyzing the data. Cronbach alpha coefficient was used to test for the reliability of the research instrument, and the result was (.71111). The hypotheses were tested employing the Lifelight Two-Five and Five-Zero Comparative Techniques (LTFFZCT). The result of the analysis revealed that in relation to other states, the internal control in Anambra State is weak and the internal control framework is relatively more neglected in Anambra state followed by Enugu, Edo and Delta States. The study recommends, that the state government, in the light of the executive arm of government should endeavor to support the internal control system in the states. The executive in Anambra, Edo, and Delta States should strengthen the existing internal control structure and framework in the states.

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# Internal Control and the Public Sector: Review of Edo, Delta, Anambra and Enugu States

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*This study investigated comparatively but holistically the extent of adequacy and neglect of internal control in some state government sectors in Nigeria. The research was conducted in South-South and South-East Nigeria. Primary data were obtained through the Five Likert Scale (SA, A, U, D, SD) structured questionnaire. The Survey design was used in this work. A questionnaire on the adequacy of internal control was administered to accountants only. A questionnaire on the neglect of internal control in the public sector was administered to auditors only. A total of one hundred and sixty-two (162) accountants and 102 auditors with two years and above years of working experience were sampled. The Systematic Sampling Technique (SST) was employed. Descriptive statistical techniques such as frequency distribution, charts, tables, and percentages response analysis were used in analyzing the data. Cronbach alpha coefficient was used to test for the reliability of the research instrument, and the result was (.71111). The hypotheses were tested employing the Lifelight Two-Five and Five-Zero Comparative Techniques (LTFZCT). The result of the analysis revealed that in relation to other states, the internal control in Anambra State is weak and the internal control framework is relatively more neglected in Anambra state followed by Enugu, Edo and Delta States. The study recommends, that the state government, in the light of the executive arm of government should endeavor to support the internal control system in the states. The executive in Anambra, Edo, and Delta States should strengthen the existing internal control structure and framework in the states.*

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## I. INTRODUCTION

Since 1990, the paradigm of government in several countries has tended toward excellent governance, with the intending to of put government establishment to become more efficient, effective, and impartial to every citizen (Indra, 2006). Brennan and Soloman, (2008) opined that the internal control (ITCOL) structure should not be underestimated as it serves as the foundation for a good number organization in terms of the necessary and essential roles that it plays in both tangible and intangible assets of an organization. ITCOL implies the measures and procedures established by an organization in order to ensure that the aims, objectives, and missions of the institution are determine (Brennan & Soloman, 2008). Uwaoma and Ordu (2015) averred that organization without an ITCOLS is commonly professed to be open to risks that are capable of breaking up an organization.

Considering the evolution of ITCOL, before to 1941, ITCOL and internal audit was clerical occupation for many organizations formed without a code of conduct. Internal auditing, which is a cardinal component of ITCOL, is the oldest concept that was made as assurance engagement as a rationale for which fraud detection is the reason behind public accountants and the yearly audit report. The defining moment

was the end of 1941, which was marked significant by events that occurred in the emergence of ITCOLS. A book by Victor Z Brink's on internal auditing gave a foundation for the institute of internal auditors to be formed (Salifu, 2015).

Furthermore, Hendricks (2012) noted that tools of command that makes it feasible for the management to: make better use of budgeted resources, prioritization of expenditure across policies, take control of spending as well as the deficit, projects as well as programs to allocate resources in an efficiently and equitably, with to achieve results using the lowest cost possible (Hendricks, 2012). Keving (2018) argued that ITCOLS is an essential requirement for the public sector because the public sector plays a vital role in the economy, provides various kinds of infrastructure to the public, and manages the huge volume of resources daily. Consequently, a strong ITCOLS is very fundamental. Kratz (2008) averred that in the past years, ITCOL failures were the rationale for the central explosive accounting corruption of the world. Enron is a paramount illustration in the US. Before Enron crumpled in 2001, the corporation declared earnings of \$200 million and, according to the stock market, was worth billions of dollars. On the contrary, the stock value of Enron was driven up by deceptive accounting practices and earnings management (Kratz, 2008).

In Nigeria, southern Nigeria comprises South-South with six states, namely Edo, Delta, Rivers, Cross River, Bayelsa, and Akwa-Ibom. The South-East with five states namely Enugu, Imo, Abia, Anambra, and the Ebonyi States. And the South West with six States namely Lagos, Oyo, Ondo, Osun, Ekiti, and the Ogun States. However, the focus of this research is on the South-South and South-East Nigeria. It is essentially and largely accurate that the number of stages involve during payment of wages or procurement of Non-Current Asset (NCA). The adequacy of the ITCOL is probably and essentially a function of the number of steps involved. A short process of probably two to three steps is mainly prone to easy performance of fraudulent and corrupt activities in the public sector. However, adequate

ITCOLs probably result in ineffectiveness, inefficiency and fraudulent activities. Adetiloye, Olokoyo and Taiwo (2016) revealed that not all staff is dedicated to it ITCOL. Furthermore, when ITCOLS procedures are not followed in the government business by mainly and essentially senior government officers indeed has resulted in the embezzlement of billions of naira. In (www.gao.gov/greenbook/overview), it is contained that most instances of fraud in governmental units are an express result of the absence of ITCOL in the agency/department. A member of staff with too much access to specific systems and without oversight checks can divert valuable resources, such as cash, to sources outside the government, thus committing fraud.

An incredible review of the literature indicates studies of ITCOL have been carried out by (Curtis & Borthick, 1999; Doyle, et al. 2006; Janvrin, 2003; Kiger & Rose, 2004; Hermanson, et al. 2011; Samson, Flesher & Previs, 2006; Frazer, 2012; Hunziker, 2017; Townsend, 2005; Dow, Shea, & Waldrup, 2009; Linval nd; Rice, Weber & Wu, 2015; Rice & Weber 2012; Mead, & Liedholm, (2022); Milliman, (2022); Njau, Kagwathi, Kamau, & Kamau (2022); Omorokunwa, & Adeyele, (2022); Crenca, (2022); Verbano, & Venturini, (2022); Kim, et al. 2013; Mensah, 2011; Abdullahi, 1997; Birabwa, 2012; Noorvee, 2006; Adeyele (2022); Adeyele, (2022); Adeyele, Osemene & Olubodun. (2021); Akinola, (2022); Atkins & Bates, (2019); Bruton & Bamford, (2019); Chapman & Cooper, (2020); Deloitte, L. (2022); Ndegwa & Mungai 2019; Dandago & Suleiman, 2005; Karpoff, 1996; Doyle, 2004; Sahabi, Gordon & Mohammed, 2017; Oladipupo & Ajayi 2020). Several of these previous studies investigated the correlation between ITCOL and corruption control in both the private and the public sectors (PS). While good number also examined the relationship between ITCOL and organizational performance. However, the cardinal focus of this research, therefore, is to explore the adequacy of ITCOL in the Nigerian public sector comparatively to the number of stages and procedures followed during the procurement of Non-Current Asset (NCA) or payment of wages. Furthermore, this research

also seeks to investigate the extent to which ITCOL processes and procedures are being followed in the government business by the public servants in the Nigerian government sector. However, none of these previous studies has carried out a review of the number of stages with a comparative lens involved in either in payment of salary or procurement of properties in government.

### *Research Hypotheses*

H1: Edo State ITCOL in the PS is significantly stronger than ITCOLs in Enugu State public service.

H2: Edo State ITCOL in the PS is significantly stronger than ITCOLs in Anambra State public service.

H3: Delta State ITCOL in the public sector is significantly stronger than ITCOLs in Enugu State public service.

H4: Delta State ITCOL in the PS is significantly stronger than ITCOL in Anambra State public service.

H5: Delta State ITCOL in the PS is significantly stronger than ITCOLs in Edo State public service.

H6: Enugu State ITCOL in the PS is significantly stronger than ITCOL in Anambra State public service.

H7: South-South ITCOL in the PS is significantly stronger than ITCOL in the South East public service.

H8: There is significant neglect of ITCOL in the public sector in Enugu State than in Anambra State.

H9: There is significant neglect of ITCOL in the public sector in Enugu State than in Delta State.

H10: There is significant neglect of ITCOL in the public sector in Edo State than in Enugu State.

H11: There is significant neglect of ITCOL in the public sector in Edo State than in Anambra State.

H12: There is significant neglect of ITCOL in the public sector in Edo State than in Delta State.

H13: There is significant neglect of ITCOL in the public sector in Anambra State than in Delta State.

H14: There is neglect of ITCOL in the public sector in South-South Nigeria than in the South East Nigeria.

## II. REVIEW OF RELATED PIECES OF LITERATURE ITCOL

Millichamp (1987, 1996) and Basu (2015), cited in Gamagelaw and Keving (2018), defined that ITCOL system (ECOL) as the total of controls, fiscal or otherwise, established by the executive to carry on the business of the organization in an orderly and efficient way, ensure obedience to management policies, protect tangible and intangible assets and secure as far as possible the completeness and correctness of records. Similarly, Ndifon and Patrick (2014), Massey (2003) and Emiracity School (2004) explained that ITCOL is the measures established by organizational management to guarantee the attainment of the organizational mission, objectives, and goals. They are a set of policies employed by an entity to ensure that an organization's transactions are performed in the appropriate way to avoid waste, misuse of organization resources, and theft. To Mwindi (2008) he believes that ITCOLs are processes planned and effected by persons charged with the management, governance, and other staff to provide reasonable assurance about the attainment of organizational goals with respect to effectiveness and efficiency of operations, reliability of the financial reporting, and compliance with appropriate laws and standards. Directly in relation to the public sector, Simson et al., (2011), in Ndegwa and Mungai (2019) defined that ITCOL are policies as well as procedures that are inaugurated by the management of government institutions with the motive and goal of ensuring the government agency and establishment achieves its set objectives and comply with external regulations as well as guidelines. Furthermore, Scott (2007) noted that ITCOLs are policies and procedures by which an organization governs its activities. Aguolu (2004) opined that ITCOLs are the policies and measures by which an entity manages its actions. Also, Nwankwo (2006) defined ITCOL in their guideline as the whole system of control, financial or otherwise, established by the management to carry on the business of the enterprise in an orderly and efficient manner, and ensure adherence to management policies, safeguard the

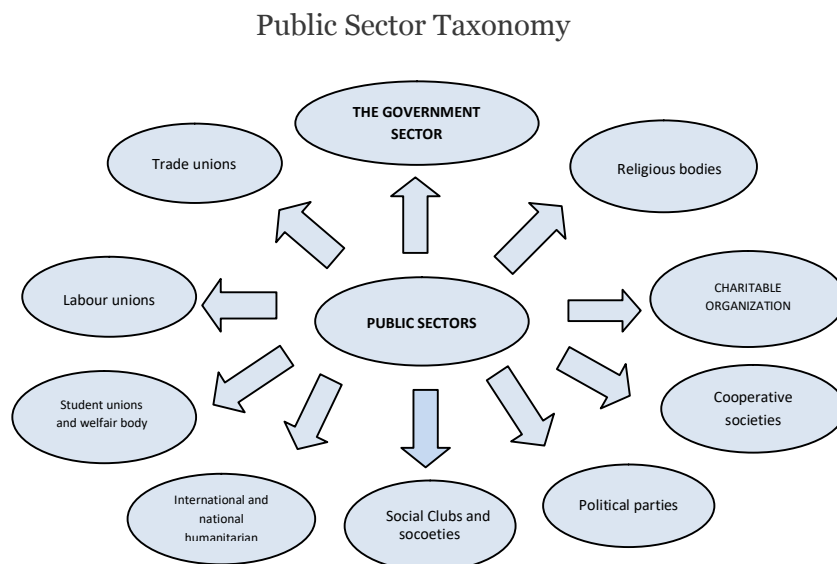
assets and secure as far as possible the completeness and accuracy of the records.

In addition, Mensah (2004) further defined ITCOLS as control measures that are developed and installed by internal management for the regulation of internal operations. COSO (1992) sees ITCOLS as a procedure established by an entity's board of directors, administration, and other staff, regarding the achievement of objectives in effectiveness, and efficiency of operations, reliability of financial disclosure and observance of applicable laws and standards. Very similarly, AICPA (1996) defined ITCOL as a process created by the executive, the organization's board of directors (BOD), and other personnel, aimed at providing reasonable assurance regarding the achievement of goals in the following categories: effectiveness and efficiency of operations, consistency of financial reporting, compliance with applicable laws and regulations. Also, The Institute of Chartered Accountants of England and Wales (ICAEW), in Gamage, Kevin, and Fernando (2014) saw ITCOLS as the whole system of controls, financial or otherwise, established by the executive with the intention to carry on the business of the venture in an orderly and proficient manner, protect

assets and secure as far as possible the completeness and accuracy of records, ensure adherence to management policies.

### 2.1 The Government Sector VS the Public Sector

The government segment or sector (GVSTRM) is probably a substantial component of the public sector (PUSTR) primarily administered, controlled, and managed by the government. The definition of Daniel (2013) was in congruence though he tried to define the government sector in line with the PUBSTR. He described the PUBSTR as all organizations not independently and, personally owned and administered, but which are established, managed, and financed by the government on behalf of the public. Daniel (2013) gave a clear description of the PUBSTR. Daniel (2013) noted that the PUBSTR control lies with the people and the fundamental goal and objective entails rendering services, and profit-maximization is not the primary goal. The PUSTR consist of the GVSTRM, churches, mosques, and charitable organization. The public sector is probably all entities and organizations established with the so aim of not making a profit. Profit maximization is not the fundamental goal of the public sector.



Source: (Author Conceptualization, 2022)

It is commonly accepted that the GVSTRM is the same as the public sector. However, it is not completely true. The GVSTRM is only a facet of the public sector. Public sector simply means any organization in which profit-making is not the primary objective. Ugwoke (2005) noted that Nigeria consists of the private sector, public sector, and Non-government Non-Profit motivated Sector. The public sector is, made up of the Federal, State, and Local Government. The public sector activities are carried out through ministries, extra-ministerial departments, local councils, and parastatals. While the ministries, departments, and local councils are organized through the civil service rules with civil servants as workers. The parastatals are run either as corporations, authorities, board councils, and limited liability companies in whom the government has full, majority, or controlling interest. The Nigerian 1999 constitution outlined the goals of this public sector's political, economic, social, educational, foreign policy objectives.

## *2.2 Fraud Prevention (FRDPTN) and the Adequacy of ITCOL*

The effective, and efficient method of reducing fraud is to establish an effective ITCOLS (Idogei, Josiah & Onomuhara, 2017). The findings of Adetiloye, Olokoyo and Taiwo's (2016) results revealed that ITCOL on its own is effective against fraud occurrence and prevalence, but not all staff is dedicated to it. Similarly, a study by Ozigbo (2015) discovered that ITCOL has a significant relationship with FRDPTN in the business sector. Furthermore, Oguda, Odhiambo and Byaruhanga, (2015) study revealed that a statistically significant, and positive relationship exists between the adequacy of ITCOLS and FRDPTN and detection in district treasuries in Kakamega County. In the U.S.A, the finding was different. Wei-Huang (2015) discovered that the meeting frequency of the ITCOL is not related to FRDPTN. Also, the number of ITCOL members does not significantly affect FRDPTN, and financial expert is significantly related considerably to FRDPTN. The result in Ghana was the same as in Nigeria. Ayagre, Appiah-Gyamerah, and Nartey (2014) study revealed that adequate, and robust ITCOLS

exist in the control environment and monitoring activities components of the ITCOLS of banks in Ghana and this invariably helps in FRDPTN. Also, Mukoro, Faboyede and Eziamaka (2014) study revealed that ITCOL and its components play a significant role in controlling fraud in business organizations. A survey of Oladipupo and Ajayi (2020) demonstrated that a positive and significant correlation exists between ITCOLS and FRDPTN. The study recommended proactive risk management among banks. One method of preventing the occurrence of fraudulent practices is developing an excellent accounting system by the government, and control of the quality of the financial information of government agencies (SPKN, 2007). Holmes, Langford, Welch and Welch (2002) established that at any time top management firmly supports ITCOL, internal perpetrators and fraud were less probably to take place. Another study found that access to various control mechanisms alone does not curb losses due to fraud.

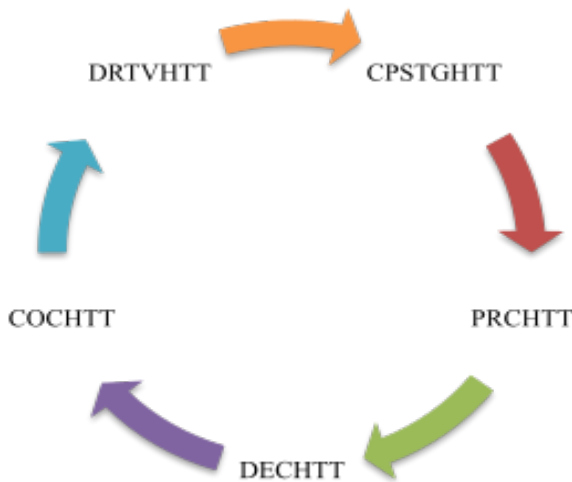
Empirical research have shown that agency costs can be reduced by effective and adequate ITCOLS (Abdel-khalik 1993; Barefield et al. 1993). Several studies advance that institutions have an economic incentive to report on ITCOL, even without the Sarbanes-Oxley Act of 2002 (SOX) requirements, (Deumes & Knechel, 2008).

## *2.3 ITCOL and its Divisions*

Salifu (2015) highlighted that control is of three categories namely, preventive control, detective control, and corrective control. Preventive Controls (PRCHTT): It is a brand of ITCOL established to guess and ward off errors, omissions, and premeditated acts of operation and input. It consists of errors, omissions, or hateful actions from happening except ITCOLS will include suitable partition of responsibilities access to physical facilities (Spafford, 2005). Detective Controls (DECHTT): These are control forms that identify an omission and malicious act has occurred. It is used mainly to locate mistakes and their occurrence. E.g., it comprises replica, examination, and summations of periodic presentation reporting with inconsistencies in totals. Corrective Control (COCHTT): These set of

controls that seek to decrease the consequence of dangers connected with the source and remedy difficulties, exposed by COCHTT. It involves modifying standing and dealing with the structure to reduce future incidences.

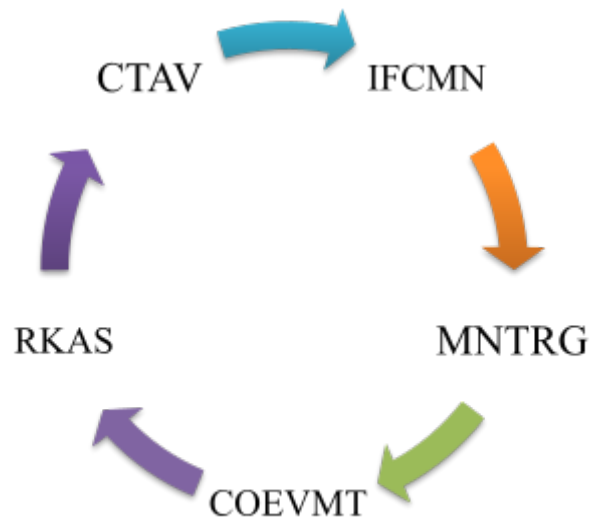
Furthermore, Rittenberg et al. (2007) recognized Directive Controls (DRTVHTT). DRTVHTTs refer to policies and measures introduced by senior management to promote compliance with independence rules. The policies and procedures from administration should be understandable and consistent to ensure compliance. Finally, Ibrahim, Mohammed, Abdul-Nasiru, Jamaldeen, and Mujeeb (2017) recognized Compensating Controls (CPSTGHTT) and noted that CPSTGHTTs are established for lack of controls elsewhere in the system. For example, entities with an electronic database could maintain a hard copy of the client list in the office library.



(Source: Author's conceptualization 2022).

These components were also pointed out by COSO (1992) and cited in Meisser (2000); Millichamp & Tailor (2008); Eke (2015); Arens, Elder & Beasley (2003); BPP Learning Media (2010). In another view, Arens (2006) in Hari (2016) argues that: ITCOL includes five classes of controls that management devises and implements to give reasonable assurance that management's control intentions win be met. These components of ITCOL are: (1) Control Environment, (COEVMT), (2) Risk Assessment (RKAS), (3) Information and

Communication, (IFCMN), (4) Control Activities, (CTAV), (5) Monitoring (MNTRG).



(Source: Author's conceptualization 2022).

COEVMT: Ofori (2011), Dougles (2011), Millichamp (2002), Amado & Inanga (2009, Messier (1997), explained that COEVMT is the attitude toward ITCOL and control consciousness established by the management and the employees of a business. Valentine et al. (2002) found that an ethical environment was positively and significantly related to the extent of staff's organizational commitment. While, Kizirian and Leese (2004) established that the honest tone of the audit clients' management has a significant impact on the strength of their security controls. The rationale is high-quality COEVMT is put in place that can reduce the risk of errors (Ashbaugh-Kaife et al., 2008; McNally, 2014).

RKAS: Business risk consists of the ability to survive in terms of financial situation, public image as well as overall quality of product and services (COSO, 1992). Morris (2011) states that ITCOL is one of several factors that reduce the agency problem. Moreover, Gauthier (2006) suggests that risk is a factor that changes all the time. According to the IIA (1999), risks are assessed to find out the likelihood of fraud occurring.

CTAV: According to NYSGAAIC Act 2007, several control activities can be employed to counter the

risks that threaten an organization's goal achievement.

& Hopwood, 2010; Bagranoff et al., 2007; Gelinias and Dull, 2008; Sajady, 2008).

IFCMN: AIS are computerized systems that transform financial and other related data into useful information (Beard & Wen, 2007; Bodnar

MNTRG: Lu, Richardson, and Salterio (2011) suggest that regular monitoring ensures that significant control deficiencies are identified timely.

Internal Control Cycle (ICC) and Neglect of Internal Control in the Nigerian Public Sector.



(Source: Authors conceptualization 2022)

**Documentation:** Documentation of transactions enables directors to trace each transaction from its commencement through its finishing point. This means the entire process of the transaction should be noted, showing one the marketing initiation and authorization, two its progress through all stages of processing, and three the transaction's final classification in a summary account. Documentation of policies and procedures is critical to government business. **Endorsement and Sanction;** sanction is the same as authorization. Endorsement and sanction are

the confirmation, or authorization of staff decisions, events or transactions based on a review. The executive should establish which financial and non-financial circumstances require approval based on the height of risk to the department without such consent. An executive should noticeably document its endorsement requirements and ensure that staff obtains approvals in all cases where the executive has decided they are necessary. Authorization is the power executive grants staff to execute certain duties based on licence btained from senior staff.

Authorization is a control action planned to guarantee certain transactions are planned and executed by those assigned by management. Management should ensure that the terms and requirements of authorizations are noted, and communicated, and that significant transactions are approved and executed simply by personnel acting within the limits of their powers. Authentication/ Verification: Verification (or authentication activities) is the act of examining the accuracy, completeness, authenticity, or validity; Validity is a control activity that enables the executive to ensure activities are being performed following directives. These listings are examples of verification and authentication activities -one reviewed seller invoices for truthfulness by comparing to procurement orders and contracts price. Put side by side cash receipts transactions to monetary receipts register and trace it to the bank deposit account and also, reviewing and authenticating a participant's eligibility for State program services.

Segregation of Responsibilities: Segregation of Responsibilities is the partitioning or separating cardinal obligations and tasks among diverse people to lessen the opportunities for any personality to be in an office to commit and cover up errors, deliberate or unpremeditated, or perpetrate fraud in the ordinary course of their responsibilities. The elementary principle of segregated responsibilities is that several employees should manage the functions of initiation, documentation and endorsement, record keeping, and custody. No special individual ought to control or execute all vital aspects of a transaction or event. It is termed conflicting duties when carried out by one singular person. Instances of incompatible responsibilities include; one person responsible for entering data of payment vouchers and also in charge of approving these documents. Two, employees accountable for acknowledging the evidence of products also responsible for acquiring approvals or payment activities. Three managers were accountable for reviewing and approving payment vouchers and time sheets before data entering were also involved in preparing payment transactions. Furthermore, four, employees performing

physical stock counts also in charge of maintaining inventory accounts and authorization of withdrawals of items held in stock. Five, staff collecting revenue is also involved in keeping bank deposits in the reports and finally, employees managing cash or making residue are also responsible for reconciling the bank accounts.

Protection of Assets and monitoring: Safeguarding assets entails restricting access to support and data to facilitate the reduction of risk of unauthorized use or loss. Executives must decide which property should be shielded and to what point. Monitoring, and Supervision is the unending oversight, administration and supervision of activity by nominated workers to ensure the results of the activity accomplish the established goals. Those with the duty of supervision should; Assign tasks and select written procedures for completing assignments, and methodically appraise each employee's work. Also, endorse work at vital stages to guarantee quality and correctness while providing supervision and training with proper documentation of supervision and review of the previous assignments.

Exposure and Reporting: Effective, and truthful reporting is a way of conveying information. It is a medium of control as soon as it provides information on issues such as timely achievement of objectives, financial position and worker's welfare. Reporting also assists in enhancing accountability for actions and plans. Effective reporting entails assignment condition reports, employee leave balances reports (ELBR), vacancies and employee turnover to find out the efficiency of the workplace and staff, and various monetary and progress reports required by the federal government.

In "The Role of Audit in Fighting against Corruption," Khan, Auditor, Prepared, Hoc, and Meeting (2006) asserted that corruption occurs in bribery, kickbacks, or other private advantages without leaving any mark on accounting and official accounts. At the same time, fraud entails deriving undue personal gain by passing some internal controls or twisting some regulations.

Significant accounting scholars in industrialized and emerging countries (Sikka & Willmott, 1995; Bakre, 2007; Sikka, 2009; Sikka et al. 2009) had since acknowledged the contribution and involvement of accountants in fraudulent practices in the organization. Golden, Steven, and Clayton (2006) testified that fraudulent reporting involves actions consisting of wrong treatment of items, falsification, or modification of financial account and other supporting papers from which financial statements were prepared. Meanwhile, Emechele (2009) in Adedeji et al. (2018) opined that the account officers should be responsible for testing and monitoring the adequacy of ITCOL s to see if they are active, and guarantee fairness of financial statements and reporting practices. Furthermore, Adedeji et al. (2018) averred that public accountants ensure excellent stewardship for resources and public funds. In addition, Ogundiya (2009) and Olukowade and Ogodor (2015) carried out a study on the causes of corruption. He discovered that weak ITCOL in government is the most important reason of fraud, which include overdependence on an employee by management in the discharge of his duty. In addition, El-Nafabi (2009) study revealed that, audit and ITCOLS are paramount, in ensuring accountability for the use of public funds and safeguarding the public resources against corruption.

This study is essentially anchored on the Efficiency Theory (ET). The theory was born by Havey Leibenstein American economist in 1993. Leibenstein (1993) observed in his theory of efficiency that the general efficiency of a firm's management is to be found in its ability to transform inputs at minimum cost into maximum profit. This ET compares the inputs and output to determine the level of fairness in the utilization of resources. This ET is applicable in the GVSTRM in the sense that for the GVSTRM to effectively manage funds, ITCOLS measures must be put in place to ensure that available resources are effectively and efficiently utilized in order to achieve the set goals and objectives of the university system.

In some cases, it is not poor funding that is the problem but mismanagement, misappropriation, and other fraudulent practices that are responsible for the lack of effective fund management. Leibenstein (1993) asserted that this, to a large extent, has eaten deep into the fabrics of adequate funds management, thereby pessimistically affecting the quality of graduates and services being rendered. Managers of public funds need to be discreet to manage available resources.

### III. EMPIRICAL REVIEW

#### *Nigeria*

In "ITCOL System and Fraud Prevention in Nigerian Banking Sector", Oladipupo and Ajayi (2020) investigated the effects of ITCOLS on FRDPTN in the Nigerian banking sector. The study focused on the adequacy of the ITCOL system in the area of RKAS, COEVMT, control supervision, and IFCMN for fraud prevention. A survey research design was adopted. The population of the study comprises senior staff in the 22 commercial banks in Nigeria. Copies of structured questionnaires were administered, and the hypotheses were tested using SPSS. Findings revealed that a positive and significant correlation exists between ITCOLS and FRDPTN. The study recommended proactive risk management among banks. There should be exceptional pieces of training for senior staff on red flags to fraud occurrence, and the best method to handle them.

"In Fraud, prevention and ITCOL in the Nigerian banking system", Adetiloye, Olokoyo, and Taiwo (2016) investigated the issues of ITCOL viz., fraud prevention in the banking sector. They have adopted both primary and secondary data in work. Primary data was used to test ITCOL, while secondary data were used in testing fraud prevention. Regression techniques were adopted. The results show that ITCOL is effective against fraud, but not all employees are devoted to it. At the same time, the secondary information is quite supportive of the primary data but more exemplifies that money supply, staff qualifications, and technology were significant throughout the various dependent variables.

Ozigbo (2015) studied ITCOL and fraud prevention in Nigerian business organizations. A survey was carried out in several selected organizations in Warri Delta State metropolis. It was discovered that ITCOL has a significant relationship with fraud avoidance. He concluded that ITCOL was a necessary safeguard that guaranteed absentee owners of organizations that their finance was being utilized efficiently. It was recommended that proper accounting records be kept at all times and authorization, and approval limits of jobs and funds should be set up and communicated to all concerned interest groups.

In “The Impact of ITCOL Activities on Financial Performance of Tertiary Institutions in Nigeria,” Ndifon and Patrick (2014) investigated the relationship between ITCOL activities and financial performance in Tertiary Institutions in Nigeria. The focus was Cross River State College of Education, Akamkpa. Data was collected employing questionnaires and interviews. The survey design was used while the stratified sampling procedure was used in administering the questionnaire. The data were analyzed using tables, straightforward percentages, correlation coefficients, and z-scores. The study revealed that all activities of the College are initiated by the senior management. The study discovered that there is a transparent partition of roles in the institutions’ finance and account department and that the superior officers, and that the institution's financial statements are audited annually by external auditors. The study result further shows that there is no significant correlation between ITCOL activities and the financial performance of Cross River State College of Education.

In “The effectiveness of forensic accounting in strengthening ITCOL of business organization in Nigeria: A study of selected business organization in Nigeria,” Mukoro, Faboyede and Eziamaka (2014) examining the effectiveness of forensic accountants in amplification of ITCOL of business organizations in Nigeria. The studies aimed at examining how fraud can be managed and handled in business organizations. The study adopted survey research, and the sampling

technique employed was purposive sampling with a sample of 5 companies. One hundred copies of the questionnaire were distributed to the employees of the selected business organizations. The data collected were analyzed using SPSS. The results revealed that ITCOL and its components play a significant role in controlling fraud in business organizations.

Josiah, Adediran and Akpeti (2012) examined the role of auditors in using ITCOLS in fraud detection: a survey of selected firms in Nigeria. The data collection method used for this research is a questionnaire, and the oral. Chi-square was employed in data analyses. The result revealed that fraud in these organizations is due to poor management, lack of internal auditors, poor ITCOLS, and corruption.

#### *Kakamega County*

Oguda, Odhiambo, and Byaruhanga (2015) investigated the effect of ITCOLS on fraud prevention and detection in district treasuries of Kakamega County. A purposive sampling method was employed in selecting Staff, while a simple random sampling technique was adopted to choose HODs. The study used closed-ended copies of the questionnaire. Key respondents were Senior Treasury Staff and Heads of Departments. Data collected was analyzed using both descriptive and inferential statistics using (SPSS). Reliability and Validity of data collection instruments were ascertained through the test-retest method. The study revealed a statistically significant and positive relationship between the adequacy of ITCOL systems and fraud prevention and detection in district treasuries in Kakamega County. Data collected was analyzed using both descriptive and inferential statistics using Statistical Package for the Social Science (SPSS). Reliability and Validity of data collection instruments were ascertained through the test-retest method. Findings of the study revealed that there was a statistically significant and positive relationship exists between the adequacy of ITCOLS, and fraud prevention, and detection in district treasuries in Kakamega County.

### *U.S.A*

In “Audit committee characteristics and corporate fraud”, Wei-Huang (2015) examined the relationship between audit committee characteristics (the number of audit committee meetings, the number of audit committee members and the number of audit committee financial experts) and fraud. Using a final sample of 218 firms from S&P SmallCap600 with a December 31, 2003, fiscal year-end and audit committee characteristics data collected from the SEC database. The result revealed that the meeting frequency of the ITCOL is not related to FRDPTN. Also, the number of ITCOL members does not significantly affect FRDPTN, and financial expert is significantly related substantially to FRDPTN.

In “The Influence of ITCOL Weaknesses on Firm Performance,” Syou-Ching, Hungchih, Henghsiu, and Frederick (2017). Investigated the effect of ITCOL weaknesses on the firm’s performance. The results showed that ITCOL weaknesses hurt firm's performance, and that this impact varies with each of the major ITCOL components. Our findings confirm that ITCOL material weaknesses in a firms control environment, accounting documentation, information technology, accounting policies, and procedures, or control design have a significantly negative effect on firm performance.

### *Britain*

Jones (2008) evaluated ITCOL, accountability and corporate governance in medieval and modern Britain. He employed a current referential framework as a lens to examine medieval ITCOLs used in the 12-century royal exchequer and other medieval organizations. He established that most of the ITCOLs found these days were present in medieval England. Stewardship and personal accountability were the central factor of medieval ITCOL.

### *Ghana*

In “The effectiveness of ITCOL systems of banks, The case of Ghanaian banks” Ayagre, Appiah-Gyamerah and Nartey (2014) appraised the control environment, and monitoring

activities components of ITCOL Systems of Ghanaian Banks using COSO’s principles and characteristics of assessing the effectiveness of ITCOLs in preventing fraud. A five-point Likert scale was employed to determine respondents' knowledge and perception of ITCOLs and the bank’s ITCOL system effectiveness. SPSS was used in analyzing data and presented in the form of means and standard deviations for each question and each section of the questionnaire. The result revealed that adequate and robust ITCOL exist in the control environment, and monitoring activities components of the ITCOLs of banks in Ghana, and this invariably helps in the prevention of fraud.

In “The Impact of ITCOL Systems on Financial Performance: The Case of Health Institutions in Upper West Region of Ghana”, Sahabi, Gordon and Mohammed, (2017) investigated the impact of ITCOL variables on financial performance among 5 health institutions in the region using an ordered logistic regression model for a sample of 50 respondents. The result revealed that there is a positive correlation between ITCOLs and financial performance. But only 3 of the control variables remained significant, with p-values less than 5%. The study recommended that the governing agency, possibly supported by the audit reports implementation committee (ARIC), ensure that suitable ITCOL systems recommended by the expert auditors in health institutions are monitored periodically.

### *Kenya*

In “Influence of ITCOL system on financial management in ministry of finance, Kenya”, Ndegwa and Mungai (2019) assess the influence of ITCOLs in IFMIS on financial management in the Ministry of Finance. The target population of the study was 128 employees. Stratified random sampling was applied to get the respondents. The study sample size was 97 employees. The study used questionnaires as the tool for data collection. Statistic SPSS version 23 for windows was employed in data analyses. Graphs, tables, and pie charts were employed in presenting frequencies and % while tables were prepared using each variable or indicator. The result revealed that

ITCOLS had a meaningful positive correlation with financial management in the Ministry of Finance and financial reporting systems had a significant positive relationship with financial management in the Ministry of Finance. The study recommends that the ministry of finance make sure that they have ITCOLS that are reliable; this will ensure that they provide complete, accurate, timely, and consistent information.

Ong'ang'a Nyakundi, Nyamita, and Tinega, (2014) investigated the effect of ITCOLS on financial performance among Small and Medium scale Enterprises in Kisumu city, Kenya. The sample was chosen through a stratified and simple random sampling method. The study was carried out employing both quantitative and qualitative approaches. A Cross-sectional survey design was employed. The study engaged both preliminary and secondary data. Primary data was collected by means of copies of questionnaires and interviews, while secondary data were collected from financial statements. Data were analyzed with descriptive statistics and inferential statistics. The research revealed that a significant change in financial performance is linked to ITCOLS. The study recommends training on the significance of ITCOLS among proprietors of Small and Medium scale Enterprises.

Kamau (2013) investigated the effect of ITCOLS on economic performance of manufacturing firms in Kenya. The population was 65 manufacturing firms registered and a model of 20 manufacturing firms was selected. The sample was drawn using a stratified random sampling technique. The study employed both primary and secondary data. Primary data was collected using structured copies of questionnaires while the secondary data was collected from financial statements. The result reveals that management had put in place mechanisms for the mitigating critical risks that may result from fraud.

Olumbe (2012) investigated the correlation between ITCOLS and corporate performance in commercial banks in Kenya. A Survey design was employed in the study. Forty-five commercial banks in Kenya were sampled. The study

concluded that most of the banks had incorporated a variety of factors that are used for gauging ITCOLS and corporate governance. Several respondents agreed that their banks had established adequate corporate governance with a well-built system of ITCOLS and that there is an affiliation between ITCOLS and corporate performance.

#### *Uganda*

Amudo and Inanga (2009) in Uganda evaluated ITCOL systems of the regional member nations of the African Development Bank Group institute for the management of the Public Sector Projects and the Bank finances. 27 data received were analyzed for the 11 projects. Three projects were absent for the reason that they were not fully operational to inaugurate effective ITCOL systems. The study identified the following six essential components of an effective ITCOL system: risk assessment, monitoring, and information technology, control environment, control activities, information and communications. The result of the evaluation procedure was that some control components of effective ITCOL systems were absent in those projects.

Mawanda (2008) investigated the correlation between ITCOL systems and financial performance in an Institution of higher learning in Uganda. Tools were examined from the perspective of Internal Audit, Control Environment, and Control Activities, whereas Financial performance paid attention to Liquidity, Accountability, and Reporting. The study discovered a significant correlation between the ITCOL system and financial performance. The research recommends proficiency in profiling in the Internal Audit department.

#### *South Africa*

In "ITCOLs Systems and the Risk Performance Characterizing Small and Medium Manufacturing Firms in the Cape Metropole", Dubihlela and Nqala (2017) investigated how SMEs optimize their ITCOL systems to lessen risk. The research was carried out on selected manufacturing SMEs in the Western Cape, South Africa. The study employed a qualitative research model and adopted a case-based interpretive approach to

enhance the data collection, analysis, and presentation technique. An analysis result signifies that businesses often create contingency risk plans, and implement ITCOL systems that are less exposed to risk.

#### *Egypt*

Dixon and Woodhead (2006) investigated the expectation gap in Egypt. They discovered that several financial statement users believe that the detection of corruption and fraud is a primary audit goal and that the auditors have a task and duty to detect fraud and irregularities to diminish the incidence in the public sector.

#### *Sri Lankan*

Dineshkumar and Kogulacumar (2012) examine the extent ITCOL systems influence the performance of Sri Lanka Telecom limited. Primary and secondary data were employed in the research. But the study exclusively depends on direct data collection techniques. The primary data collection techniques used in this research they were Questionnaires, Interviews & Observations. The samples were selected from the staff of Sri Lanka Telecom limited. Sixty staff of the company were selected. Correlation, Percentage, and SWOT analysis were used in the data analysis. The result of the study revealed that there is a strong correlation between the ITCOL system and the organizational performance of Sri Lanka Telecom limited.

#### *Indonesia*

In “Effect of Weaknesses of the ITCOL Systems And Non-Compliance With Statutory Provisions on The Audit opinion of The Audit Board of The Republic of Indonesia”, Setiyawati (2015) investigated the influence of weaknesses of the ITCOL system and non-compliance with statutory provisions on the audit opinion of the audit board. This research was a survey of the region of the provincial government of DKI Jakarta and Banten from 2010 to 2014. The research samples were all the Local Government Unit that generates financial reports of local governments totaling nine units. The study is census research in that the population was sampled. The ordinal logistic regression method was employed in the data analysis. The results of the data analysis revealed

the weaknesses of the ITCOL system and non-compliance with statutory provisions affect the audit opinion of the audit board either mutually or moderately.

“Relationship between ITCOL, Internal Audit, and Organization Commitment with Good Governance: Indonesian Case”, Eko and Hariyanto's (2011), from their research discovered tool system, internal audit, as well as organizational commitment, have a significant positive correlation with good governance among thirty-five (35) districts in the Central Java province of Indonesia.

## IV. METHODOLOGY

### *4.1 Research Design*

The researchers adopted the survey design and a quantitative approach. The study employed a structured copy o questionnaire as the primary data collection instrument to gather data. Data analysis was done quantitatively using descriptive statistics such as frequency distribution, tables, and Percentage Analysis (PA).

### *4.2 Population and Sampling*

#### *4.2.1 Target population*

The study focused on public accountants and auditors working in the Nigerian public sector in our states namely, Edo, Delta Enugu, and the Anambra States. Only respondents who had been working for at least two years were sampled. The Accountants had a population of 2267, and the auditors had a population of 654 auditors.

### *4.3 Sample Size, Sampling Method and Data Collection Instrument*

Saunders, Lewis, and Thornhill (2007) believed that the size of the sample, and it is chosen have implication for the confidence the public can have in the data. Kothari (2004) believed that a sample size of 10% to 30% of the target people is a sufficient representation of the population. The Systematic Sampling Technique (SST) was employed because only accounting practitioners who were in attendance at the point of the study and willing to participate in the research were

sampled. Burns and Grove (1999) defined data collection is the act of assembling information using copies of questionnaire, interviews, and observations. Meanwhile, Talbot (1995) averred that a researcher who desires to collect data about attitudes, feelings, and perceptions must employ the questionnaire. Questions on the adequacy of internal control was raised with the accountants only, while the questions on the neglect of ITCOL was raised with public auditors only.

**Model Specification**

**Conceptual Model**

$$EFITCOL = f(SUNOST + ADOFNITCOL)$$

Where

*EFITCOL* = Effective internal control

*SUNOST<sub>i</sub>* = Adequate numbers of stages

*ADOFNITCOL* = Absence of neglect of internal control especially by senior employees

**Analytical Model**

$$EFITCOL = \beta_0 + \beta_1 SUNOST X_1 + \beta_2$$

$$ADOFNITCOL X_2 + \epsilon$$

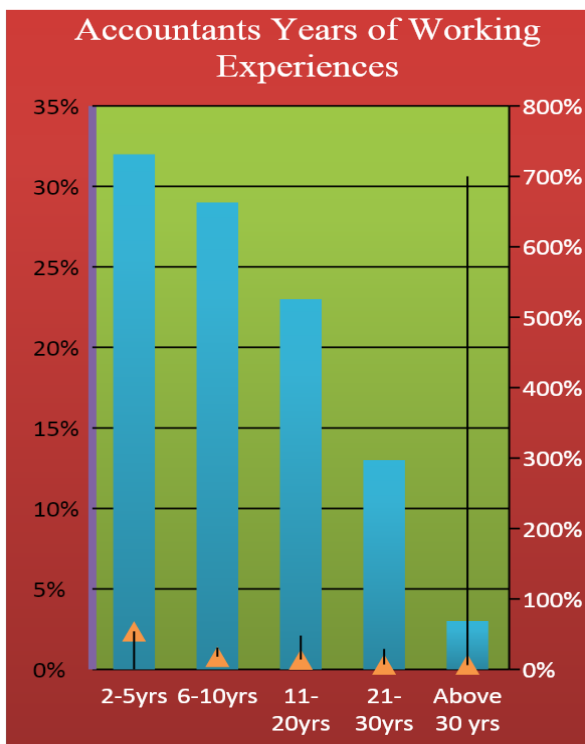
Where

$\beta_0$  = Intercept

$\beta$  = Coefficient of the explanatory variable (slope)

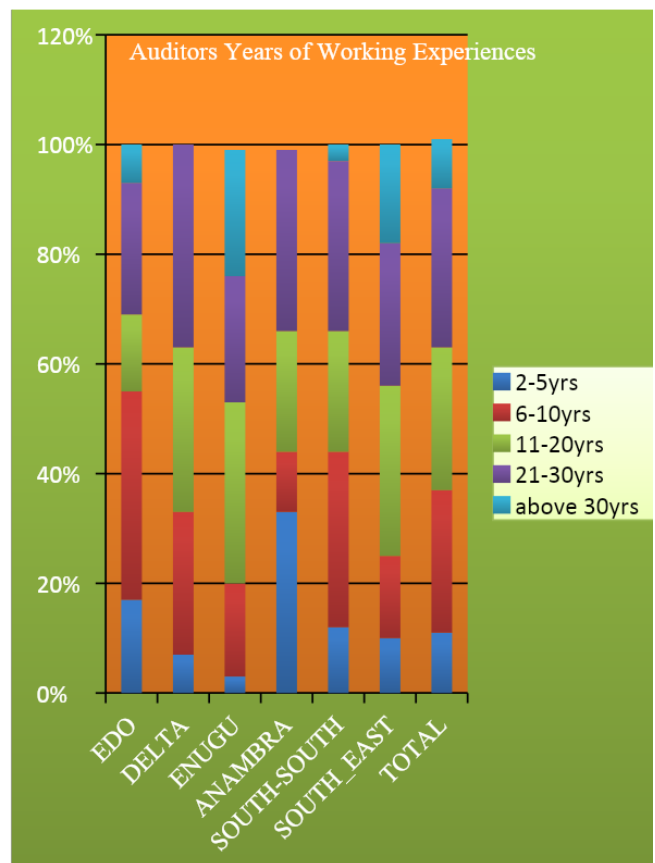
$\epsilon$  = Represents the error term in the model

**V. DATA ANALYSIS, PRESENTATION AND DISCUSSION**



(Source field work)

Account officers with 21-30 years of working experiences in Enugu State are twenty-nine percent. Account officers working for over 30 years are the same in Anambra and Enugu States, seven percent in both states. Thirty-two percent of account officers in Edo State had been working for 2-5 years. Three percent had been working for over 30 years in Edo State. Meanwhile, in Delta, thirty-one percent of the account officers had been working for 6-10years. More of the respondents from Enugu State had been working for 11-20 years, given at forty-eight percent. Whereas, in Anambra State, more of the account officers had 2-5 years of working experience, and this was fifty-four percent. Furthermore, in Delta State, the situation was entirely dissimilar. More of the respondents have been working between 6-10 years, and was given at thirty-one percent.



Source (fieldwork).

Anambra State had thirty-three percent of public auditors working for 2-5 years. In Enugu State, 3 percent of auditors had performed for 2-5 years. Thirty-eight percent of the auditors in Edo State had been working between 6-10years. Thirty-three percent of public auditors in Enugu,

State had been working between 11-20 years. In Delta State, thirty-seven percent of the Auditors had been working for 21-30 years. In Enugu State twenty-three percent of the public auditors had been working for over thirty (30) years.

This assertion was raised with accountants working in the public service in the four states, and their responses are analyzed below.

During procurement or payment of salary, the number of stages or processes involved is up to five different stages in your organization.

H<sub>0</sub>1: Edo State ITCOLs in the public sector are not significantly more potent than ITCOLs in Enugu State public service.

State	Edo State				
	SA	A	U	D	SD
	3.906 25	10.156 25	5.468 75	3.906 25	1.56 25
	14.0625****			5.46875*****	
Cumulative State	3.906 25	14.06 25	19.53 125	23.43 75	25
State	Enugu State				
	5.078 125	12.109 375	2.343 75	4.687 5	0.78 125
	17.1875****		*	5.46875*****	
Cumulative	5.078 125	17.187 5	19.53 125	24.21 875	25

Source: (Fieldwork)

The strength of internal control in Enugu State and Edo State seems seemly adequate. However, the result of 17.1875\*\*\*\* reveals that the internal control system in Enugu State is stronger than that of Edo State with a result of 14.0625\*\*\*\*. 5.46875\*\*\*\*\* level of internal control weakness needs to be fixed in both state's public service. We reject the alternate hypothesis and accept the null hypothesis that state that Edo State ITCOLs in the public sector are not stronger than ITCOLs in Enugu State public sector.

H<sub>0</sub>2: Edo State ITCOLs in the public sector are significantly stronger than ITCOLs in Anambra State public service.

State	Edo State				
	SA	A	U	D	SD
	3.90 625	10.156 25	5.468 75	3.9062 5	1.5625
	14.0625****			5.46875****	
Cumulative State	3.90 625	14.062 5	19.531 25	23.437 5	25
State	Anambra State				
	5.07 8125	8.620 6896	8.620 6896	2.5862 0689	0.8620689
	13.6988146***			3.44827579*****	
Cumulative	5.07 8125	13.698 8146	22.31 95042	24.905 71109	25.7677999

Source: (Fieldwork)

The strength of internal control in Anambra State and Edo State seems similar. However, the result of 14.0625\*\*\*\* reveals that the internal control system in Edo State is stronger than that of Anambra State, with a result of 13.6988146\*\*\*\*. The result of 5.46875\*\*\*\*\* and 3.44827579\*\*\*\*\* indicate levels of internal control weakness and government process and business not carried out in the proper order or number of stages. We reject the null hypothesis and accept the alternate hypothesis that state that Edo State ITCOLs in the public sector are more substantial than ITCOLs in Anambra State public sector.

H<sub>0</sub>3: Delta State ITCOLs in the public sector are not significantly stronger than ITCOLs in Enugu State public service.

State	State		Delta		
	SA	A	U	D	SD
	6.7567 568	8.108 1081	7. 43	2.70 270	0.00000
	14.8648649****			2.702702702****	
Cumulative	3.9062 5	14.06 25	22 .2	24.9 999	24.99999 9989
State	Enugu State				
	5.0781 25	12.10 9375	2. 34	4.68 75	0.78125

Cumulative	17.1875*****		37 5	5.46875*****	
	5.0781 25	17.18 75	19 .5 31 25	24.2 1875	25.00000 00

Source: (Fieldwork)

The number of stages of internal control in Delta State and Edo State seems adequate. However, the result of 17.1875\*\*\*\* reveals that the internal control system in Enugu State is more potent than that of Delta State with a consequence of 14.8648649\*\*\*\*\*. The result of 5.46875\*\*\*\*\* and 2.702702702\*\*\*\*\* indicate the level of internal control weakness and government process and business not carried out in the proper order or number of stages. Hence we accept the alternate hypothesis and reject the null theory that Delta State ITCOLs in the public sector are not stronger than ITCOLs in Enugu State public service.

H<sub>04</sub>: Delta State ITCOLs in the public sector are not significantly stronger than ITCOLs in Anambra State public service.

State	State		Delta		
	SA	A	U	D	SD
***** ****	6.75 675 68	8.108 1081	7.432 43243	2.7027 02702	0.00000
	14.86486485 7*****		2.702702702***** **		
Cumulative	3.9 062 5	14.06 25	22.29 72972 8	24.999 99998 9	24.99999 989
State	Anambra State				
	5.07 812 5	8.62 0689 6	8.620 6896	2.5862 0689	0.8620689
***** ****	13.6988146* ****		3.44827579***** *		
Cumulative	5.07 812 5	13.69 8814 6	22.31 95042	24.905 71109	25.767799 9

Source: (Fieldwork)

The number of stages of internal control in Delta State and Anambra State seem adequate. However, the result of 14.864864857\*\*\*\*\*

reveals that the internal control system in Delta State is more robust than that of Anambra State, with a consequence of 13.6988146\*\*\*\*\*. The result of 5.46875\*\*\*\*\* and 2.702702702\*\*\*\*\* indicate the level of internal control weakness and government process and business not carried out in the proper order or number of stages. Hence we reject the null idea and accept the alternate hypothesis that state that Delta State ITCOLs in the public sector are significantly stronger than ITCOLs in Anambra State public sector.

H<sub>05</sub>: Delta State ITCOLs in the public sector are not significantly stronger than ITCOLs in Edo State public service.

State	Delta State				
	SA	A	U	D	SD
***** ****	6.75 675 68	8.1 08 10 81	7.43 2432 43	2.7027 02702	0.000 00
	14.864864 9*****		2.702702702***** *****		
Cumulative	3.90 625 25	14. 06 25	22.2 9729 728	24.999 99998 9	24.999 99998 9
State	EDO STATE				
***** ***	3.90 625	10.1 562 5	5.468 75	3.90625	1.5625
	14.0625*** *		5.46875*****		
Cumulative	3.90 625 25	14. 06 25	19.53 125	23.437 5	25.000 000

Source: (Fieldwork)

The number of stages involve during payment of remuneration and procurement of assets in Delta State, and Edo State Seems Similar (SSS). However, the result of 14.8648649\*\*\*\*\* reveals that the internal control system in Delta State is more vital than that of Edo State with a consequence of 14.0625\*\*\*\*\*. The result of 5.46875\*\*\*\*\*, and 2.702702702\*\*\*\*\* indicate the level of internal control weakness, government process and business not carried out in the proper order or number of stages. Hence we reject the null hypothesis, and accept the alternate hypothesis that state that Delta State ITCOLs in the public sector are more robust than ITCOLs in Edo State public service (sector).

H<sub>0</sub>6: Enugu State ITCOLs in the public sector are not significantly stronger than ITCOLs in Anambra State public service.

State		Enugu State				
	SA	A	U	D	SD	
*****	5.07	12.10	2.343	4.687	0.781	
*****	812	9375	75	5	25	
	5					
	17.1875*****			5.46875*****		
	****					
<b>Cumulative % State</b>	5.07	17.18	19.53	24.21	25	
	812	75	125	875		
	5					
	Anambra State					
	5.07	8.62	8.62	2.586	0.86	
	812	0689	0689	2068	2068	
	5	6	6	9	9	
*****	13.6988146*		*	3.44827579**		
****	****		*	****		
<b>Cumulative</b>	5.07	13.69	22.31	24.905	25.76	
	8125	88146	95042	71109	77999	

Source: (Fieldwork)

The number of stages involves during payment of remuneration and procurement of assets in Enugu State, and Anambra State seem not similar. However, the result of 17.1875\*\*\*\*\* reveals that the internal control system in Enugu State is more potent than that of Anambra State with a result of 13.6988146\*\*\*\*. The consequence of 5.46875\*\*\*\*\* and 3.44827579\*\*\*\*\* indicates the level of internal control weakness, government process, and business not carried out in a proper order or number of stages. Hence we reject the null view and accept the alternate hypothesis that state that Enugu State ITCOLs in the public sector are more robust and substantial than ITCOLs in Anambra State public service.

H<sub>0</sub>7: South-South ITCOLs in the public sector are not significantly stronger than ITCOLs in the South East public service.

Zone	South-East				
	SA	A	U	D	SD
*****	4.838	11.021	4.301	4.032	0.806
*****	7096	50538	0752	25806	45161
	7		6	4	2
	15.86021505**		*	4.8387096584*	
	*****		*	*****	
<b>Cumulative</b>	4.838	15.86	20.16	24.19	24.99
	7096	02150	1290	35483	99999
	7	5	3	6	8
Zone	South-South				
	5.434	9.057	6.521	3.260	0.724
	7826	97101	73913	86956	63768
	0	4		5	1
*****	14.492757014*		*	3.9854846375*	
****	*****		*	*****	
<b>Cumulative</b>	5.078	14.49	21.01	24.27	25.00
	125	27570	4496	53657	0003
		1	1	0	39

Source: (Fieldwork)

The number of stages involve during payment of remuneration and procurement of assets in the South-South and South-East public sectors appears seem unsimilar. However, the result of 15.86021505\*\*\*\*\* reveals that the internal control system in South-East is stronger than that of the South-South with consequence of 14.492757014\*\*\*\*. The result of 4.8387096584\*\*\*\*\* and 3.9854846375\*\*\*\*\* indicate the level of internal control weakness, government process, and business not carried out in a proper order or number of stages. Hence we reject the alternate hypothesis and accept the null hypothesis that state that South-South ITCOLs in the public sector are not stronger than ITCOLs in the South-East public service.

The auditors were asked the below assertion in the four states. The responses were analyzed comparatively thus.

*Internal control is always neglected or bridged in the public sector.*

H<sub>0</sub>8: There is significant neglect of ITCOLs in the public sector in Enugu State than in Anambra State.

State	Enugu State				
	SA	A	U	D	SD
***** ****	16.1 290 322 6	22.58 06455 1	3.225 80645 16	8.064 51612 9	0.000 0000 0
	38.70967777 *****			8.064516129*** *****	
Cumulative	16.1 290 322 6	38.70 96777 7	41.935 48422 2	50.00 0000 351	50.00 0000 351
State	Anambra State				
	5.5 555 555 55	38.88 8888 889	0.000 0000 000	5.5555 55555 000	0.000 0000 000
***** ***	44.44444444 *****		*	5.555555555*** *****	
Cumulative	5.5 555 555 55	44.44 44444 4	44.44 44444 4	50.00 0000 00	50.00 0000 00

Source: (Fieldwork)

The extent of the neglect of ITCOLs in both the Enugu and Anambra States' public sectors seems very significant. However, the result of 38.70967777\*\*\*\*\* reveals that the area and size of internal control neglect is less in Enugu State in relation to Anambra State with a consequence of 44.44444444\*\*\*\*\*. The result, 8.064516129\*\*\*\*\* and 5.555555555\*\*\*\*\* indicate the extent to which internal control is followed in government processes in Enugu, and Anambra States, respectively. Hence we accept the alternate hypothesis and reject the null hypothesis that there is no significant neglect of ITCOLs in the public sector in Enugu State than in Anambra State.

H<sub>0</sub>9: There is significant neglect of ITCOLs in the public sector in Enugu State than in Delta State.

State	Enugu State				
	SA	A	U	D	SD
***** ****	16.1 290 3226	22.58 0645 51	3.225 8064 516	8.064 51612 9	0.00 0000 00
***** *****	38.70967777** *****			8.064516129*** *****	

Cumulative	16.12 9032 26	38.70 96777 7	41.935 48422 2	50.00 0000 351	50.00 0000 351
State	Delta State				
	11.66 6666 667	18.33 33333 33	1.666 66666 67	15.00 0000 00	3.333 33333 3
***** ****	30.00000000 *****		*	18.3333333333 *****	
Cumulative	11.66 6666 667	30.00 0000 00	31.66 66666 67	46.66 66666 67	50.00 0000 0

Source: (Fieldwork)

The degree of neglect of ITCOLs in both the Enugu and Delta States' public sectors appears very significant. However, the consequence of 38.70967777\*\*\*\*\* reveals that the degree of internal control neglect is higher in Enugu State in relation to Delta State with a result of 30.00000000\*\*\*. The result, 8.064516129\*\*\*\*\* and 18.3333333333\*\*\*\*\* signify the height to which internal control is followed in government process in both states, respectively. Hence we accept the null idea and reject the alternate hypothesis that there is significant neglect of ITCOLs in the public sector in Enugu State than in Delta State.

H<sub>0</sub>10: There is significant neglect of ITCOLs in the public sector in Edo State than in Enugu State.

State	Enugu State				
	SA	A	U	D	SD
***** ****	16.1 290 322 6	22.58 0645 51	3.225 80645 16	8.064 51612 9	0.000 0000 0
***** ****	38.70967777 *****			8.064516129*** *****	
Cumulative	16.1 290 322 6	38.70 96777 7	41.935 48422 2	50.00 0000 351	50.00 0000 351
State	Edo State				
	12.5 31.25 ****	18.75 ***** ****	9.375 *	7.8125 9.375*****	1.5625
Cumulative	12.5 31.25	31.25	40.62 5	48.43 75	50.00 0000

Source: (Fieldwork)

The measure of neglect of ITCOLs in both the Enugu and Edo States public sectors appears very significant. However, the result of 38.70967777\*\*\*\*\* reveals that the degree of internal control neglect is higher in Enugu State concerning Edo State, with a mark of 31.25\*\*\*\*\*. The results, 8.064516129\*\*\*\*\* and 9.375\*\*\*\*\* signify the height to which internal control is followed in government process in both states respectively. Hence we accept the alternate hypothesis and reject the null hypothesis that there is significant neglect of ITCOLs in the public sector in Enugu State than in Edo State.

H<sub>0</sub>11: There is significant neglect of ITCOLs in the public sector in Edo State than in Anambra State.

State					
Anambra State					
	SA	A	U	D	SD
*****	5.555	38.88	0.000	5.555	0.000
*****	5555	88888	0000	55555	0000
	55	89	000	5	000
	44.44444444*		*	5.555555555***	
	*****		*	*****	
<b>Cumulative State</b>	5.555	44.44	44.44	50.00	50.00
	5555	44444	44444	0000	0000
	55	4	4	00	00
Edo State					
	12.5	18.75	9.375	7.8125	1.5625
*****	31.25*****		*	9.375*****	
****	**		*		
<b>Cumulative</b>	12.5	31.25	40.625	48.4375	50.0000

Source: (Fieldwork)

The neglect of ITCOLs in both the Anambra and Edo States public sectors appears very significant. However, the result of 44.44444444\*\*\*\*\* reveals that the degree of internal control neglect is higher in Anambra State to Edo State with a mark of 31.25\*\*\*\*\*. The results, 5.555555555\*\*\*\*\* and 9.375\*\*\*\*\* signify the height to which internal control is followed in government process in both states, respectively. Hence we accept the alternate hypothesis and reject the null hypothesis that

there is significant neglect of ITCOLs in the public sector in Anambra State than in Edo State.

H<sub>0</sub>12: There is significant neglect of ITCOLs in the public sector in Edo State than in Delta State.

State					
Delta State					
	SA	A	U	D	SD
*****	11.666	18.333	1.6666	15.000	3.333
****	66666	33333	66666	00000	33333
	7	3	7		3
	30.00000000**		*	18.3333333333	
	*****		*	*****	
<b>Cumulative</b>	11.666	30.00	31.666	46.66	50.00
	66666	00000	66666	66666	0000
	7	0	7	67	0
Edo State					
	12.5	18.75	9.375	7.8125	1.5625
*****	31.25*****		*	9.375*****	
****	*		*		
<b>Cumulative</b>	12.5	31.25	40.625	48.4375	50.0000

Source: (Fieldwork)

The degree of neglect of ITCOLs in Delta and Edo States public sectors appears very significant. However, the result of 31.25\*\*\*\*\* reveals that the degree of internal control neglect is higher in Edo State to Delta State with a consequence of 30.00000000\*\*\*\*\*. The results, 18.3333333333\*\*\*\*\*, and 9.375\*\*\*\*\* signify the height to which internal control is followed in the government process in both states, respectively. Hence we accept the null idea and reject the alternate hypothesis that there is significant neglect of ITCOLs in the public sector in Edo State than in Delta State.

H<sub>0</sub>13: There is significant neglect of ITCOLs in the public sector in Anambra State than in Delta State.

State					
Delta State					
	SA	A	U	D	SD
*****	11.66	18.333	1.666	15.00	3.333
****	6666	33333	6666	0000	33333
	667		667	00	3



method of reducing fraud is to establish effective ITCOLS. The findings of Adetiloye, Olokoyo, and Taiwo's (2016) results revealed that ITCOL on its own is effective against fraud occurrence and prevalence, but not all staff is dedicated to it. Similarly, a study by Ozigbo (2015) discovered that ITCOL has a significant relationship with FRDPTN in the business sector. Furthermore, Oguda, Odhiambo and, Byaruhanga (2015) study revealed that a statistically significant and positive relationship exists between the adequacy of ITCOLS and FRDPTN and detection in district treasuries in Kakamega County. In the U.S.A, the finding was different. Wei-Huang (2015) discovered that the meeting frequency of the ITCOL is not related to FRDPTN. Also, the number of ITCOL members does not significantly affect FRDPTN, and financial expert is related drastically to FRDPTN. The result in Ghana was the same as in Nigeria. Ayagre, Appiah-Gyamerah, and Nartey (2014) study revealed that adequate and robust ITCOLS exist in the control environment, and monitoring activities components of the ITCOLS of banks in Ghana, and this invariably helps in FRDPTN. Also, Mukoro, Faboyede and Eziamaka (2014) study revealed that ITCOL and its components play a significant role in controlling fraud in business organizations. A recent survey of Oladipupo and Ajayi (2020) demonstrated that a positive and significant correlation exists between ITCOLS and FRDPTN. The study, therefore, recommends that;

1. To other states, the internal control, in Anambra State is weak. The state government in the light of the executive arm of government, should endeavor to support the internal control system in the state. The executive in Edo and Delta States also should strengthen the existing internal control design, and framework in the states.
2. The public sector should set up a more independent structure in monitoring the strength of the internal different from the traditional audit framework. The prevailing weakness in the structure should be traced and treated urgently.

3. Each component of government should be independent of the other arm of government. The checks and balances each arm of government does on the other should be regular and fair.
4. Those involved in neglecting laid down internal control regulations should be punished no matter their status in the land. However, looking at the current politics in Nigeria today those in political position and power appears to be unquestionable and beyond the law. The law seems to be made for the public and not for the political and wealthy individuals. Nevertheless, this should be a thing of the past in Nigeria.

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# Effect of COVID-19 on Bangladeshi Labor Market – A Literary Analysis

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## INTRODUCTION

Based on the policy analysis unit of Bangladesh Bank (2007) Bangladesh experienced a sharp economic growth in the recent decade and as an outcome of the recent economic growth the labor participation rate increased at a substantial rate. Ibid (2007) though believes that it didn't solve the problem of lack of deficiency of the labor market participation in terms of supply-demand balance of skillful labors. Ibid (2007) provides further information on the following issues: The total labor force grew by almost 9 percent from 2003 to 2007, there were almost 1.5 million new entrants per year within this time period, out of the total new entrants from 2003 to 2007 3.5 million were females and 5.2 million were male. Additionally, the rural labor force grew by 6.3 million and urban labor force grew by 2.5 million by this time (Ibid, 2007). All these information strongly indicate that the development of Bangladesh labor market was initiated at a larger pace long before the pandemic. Ibid (2007) then describes that 'Of the total employed labor force', 10.2 million were employed in the formal sector while 78 percent were employed in the informal sector. Ibid (2007) also mentioned that only 0.6 million new jobs were created in the formal sector from 2000 to 2006.

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# Effect of COVID-19 on Bangladeshi Labor Market – A Literary Analysis

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## I. INTRODUCTION

Based on the policy analysis unit of Bangladesh Bank (2007) Bangladesh experienced a sharp economic growth in the recent decade and as an outcome of the recent economic growth the labor participation rate increased at a substantial rate. Ibid (2007) though believes that it didn't solve the problem of lack of deficiency of the labor market participation in terms of supply-demand balance of skillful labors. Ibid (2007) provides further information on the following issues: The total labor force grew by almost 9 percent from 2003 to 2007, there were almost 1.5 million new entrants per year within this time period, out of the total new entrants from 2003 to 2007 3.5 million were females and 5.2 million were male. Additionally, the rural labor force grew by 6.3 million and urban labor force grew by 2.5 million by this time (Ibid, 2007). All these information strongly indicate that the development of Bangladesh labor market was initiated at a larger pace long before the pandemic. Ibid (2007) then describes that 'Of the total employed labor force', 10.2 million were employed in the formal sector while 78 percent were employed in the informal sector. Ibid (2007) also mentioned that only 0.6 million new jobs were created in the formal sector from 2000 to 2006. Accordingly, one may reach to this conclusion that the imbalanced supply and demand of labor was well existing even before the pandemic despite the huge expansion of the labor market and formal job sector was always lagging behind. Finally, according to Ibid (2007) a key challenge to the Bangladeshi labor market has been the decent growth of formal employment

opportunities with wage and self-employment deficiencies as well as lack of gender intensive growth for female workers. From the above, it is clear that the following challenges were pre-existing in Bangladeshi labor market before the pandemic arrived: Lack of gender equality, lack of formal job prospects, and poor wage growth for high skilled workers and also, supply-demand mismatch for high skilled workers. So it will be interesting to find out how deeply these issues can be magnified because of the recent crisis of Coronavirus.

## II. BACKGROUND

Hossain (2021) delivers the data on the recent development of Bangladeshi labor market. According to Ibid (2021) the total number of labor market participants reached to almost 70 million just before the pandemic in 2020. Based on Ibid (2020) 79% of these 70 million were occupied in agriculture and service sector. Ibid (2020) further believes that although service sector dominated the labor market in terms of employment creation of around 40% both the agriculture and service sector failed to solve the deficiency of formal job creation as nearly around 72% of total employment in the service sector and 90% of the total employment in the industry sector were informal (Danish Trade Union Development Agency, 2020). Once again these information prove that the problems of formal job creation continued to be the main challenge in labor market even at the moment when the pandemic arrived. Ibid (2021) also described that more than half of the labor market jobs in Bangladesh were fragile without a formal contract (based on the ILO estimation). There are many other authors and research organizations that support the above notion, suggesting that the problem which long existed in Bangladeshi labor market are about to

become worse. Chief Economist unit of Bangladesh Bank (2021) believes that informal sector that dominates the Bangladeshi labor market is comprised of the following: day labors, unregistered and/or unincorporated private enterprises workers and almost 80% of the poorer households. So to Initially start with the pandemic effects on Bangladeshi labor market that was already in a vulnerable condition due to formal job deficiencies, one might definitely comment that Covid-19 added further vulnerabilities on the poor low wage, low skilled workers because of the physical restrictions. Hossain (2021) described these poor, low skilled, low wage workers as ‘marginal people’ in his paper. Hossain (2021) also believes that people specially those who were occupied in the informal sector lost their employment in both urban and rural areas and the success in terms of economic growth rate couldn’t prevail due to the proportion of ‘extreme poor’ who suffered badly. Hossain (2021) further added that because of the pandemic one might see the whole economy returning into a phase of overall inequality. In fact if the predictions of these authors are true then this will certainly give a further rise to the GINI-coefficient index which already stood as over 30% based on a recently published data by the World Bank (2016). One might be wondering what was the overall impact including both formal and informal works in the entire labor market? Amartya Sen’s entitlement theory argues that food security could be in jeopardy if capacity building is hampered (Omosa, 1998 cited via Hossain 2021).

### III. FINDINGS

From literature review: Hossain described the following details that may well explain how capacity building was constrained due to this recent pandemic and as a result the basic necessities of the low-wage, low skilled labors including food securities can well deteriorate:

“The substantial progress in household income and poverty reduction during the last few decades is in a risk of being eroded due to income losses of the poor. The observed consequences of a sharp decline in demand for manufactured goods and services due to various control measures taken by

the government particularly from the informal sectors such as the agriculture, export-oriented ready-made garments and other such labour-intensive sectors of the economy have affected employment and livelihood of marginal people (Genoni et al., 2020). In addition, households engaged in informal services and labour-intensive activities such as construction workers, rickshaw pullers, day labourers and owners of small grocery stores are in a great danger of income losses due to slower demand and social distancing measures (Islam et al., 2020). It is estimated that COVID-19 has pushed 16.5 million people mainly rickshaw-pullers, transport workers, day labourers, street-vendors, hawkers, construction labourers and the employees of hotel, motel and restaurants back into poverty (Islam & Jahangir, 2020). Riaz (2020) found that 20 million people who solely rely on the informal sector jobs for their livelihood have already lost their jobs and become temporarily unemployed due to the measures taken by the government to contain the spread of the corona disease virus”

Further, according to Hossain (2021) the official unemployment rate in Bangladesh that is almost 4% and each year nearly 2.2 million educated unemployed join the unemployed rank will continue to suffer (Trading Economics, 2019). Ibid (2021) believes that even though the employed people are mostly occupied in informal sector (Maligalig et al., 2009) but unemployment situation will affect both the formal and informal sector of the country due to the pandemic and related control measures of the government for the following reasons:

- Ability to exchange Endowment: For example, the epidemic declined the purchasing power for urban migrant and hampered the kind of labour they sell (FAO, 2020).
- Due to various health related matters, the free movement of people in public transport was restricted as a result, labors who were employed in transport sector was hugely affected. The resultant situation decreased customers in transport sector by 56%, in the raw market by 41% and in shopping malls by

72% leading to either job losses arising from temporary lockdowns or permanent lay off.

- Shutdown of industries in small-medium enterprise sector caused 7 million job losses in (MSME) sector, 5 million jobs in the transport sector, 3 million jobs in the construction sector and an additional 3 million job losses in

the manufacturing sector either in temporary or in permanent terms (The Financial Express, 2020). Also, 10 million people have become jobless in the agricultural sector (Light Castle, 2020). So, in total job losses amounted up to 25 million.

**Table 1:** Estimates on total unemployment and number of individuals who were financially impacted due to COVID-19 in Bangladesh

Sources	Individuals unemployed (in millions)	Individuals who experienced a negative financial impact
World Bank	7	28
ADB	4	16
Policy research institute of Bangladesh	12	58
Center for research and information in Dhaka	6	24
CPD (Center for policy dialogues)		56
Power and participation research center		70
News Interviews		80

Source: Ahmed and Kamal, 2020 cited via Hossain, 2021

Additionally, the slum people in the city areas and the rural poor who rely on daily income for their everyday livelihood were hard hit in the following manner:

- The average income of 70% of Bangladesh’s total population who live in rural areas decreased by more than 80%. Among them, slum people lost 82% of their daily income while per capita daily income loss among the rural poor was 56 taka (\$0.67) which is a decline of 79% of their previous income (Kamruzzaman, 2020 cited via Hossain , 2021).

The pandemic also brought a huge negative effect on the migrant workers who are somewhat a larger part of the international labor market although it benefitted the domestic structure because of a positive remittance inflow. On a positive note:

**Table 2:** Remittance inflow in the domestic sector from Migrant labor sector during the pandemic

Source	Remittance Inflow (in billions, USD)
2016-17	12.46
2017-18	13.53
2018-19	15.54
2019-20	18.92
2020-21	18.02

Source: BMET, 2020 cited via Karim and Byomkesh, 2020

Karim and Byomkesh (2020) suggest that a large number of migrant workers were forced to return to the home countries because of the domestic lock down in the host countries. Further, Ibid (2020) mentioned that the entry to European labor market led to not only financial burden for these people but also gave a rise to social discrimination as well as psychological breakdown for the migrant workers and their families who were living abroad. However, the findings clearly suggest that most of these migrant workers while returning home due to temporary or permanent

lay off situation (in few specific cases there were also voluntary unemployment as many people wanted to see their loved ones for one last time fearing life loss) there was a sharp increase in the remittance inflow that kept the economic situation pretty much alive. Based on the figures, there is a strong reason to believe that many of these workers translated their life time savings into domestic currency before returning home. As a result, remittance inflow contributed positively towards both GDP and total active workforce of Bangladesh (Ali, 2014; BMET, 2020; Karim, 2020; Mannan & Farhana, 2014 cited via Karim and Byomkesh, 2020). Despite this positive effect one cannot certainly ignore the negative impact on the migrant workers during the pandemic. Based on the opinion of Hossain (2021), about 10 million Bangladeshi people who work abroad – nearly, half of them have returned to the country and still waiting to get back their jobs. They are having a hard time in re-entering the host countries due to travel ban (Palma, 2020). Access to the international labour market may further deteriorate because of decreasing price of oil resources as the demand for Bangladeshi workers in the Middle East is on a sharp decline (Mahmud, 2020 cited via Hossain, 2021). All these findings clearly indicate that a lack of access to international labor market especially for low wage, low-skilled migrant workers will create a negative pressure on the overall economy. Hossain (2021) also explained how the trade sector was negatively impacted by the Covid-19 situation: According to sources of Bangladesh Garment Manufacturers and Exporters Association (BGMEA) that was mentioned in Hossain’s paper - there were many cancellations of international buyer’s orders, worth of almost US\$2.95 billion exports involving 933 factories (Reza et al., 2020 cited via Hossain , 2021). Additionally, Fair Wear (2020) cited via Ibid

(2021) reported that all these cancellations during April–December 2020 caused about a threatening situation for 2.3 million RMG workers (47% of the total sector employment) including permanent or temporary lay-off. What about the high paid formal workers? This picture doesn’t deliver very good news. Based on the information that is provided by Hossain (2021) the pandemic substantially led to limited sale and shortage of operative expenditures and as a result, salaries of the formal employees and workers faced a pay cut propping up the unemployment rate among the educated youth. Other than RMG sector, a lot of middle-income schoolteachers in both rural and urban areas lost their jobs due to institutional shut down or lack of number of enrolled students in the private institutions who couldn’t afford to pay their salaries. However, Ibid (2020) believe that researchers found the following effects of remittance inflow during the pandemic: repayment of loans, mass purchase of lands and houses, investment in farming and business in rural and village areas, community development making an overall contribution to the whole economy. Reviewing the above evidence, one may reach to this conclusion that a positive effect in the remittance sector took place during the pandemic. However, the evidences also provide the notion that a fear of spreading infections among the locals led to social discrimination in both domestic and international context. Further, some of them returned to extreme poverty because of the failure to repay the loan they secured from various employment agencies or individuals in order to bear the travel and other working visa related expenses.

Next, sector wise effects on the domestic labors from different authors and research organizations are provided in order to support the above findings:

*Table 3:* Literature review on the overall effects of the pandemic in the labor market (sector wise differentiations)

Source	Sector	Effects of pandemic
Chief Economist’s Unit Bangladesh Bank (2021)	Agriculture sector	The estimated data show that labor force in agriculture was down to 22.3 due to covid-19 shock Labor force declined by 12.2 million

	<p>Service sector</p> <p>Industrial sector</p> <p>Sectorial labor force by Gender (male and female)</p> <p>Migrant workers</p>	<p>Labor force dropped down to 26.1 million</p> <p>The compound annual growth rate in labor force participation was negatively impacted</p> <p>Loss of working hours, working visas and travel restrictions.</p>
Asian Development Bank (ADB , 2020)	<p>Human resource management sector - job posting in the following sectors:</p> <p>Textile</p> <p>Education</p> <p>Non-government organizations</p> <p>Manufacturing</p> <p>ICT</p> <p>Health sector</p>	<p>Reduced number of job posting and job applications especially during the period of January to April (2020) indicating lack of job creations, vacancy announcements as well as falling demand for goods and services. It may overcast the overall future for all incoming graduates in the labor market with a serious negative concern.</p>
ADB (August issue, 2020)	<p>ICT sectors (positive impacts)</p>	<p>Based on separate findings by ADB (2020) the pandemic didn't affect all sectors in the labor market equally, unlike the others ICT sectors are gaining some positive advantages. It benefitted both the global and local tech producers in terms of rising transactions and market share even in Bangladesh due to increased online purchase orders and higher usage of tech devices.</p> <p>Domestically business which is using innovative technologies such as online retail and food delivery, contactless delivery options, 3D printing companies for personal protective equipment, video conferencing applications such as Zoom, diseases tracking equipment (Mirza 2020) are exploiting well on the situation.</p> <p>However, based on the findings of Ibid (2020) there is a strong reason to believe that due to change in skill demand because of technological bias there is a possibility of U-shaped recovery in terms of employment distribution otherwise named as 'job polarization'.</p> <p>Further, based on the same sources of findings, this may lead to a widening gap in wage equality between employees with high and low skills. As a part of the process many manual and routine jobs may be replaced with a new job description. d (Goos, Manning, and Salomons 2014; Autor 2015 cited via ADB, 2020).</p>

		<p>Finally, it may also create displacement of low and middle-skill workers with lower working hours. Ibid (2020) also believes that with the growing platform of digital economic transformation many old skills are likely to become outdated and so it may create an effect of knowledge spill-over in education and training sectors for the future labors (Lovász and Rigó 2013; Ilmakunnas and Maliranta 2016 cited via ADB, 2020).</p>
<p>Mehdi Hussain, Tahmina Begum, Syeda A. Batul, Nastaran N. Tui, Md. N. Islam and Bashir Hussain</p>	<p>Labors in service sectors like health care industries</p>	<p>Hussain, Begum, Batul, Tui, Islam and Hussain (2020) believes that Healthcare workers in country like Bangladesh with limited resources such as medical equipments, constrained supply of drugs surfaced with a positive role even after their vulnerability of being exposed to the pandemic directly as front line workers. The findings also indicate that there was an increasing rate of infection in Bangladesh among many doctors and nurses who were exposed to severe illness despite taking a medical safeguard. It also resulted in higher monetary incentives and associated rewards for many formal labors in health industries for showing unconditional courage and bravery. In some cases, following the death events during the time of service delivery was compensated in monetary terms. These evidences indicate the level of precautions and responsibilities carried out by the government towards the front-line labors during this serious pandemic. However, the article also reveals about the lack of training experience, insufficient number of formal labors in health industries as well as lack of empathy from both producers and customers during the service delivery.</p> <p>For example, one might find numerous cases of lay-offs and corruption charges for negligence and lack of productivity. Precisely there is a strong reason to believe that labors in health care industries were under an extreme pressure situation from both positive and negative perspective.</p>

#### IV. CONCLUSION

On conclusive notes, one might be concerned about the following issues in regard to the labor market participation in Bangladesh during this pandemic:

- Paying attention to ‘Demand and supply mismatch’ of labor market in terms of job

creation and change in the required skill composition (transformation to digital platform, for instance)

- Focusing on both monetary and fiscal policies to take care of the reduced consumer spending due to lack of purchasing power and tendency of additional savings leading to overall effect on aggregate demand and aggregate supply of the economy, also affecting the growth of real wage

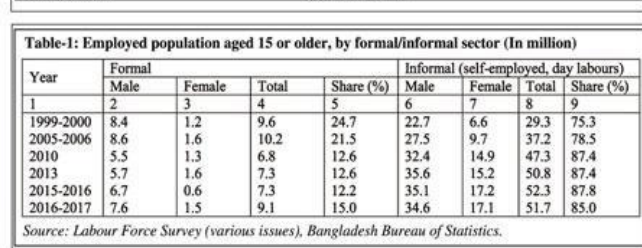
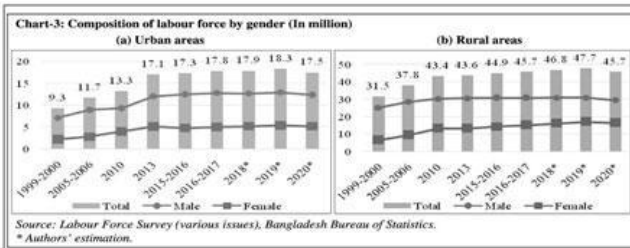
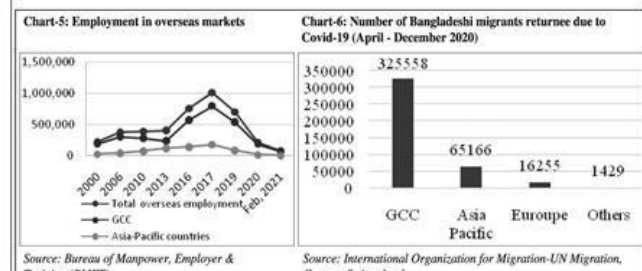
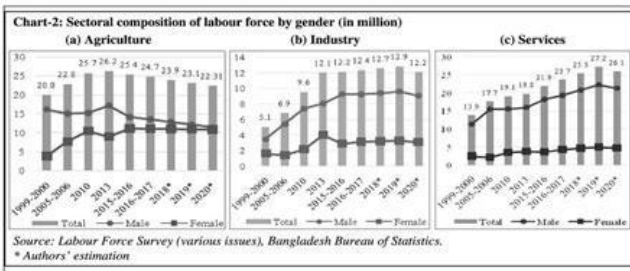
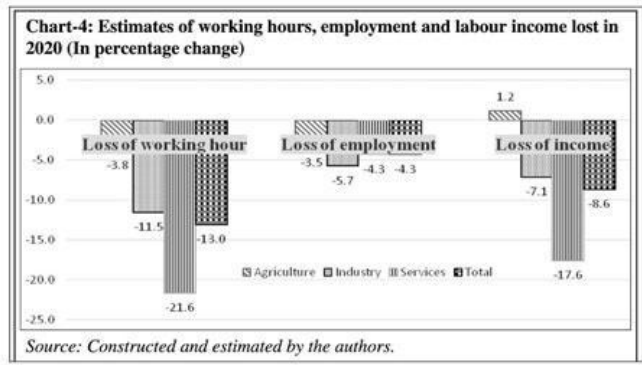
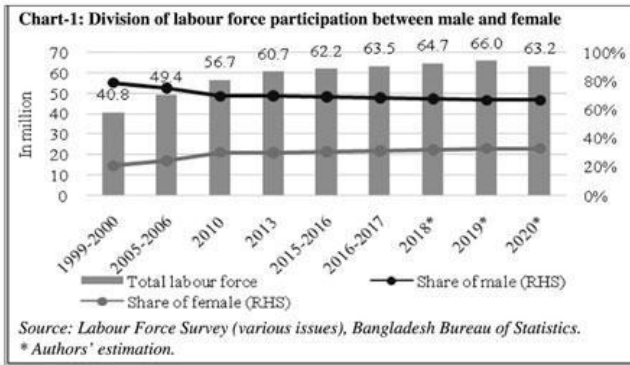
- Banks facing profitability crisis arising from non-performing and inefficient loans because of constrained producers in small and medium sectors. Literally, it will also affect the fresh and existing labor pools in the whole service sectors for banking and insurance companies
- Revival of labor participation in transportation and tourist sectors.
- Revival of demand side in manufacturing, RMG and construction sectors in terms of increased access to the global buyers, business operation expenditures and vulnerability of labor and formal or informal wage policies.
- Continuing to take care of female labor participation to eliminate the gender intensive inequality whether it's wage gap or employment opportunity
- Increased number of training participation for both health care workers and government officials to deal with mentally stressed economic agents and limited resources.
- Channeling more funds for entrepreneurs who are involved with business in rural areas or small and medium sized industries.
- Taking care of the agricultural sector workers: especially female and marginal workers and small landless farmers with reduced income who can't afford an expensive bank loan.
- Revising work conditions and work environments for participants in education sector.
- Revising human resource strategies for participants in multinational sectors in terms of providing flexible working hours, making a mental and productive adjustment to new working method (For examples, situations when workers are working from home due to health concerns), worker's legal protection from unanticipated or involuntary lay-offs or enforced and reduced salary structures.
- Taking care of the migrant workers by creating more access to foreign labor market.
- Reinforcing the ideas of health rules such as wearing masks and social distancing for labors that are bound to physical presence.
- Taking care of the livelihood of extremely vulnerable labors such as ricksawpullers, daily laborers and street vendors. Approving medical benefits, relief packages, and allowing increased access to social safety net programs for both unemployed educated youth and vulnerable, low skilled and low wage workers.
- Reinforcing the ideas to stop unethical practices by producers in health care and pharmaceutical industries in terms of pricing regulations and service distributions in order to create a positive image for workers who are occupied in these industries.
- Exploiting the opportunity on creating 'digital labor platforms' for participants in ICT sectors
- Attempting to increase the export horizon for locally produced tech devices or medical equipment suppliers which will certainly create additional number of jobs in the labor market. For example, Beximco exported locally produced PPE's in USA.

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APPENDIX



Year	Formal				Informal (self-employed, day labours)			
	Male	Female	Total	Share (%)	Male	Female	Total	Share (%)
1999-2000	8.4	1.2	9.6	24.7	22.7	6.6	29.3	75.3
2005-2006	8.6	1.6	10.2	21.5	27.5	9.7	37.2	78.5
2010	5.5	1.3	6.8	12.6	32.4	14.9	47.3	87.4
2013	5.7	1.6	7.3	12.6	35.6	15.2	50.8	87.4
2015-2016	6.7	0.6	7.3	12.2	35.1	17.2	52.3	87.8
2016-2017	7.6	1.5	9.1	15.0	34.6	17.1	51.7	85.0

Source: Md Salim Al Mamun, Raju Ahmed and Md Ezazul Islam, 2021

Chart-1 shows that the total number of labour force increased from 40.8 million in 1999-2000 to 63.5 million in 2016-17. This policy note estimates the number of labour force in the subsequent years and found 64.7 million and 66.0 million in 2018 and 2019, respectively. Considering the Covid-19 shock on employment, the labour force estimated was 63.2 million in 2020. A trend can be observed between the share of male and female labour force as female labour force showed a gradual increasing share from 21 per cent in 1999-2000 to 33 per cent in 2020, while that for male had been decreasing. Increasing share of female participation in the labour force implies more inclusive economic development, strengthening women's roles in mainstream economic activities. The labour force in urban areas increased from 9.3 million in 1999-2000 to 17.9 million in 2016-2017, while labour force in rural areas increased from 31.6 million in 1999-2000 to 46.8 million in 2016-1017. This write up estimates that urban and rural workforce decreased to 17.5 and 45.7 million in 2020, respectively, because of Covid-19 induced damages (Charts 3a and 3b).

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# Application of Performance Indicators for the Evaluation of Process Quality and Supply Chain Metrics of a Steel Shaft Manufacturing Process

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## ABSTRACT

One of the most important attributes to manufacturing is product quality. It relates to the historical rejection rate during a period of time of the products delivered to the customer. Rejection is due to deviations from specifications in the raw material supplied by suppliers, process design, and the quality control of the manufacturing process. The non-conforming parts can be detected during incoming inspection or during work in process. Thus, the standardization and maintenance of process equipment are of prime importance in ensuring the quality of a process and the products that are derived. Cost is another important attribute of the product as it affects the bottom-line. Thus, the competence of the supplier of raw material to design, develop and launch products within specifications becomes imperative in a manufacturing process. In the current competitive environment, it is crucial to assess suppliers as good quality raw material are important in the development stage, as this can have an adverse effect on the customers response. Supplier flexibility involves the response time when engineering changes are needed during the process. It also considers the response time to new orders or order modifications during the development and manufacturing stages.

*Keywords:* performance indicators, process quality, supply chain management, supplier monitoring metrics.

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# Application of Performance Indicators for the Evaluation of Process Quality and Supply Chain Metrics of a Steel Shaft Manufacturing Process

John J. Thambirajah

## ABSTRACT

One of the most important attributes to manufacturing is product quality. It relates to the historical rejection rate during a period of time of the products delivered to the customer. Rejection is due to deviations from specifications in the raw material supplied by suppliers, process design, and the quality control of the manufacturing process. The non-conforming parts can be detected during incoming inspection or during work in process. Thus, the standardization and maintenance of process equipment are of prime importance in ensuring the quality of a process and the products that are derived. Cost is another important attribute of the product as it affects the bottom-line. Thus, the competence of the supplier of raw material to design, develop and launch products within specifications becomes imperative in a manufacturing process. In the current competitive environment, it is crucial to assess suppliers as good quality raw material are important in the development stage, as this can have an adverse effect on the customers response. Supplier flexibility involves the response time when engineering changes are needed during the process. It also considers the response time to new orders or order modifications during the development and manufacturing stages. As a result, research and development activities are used to initiate and measure the ability of the supplier to provide support during the process. It is an important attribute as most products, after launching, demand continuous improvement to remain competitive. Procurement of materials and equipment is considered the first step in supply chain management of many companies. It is also broadly known that the performance of suppliers directly influences the company's

efficiency and competitiveness. Supplier performance evaluation is a crucial process to identify strengths and weaknesses of suppliers which can help the company to manage them. There are various supplier performance evaluation methods. In this study process quality of the existing system of producing steel shafts was first evaluated. Based on the study the machine was upgraded by engineering design and the results were evaluated subsequently. In order to develop an overall performance evaluation system, firstly: the manufacturer's process machine was assessed for capability. These formed the metrics for the performance evaluation of the process. Subsequently, the quality of the raw material supplied by a regular supplier was evaluated together with raw material supplied by two other suppliers. These were compared. The results which mainly constituted statistical analysis showed that the most important criteria of the process metrics was machine performance, followed by supplier quality of raw materials. These formed the performance indicators for the overall process. Generally, the supplier who attained the highest weighted score was the top-performer.

**Keywords:** performance indicators, process quality, supply chain management, supplier monitoring metrics.

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## I. INTRODUCTION

The pressure from globalisation has made manufacturing organisations to move towards three major competitive arenas: quality, cost, and

service. Quality is a universal value and has become a global issue. In order to sustain and be able to provide customers with good quality products, manufacturing organisations are required to ensure that their processes are continuously monitored and their product quality is improved.

Manufacturing organisations apply various quality control methods to improve the quality of the product and to reduce the variation in the process. A range of techniques are available to control product and process quality. These include seven statistical process control (SPC) tools, acceptance sampling, quality function deployment (QFD), failure mode and effects analysis (FMEA), six sigma, and design of experiments (DoE) [1].

Quality is one of the most important product attributes. It contributes to competitive advantage for the organization and inspires confidence in the customer. It relates mainly to the rejection of products delivered to the customer. Rejection can be detected during incoming inspection or during manufacturing [2]. The rejected items can be identified by means of statistical process control and corrective action may be taken at this stage. Companies also consider deviations from the specified quantities or delivery dates in the customer order in relation to the supply chain management [3]. Thus, the supplier has an important role to play in mitigating the manufacturing cost, packaging cost, delivery cost and costs related to non-conforming products [4].

Therefore, it is extremely important for a company to maintain a well-managed performance evaluation system of its processes and that of its suppliers [5]. Currently, there are very little systematic processes to evaluate supplier performance. There is no logical and strategic decision on the supplier selection process. Most of the sourcing is based on the experience of each individual purchaser. Materials will generally be procured from the familiar suppliers and/or suppliers with a good reputation [6].

Moreover, when a new purchaser comes, he will have to manually track back and refer to the previous procurement records which include only information regarding historical price and lead time. In addition, there are no records of the performance on other dimensions, such as product quality, delivery and delay [7]. Thus, the procurement lead time is extended.

The delay in supply of materials by suppliers, which is commonly found at companies contribute to the delay and cost overrun [8]. The quality of supplied materials is another problem commonly found [9]. One of the causes of the aforementioned problems is that there is no systematic supplier performance measurement system put in place [10]. Material sourcing based on the experience of the procurement officer does not always guarantee that the company will award the contract to the suppliers whose performance is best.

However, a number of approaches have been used to assist supplier performance evaluation [11]. Four commonly-used traditional methods stated in several studies are Categorical method, Weighted-point method, Cost ratio approach and Dimensional analysis model [12].

The most important part in the supplier performance evaluation process is the identification of the evaluation criteria which are related to supplier performance [5]. Several studies have been carried out by way of questionnaires and surveys on key experts in procurement functions and other associated functions to collect and discover the performance evaluation criteria which are currently applied in the real business [13]. Tracey and Tan [3] stated in their study that effective supplier evaluation is not easy to achieve if customer satisfaction is not considered. Thereby, the criteria used in evaluating suppliers are inclusive of quality, reliability, and performance of the product. This is to ensure that the customer satisfaction aspect will be fulfilled. Ohdar and Ray [14] cited that there are two main performance measurement attributes for manufacturing companies. The two attributes are “soft” or non-quantifiable criteria

like supplier commitment and “hard” or quantifiable criteria like supplier capability.

Several literatures point out that the supplier performance is not just related to price or quality, instead, supplier performance evaluation requires a multi-criteria evaluation process [15]. However, it is fair to accept that quality will be on the top priority to satisfy the customer [3], but there are other attributes which are important and need to be considered. Therefore, the buying companies need to select and identify the evaluation criteria which will serve the company’s objectives, activities, and to satisfy the customers. Thus, it is very important to identify the criteria and metrics which are objectively relevant to the company at all levels [16].

Coordination between the supplier and manufacturer is an important attribute which may lead to sustainability related to the overall process [17]. It involves the tasks that are to be taken for linking activities performed by the different members in a seamless manner [18]. The coordination degree between manufacturer and supplier is an important attribute of the relationship as it allows moving together towards the achievement of mutual objectives.

With regard to this, commitment which refers to the willingness of the supplier to perform the extra effort on behalf of the relationship may lead to the establishment of the foundation of the relationship. This may be based on being supportive in solving problems together [19]. A high level of commitment provides the context for the achievement of individual and mutual goals.

Accordingly, trust and information sharing are also of increasing importance in the relationship [20]. This is based on the belief that the partner is reliable and will fulfil its responsibilities acting fairly, in the interest of both parties. Information sharing considers the timeliness, accuracy, adequacy and completeness of the relevant information exchanged.

Finally, of even more significance is conflict management which may be inevitable in any relationship [21]. This measures the degree of

intensity and conflict resolution mechanism that exists between the manufacturer and the supplier [22]. The existence of conflict is inherent to interpersonal as well as inter-organizational relationships. However, the manner in which the conflict is managed is essential to the long-term attribute and stability of the relationship.

In this study quantitative statistical methods were used to study the inter relationships of supplier-manufacturer metrics. This was mainly with a view to develop a framework to evaluate the performance characteristics of the process related to the quality of raw material supplied by suppliers to the company. The performance indicators were evaluated with respect to the quality characteristics of the products, equipment performance of the process as well as the supplier performance metrics. The studies indicate a revelation to process industries that all is not well in the supplier-manufacturer relationship. A continuous monitoring, evaluation and improvement program might be necessary in order to streamline and standardize the supplier-manufacturer relationship as a measure to ensure long term sustainability.

### *Objectives of the Study*

The objectives of this study are:

To identify the relevant performance evaluation criteria to determine process quality for the manufacture of steel shafts.

To develop a performance indicator system for the evaluation of supplier quality based on statistical analysis.

## II. METHODOLOGY OF THE STUDY

### *2.1 Materials and Methods*

#### *2.1. Study Design*

The process engineer of a steel shaft manufacturing company decides to perform quality control checks with respect to a) proportion of defectives for the population of a particular category of steel shafts produced by the company b) performance evaluation of a particular

machine c) evaluation of the quality of raw materials from three different suppliers.

*2.1.1 The process engineer has three hypothesis tests to perform.*

Test 1 is to check whether the population proportion of defectives was less than the target of 5%. That is,

Null Hypothesis: Population proportion of defectives =  $< 0.05$

Test 2 was to check whether the length of the steel shafts from machine A was equal to the target of 10 inches. It was suspected to be less than 10 inches. That is

Null Hypothesis: Product length from machine A = 10 inches

Test 3 was to check whether the mean lengths of the steel shafts were the same across three different raw material suppliers

Null Hypothesis: Mean lengths of the steel shafts are the same across three different raw material suppliers

2.1.2 A cross sectional study was conducted by taking 20 random samples of the steel shafts produced by the process at Machine A. These samples consisted of the raw material supplied by the regular supplier. The lengths of each of the steel shafts was measured and an individual I-MR analysis was performed (Fig 1).

This was with a view to assess the quality of the steel shafts produced by machine A of the company and to test Hypothesis 1 and 2, stipulated by the process engineer. Subsequently, Hypothesis 3 was tested for the comparison of three suppliers in the supply chain.

2.1.3 As the tests revealed that the performance of Machine A was not up to the expected standards, as most of the steel shafts were less than 10 inches (Fig.1) engineering controls were introduced by mechanically adjusting Machine A in order to centre the process and to adjust the deviation in the mean of the samples.

2.1.4 Subsequently, a second set of analysis was conducted which now constituted a longitudinal study of the process on Machine A. Now labelled as Machine A1.

2.1.5 In any type of field, the goal of statistics is to gain understanding from data. Any data analysis should contain certain steps to be followed to ultimately achieve the goal of the research proposed [23, 24]. It should be noted that the major objective of statistics is to make inferences about the population from an analysis of information contained in sample data. This includes assessments of the extent of uncertainty involved in these inferences.

2.1.6 This study initially focused on the statistical process control of Machine A. This was initiated by the data analysed on the length of steel shafts from the regular supplier. Subsequently, twenty samples were taken at random from two other suppliers and the lengths were measured and compared (Figs.10-12). A Minitab 17 software was used to analyse the data throughout the study.

2.1.7 With regards to this, various statistical tests were conducted in order to evaluate and verify the performance of the process carried out by Machine A. The details of the statistical analysis are as in the following sub-sections.

## 2.2. Data Handling and Statistical Analysis

2.2.1 To measure the “1 Proportions” defectives test (Hypothesis<sub>1</sub>), a sample of 150 shafts was taken from Machine A and the length of each shaft was measured. The test and the confidence interval (CI) was performed by the Minitab software (Table1).

2.2.2 Another set of 20 steel shafts from Machine A were taken and their lengths were measured. As the sample size was less than 30, “1 sample t-test” was carried out in order to verify if the lengths of the steel shafts were equal to 10 inches (Table 2).

2.2.3 A summary report of the length of the initial twenty samples of the steel shafts collected at random from the regular supplier was created for Machine A (Fig.2). Summary reports indicate mainly the mean, standard deviation, the

confidence interval (CI) and the Anderson-Darling tests for the normality check.

2.2.4 An individual value plot of Machine A was then initiated, with  $H_0$  and 95% t-confidence interval for the mean (Fig.3).

2.2.5 A process capability plot of the data from Machine A is indicated in Fig 4. A process capability plot indicates normality by way of a histogram and defines  $C_p$  and  $C_{pk}$  of the process. A  $C_{pk}$  level of 1.33 constitutes a good process value.

2.2.6 The initial measurements of Machine A showed that the output from the machine did not meet the expected standards of at least 10 inches in the steel shafts. Thus, engineering controls were initiated on Machine A. Now labelled as Machine A1. This constituted a longitudinal study of Machine A.

*2.3.1 The statistical tests conducted on Machine A1 were as follows:*

2.3.2 I-MR chart for Machine A: A1 after the application of engineering controls is indicated in Figure 5.

2.3.3 A summary report carried out for Machine A1 (Fig.6) showed distinct improvement in the mean and CI.

2.3.4 A process capability 6 pack test was carried out on Machine A1. The six pack process capability chart showed a slight improvement of the  $C_{pk}$  value at 0.56 (Fig.7)

2.3.5 An individual value plot of Machine A1 showed a mean range of approximately 9.5 to 10.7 inches (Fig 8).

2.3.6 Test and CI for one sample proportion for Machine A1 (Hypothesis 1) by way of the '1-Proportion' defectives test was conducted on another set of steel shafts consisting of 150 samples. The analysis showed an upper bound of 0.0287 and a significant p value of 0.020 (Table 3).

2.3.7 Subsequently, a One-sample T test conducted for Machine A1 (Table 4) indicated an

upper bound of 10.601 inches and the t-test was not significant at p value of 0.995 ( $p < 0.05$ ). The interpretation is provided in the 'Results'.

*2.3.8 Tests for equal variances: Size vs Sups (Table 5)*

Initially, an equal variance test was conducted on samples from the three suppliers for comparison. This was in order to verify the test for equal variances amongst the three suppliers (Hypothesis 3). For this a 95% Bonferroni Confidence Interval for Standard Deviations was conducted and the Levenes test was not significant,  $p = 0.744$  (Table 5)

*2.3.9 Tukey's simultaneous 95% CI for equal variance (Fig.9)*

The 95% Bonferroni Confidence Intervals for Standard Deviations indicated an individual confidence level of 98.3333% (Table 5). The Levenes test was not significant, indicating that the samples constituted equal variances. This was evident by the overlap exhibited by samples supplied by each of the three suppliers (Fig.9).

*2.3.10 Probability plots for Sup1, Sup2, Sup3 (3 suppliers)*

Then, supplier probability plots were conducted by measuring 20 steel shafts from each of the three suppliers. The samples from each of the three suppliers showed a normal distribution of the raw material, indicated by the three probability plots (Figs 10-12).

2.3.11 Individual value plot Size vs Supplier: Figure 13

The individual value plots carried out on each of the three suppliers of steel shafts showed that the means of each of the three suppliers were well within the stipulated level of at least 10 inches (Hypothesis 2).

2.3.12 Box plots. The Box plot verified the the values contained in the individual value plot, whereby the means of the steel shafts supplied by the three suppliers conformed to the stipulated value of at least 10 inches (Fig. 14).

2.3.13 Interval plots of size vs Sups. The interval plot of size versus suppliers at 95% CI for the mean showed that all the three means were above the stipulated 10 inches (Fig.15).

#### 2.3.14 Main effects plot for size (Fig. 16).

Although, the three suppliers supplied raw steel shafts within the stipulated standard of 10 inches, it was obvious from the main effects plot that the third supplier stood first, with supplier 1, second; and supplier 2 third (Fig.16).

#### 2.3.15 One-way ANOVA: Size vs Sup (Table 6)

A one-way ANOVA was conducted in order to confirm whether the model fit was significant ( $p < 0.05$ ) and to determine if there was a significant difference amongst the three suppliers.

#### 2.3.16 Tukey's pairwise comparisons

The means from the three suppliers shared a value of A, indicating that there was no significant difference in the quality of raw material supplied by the three suppliers (Table 7).

#### 2.3.17 Tukey plot: Figure 17

The three suppliers were contained at the zero point, whereby the line of fit passes through the means in comparison. This again confirms that the three suppliers were of good quality and there was very little difference between their means, verified by the overlap in the Tukey test plot in comparison of the three suppliers (Fig.17).

2.3.18 Residual plots for size of the raw steel shafts supplied by the three suppliers (Fig.18). The residual plots for size shows multi-variate response. The normal probability plot indicates that all the residuals in the samples of steel shafts followed a normal pattern whereby all the plots were close to the standard curve. The histogram shows a bell shape indicating a normal spread of the means in terms of frequency of the residuals

### III. RESULTS

In this study, three hypothesis tests were tested. The proportion defectives produced by the machine, the performance of the process machine, and the quality of the suppliers of raw material.

The parameters for these were evaluated by collecting and analysing data from the shaft processing machine (Machine A) using statistical methods. Initially, the raw material for these shafts were supplied by the regular supplier (Supplier1). The quality of the steel shafts which was dependent both on the raw material purchased from the supplier and the machine performance was determined.

This was evaluated, initially, by collecting twenty steel shaft samples during the process from Machine A. Generally, the individual values of each of the steel shafts did not meet the specified limit of 10 inches specified by the engineer (Fig1, Hypothesis2). Subsequently, one hundred and fifty raw steel shafts samples were analysed for proportions defectives (Table1). This was to determine the rate of defectives produced by the machine (Hypothesis1).

The third Hypothesis was tested on the quality characteristics of the three suppliers (Hypothesis3). The quality of raw steel shafts supplied by the three selected suppliers was determined.

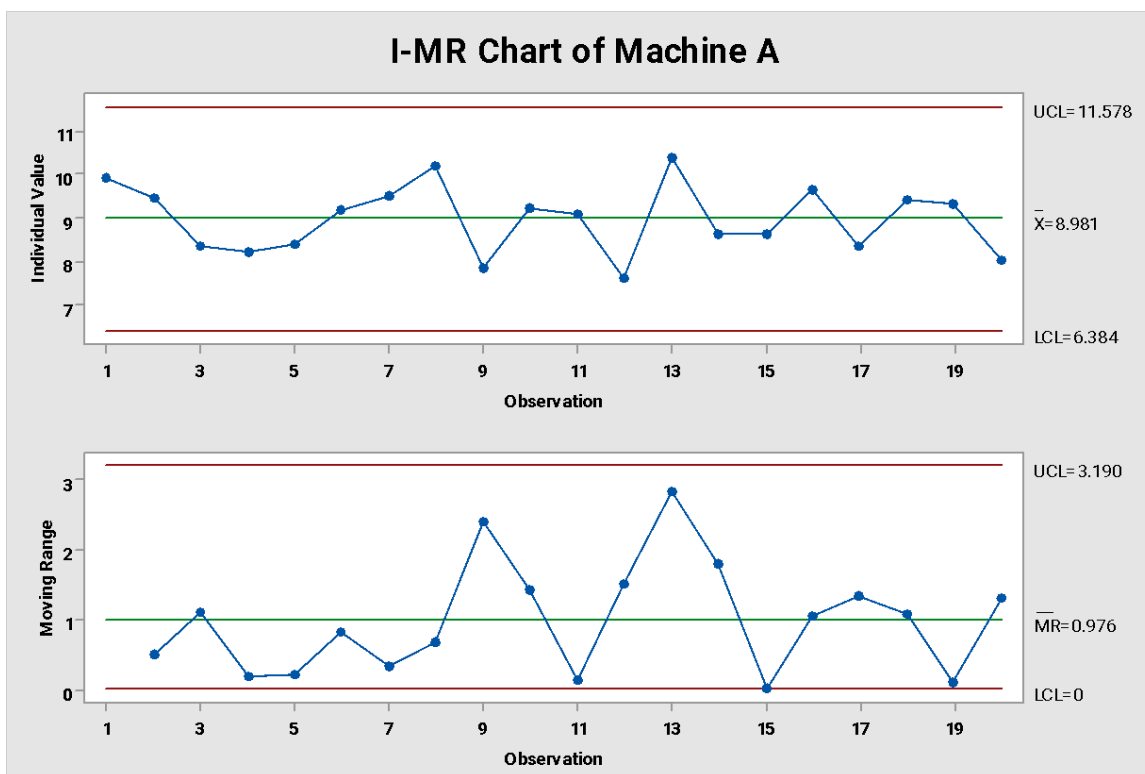


Figure 1: I-MR chart of the length of steel shafts indicating the baseline for Machine A

Although, the I-MR chart (Fig.1) showed the lengths of the individual steel shafts were in process control; many of the shaft lengths were below the specified value of 10 inches. The

summary report was not satisfactory (Fig. 2). An I-MR chart was used as the sample size was less than thirty.

Table 1: Test and Confidence interval (CI) for “1 Proportion” defectives of steel shafts from Machine A

Test of  $p = 0.05$  vs  $p < 0.05$

Test of $p = 0.05$ vs $p < 0.05$						
Sample	X	N	Sample p	95% Upper Bound	Z-Value	P-Value
1	6	150	0.040000	0.066318	-0.56	0.287
Using the normal approximation.						

The ‘1 Proportion’ defective test showed a 95% upper bound of 0.0663 with a p value of 0.287 which was not significant at  $< 0.05$ . There were six defectives out of 150 steel shaft samples which constituted approximately 4%. Thus Hypothesis 1, which claims that Machine A produces less than 5% defectives is not rejected.

Table 2: One-sample T of the lengths of steel shafts for Machine A

One-Sample T: Machine A

Test of  $\mu = 10$  vs  $< 10$

Test of $\mu = 10$ vs $< 10$							
Variable	N	Mean	StDev	SE Mean	95% Upper Bound	T	P
Machine A	20	8.981	0.794	0.178	9.288	-5.74	0.000

The 1 sample t-test showed an upper bound of 9.288 inches and the t-test was significant at p value of 0.000 ( $p < 0.05$ ). This indicated that the average steel shafts supplied measured less than 10 inches, thus the null hypothesis 2 is not rejected. Although, machine A produced less than 5% defectives, the 1 sample t test carried out on 20 samples showed that the average length of steel shafts produced by machine A was less than 10 inches (Hypothesis 2). This may be attributed to the large (150) and small sample size (20) taken for the “1 Proportions” and t-test, respectively.

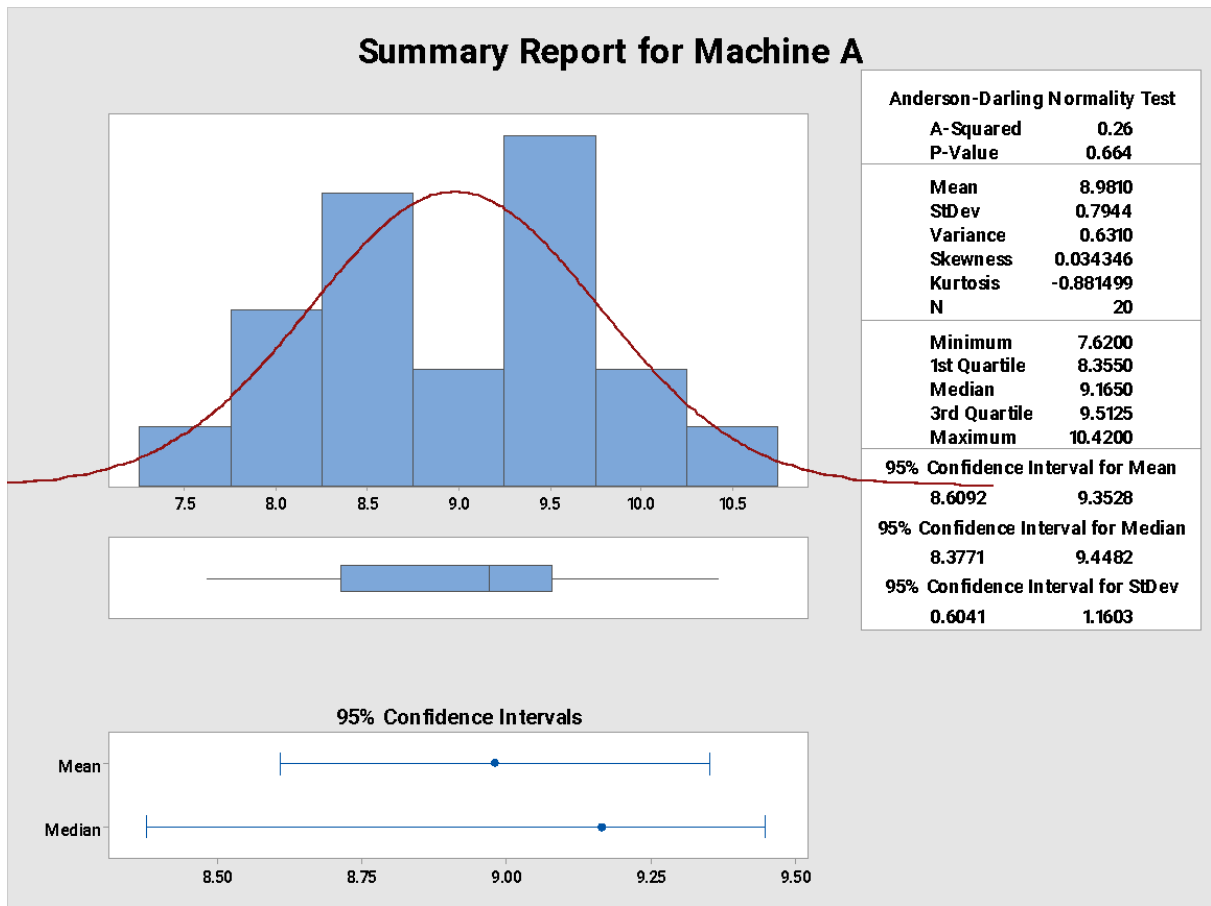


Figure 2: Summary report of descriptive analysis for Machine A

The histogram (Fig,2) in the summary plot, showed that the process was not distributed normally. Many sample points on the upper side of the plot were outside the control limits as indicated by the line of fit on the histogram. The bell curve showed more of a bimodal curve. Meaning that Machine A required maintenance or some sort of engineering control. The specified mean and standard deviation were also not in favour of the specified length of 10 inches. The

95% Confidence Interval showed the length of steel shafts to be between 8.6092 and 9.3528 inches, which was below the specified value of 10 inches.

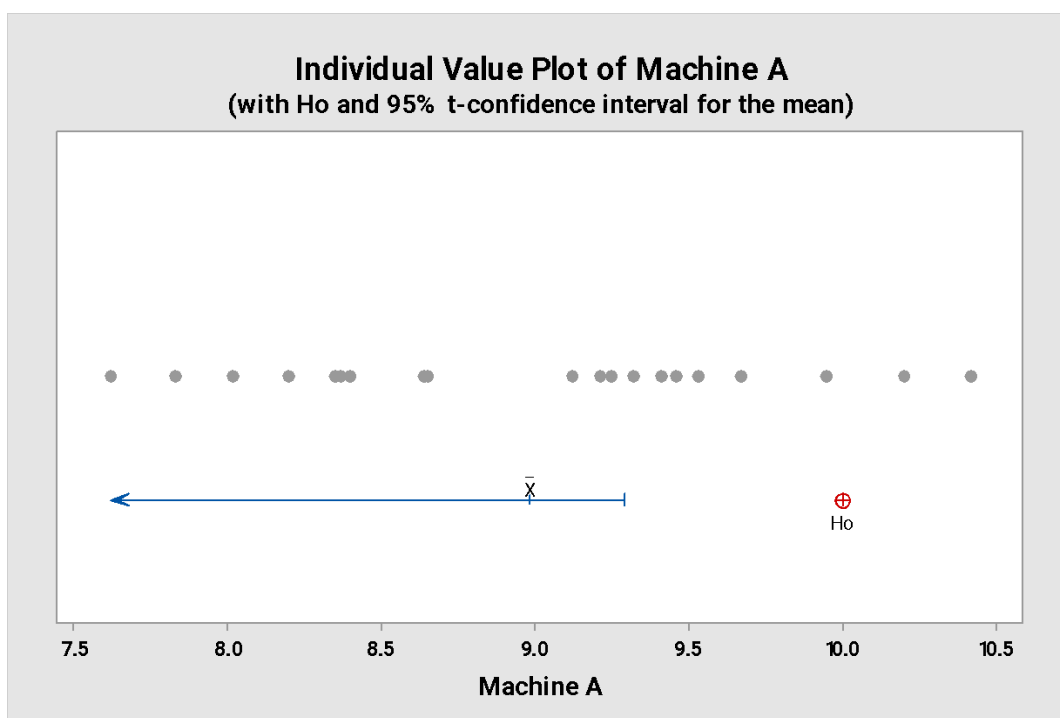


Figure 3: Individual value plot of Machine A with Ho and 95% t- confidence interval for the mean

The individual value plot showed that the mean was centred at approximately 9 inches (Fig.3). This did not conform to the specified standard of 10 inches set in hypothesis 2. Thus, it may be confirmed that Machine A did not produce to the

specified level of the steel shafts of 10 inches. Thus, engineering controls were conducted by the process engineer in an attempt to check if the problem was with the machine or the supplier of the raw material.

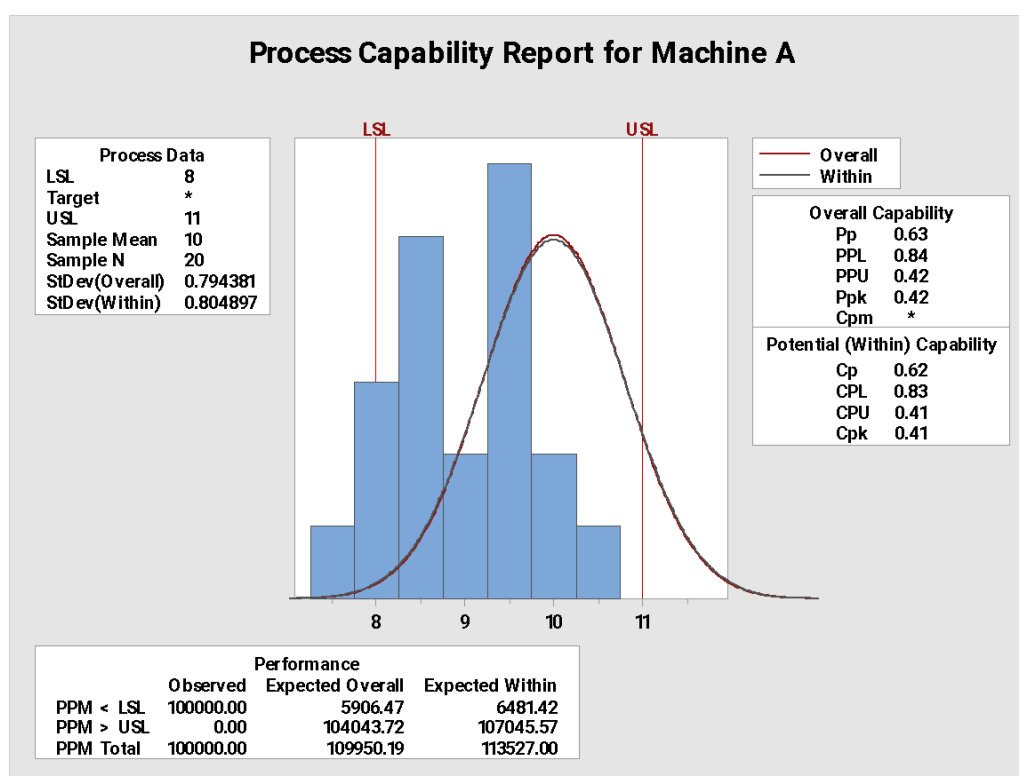


Figure 4: Process capability report for Machine A

The process capability report for Machine A showed that many sample points were outside the specified limits (Fig. 4). This was indicated clearly by the line of fit on the histogram. The Cpk value of 0.41 leaves much to be desired, as a standard value for a process to be operating optimally should be at least 1.33.

It was very obvious from these findings that the process needed a lot of improvement. Numerous processes in the manufacturing sector are known to face this problem. Much research would be needed to determine the root causes of problems

and to rectify such problems in order to ensure and maintain that the process aligned to the standards.

Maintenance of equipment, statistical process control and monitoring of the process may result in better overall process control. Also, the problems may vary from process to process.

As the products from the process were not in statistical process control, Machine A was subjected to engineering controls, by mechanically manipulating the machine; now named as Machine A1.

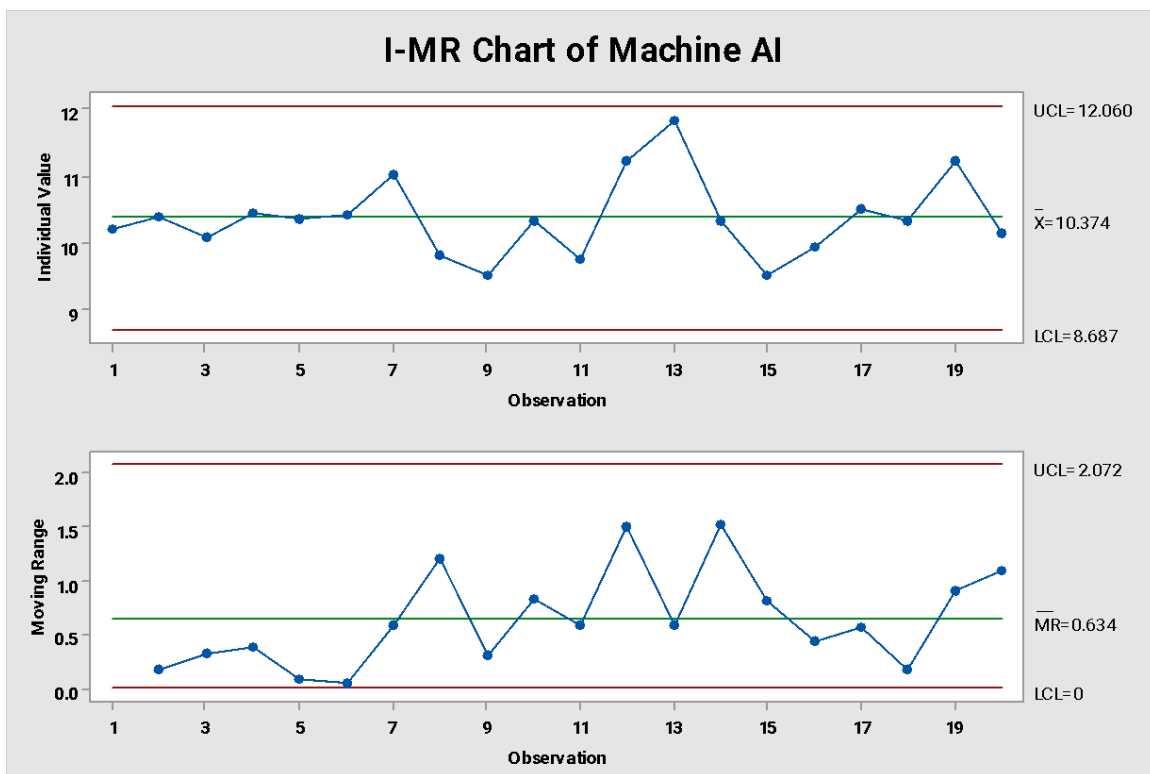
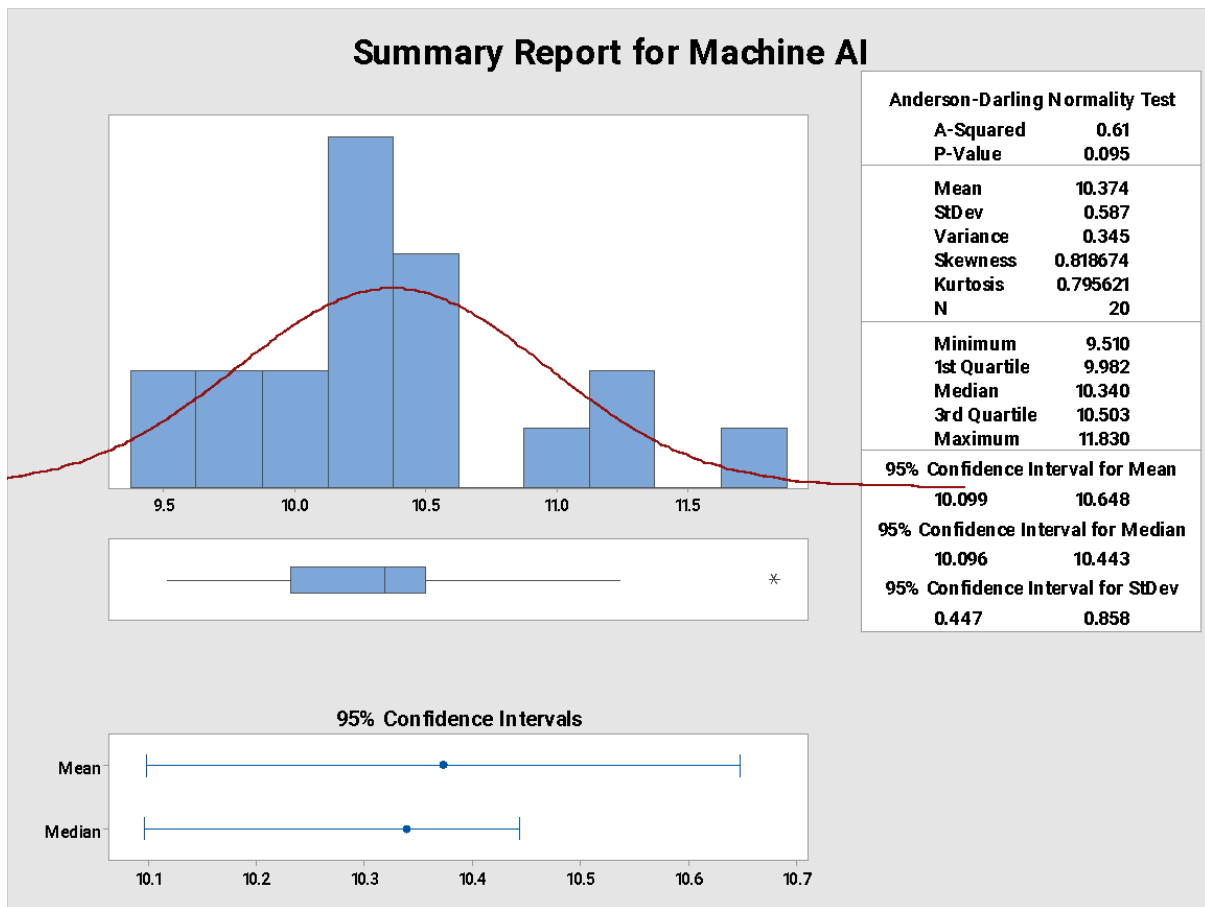


Figure 5: I-MR chart for Machine A: A1 after the application of engineering controls

A total of twenty individual steel shaft samples were taken from the process line once again and subjected to statistical analysis. The I-MR chart (Fig.5) was within the control limits, and the summary report showed an improvement whereby the mean and the confidence interval were above the specified values of 10 inches (Fig.6).



*Figure 6:* Summary report for Machine A1

The summary report showed a distinct improvement in the mean and CI. The mean was 10.374, with a 95% Confidence Interval of 10.099 to 10.648 against the expected value of 10 inches. But, the overall process was not centred (Fig. 6). The histogram showed many sample points outside the control limits and it was not normally distributed as indicated by the line of fit. There was an uneven spread. This might indicate that R & D efforts may be required in order to evaluate the performance of the machine, such that corrective action may be taken.

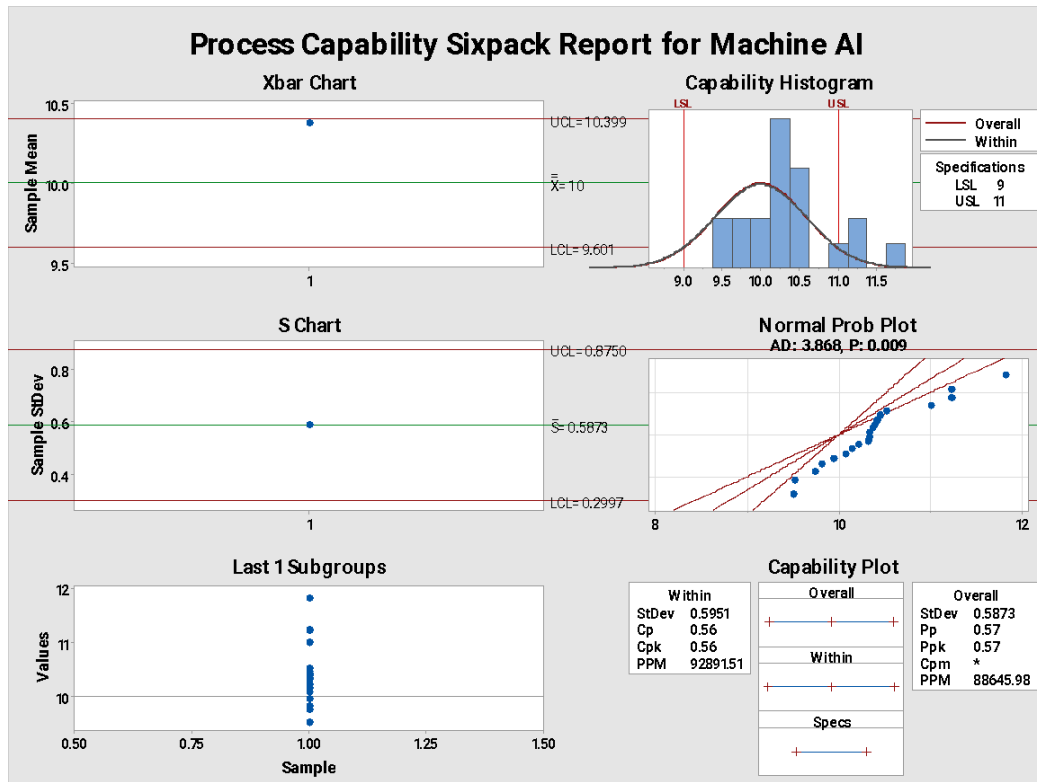


Figure 7: Process capability Six pack report for Machine A1

The six pack process capability chart (Fig.7) for Machine A1 showed a slight improvement of the Cpk value at 0.56 compared to the previous value of 0.41 for Machine A. Thus, the engineering controls conducted on the machine had some effect on the overall performance of the process.

However, this was way below the optimum of 1.33. The normal probability plot showed many sample points outside the standard line (Fig.7). The histogram showed many points outside the upper specification limit and it was also not normally distributed as indicated by the line of fit.

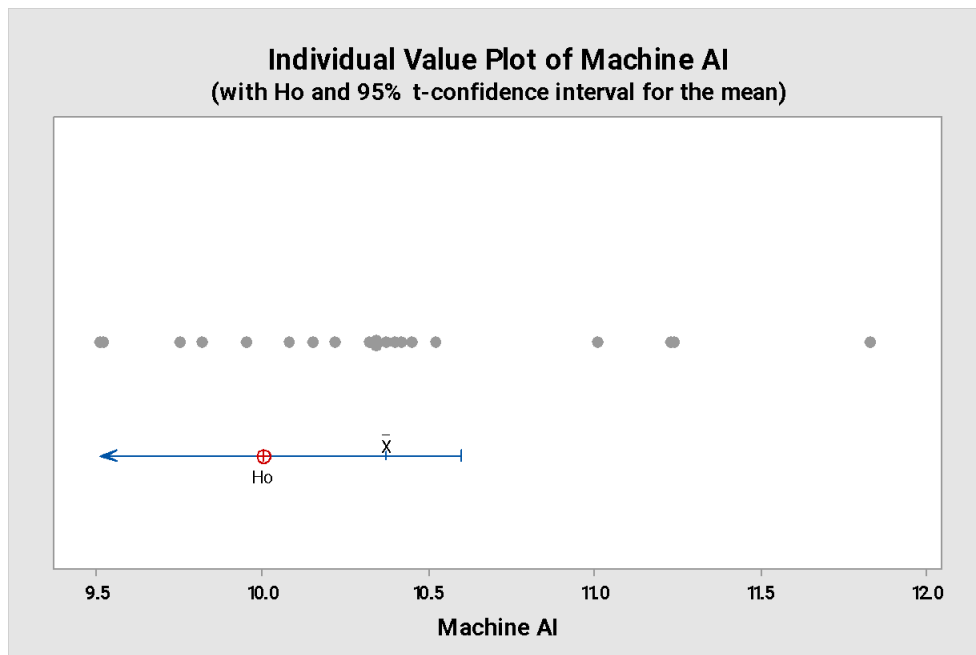


Figure 8: Individual value plot of Machine A1 with Ho and 95% t-confidence interval for the mean

The individual value plot (Fig. 8) of Machine A1 showed a mean range of approximately 9.5 to 10.7 inches with 95% t-confidence interval of the mean, with an upper bound value of 10.601. The

overall spread in the measurements of the samples may have contributed to a large deviation in the results.

*Table 3:* Test and CI for one sample proportion for Machine A1

Test and CI for One Proportion

Test of  $p = 0.05$  vs  $p < 0.05$

Test of $p = 0.05$ vs $p < 0.05$						
Sample	X	N	Sample p	95% Upper Bound	Z-Value	P-Value
1	2	150	0.013333	0.028737	-2.06	0.020
Using the normal approximation. The normal approximation may be inaccurate for small samples.						

The test for ‘1-Proportion’ defectives was conducted on another set of steel shafts consisting of 150 samples from the process. This constituted the measurement of steel shafts after the engineering controls were effected. The analysis showed an upper bound of 0.0287 and a significant p value of 0.020 (Table 3). This indicated that only 1.3% of the samples did not meet the specified length of 10 inches. This was in conformance with Hypothesis 1.

Thus, the null Hypothesis which stated the percent defectives of steel shaft samples was less than 5% was not rejected and the p value was significant at 0.020 ( $p < 0.05$ ). Thus, the steel shafts supplied by the regular supplier appeared in conformance with the overall objectives of the study. This result was better than that of Machine A, where the 1-proportions test result showed that 6 out of 150 samples did not conform to the standard with an upper bound of 0.06 (Table 1).

*Table 4:* One-sample T for Machine A1

One-Sample T: Machine A1

Test of  $\mu = 10$  vs  $< 10$

Test of $\mu = 10$ vs $< 10$							
Variable	N	Mean	StDev	SE Mean	95% Upper Bound	T	P
Machine A1	20	10.374	0.587	0.131	10.601	2.84	0.995

Another set of twenty samples were taken after the engineering manipulation of Machine A, and the t-test was conducted. The 1 sample t-test conducted on Machine A1 showed an upper bound of 10.601 inches and the t-test was not significant at p value of 0.995 ( $p < 0.05$ ). This indicated that the average steel shafts supplied measured at 10.374 inches which conformed to the specified

level of at least 10 inches. Thus, the null hypothesis 2 was rejected.

*Table 5:* Test for Equal Variances: Size versus Sup

Method	
Null hypothesis	All variances are equal
Alternative hypothesis	At least one variance is different
Significance level	$\alpha = 0.05$

In order to evaluate the third Hypothesis whether the raw material which consisted of steel shafts supplied by three suppliers conformed to the specified level of 10 inches, an equal variance test was conducted initially to verify the parameter of

equal variances across the suppliers. For this a 95% Bonferroni Confidence Intervals for Standard Deviations was conducted and the Levenes test was found to be not significant. Thus, indicating that the three suppliers showed equal variances in the samples.

95% Bonferroni Confidence Intervals for Standard Deviations.

Method	
Null hypothesis	All variances are equal
Alternative hypothesis	At least one variance is different
Significance level	$\alpha = 0.05$

95% Bonferroni Confidence Intervals for Standard Deviations

95% Bonferroni Confidence Intervals for Standard Deviations			
Sup	N	StDev	CI
Sup1	20	0.845783	(0.558029, 1.45623)
Sup2	20	0.744443	(0.526381, 1.19600)
Sup3	20	0.903350	(0.653064, 1.41947)
Individual confidence level = 98.3333%			

Tests

Tests		
Method	Test Statistic	P-Value
Multiple comparisons	—	0.630
Levene	0.30	0.744

*Figure 9:* Test for equal variances size vs suppliers

In order to determine the quality of the suppliers (Hypothesis 3), initially, tests for equal variances was conducted on the steel shafts supplied by each of the three suppliers (Table 5, Fig 9). A 95% Bonferroni Confidence Intervals for Standard Deviations indicated an individual confidence level of 98.3333%. The Levene’s test was not significant, indicating that the samples constituted equal variances.

This was confirmed by the overlap exhibited by samples supplied by each of the three suppliers (Fig.9). Three suppliers of raw material were compared with a view to evaluate supplier selection and performance relevant to the process of supply chain management. This would also help to determine whether it was the quality of raw material supplied by suppliers in comparison to the performance of the process machine in question.

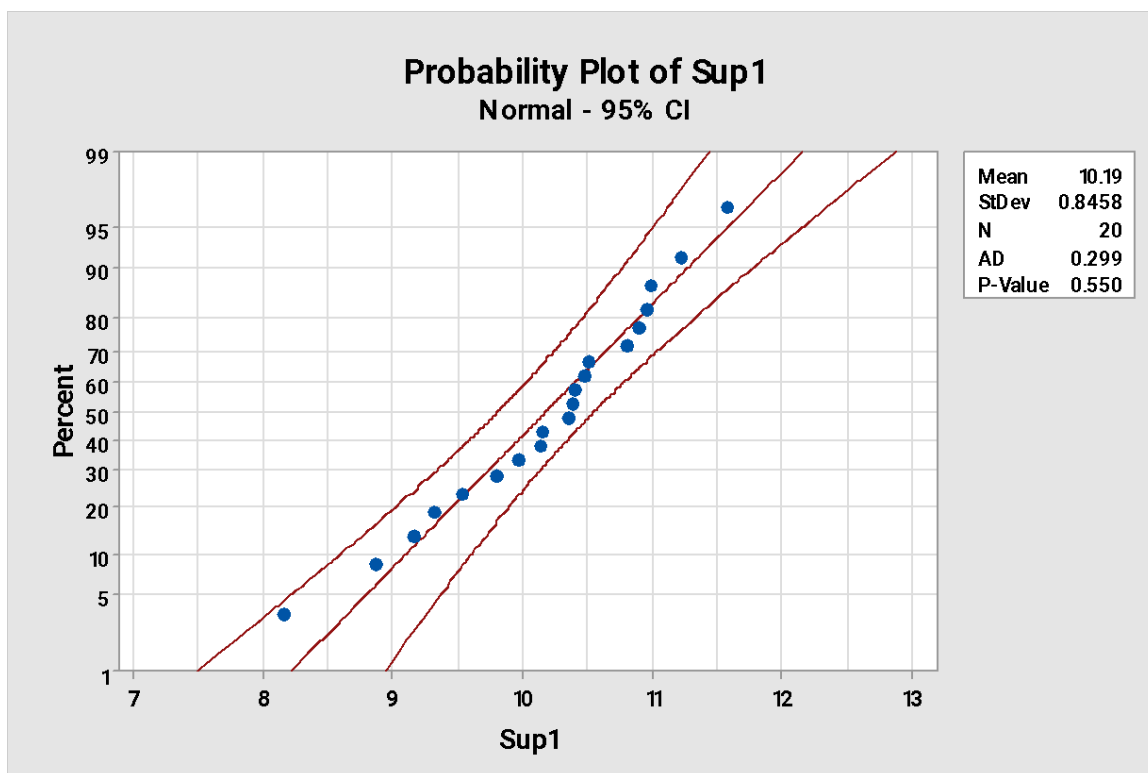


Figure 10: Probability plot of supplier 1, normal 95% CI

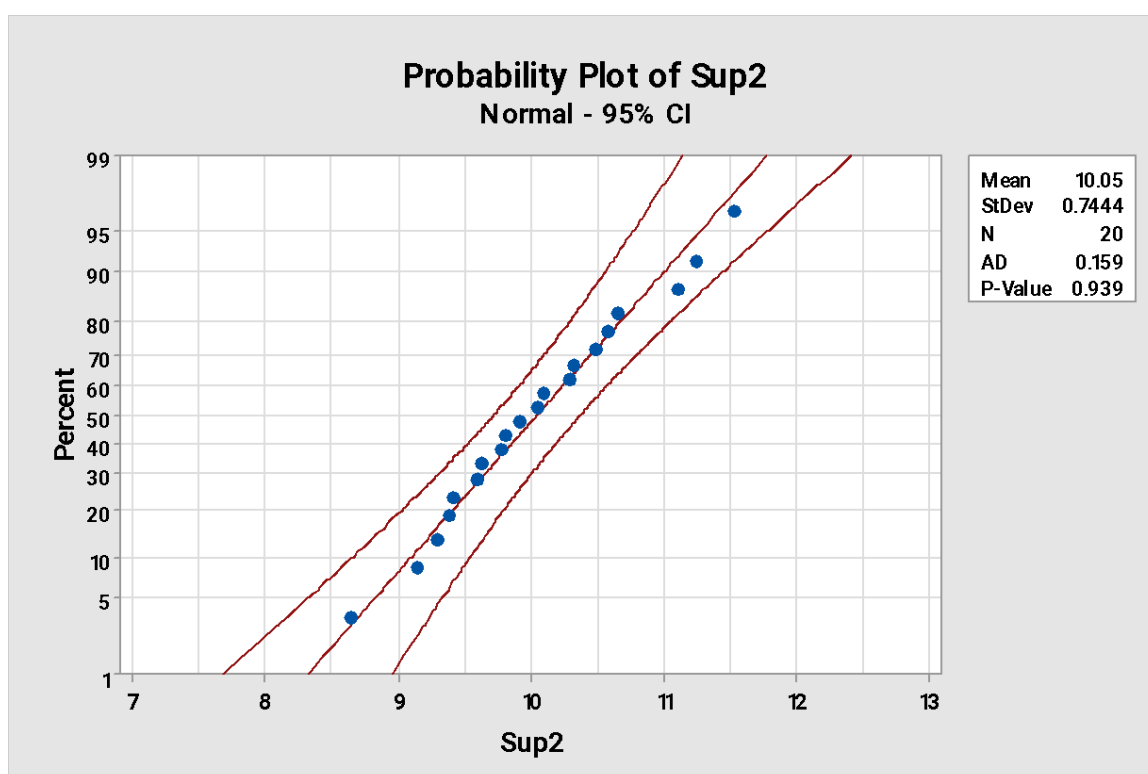


Figure 11: Probability plot of supplier 2, normal 95% CI

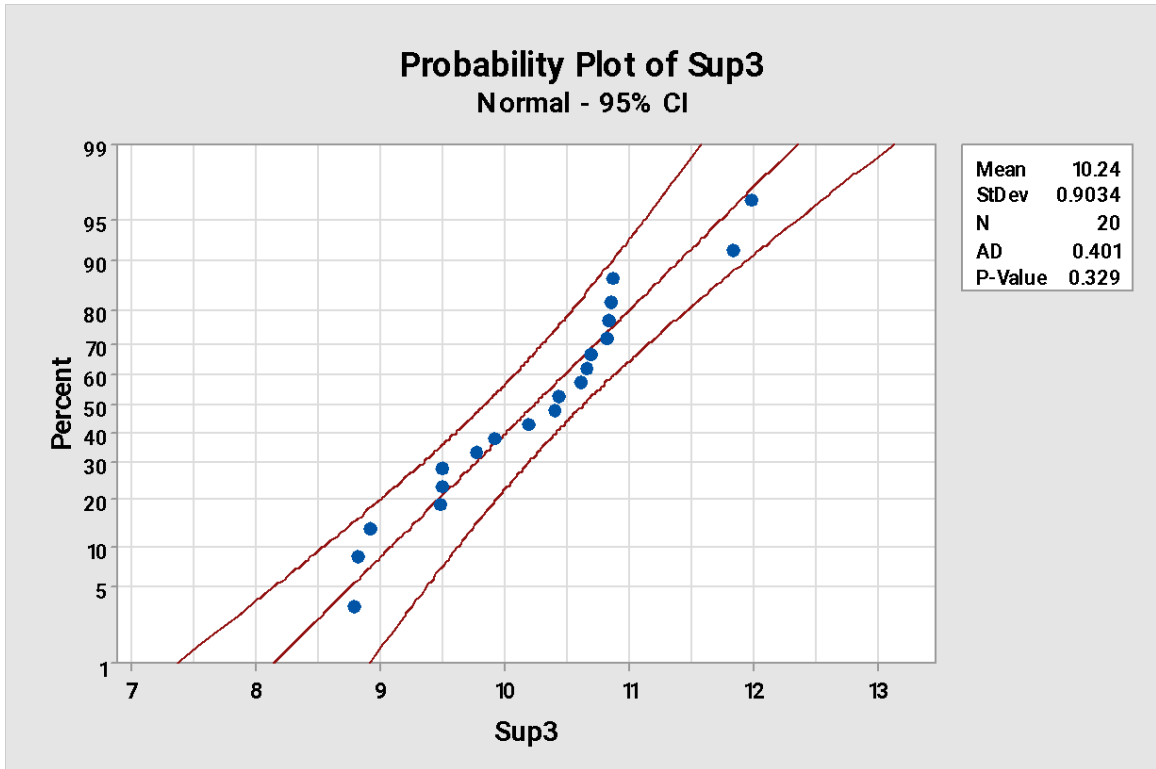


Figure 12: Probability plot of supplier 3, normal 95% CI

After confirming equal variances of the three suppliers, supplier probability plots were carried out by measuring 20 steel shafts from each of the three suppliers (Figures 10-12). The samples from each of the three suppliers showed a normal distribution of the raw material, indicated by the three probability plots, whereby, all the points were within the normal prescribed limits with means averaging 10.19, 10.05 and 10.24, respectively (Figs 10-12).

Also, the p-values were not significant in each of the three cases, which indicated that there was no significant difference between the quality of the raw material supplied by each of the three suppliers. This finding confirmed Hypothesis 3, which was to test the differences between the quality of the three suppliers.

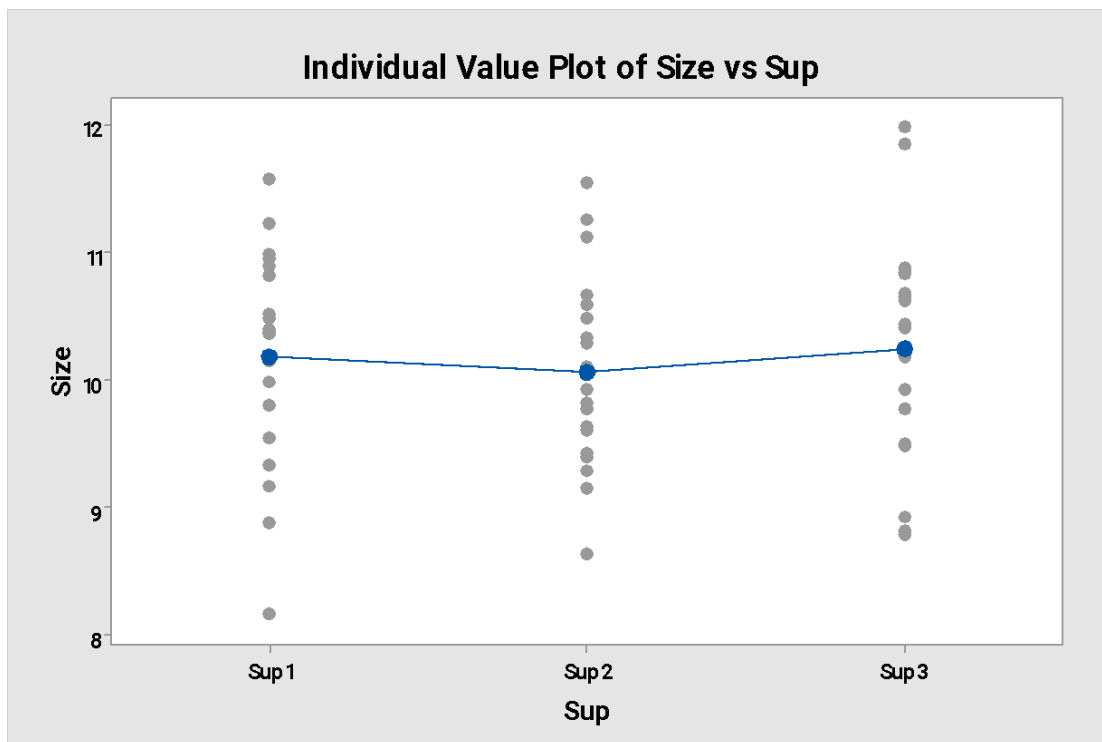


Figure 13: Individual value plots of size vs suppliers

The individual value plots conducted on each of the three suppliers of steel shafts showed that the means of each of the three suppliers were well within the stipulated level of at least 10 inches (Hypothesis 2). This finding was also indicated by the values in the box plot and the interval plots.

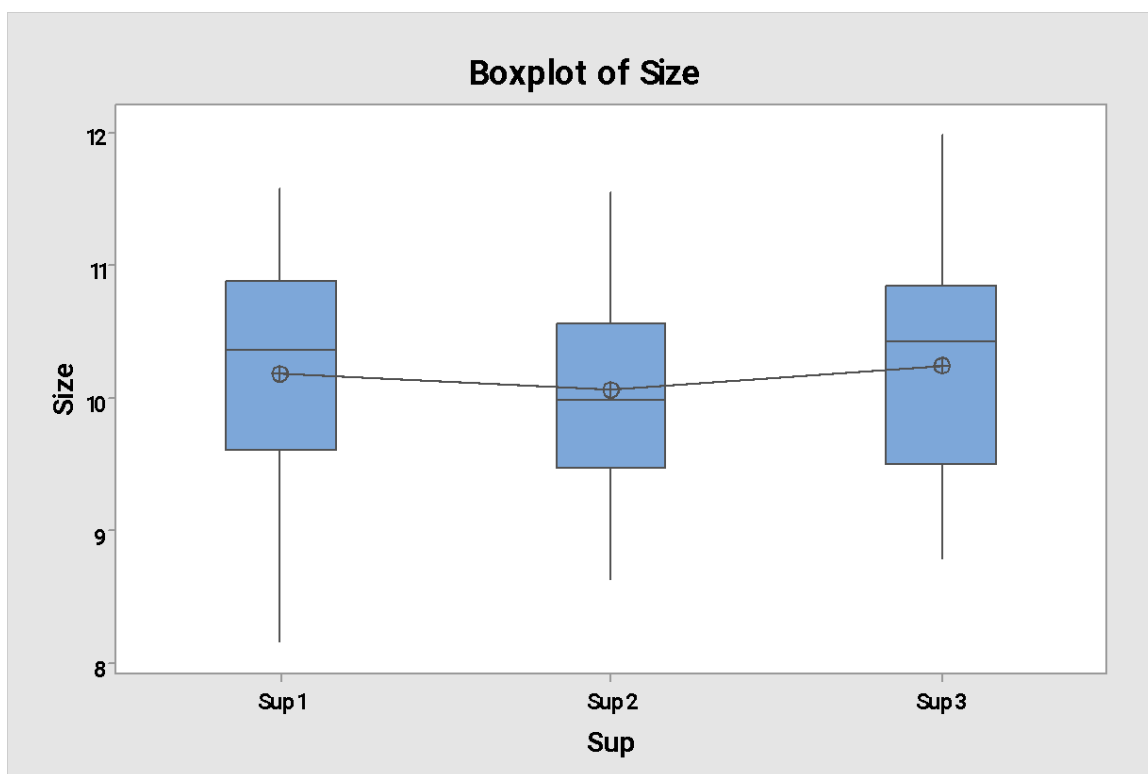


Figure 14: Box plot of size of the steel shaftes supplied by each of the suppliers

The Box plot verified the the values contained in the individual value plot, where the means of the steel shafts supplied by the three suppliers conformed to the stipulated value of at least 10

inches (Fig. 14). This was clearly indicated by the line of fit connecting the three means in the Box plot, indicating mean values which were above 10 inches in the case of each of the suppliers.

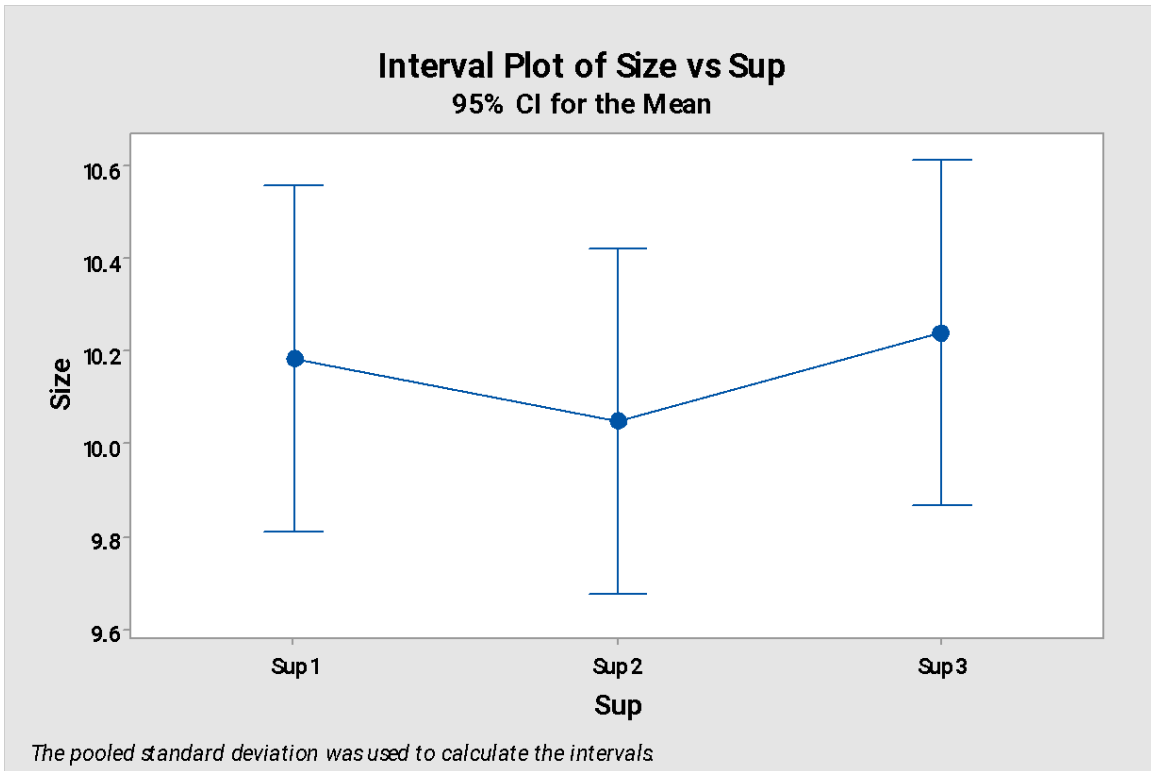


Figure 15: Interval plot of size vs suppliers at 95% CI for the mean

The interval plot of size versus suppliers at 95% CI for the mean showed that all the three means were above the stipulated 10 inches. This again confirmed the earlier findings as in the Box plot for the suppliers of the steel shafts to the company.

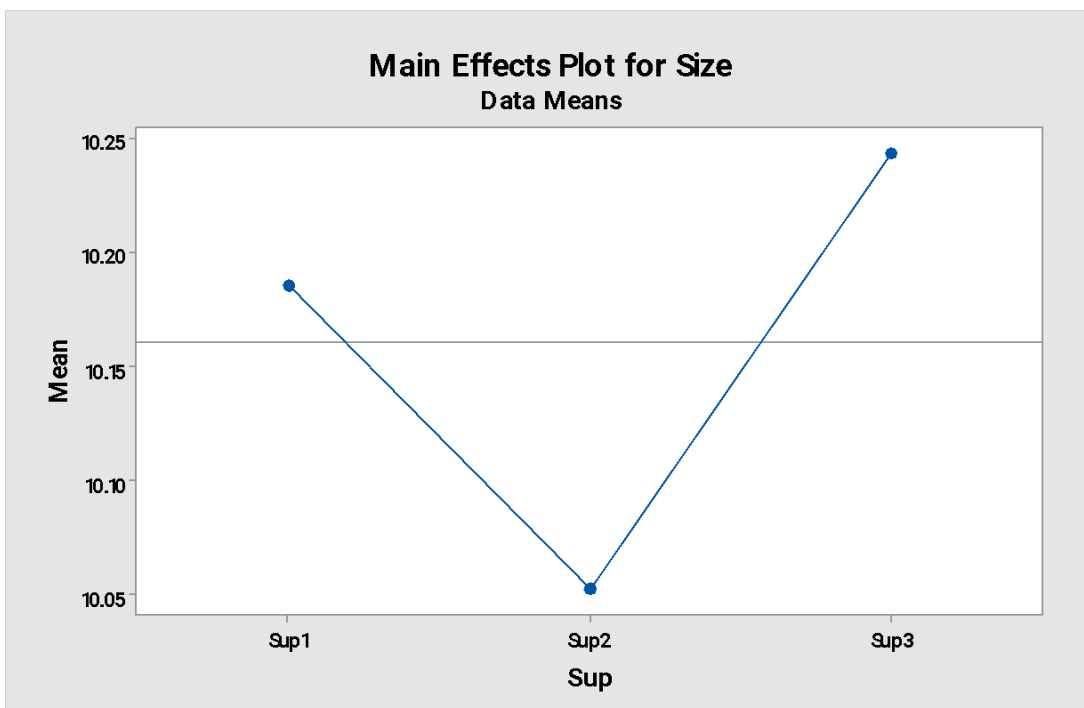


Figure 16: Main effects plot for size: data means

Although, the three suppliers supplied raw material within the stipulated standard of 10 inches, it was obvious from the main effects plot that supplier three stands first, with supplier 1, second, and supplier 2 third (Fig.16).

A one way ANOVA was conducted in order to confirm whether the model fit was significant ( $p < 0.05$ ) and to determine which of the three suppliers, if any were significantly different from each other.

*Table 6: One-way ANOVA: Size versus Sup*

Method

Method	
Null hypothesis	All means are equal
Alternative hypothesis	At least one mean is different
Significance level	$\alpha = 0.05$
Equal variances were assumed for the analysis.	

Factor Information

Factor Information		
Factor	Levels	Values
Sup	3	Sup1, Sup2, Sup3

Analysis of Variance

Analysis of Variance					
Source	DF	Adj SS	Adj MS	F-Value	P-Value
Sup	2	0.3844	0.1922	0.28	0.759
Error	57	39.6261	0.6952		
Total	59	40.0105			

Model Summary

Model Summary			
S	R-sq	R-sq (adj)	R-sq (pred)
0.833784	0.96%	0.00%	0.00%

Means

Means				
Sup	N	Mean	StDev	95% CI
Sup1	20	10.186	0.846	(9.812, 10.559)
Sup2	20	10.052	0.744	(9.679, 10.426)
Sup3	20	10.244	0.903	(9.870, 10.617)
Pooled StDev = 0.833784				

The one way ANOVA showed that the p value was not significant 0.759 ( $p < 0.05$ ). Thus, indicating that there was no significant differences in the

means of the length of steel shafts supplied by each of the three suppliers. Although it was indicated by the process engineer that the quality

of the steel shafts conformed to the stipulated level of 10 inches, the company wished to determine if there was a significant difference in the means between the three suppliers. This was with a view to classify the three suppliers according to priority in terms of the purchasing decision.

The R squared value was high at 96%. This indicated that the dependent variable could be

explained at 96% level by the independent variables. Thus, the ANOVA test conducted on the three suppliers were accurate and significant with a high value of R squared. Also, the p value was not significant at 0.759 ( $p < 0.05$ ). Thus, there was no evidence to indicate any significant difference between the three suppliers of the raw material (Hypothesis 3).

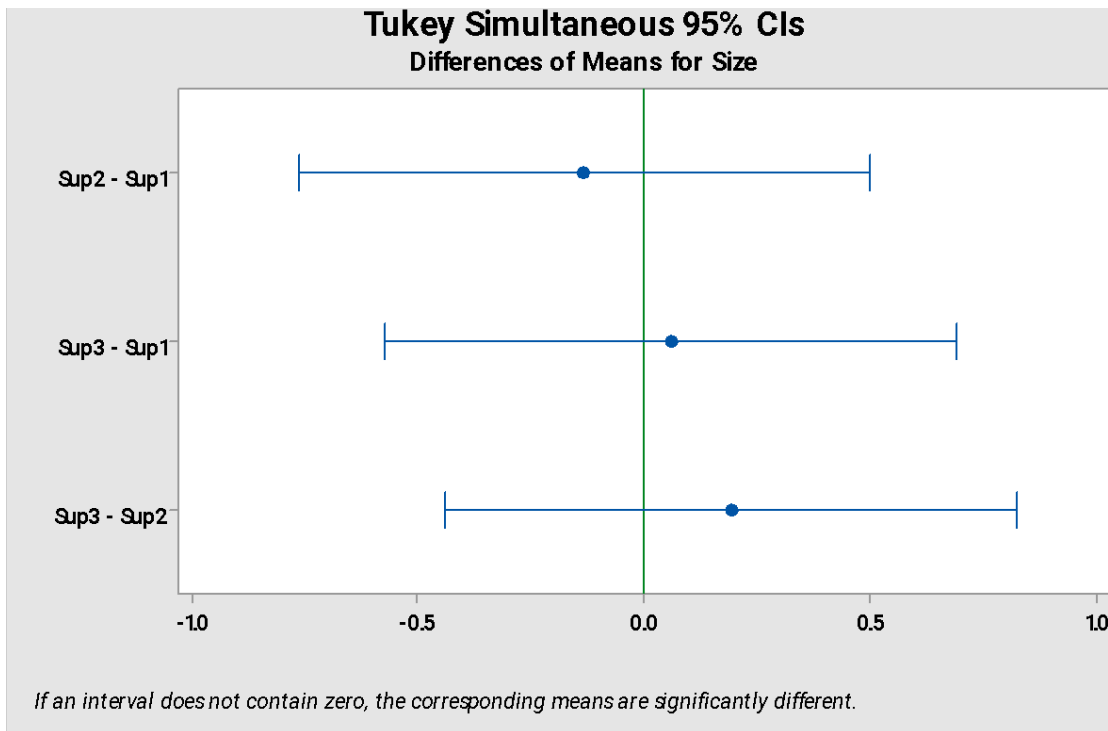
*Table 7: Tukey Pairwise Comparisons*

*Grouping Information Using the Tukey Method and 95% Confidence*

Grouping Information Using the Tukey Method and 95% Confidence			
Sup	N	Mean	Grouping
Sup3	20	10.244	A
Sup1	20	10.186	A
Sup2	20	10.052	A

Means that do not share a letter are significantly different.

The Tukey pairwise comparisons confirmed the earlier interpretation that the three suppliers were in conformance of the standard requirement of at least 10 inches indicated by the process engineer. All the means shared a value of A, indicating that there was no significant difference in the quality of raw material supplied by the three suppliers. Thus, confirming the third Hypothesis.



*Figure 17: Tukey simultaneous 95% CIs: Differences of means for size*

In the Tukey simultaneous 95% CI plot, the three suppliers were contained at the zero point, whereby the line of fit passes through the means

in comparison. This again confirms that the three suppliers were of good quality and there was very little difference between their means, verified by

the overlap in the Tukey test in comparison of the three suppliers (Fig. 17).

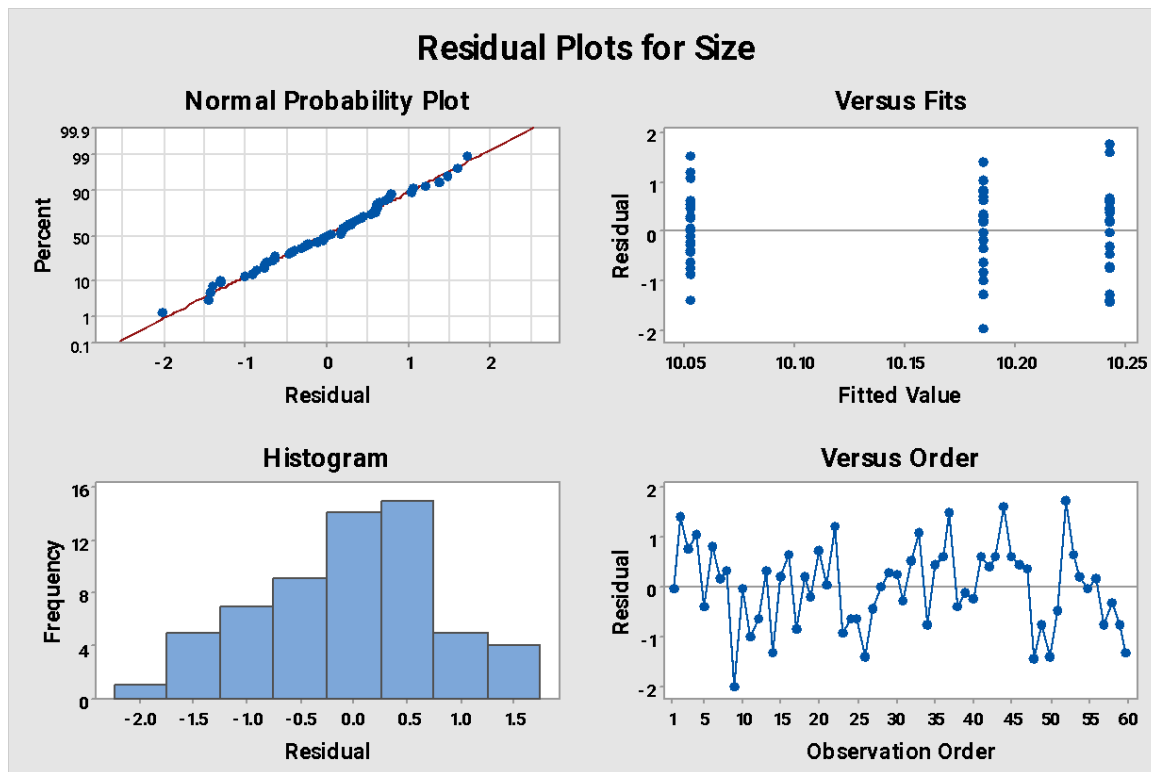


Figure 18: Residual plots for size of steel shafts

The residual plots for size shows a multi-variate response. The normal probability plot indicates that all the residuals in the samples of steel shafts follow a normal pattern where all the plots are close to the standard curve. The versus plot indicates that the three suppliers meet the specified standards of at least 10 inches in the raw material which constitute steel shafts for further processing by the company. The samples range from 10.05 to 10.25 inches and are evenly placed through the zero residual.

The histogram shows a bell shape indicating a normal spread of the means in terms of frequency of the residuals. The versus order shows a random movement of the observation to the residual. Thus, it is evident that the three suppliers of raw steel shafts to the company were of good quality. However, further evidence would be needed in order to determine other aspects of supplier performance before a selection decision could be made with respect to priority in terms of selection issues.

#### IV. DISCUSSION

There are two aspects to processing efficiency and productivity in the manufacturing industry. These constitute the performance of the machines and the suppliers of quality raw material. It is understood that the product quality would be determined mainly by both these aspects. It is also well known that the performance of a system would depend on a number of internal factors. These include man, material, machine, methods and the environment. With regards to this, the supply chain also has a major role to play in determining the result of a process as the raw material supplied to the company has to be of high quality in order to ensure the quality of the product [18].

Generally, in manufacturing the quality of a product determines competitive advantage to the organization. This particularly inspires confidence to the customer and determines the extent of satisfaction. Quality in this respect relates to the rejection of products and deviations from specifications in the manufacturing process.

However, statistical process control can be instituted in order to determine non-conforming parts which can be detected during incoming inspection or during the manufacturing process. Thus, leading to corrective action, quality assurance and preventive maintenance [2, 3]. There may also be deviations from the specified quantities or delivery dates in the customer order in relation to the supply chain management. In this regard, the supplier has an important role to play in mitigating the manufacturing cost, packaging cost, delivery cost and costs related to non-conforming products which would affect the bottom line.

Generally, most previous research categorizes supply chain management (SCM) into the following three major parts: purchasing, manufacturing, and distribution [25]. The purchasing function focuses on obtaining raw materials for manufacturing, which is an essential component to start supply chain execution [26]. Furthermore, the quality of products depends on both the efficiency of the process as well as the raw material procured from the supplier. In particular, manufacturing companies spend about 70% of the cost on purchasing materials from suppliers [27]. Therefore, the unit cost is highly dependent on suppliers.

Thus, purchasing can be regarded as one of the most important activities in manufacturing [2,3]. It should be considered as the essential strategy for producing a high quality product at a low cost to manage the relationship with suppliers. In this study, the raw material procured from the three suppliers were of good quality and met with the specifications stipulated by the company. However, the performance of the process equipment needed to be standardised and monitored regularly for improvement in order to ensure the quality of the product.

Currently, globalization of the supply chain enables securing any material from the worldwide market [28]. It is the most challengeable decision making in outsourcing, which plays a critical role in the success of a supply chain [29]. Outsourcing has become one of the essential requirements of companies to obtain some of the products and

services for supporting manufacturing. However, outsourcing many components to manufacturing companies' of suppliers can lead to a high complexity and uncertainty in the business environment, such as financial crisis.

Furthermore, suppliers play an important role in implementing sustainable supply chain initiatives and in achieving economic, social, and environmental gains [30]. Sustainable supplier management (SSM) has been interrelated with essential purchasing functions; however, the operations, such as sustainable supplier selection, supplier monitoring, and supplier development, are independent [31]. Therefore, supplier selection is a vital issue and a significant strategic decision in the management of a sustainability-focused supply chain [32]. Furthermore, supplier monitoring is an essential process in enhancing the overall supply chain performance while achieving the goal of SSM [33].

However, a great deal of previous research has focused on how to select the appropriate suppliers by presenting different frameworks. Therefore, few studies have compared and analysed the differences of factors involved between supplier selection and monitoring [34]. In this context, the present study develops a decision-making framework for supplier selection and monitoring. This framework can be divided into the following three steps. The first step is the identification of the main dimensions and important criteria for selecting and monitoring. As the second step, the main dimensions and criteria are prioritized. Thirdly and finally, a comparison of the criteria in supplier selection is performed.

The present study, also proposes a novel framework to understand the differences between supplier selection and monitoring. The sets of criteria and their relative importance are obtained by using statistical analytical methods to compare the performance of three suppliers and the relative weights are secured for the supply of steel shafts of a defined length for further processing. In this regard the efficiency of the process is coupled with the quality of the suppliers in order to reduce the rate of defects in a process and to achieve the goals and to maintain sustainability.

## V. CONCLUSION

Several methods have been proposed for solving the supplier selection problem such as vendor profile analysis (VPA), multi-objective programming (MOP), data envelopment analysis (DEA) and analytic hierarchy process (AHP) [35]. Evaluation and ranking of potential suppliers involves both tangible and intangible criteria. This is because the overall assessment of suppliers should not only consider quantitative performance data but also some other criteria that are critical for successful partnerships and are not directly quantifiable, such as trust and commitment.

The performance characteristics of the process equipment used in manufacturing plays an important role in ensuring the overall quality of the final product which is to be released to the customer. The relationship between the suppliers of raw material and the manufacturing organizations are extremely important to ensure the overall success of the process. Organizations generally ensure product quality by adopting various quality management concepts and activities in their processes.

Thus, as the supplier coupled with manufacturing relationship is important, the AHP method developed by Saaty, 1980 [36] is a useful method to select suppliers as it deals with integrating different measures into a single overall score for ranking decision alternatives. The AHP model for casting supplier assessment is based on four groups of criteria: product development capability, manufacturing capability, quality capability, and cost and delivery.

These resonate well with the present study, which proposes an integrated approach to manufacturing processes based on a steel shaft processing facility. In this study, three Hypothesis have been tested by a quality engineer of a manufacturing company in the fabrication of steel shafts meant for further processing. With regards to this, quality of the product, percent defectives produced by the process and supplier quality were selected as the framework for the overall

evaluation of the steel shaft manufacturing process.

The competence of the supplier to design, develop and launch products within the agreed period of time according to the product specifications was assessed. This would enable the company to compare the performance characteristics of the process with the quality characteristics of the supplier. In the current competitive environment, it is a crucial attribute to assess suppliers, as delays in the development stage can affect the end customer response during the launching stage. This would also affect flexibility which involves the response time of the supplier when engineering changes are required during the various stages.

Finally, R&D initiatives are important in manufacturing processes. This is to ensure a good integrative working relationship between the organization and its suppliers. In a highly competitive market environment which prevails in a globalized business setting, R&D activities may assist manufacturers to effectively measure the ability of suppliers to provide support during the product development and processing stages. It is an important attribute as most products, after launching, demand continuous improvement to remain competitive. In reality it may be assumed that the efficiency and productivity of manufacturing processes require much input in terms of research and development activities in order to remain competitive and to ensure the sustainability of the organization.

Based on this study, it may be necessary for manufacturers to pay attention to three aspects of their processes, namely, manufacturing excellence, supplier metrics and customer satisfaction. These aspects contribute to the performance indicators which should be considered as priorities by organizations in their processes in order to remain competitive in this volatile market encompassing an era of globalization. Although, this study focuses on the processing of steel shafts, the model could be applied generally to a wide range of processes where organizations wish to remain competitive

and experience the best of sustainability in the business.

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# Institutional Theories and the Formation of the Brazilian State

*Ramá Lucas Andrade*

## ABSTRACT

The New Institutional Economics will influence political and social thinking, from the post-war period onwards and will be strengthened with globalization, becoming a theoretical instrument for several other sciences, such as Law. In this sense, this article will seek to understand how institutions and institutional theories influenced the formation of the Brazilian State. For this incursion, a study is made on institutional theories and, then, it studies the influence of institutions and Institutionalism for the formation of the Brazilian State. This article, from the point of view of approaching the problem, was treated in a qualitative way, in relation to the objectives, descriptive research was used, from the point of view of technical procedures, it was carried out through a bibliographic study. In Brazil, the social structure is based on values of economic rationality. The autonomy of private will and the presuppositions of freedom and equality, announced by liberalism and later by neoliberalism, guide social relations.

*Keywords:* institutional theories; brazilian state; economic rationality; democratic state; liberalism.

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# Institutional Theories and the Formation of the Brazilian State

As Teorias Institucionais E a Formação Do Estado Brasileiro

Ramá Lucas Andrade

## ABSTRACT

*The New Institutional Economics will influence political and social thinking, from the post-war period onwards and will be strengthened with globalization, becoming a theoretical instrument for several other sciences, such as Law. In this sense, this article will seek to understand how institutions and institutional theories influenced the formation of the Brazilian State. For this incursion, a study is made on institutional theories and, then, it studies the influence of institutions and Institutionalism for the formation of the Brazilian State. This article, from the point of view of approaching the problem, was treated in a qualitative way, in relation to the objectives, descriptive research was used, from the point of view of technical procedures, it was carried out through a bibliographic study. In Brazil, the social structure is based on values of economic rationality. The autonomy of private will and the presuppositions of freedom and equality, announced by liberalism and later by neoliberalism, guide social relations.*

**Keywords:** institutional theories; brazilian state; economic rationality; democratic state; liberalism.

## RESUMO

A Nova Economia Institucional vai influenciar o pensamento político e social, a partir do pós-guerra e se fortalecer com a globalização, transformando-se em instrumento teórico para diversas outras ciências, como é o caso do Direito. Neste sentido, este artigo buscará compreender como as instituições e as teorias institucionais influenciaram a formação do Estado brasileiro. Para tal incursão é feito um estudo sobre as

teorias institucionais e, em seguida, estuda a influência das instituições e do Institucionalismo para a formação do Estado brasileiro. Este artigo, do ponto de vista da abordagem do problema, foi tratado de forma qualitativa, em relação aos objetivos foi utilizado a pesquisa descritiva, do ponto de vista dos procedimentos técnicos foi realizada através de um estudo bibliográfico. No Brasil, a estrutura social está assentada em valores da racionalidade econômica. A autonomia da vontade privada e os pressupostos de liberdade e igualdade, anunciados pelo liberalismo e posteriormente pelo neoliberalismo, conduzem as relações sociais.

**Palavras-chaves:** teorias institucionais; estado brasileiro; racionalidade econômica; estado democrático; liberalismo.

## I. INTRODUÇÃO

O entendimento do termo “instituições” passa necessariamente por uma análise metodológica, mais profunda que uma questão de semântica ou conceituação. Deve se aproximar muito mais da semiótica e da representação do termo, em todas as suas manifestações, para uma organização das estruturas e das relações sociais.

Este esforço deve ser delineado por uma imersão nos pressupostos da Teoria Institucional, desenvolvida pelas Ciências Sociais para explicar a sociedade através de suas instituições.

Existem diversas concepções teóricas que nem sempre convergem entre as suas abordagens institucionalistas. Dentre as divergências, a própria definição de instituição, que pode significar tanto normas de comportamento, quanto normas institucionais ou padrão de organização da firma ou direito de propriedade.

Dentre as diversas abordagens utilizadas, este artigo tem como marco temporal, pesquisas empíricas realizadas no campo das organizações, sob os enfoques estrutural e comportamental.

Os chamados velhos institucionalistas, como Veblen, Commons e Mitchel, centraram sua análise na chamada economia evolucionária<sup>1</sup>. Esta abordagem centra-se em três indicativos: a inadequação da teoria neoclássica<sup>2</sup> em tratar as inovações, supondo-as dadas, e, portanto, desconsiderando as condições de sua implantação; a preocupação, não com o equilíbrio estável, mas em como se dá a mudança e o conseqüente crescimento; e a ênfase no processo de evolução econômica e transformação tecnológica. (CONCEIÇÃO, 2000).

Deve-se destacar que foram as idéias de Veblen, em um artigo chamado “*Why is economics not an evolutionary science?*” escrito em 1898, em que o mesmo estabelece como alternativa a construção de uma teoria econômica evolucionária, em que instintos, hábitos e instituições exercem na evolução econômica papel análogo aos genes na biologia.

Tais estudos influenciaram outros pesquisadores como Philip Selznick, na década de 1950, ao introduzir as bases de um modelo institucional e interpretar as organizações como uma expressão estrutural da ação racional que, ao longo do tempo, são sujeitas às pressões do ambiente social e transformam-se em sistemas orgânicos. Segundo Vinicius C. de Sá (2011), esta evolução, que Selznick designa como processo de institucionalização, pode ser sintetizada num

<sup>1</sup> Esta abordagem traz como fundamento uma aproximação entre a biologia evolucionária e economia institucional. Para maior aprofundamento sobre o assunto ver: HODGSON, Geoffrey M. *The Approach of Institutional Economics. Journal of Economic Literature*. v. 36, 1998.

<sup>2</sup> Economia Neoclássica designa diversas correntes do pensamento econômico, também conhecido como Marginalismo, que buscou integrar a teoria da utilidade do valor com a teoria do custo de produção da Escola Clássica, bem como explicar os preços dos bens e dos fatores, e a alocação dos recursos com o auxílio da análise marginal. Para maiores detalhes ver: VASCONCELLOS, Marco Antonio Sandoval de. *Manual de economia - 2. ed., 4a. tiragem - São Paulo: Saraiva, 1996.*

aspecto: os valores substituem os fatores técnicos na determinação das tarefas organizativas.

O institucionalismo de Philip Selznick, também conhecido como velho institucionalismo, tem suas bases de oposição às teorias neoclássicas, na perspectiva econômica.

A sociologia, por outro lado, lida com as relações, os processos e as estruturas sociais. Um tema particularmente importante da reflexão sociológica é a interação social, momento primordial na gênese e reiteração do social. Todo fato social caracteriza-se por ser um nexo de relações sociais. (IANNI, 1996, p. 27).

De maneira geral, estas concepções têm nas instituições sua base de análise, partem da discussão de suas diferenças com o neoclassicismo e suas afinidades com o evolucionismo, buscam ainda, identificar analiticamente pontos de concordância, que permitam a constituição de uma possível teoria institucionalista. Assim, sua generalidade está em indicar como desenvolver análises específicas e variadas, em relação a um fenômeno específico.

A Escola do Institucionalismo da Escolha Racional vai influenciar toda uma corrente de pensamento, o que provoca o surgimento da Nova Economia Institucional (NEI). Esta se preocupa, fundamentalmente, com aspectos micro-econômicos, com ênfase na teoria da firma, que mescla história econômica, economia dos direitos de propriedade, sistemas comparativos, economia do trabalho e organização industrial. As figuras mais expressivas desta escola são Ronald Coase, Oliver Williamson e Douglass North, que se ocupam de estudos na área de organização e operação das empresas, formação de mercados, a divisão de atividades entre corporações e mercados e a formação de sistemas de mercado e instituições que formam os sistemas de mercado. Centram sua análise nos custos de transação e, no caso de North, em estudos mais recentes, no papel do poder e ideologia na evolução institucional e sistêmica.

A Nova Economia Institucional, por sua vez, vai influenciar o pensamento político e social, a partir do pós-guerra e se fortalecer com a globalização,

transformando-se em instrumento teórico para diversas outras ciências, como é o caso do Direito.

Tais influências conduzem à formulações teóricas e práticas de construção da sociedade, que podem ser assim elencadas: i) liberalismo: quem deve ordenar as relações econômicas e sociais é o mercado; Estado mínimo; liberdade para o capital internacional; ii) Democracia representativa: fortalecimento das instituições e um Estado que não deve ser um resumo do pensamento popular, mas um pensamento meditado e separado do pensamento coletivo, incumbido de entender e decidir da forma mais benéfica a todos; iii) Estrutura social: divida em estamentos, onde alguns, eleitos, estão qualificados para a condução da sociedade e a busca do bem comum.

No momento em que se busca compreender as atuais democracias com suas estruturas e influências, deve-se buscar entender o papel das instituições e da participação popular para a construção do Estado Democrático de Direito e a sua influência para a consecução da justiça.

Dentre as inúmeras escolas, e suas vertentes nas diversas ciências, que buscam resolver o problema da melhor democracia, este trabalho buscou delimitar o tema dentro da possibilidade que analisasse a democracia representativa, ou na sua versão liberal, à qual tem o mercado como balizador das atividades legislativas, jurídicas e políticas, ou através do intervencionismo estatal, como é o caso do Estado do bem-estar social.

No contexto deste debate e das atuais democracias, acima exposto, coloca-se à baila o Estado brasileiro, que têm as bases da ordem econômica-política-jurídica-social do Estado, estabelecidas constitucionalmente - Constituição Federal de 1988, e que indicam sua opção pelo sistema liberal representativo.

Estes problemas, enfrentados pelo Estado brasileiro, sofrem influência direta das questões políticas e econômicas em todo o mundo. Este é o resultado, por um lado, das chamadas economias abertas (caso do Brasil), onde as suas estruturas de produção e distribuição da riqueza estão diretamente relacionadas ao mercado global, sendo influenciado e influenciando as estratégias

sócio-políticas; por outro lado, as conseqüências de um mundo mais globalizado, aonde não existem limitações de espaço e idiomas, provocando uma difusão planetária de informações, que rompem e criam novos paradigmas, estimulando um novo modo de ser, de pensar e de agir, desse novo cidadão do mundo.

Não obstante a complexidade dos Estados modernos e de suas interconexões, faz-se necessário um esforço para tornar a pesquisa científica passível de observações. Abstrações e digressões devem conduzir aos chamados cortes teóricos, espaciais e temporais, com o propósito de inferências na realidade e observância dos resultados.

Neste sentido, este artigo buscará compreender como as instituições e as teorias institucionais influenciaram a formação do Estado brasileiro. Para tal incursão é feito um estudo sobre as teorias institucionais e, em seguida, estuda a influência das instituições e do Institucionalismo para a formação do Estado brasileiro.

Este artigo, do ponto de vista da abordagem do problema, foi tratado de forma qualitativa, pois considera que existe uma relação entre o mundo e o sujeito traduzida em representações não numéricas. Em relação aos objetivos foi utilizada a pesquisa descritiva, já que buscou descrever as características de um fenômeno. Do ponto de vista dos procedimentos técnicos foi realizada através de um estudo bibliográfico, já que procura explicar um problema a partir de referências teóricas publicadas em documentos. (GIL, 2007).

#### *As Teorias Institucionais*

É possível perceber que estes estudos, sobre as instituições, irão sofrer divergências, em anos seguintes, apropriados por diversas ciências e servindo de base para uma gama de concepções teóricas. Dentre as ciências podem se destacar estudos nas áreas da Economia, da Sociologia e da Ciência Política.

O enfoque institucional desenvolveu-se em três vertentes:

A orientação Econômica insere o processo econômico no marco da construção social, entre outras forças como a história e os aspectos culturais. Eleva os elementos empresas, mercados e relações contratuais à uma estrutura organizacional. Com Veblen, em oposição ao paradigma dominante, *homo economicus*<sup>3</sup>, dizia que os costumes e as convenções determinavam o comportamento econômico e que o indivíduo era influenciado pelas instituições. Com Commons e Mitchel rebate a idéia da teoria econômica com eficiência estática e com equilíbrio de mercado, trazendo o institucionalismo como instrumento de estudo de processos dinâmicos e evolução cultural. Em estudos mais recentes, como as de Williamson e Coase, as transações são a principal unidade de análise e são ademais responsáveis pela definição dos mercados, das hierarquias e das formas híbridas das organizações. (CARVALHO, 1999).

A orientação Política, inicialmente manteve uma estreita relação com o direito constitucional e a filosofia moral concedendo, segundo Scott (1995), especial atenção aos aspectos legais e à ordenação administrativa das estruturas de governo. Com este ocorreu um deslocamento do foco teórico das estruturas e das normas para os comportamentos dos indivíduos. Para os institucionalistas, a modernidade na sociedade burocrática é responsável pela transformação paulatina das instituições sociais, políticas e econômicas. Dessa forma as instituições cresceram, adquiriram uma considerável parcela de poder, tornaram-se mais complexas e eficazes. Para estes teóricos, é o protagonismo das instituições, que está na origem do interesse da ciência política. Os trabalhos recentes se concentram em questões como a autonomia relativa das instituições políticas em relação à sociedade; a complexidade dos sistemas políticos existentes e o papel central exercido pela representação e o simbolismo no universo político. Tais pesquisas são foco de análise de processos de tomadas de decisão por instituições domésticas, assim como resultados para relações internacionais. (CARVALHO, 1999).

<sup>3</sup> Construção fictícia, desenvolvida por volta do século XIX, de um homem sem outras dimensões como a moral, ética, religiosa, política e outras. Alguém que apenas produz e consome.

Já na orientação Sociológica aparece a influência de Émile Durkheim, com as suas contribuições iniciais sobre o caráter variável das bases da ordem social, destacando o papel exercido pelos sistemas simbólicos, os sistemas de conhecimento, de crença e a autoridade moral, identificados como instituições sociais, produtos da interação humana. Weber, em seus estudos sociológicos sobre o nascimento do capitalismo, aprofundou tanto na compreensão da influência das normas culturais, como na construção e o caráter histórico das estruturas econômicas e sociais. Com Berger e Luckmann centra-se na investigação da natureza e origem da ordem social, que serviu de base para o chamado novo institucionalismo nas organizações. Mais recentemente, Meyer, Rowan e Zucker destacaram papel das normas culturais e de elementos institucionais, como normas profissionais e organismos do Estado no processo de institucionalização. (CARVALHO, 1999).

As ideias aqui expostas trazem uma sugestão de aglutinação de pensamentos. Contudo, apesar de tornar mais didático sua compreensão, não se deve olvidar as divergências entre as vertentes acima expostas. Também havia divergências entre os teóricos que conviveram no mesmo período, e entre as escolas de períodos diferentes. Assim, apesar de algumas bases conceituais estarem em escolas diferentes, pode-se se destacar oposições entre o pensamento dos chamados velhos institucionalistas e dos novos institucionalistas. E entre estes últimos, várias concepções: como o institucionalismo histórico, o institucionalismo da escolha racional e o institucionalismo sociológico.

O chamado Neo Institucionalismo, nasce por volta das décadas de 1980 e 1990, a partir de pensadores que se posicionam opostos aos institucionalistas, ou ao Velho Institucionalismo, que tinham sua estrutura no funcionalismo, behaviorismo<sup>4</sup> e marxismo, e baseavam seus

<sup>4</sup> Do ingles Behavior = comportamento – Teoria psicológica enunciada pelo norte-americano John B. Warson em decorrência de estudos experimentais sobre o comportamento reflexo efetuados por I. Pavlov. Cf.: CABRAL, Álvaro; NICK, Eva. Dicionário Técnico de Psicologia. 14 ed. São Paulo: Cultrix, 2006, p. 41.

estudos na crítica às Escolas Clássica e Neoclássica. Já os Neoinstitucionalistas buscaram uma revitalização e uma expansão dos elementos institucionalistas encontrados em economia clássica e neoclássica.

Enquanto os velhos institucionalistas são considerados descritivistas, anti-formalistas, holistas, behavioristas, e coletivistas, além de rejeitarem os critérios individualistas de bem-estar e são mais intervencionistas, sendo a favor de um maior envolvimento do governo na correção de falhas institucionais; os neo-institucionalistas são considerados mais formalistas (especialmente no que se refere às teorias neoclássicas e a teoria dos jogos), individualistas, reducionistas, orientado em direção à escolha racional e a modelos estritamente econômicos, e geralmente anti-intervencionistas.

Os chamados neoinstitucionalistas não desenvolveram uma corrente de pensamento unificada, e seus métodos de análise tiveram como vertentes:

O Institucionalismo Histórico desenvolveu-se como reação à análise política em termos de grupos e contra o estruturo-funcionalismo. Preocupam-se com a organização institucional da comunidade política e as estruturas econômicas entram em conflito, de tal modo que determinados interesses são privilegiados em detrimento de outros. Consideram que a comunidade política ou a economia política é o principal fator a estruturar o comportamento coletivo. Privilegiam a estrutura (estruturalismo) das instituições políticas ao funcionalismo das teorias anteriores. Além de mudança no papel do Estado, que não é mais neutro, estudam também o comportamento da organização do capital e do trabalho, incluindo relações entre legisladores, os interesses organizados, o eleitorado e o poder judiciário.

Tais pesquisas serviram de base para estudos comparados, entre países, estendendo suas análises para os movimentos dos trabalhadores, as organizações patronais e os sistemas financeiros de diversos países. Esta escola tem

como características: 1º) esses teóricos tendem a conceituar a relação entre as instituições e o comportamento individual em termos muito gerais; 2º) enfatizam as assimetrias de poder associadas ao funcionamento e ao desenvolvimento das instituições; 3º) tendem a formar uma concepção do desenvolvimento institucional que privilegia as trajetórias, as situações críticas e as conseqüências imprevistas; e 4º) buscam combinar explicações da contribuição das instituições à determinação de situações políticas com uma avaliação da contribuição de outros tipos de fatores, como as idéias, a esses mesmos processos. (HALL, 2003).

O Institucionalismo da Escolha Racional surge de um paradoxo: como que existe uma estabilidade nas decisões do Congresso Norte-Americano, se, segundo os postulados da escola clássica sobre escolha racional, não deveria haver estabilidade para votação de leis no Congresso, pois as escalas de preferências legislativas e o caráter multidimensional das questões mudariam a cada ciclo, e assim invalidariam as preferências da maioria precedente. Explica que as instituições do Congresso diminuem os custos de transação ligados à conclusão de acordos, de modo a propiciar aos parlamentares os benefícios da troca, permitindo a adoção de leis estáveis.

Na prática, as instituições resolvem uma grande parte dos problemas de ação coletiva enfrentados pelos legisladores. Possui como referência os trabalhos de Oliver Williamson que estuda os aspectos organizacionais de uma empresa e seu esforço para reduzir custos. Douglas North aplicou teses similares às questões das instituições políticas. Gary W. Cox e Mathew D. McCubbins deram ênfase no modo como os partidos políticos estruturam as deliberações. John Ferejohn examina as relações entre o Congresso e os tribunais e como desenvolve-se a capacidade do Congresso de enquadrar as autoridades administrativas.

A partir dos anos 1990, os teóricos desta escola buscaram explicar outros fenômenos políticos como o comportamento de coalizões segundo os países, o desenvolvimento histórico das instituições políticas e a intensidade de conflitos

étnicos. Adam Przeworski, Barbara Geddes, Gary Marks analisam as transições para a democracia segundo o modelo da teoria dos jogos. George Tsebelis e outros estudam as conseqüências da reforma institucional no seio da União Européia.

Os debates internos desta escola trazem alguns pontos comuns: 1º) empregam uma série de características de pressupostos comportamentais. Postulam que os atores compartilham um conjunto de preferências e se comportam de modo a buscar máxima satisfação; 2º) consideram a vida política como uma série de dilemas de ação coletiva. Utilizam recursos como o “dilema dos prisioneiros” e a “tragédia dos bens comuns” para explicar o resultado ótimo de interações coletivas. 3º) afirmam que as instituições estruturam as interações entre atores, na medida que o comportamento desses atores é determinado por cálculos estratégicos, e aquelas (as instituições) propiciam ganhos de troca, oferecendo informações e mecanismos que diminuem as incertezas; 4º) o processo de criação de instituições é geralmente centrado na noção de acordo voluntário entre os atores interessados.

O Institucionalismo Sociológico remonta os anos de 1970, quando alguns sociólogos começam a contestar a distinção tradicional entre a esfera do mundo social (burocrática) e as esferas associadas à cultura. Desde Max Weber, numerosos sociólogos consideraram as estruturas burocráticas que dominam o mundo moderno, sejam elas ministérios, empresas, escolas, grupos de interesse etc., como produto de um intenso esforço de elaboração de estruturas cada vez mais eficazes, destinadas a cumprir procedimentos e tarefas formais ligadas a essas organizações.

Segundo os teóricos desta escola, essas formas e procedimentos deveriam ser considerados como práticas culturais, comparáveis aos mitos e às cerimônias elaborados pelas sociedades. Buscam explicar por que as organizações adotam um específico conjunto de formas, procedimentos ou símbolos institucionais, com particular atenção à difusão dessas práticas. Frank Dobbin usa esse enfoque para mostrar como concepções culturalmente determinadas do Estado e do mercado condicionaram a política ferroviária na

França e nos Estados Unidos no século XIX. John W. Meyer e W. Richard Scott o mesmo enfoque para explicar a proliferação de programas de formação nas empresas norte-americanas. Neil Fligstein serve-se dele para explicar a diversificação da indústria norte-americana, e Yasemin Soyal o faz para explicar a atual política de imigração na Europa e na América do Norte.

As principais características desta escola são: 1º) definem instituições de maneira muito mais global que os pesquisadores em Ciência Política, incluindo não só regras, procedimentos ou normas formais, mas também os sistemas de símbolos, os esquemas cognitivos e os modelos morais que guiam a ação humana; 2º) enfatizam a natureza interativa das relações entre as instituições e a ação individual, na qual cada pólo constitui o outro.

Assim, para estabelecer uma linha de ação, o indivíduo utiliza os modelos institucionais disponíveis ao mesmo tempo em que os confecciona. Sustentam que as organizações adotam uma nova prática institucional por razões que têm menos a ver com o aumento da sua eficiência (defendida pela escola da escolha racional) do que com reforço que oferece à sua legitimidade social. John L. Campbell exprime bem esse modo de ver as coisas ao falar de uma “lógica das conveniências sociais” por oposição a uma “lógica instrumental”. (HALL, 2003, p. 207-2012).

Para alguns estudiosos existe uma quarta corrente, o Institucionalismo Econômico. Contudo, os pressupostos da interação estratégica, direitos de propriedade e seleção competitiva, que fundamentam tal escola, já estão contidos na Escola da Escolha Racional.

Apesar das semelhanças e da interação entre elas, surgem estudos na área que ficaram conhecidos como a Nova Economia Institucional (NEI). Esta se preocupa, fundamentalmente, com aspectos microeconômicos, com ênfase na teoria da firma, que mescla história econômica, economia dos direitos de propriedade, sistemas comparativos, economia do trabalho e organização industrial. As figuras mais expressivas desta escola são Ronald

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As várias abordagens da NEI se desenvolveram a partir de uma variedade de recortes analíticos específicos, que delimitam diferentes objetos a partir da eleição de um nível de análise determinado e da construção de um modelo teórico adequado a este. Os principais níveis de análise definidos por estas abordagens se referem a subsistemas da estrutura institucional de uma economia capitalista, que possuem relativa autonomia, o que justifica o seu estudo dentro de enfoques teóricos especializados. (PONDE, 2007, p. 8).

De acordo com o exposto, e em virtude da dificuldade de um delineamento de todas as teorias aqui levantadas, será utilizada uma abordagem da teoria econômica institucionalista, à qual tem como pretensão objeto de estudo a evolução das instituições no capitalismo.

Assim, apesar das Escolas Institucionalistas terem estruturado suas bases teóricas num período recente, as idéias e seus pressupostos podem ser emprestados para análise de períodos mais remotos, como a formação dos Estados.

## II. AS INSTITUIÇÕES E A FORMAÇÃO DO ESTADO BRASILEIRO

A formação do Estado Brasileiro está diretamente relacionada ao processo que culminou com a consolidação das relações de produção capitalistas e do modo de vida liberal. A construção desse sistema econômico passa por dimensões do colonialismo ao imperialismo e de conquista de territórios. Assim, a construção do Brasil está diretamente relacionada à invenção e conquista da América Latina, através do capitalismo colonial moderno e da Europa como centro do mundo

(eurocentrismo), como um novo padrão de poder mundial.

A construção do Estado brasileiro segue, portanto, o que ocorreu em toda a América Latina, onde o capital buscou concretizar um eixo de articulação das formas historicamente conhecidas de controle e exploração do trabalho, com mecanismos de classificação e diferenciação de raças, com o objetivo de subjugar e dominar.

O descobrimento do Brasil se insere num período conhecido como Idade Moderna (1453 - tomada de Constantinopla pelos turcos otomanos, indo até 1789 - início da Revolução Francesa). Este período teve como principais características: i) foi um período de transição do Feudalismo para o Capitalismo; ii) fortalecimento das monarquias nacionais européias; iii) prevalência de um regime político caracterizado, principalmente, pela centralização do poder nas mãos do monarca (rei); iv) período de descobrimentos marítimos feitos pelos europeus (principalmente Portugal e Espanha) e colonização e exploração das terras descobertas (principalmente na América e África); v) comércio marítimo como principal fator de desenvolvimento econômico das nações (mercantilismo); vi) Fortalecimento da burguesia comercial européia; vii) surgimento de movimentos de contestação ao poder da Igreja Católica (Reforma Religiosa) e formação de novas igrejas (luterana, calvinista e anglicana); viii) desenvolvimento das artes plásticas e da cultura sob uma nova perspectiva (humanismo), principalmente com o Renascimento Cultural; ix) amplo desenvolvimento científico (Astronomia, Engenharia, Matemática, Anatomia, Biologia, etc.) no contexto do Renascimento Científico; x) acúmulo de riquezas na Europa, fruto da exploração das colônias na América; xi) início da Revolução Industrial no final da Idade Moderna; xii) contestação, principalmente com o Iluminismo, do regime Absolutista e crise deste sistema de governo no final da Idade Moderna (segunda metade do século XVIII). (VICENTINO, 2013, p. 79).

Baseado nos estudos, acima descritos, pode-se assinalar que no período do descobrimento do Brasil, as dimensões institucionais que

representavam este período, notadamente na Europa, eram: na economia ocorria o declínio do feudalismo e ascensão do capitalismo mercantil (grandes navegações e descoberta de novos continentes); na sociedade a ascensão da burguesia em detrimento da nobreza e do clero; na política a formação do Estado Moderno; na religião o surgimento da Reforma Protestante contra a hegemonia da unidade cristã; e na cultura o movimento renascentista; e como visão de mundo prevalecia o eurocentrismo.

O eurocentrismo tinha como principal característica a idéia de impor os interesses e a cultura europeia em todos os lugares. Este pensamento foi muito utilizado no período das Grandes Navegações e Descobrimientos Marítimos (séculos XV e XVI), principalmente portugueses e espanhóis, ao descobrirem novas terras na África, Ásia e América e implantaram suas culturas (religião, língua, modos, costumes) entre os povos conquistados.

Para a compreensão sobre o Estado Moderno e os efeitos de tal instituição para o estabelecimento da estrutura jurídico-político-econômico da sociedade europeia e conseqüente processo de colonização na América Latina e no Brasil, deve-se buscar o entendimento de Max Weber em relação às formas de poder.

Inicialmente Weber diz que a probabilidade de encontrar obediência a um determinado mandato pode fundar-se em diversos motivos, mas que, em bases de legitimidade, as formas totalmente puras de dominação são: a legal, a tradicional e a carismática. (GOHN, 1979, p. 128).

Nas relações dos quadros administrativos dominam a fidelidade pessoal do servidor, que é caracterizado por duas modalidades: 1) a estrutura puramente patriarcal de administração, onde os servidores são recrutados em completa dependência pessoal do senhor; 2) a estrutura estamental, onde os servidores são pessoas independentes. (GOHN, 1979, p. 131).

Esta última é uma característica do Estado Absolutista, em que não possui distinções entre os limites do público e os limites do privado. É

baseado na autoridade patriarcal, e que também pode se denominar patrimonial.

O patrimonialismo, portanto, explica a fundamentação do poder político, ou seja, como este se organiza e se legitima, e caracteriza-se pelo poder político organizado através do poder arbitrário/pessoal do príncipe e legitimado pela tradição. Tal legitimação pela tradição é ambivalente em relação à tendência dos dirigentes ao arbítrio pessoal. A tradição, ao mesmo tempo que a ampara, limita-a, ao reconhecer aos dominados certos direitos e imunidades sacralizados pelo tempo e costumes. É a coexistência dinâmica e tensa daquilo que a autora mexicana Gina Zabludovsky Kuper considera o cerne da estrutura patrimonial de poder: o binômio tradição/arbítrio.

Se o arbítrio predomina, o patrimonialismo aproxima-se do que Weber classificou de patrimonialismo sultanista, ou patriarcal, ou puro. Se prevalece a tradição, o patrimonialismo tende a transformar-se em patrimonialismo estamental ou descentralizado, no qual as relações entre o príncipe e o corpo administrativo são mais estáveis e equalizadas. (CAMPANTE, 2003, p. 156).

Segundo Neto (2008) o patrimonialismo é uma forma de exercício da dominação por uma autoridade, a qual está legitimada pela tradição, e tem como principal característica o poder individual do governante que, amparado pelo aparato administrativo recrutado com base em critérios unicamente pessoais, exerce o poder político sob um determinado território.

Quando o príncipe organiza, em princípio, seu poder político, isto é, sua dominação não-doméstica, com o emprego da coação física contra os dominados, sobre territórios e pessoas extrapatrimoniais (os súditos políticos), da mesma forma que o exercício de seu poder doméstico, falamos de uma formação estatal-patrimonial. A maioria de todos os grandes impérios continentais apresentou, até os inícios da Época Moderna e ainda dentro desta época, um caráter fortemente patrimonial. (WEBER, 1999, p. 240).

No Brasil, o processo de colonização importava este mesmo mecanismo de administração, do modelo patrimonialista.

Esta seria, portanto, uma das explicações para os problemas enfrentados pelo Brasil, ou seja, o caráter específico da formação histórica nacional, em face do passado colonial, na qual a estrutura administrativa de poder patrimonial do Estado português foi inteiramente importada para a colônia e transformado em padrão que, a partir dele, estruturaram-se todo o período colonial, a Independência, o Império e a República do Brasil.

A Estrutura econômica, no período colonial era dependente baseada, nos quatro primeiros séculos, em cinco pilares básicos: produção primária, através da monocultura, destinada à exportação, realizada no latifúndio, por mão-de-obra escrava ou assalariados mal-pagos. À margem ou com função complementar, as pequenas lavouras de subsistência formada por maioria de deserdados. (BRUM, 1999).

A elite branca, proprietária de terras e de escravos, situava-se no topo da pirâmide social da Colônia. Os senhores de engenho, donos de imensa fortuna e dominando grande número de pessoas, formavam uma aristocracia de riqueza e poder, mas não uma nobreza hereditária do tipo que existia na Europa. O rei concedia títulos de nobreza por serviços prestados ou mediante pagamento. Eram os brancos ricos que exerciam o poder político na Colônia, monopolizando as decisões. Por exercerem seu controle sobre a massa da população colonial (negros e brancos pobres), os senhores tinham grande prestígio social. (FAUSTO, 1995).

O poder político concentrado nas mãos dos senhores de terras, com alguma participação dos comerciantes. No Império a vida política girou em torno dos dois grandes partidos políticos: o Conservador e o Liberal. Ambos representavam a classe senhorial.

A administração da Justiça, no Brasil, fazia-se através do Ouvidor-Geral, que ficava na Bahia, ao qual se poderia recorrer das decisões dos ouvidores das comarcas, em cada capitania, que cuidavam da solução das contendas jurídicas nas

vilas. Tais funções judiciais eram confundidas com as funções administrativas e policiais, já que os chanceleres, contadores e vereadores que compunham os Conselhos ou Câmaras Municipais atividades jurisdicionais nas comarcas, durante o período colonial. As figuras dos corregedores, provedores, juizes ordinários, próprias da Justiça Portuguesa, começaram a aparecer no Brasil, na medida em que a colonização foi se ampliando, exigindo uma estrutura burocrática e administrativa mais sofisticada. (MARTINS FILHO, 1999).

O que se pôde perceber é que neste período não existia um Estado brasileiro. A administração colonial portuguesa no Brasil buscou exercer de um lado o centralismo político, caracterizado por uma grande intervenção da Metrópole, para um melhor controle da área colonial, e de outro a política local, marcada pela descentralização e que atendia aos interesses dos colonos, em virtude da autonomia dos poderes locais para com a Metrópole. Os sistemas utilizados para exercer a administração foram os das Capitânicas Hereditárias e depois dos Governos Gerais.

Esta estrutura colonial vai perdurar até a criação da primeira Constituição do Brasil em 1824, quando nasce o Estado brasileiro. Esta é a posição de muitos teóricos: só existe Estado, quando existe uma Constituição. Esta é defesa feita por Hans Kelsen, pois, segundo este, antes do seu nascimento, somente teríamos o Estado de fato, já que “nenhuma ordenação social – nem mesmo a chamada moral ou justiça – é considerada válida se não for, em certa medida, efetiva, ou seja, se o comportamento humano regulado por essa ordenação não se conformar a ela”. (KELSEN, 1985, p. 64).

A influência dos preceitos liberais segue determinando as instituições em todas as constituições brasileiras (1824, 1891, 1934, 1937, 1946, 1967, 1988). De maneira geral tem forte conotação do liberalismo econômico, privilegiando o capital, o individualismo e a força do mercado, por outro lado, reduzindo o papel do Estado e desestimulando as lutas sociais e

participação popular nos assuntos de gestão pública.<sup>5</sup>

A Constituição de 1988 instituiu o Estado Democrático de Direito destinado a assegurar o exercício dos direitos sociais e individuais, a liberdade, a segurança, o bem-estar, o desenvolvimento, a igualdade e a justiça como valores supremos de uma sociedade fraterna, pluralista e sem preconceitos, fundada na harmonia social. Estabelece ainda o fortalecimento da Federação, formada pela união indissolúvel dos Estados e Municípios e do Distrito Federal, declara seus princípios fundamentais e afirma a soberania popular. Além de instituir como novo paradigma, a democracia participativa.

Garantiu entre seus princípios fundamentais a redução das desigualdades, considerando a diversidade sexual, de raça, geração, e o combate a qualquer forma de discriminação. Além disso, primou pela garantia dos direitos humanos, dos direitos sociais e políticos. É, sem dúvida, um novo paradigma no arcabouço jurídico e democrático brasileiro.

A Constituição Federal, no *caput* do Artigo 1º, garante que a República Federativa do Brasil constitui-se em um Estado Democrático de Direito e, no parágrafo único do artigo 1º, dispõe: Todo poder emana do povo, que o exerce por meio de representantes eleitos ou diretamente. Mais adiante, no inciso III, do artigo 3º, consagra que um dos objetivos fundamentais da República consiste em erradicar a pobreza e a marginalização e reduzir as desigualdades sociais e regionais. (BRASIL, 1988).

Apesar da carta magna de 1988, enumerar estes direitos e declarar o respeito aos direitos humanos, coletivos e individuais, o grande problema é a sua não-efetividade, pois sua defesa depende sempre da institucionalização de um sistema de poder e de uma posição de poder na sociedade. Isto pode ser observado ao verificar

<sup>5</sup> Deve se guardar as proporções dos papéis dos agentes sociais e das instituições em cada período, respeitando as mudanças no papel do Estado como: Estado liberal, Estado social, Estado regulador.

que o objeto dos direitos econômicos e sociais são políticas públicas ou programas de ação governamental, que visam a suprimir carências sociais. De um lado os titulares desses direitos são os grupos carentes ou despossuídos – como sujeito coletivo ou individual, do outro, o Estado, ou os particulares que detêm poder econômico e que estabelecem as diretrizes das políticas.

O executivo não tem muito poder de manobra, executa o que está estabelecido nas leis. Apesar do revezamento de governos com tendências ideológicas para um Estado mais ou menos interventivo, o Brasil, a partir da redemocratização e da promulgação da Constituição de 1988 (que traz instrumentos da social democracia, tais como a função social da propriedade, desenvolvimento social e mecanismos de participação popular) é um país capitalista, com todos os mecanismos do sistema neoliberal.

E o judiciário, garante para que estas leis sejam cumpridas. E mesmo que se defenda a posição de um judiciário mais atuante, e seja adepto da judicialização da política, esta função, de transformar a constituição formal em constituição substancial, vai estar adstrita ao contorno e aos limites constitucionais, ou seja, às leis que sofreram as influências dos valores e preceitos econômicos dominantes, além de provocar uma aporia do poder.

A atividade legiferante é desenvolvida por poucos, eleitos democraticamente, mas sem controle social (apesar dos mecanismos constitucionais). Assim os legisladores, estão sujeitos ao controle de quem tem mais força, o capital. O mesmo ocorre com a atividade judiciária, também desenvolvida por poucos, sem controle da sociedade, influenciado pelo capital e por correntes teóricas hegemônicas, baseados na racionalidade e que buscam afastar os diversos aspectos da justiça, reduzindo todos os conflitos sociais ao mundo da racionalidade e da relação entre benefício e custo, como ocorre com as correntes teóricas da Análise Econômica do Direito e da Nova Economia Institucional.

Neste sentido, percebe-se que a estrutura social é baseada no capitalismo, avesso aos movimentos da sociedade. Nesta estrutura, quem tem mais força (o capital) influencia muito mais as instituições, que controlam o povo. Dessa forma, Executivo, Legislativo e Judiciário são muito mais passíveis de serem controlados, do que controlar o povo. Se o povo acredita nesta estrutura, na sabedoria e capacidade dos notáveis e que o conflito entre as instituições é o melhor caminho para soluções das questões sociais, não existirão mais dúvidas sobre o justo e sobre a justiça.

### III. CONCLUSÃO

As instituições tais como o judiciário, a sociedade, a política e a economia trazem no seu arcabouço teórico uma lógica determinada por construções de pensamento e correntes filosóficas e ideológicas que as sustentam. Por outro lado, o entendimento de seus efeitos e suas funções dentro de uma sociedade, só se faz possível através do entrelaçamento de objetos de estudo e correspondentes escopos.

Assim, os resultados das inferências de tais instituições numa determinada sociedade, devem trazer as diversas conexões possíveis com todas as outras dimensões que a sociedade produz.

Neste sentido, e tomando-se como referência aquela idéia de estrutura trazida por Gramsci, é possível fazer uma descrição dos aspectos institucionais que caracterizam o Estado brasileiro atual, após a constituição de 1988.

No Brasil, como se viu, a estrutura social está assentada em valores da racionalidade econômica. A autonomia da vontade privada e os pressupostos de liberdade e igualdade, anunciados pelo liberalismo e posteriormente pelo neoliberalismo, conduzem as relações sociais.

A Constituição se mostra anacrônica em virtude do não cumprimento das promessas da modernidade e, atualmente, necessitar de reformas exigidas para o atingimento dos valores fundamentais como liberdade, igualdade e solidariedade, e ainda pela complexidade das novas sociedades e novos atores sociais.

No Brasil, o entendimento de Estado democrático é o mesmo que de democracia liberal representativa, e que traz um fenômeno cultural que norteia o pensamento coletivo, o chamado predomínio de notáveis, no qual as instituições devem ser fortalecidas, pois os agentes que lá se encontram, através do voto ou concurso público, são os únicos capazes de resolver todas as questões sociais. Como é o caso do STF, no Brasil, como a última instância (depois deles, nem Deus... eles não erram, não têm vontade política, interesse pessoal ou de classe etc.).

De acordo com o que se verificou com este estudo, pode-se propor o fortalecimento da soberania popular e de atividades públicas não estatais. O fortalecimento das instituições no Brasil, assim como a ampliação dos mecanismos democráticos são elementos essenciais à construção de uma sociedade mais justa. Contudo, a efetividade dos preceitos constitucionais da justiça e da equidade passa, necessariamente, por um aumento da participação direta da população na construção, exercício e controle das atividades públicas.

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# The Effects of Distant Work During the Pandemic on Organizational Structure

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## ABSTRACT

The current business environment has witnessed a paradigm shift as organizations adopt remote work programs as mechanisms to keep operations. These phenomena call for restructuring of business strategies and agendas to fit the current working environment. Thus, against this backdrop, the purpose of this paper was to review literatures pertaining to distant work on organizational structure amid the pandemic and to outline a conceptual framework that could be verified and tested by future studies. By adopting a literature review perspective, the conclusions made by the paper was that distant work has led to structural changes of organizational designs as managers tends to adopt more of supportive leadership styles and participatory decision-making processes. Also, the environment has provided employees with high level of autonomy and benefits of balancing-work life activities. Nonetheless, its impact on productivity shows a negative direction as employees are bothered with family responsibilities while at home particularly those with children. Besides, the virtual space has weakened employees' collaborations and knowledge sharing levels as individuals tends to perform their tasks in isolation. As a practical implication, the correction of such situations requires managers devising programs and strategies that promotes employees' team spirit while working from home. Due to the nature of the study, the conclusions made by the study were not empirical tested. Thus, as relevant areas of interest, the study has outlined areas that could be look by future researchers.

*Keywords:* distant work, covid-19 pandemic, organizational structure, employees' productivity.

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# The Effects of Distant Work During the Pandemic on Organizational Structure

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*The current business environment has witnessed a paradigm shift as organizations adopt remote work programs as mechanisms to keep operations. These phenomena call for restructuring of business strategies and agendas to fit the current working environment. Thus, against this backdrop, the purpose of this paper was to review literatures pertaining to distant work on organizational structure amid the pandemic and to outline a conceptual framework that could be verified and tested by future studies. By adopting a literature review perspective, the conclusions made by the paper was that distant work has led to structural changes of organizational designs as managers tends to adopt more of supportive leadership styles and participatory decision-making processes. Also, the environment has provided employees with high level of autonomy and benefits of balancing-work life activities. Nonetheless, its impact on productivity shows a negative direction as employees are bothered with family responsibilities while at home particularly those with children. Besides, the virtual space has weakened employees' collaborations and knowledge sharing levels as individuals tends to perform their tasks in isolation. As a practical implication, the correction of such situations requires managers devising programs and strategies that promotes employees' team spirit while working from home. Due to the nature of the study, the conclusions made by the study were not empirical tested. Thus, as relevant areas of interest, the study has outlined areas that could be look by future researchers.*

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## I. INTRODUCTION

The COVID-19 pandemic as a global alarm started in Wuhan, China in the late 2019 (Bai et al., 2020). Observing the far-negative impacts of the pandemic, international organizations like IMF declared a global pandemic which is believed to be more severe than the global financial crisis observed 2007-2008. Since start of the pandemic in 2019, it has claimed millions of lives, disrupted business operations, and melted down economies around the world. However, as strategies to curb the control the spread of the virus, governments around the world have launched lockdowns and "stay at home" campaigns leading to temporary closure of businesses and even the running out of some businesses in certain industries. More so, the antecedent of disruption in business operations leads to shrink in financial positions of businesses around the globe. Nonetheless, at the beginning of the pandemic, some firms has initiated work from home (WFH) programs as means of continuing their business operations (Bai et al., 2020), (Biron et al., 2021); (Gibbs et al., 2021). Besides, the shift to digital space as means of business continuation has led to restructuring of organizations' structures (Perone, 2021), improved employees' work-life balance, flexibility in working hours, and the possibility of safeguarding employees from the virus (Acker et al., 2020); (Sharma et al., 2020). Moreover, to overcome the challenges of employees' need to balance their work-life activities, and the associated factors of high levels of absentee and ineffective performances, businesses have adopted the flexible working arrangements as part of their operational policies (A. Egole, I. Stella, 2020).

Further, as with all forms of business, changes in organizational structures of multinational companies is found to be at its peak (Sobotkiewicz, 2021). In addition, changes in organizational structures due to the pandemic has led to holistic integration of human resource issues to the strategic agendas of firms (KANKAEW et al., 2021). Besides, human resources are now viewed as more viable assets to firms than ever before. More so, as noticeably observed companies are utilizing WFH programs as more of their short-term strategies with the anticipation of adopting a hybrid work model in the future. Thus from this angle we can understand WFH as concessional agreement of which employees are allowed to perform their work duties while staying at home through the use of digital platforms (International Labour Organization, 2020). Based on statistics, 90% of businesses around the world are utilizing the WFH policy. At European union level, this figure was observed to be 5% before the pandemic (Acker et al., 2020). Nonetheless, the adoption of agile business operations by organizations during this pandemic has resulted in less hierarchy and bureaucracy in organizations. The prevailing conditions are more of innovative and supportive systems that untapped the potentials of employees at all level (BİÇER, 2021).

Similarly, the digitalization of operational activities was also observed in the education sector as physical classrooms has moved to e-learning platforms (Zawacki-Richter, 2021). With implemented lockdowns, 85% of universities in Europe were found to adopt the e-learning platforms. Thus, conclusively, it can be said that the pandemic has led to digital transformation of learning. More so, the widely adopted online platforms by businesses and organizations during this period includes Zoom, WeChat, Microsoft Teams, Skype and many others that facilitate easy transmission of documents and information with the possibility of conducting video conferences and meetings among colleagues and business partners (Acker et al., 2020). Thus, by adopting a literature review perspective, the current study aims to conduct a holistic literature review of distant work which is better known as working

from home on organizational structures amid the covid-19 pandemic and to outline a conceptual model that could be evaluated by future studies while providing avenues that future researchers could investigate. Thus, the paper is structured as follows: The first section is about the introduction of the paper, follow by a section on literature review, under this section, a case study of the software industry is included together with a theoretical framework a conceptual model. The final section of the paper is about general conclusions and directions to future studies.

## II. LITERATURE REVIEW

With the pandemic, the traditional design system of organizations have been altered as business shift to the online platforms (Matriano, 2021); (Seker & Korkut, 2020). One the reasons for such actions were to counter the challenges that might arise from the pandemic that can hinder their business operations. As outlined by (Barbu et al., 2021), the pandemic has led to radical changes in business activities and operations around the world. Further, the response strategies adopted by organizations was the adoption of flexible working schedules and incorporation of policies that focuses on issues related to human resources management and development (Biron et al., 2021). To add on, digital communications is now being found as the new form of communication in businesses (Nobrega et al., 2021). This could partly be understood as organizations usage of information system (MIS) tools in formulation of strategic decisions. Now the prominent question being asked is whether all types of jobs could be conducted remotely? As indicated in literature, not all forms of jobs could be arrange remotely as some jobs requires the presents of the employees in the physical environment of the business (International Labour Organization, 2020); (Bai et al., 2020). A prominent example could be those in the assemble line of factories.

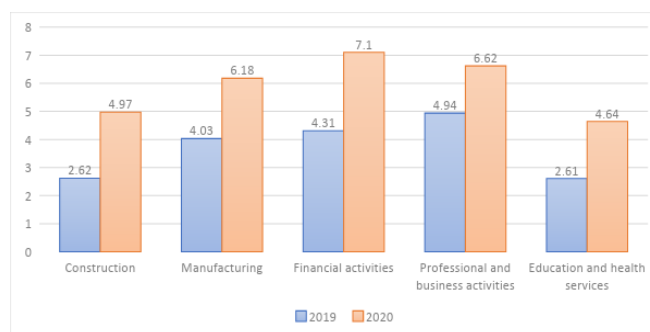
Notwithstanding, the studies of Sobotkiewicz, (2021) shows changes in organizational structures of subsidiaries of multinational companies as they adopt strategies aiming to increase their sales volumes and to be responsive to the external environment. Also, findings has indicated changes

in management strategies of hospitals as their utilize more of telephone and online platforms for their activities (Verhoeven et al., 2020). Thus, we can understand digital transformation of business activities as not only the adoption of digital tools but also the redesign and restructuring of work activities and processes (Selimović et al., 2021). Further as indicated in literature, digital transformation helps to ignite the spirit of collaboration and integration among functional units of an organization (Selimović et al., 2021). Although, there exist mixed findings as to the benefits of working from home or the digitalization of business operations on employees' productivity and performances.

According to the survey conducted by International Labour Organization, (2020), working from home hinders employees productivity especially those with children whose responsibilities not only stop in the work they perform but also their need to take care of family members while working from home. Similarly by conducting a study on Asian IT service companies, the findings of (Gibbs et al., 2021) indicates that women with children are more associated with decline in productivity despite increments in their working hours. Their study further indicates a total decline in employees' productivity of about 8-19% despite an overall increase in their working hours. However, the studies of BİÇER, (2021) indicates a different findings and shows that banks that quickly adopted the digital transformation systems were more efficient with higher performance records than their rivals in the industry. Similarly by using a difference-in-difference approach, the findings of (Bai et al., 2020) provides support that firms with pre-pandemic working from home index values gained more significant performances in terms of sales volume, net revenue, and return on their stocks than those without prior working from home plans before the pandemic.

Further, based on the survey conducted by the United States Department of Labor on the average hours spent by workers while working from home between 2019-2020, based on selected sectors in the industry, it was observed that the financial sector has the highest level of employees' average

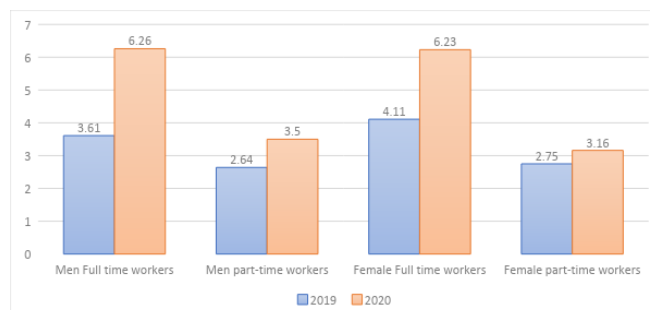
working hours while at home in 2020 with an average working hour of 7.1 as compared to the same period in 2019. As shown in the fig. 1 below, the professional and business sector was observed to be the second sector with the highest level of employees' average working hours by staying at home. Thus, conclusively, it could be said that the digitalization of work processes and the adoption of remote working was widely applicable in the service industry of the United States.



Source of data: Bureau of Labor Statistics, (2021)

Figure 1: Average hours of employees working from home on daily basis based on sector

Nonetheless, as depicted in figure 2 below, based on gender and job status, it could be observed that men with full-time employment have the highest average working hours while working from home in 2020 than their men counterparts with part-time jobs. Also, surprisingly it could be seen that the average working hours of female with remote working schedule is lower than that of men during the same period. Although their average working hours is higher in 2020 compared to in 2019.



Source of data: Bureau of Labor Statistics, (2021)

Figure 2: Average working hours spent by employees while working from home based on gender and job status

### III. CASE OF THE SOFTWARE INDUSTRY

As with other industries, the COVID-19 pandemic has also exerted negative spill over effects on companies in the software industry. Although it could be observed that the pandemic has improved the digital balance sheets of these companies as they come with innovative software and programs that aid business functioning and social networking. The intervention of software companies in aiding individuals and organizations to counter some of the challenges posed by the pandemic is also well documented. However, due to precautionary and safety measures, the pandemic has led to massive shift of information workers to remote working environments (Yang et al., 2021). Besides, the outbreak of the pandemic has led to software companies like Facebook, Apple, and Microsoft to incorporate hybrid working models in their organizational designs (Pattnaik & Jena, 2020); (Prothit et al., 2021). Further, as one of the giant players in the software industry, with the onset of the pandemic, Microsoft initiated more than 50 projects within its company to evaluate and examine employees' behavioural changes and the consequences of remote working programs on their experiences (Gatlin-keener & Lunsford, 2021); (Teevan J. et al., 2021).

Further, there exist mixed findings by researchers on the impact of remote working on employees' productivity and performances. As shown in a study commissioned by Boston Consulting Group, remote working indicates of more than 40% increment in employees' productivity with sharp decline in overall overhead costs of the investigated companies (Ferreira et al., 2020). The findings of the study further indicate an improvement in employees' work benefits. Similarly, according the report released by IBM, digitalization of works processes significantly contributed to the efficiency level of functional units of the company (IBM, 2021). However, on the other side of the spectrum, apart of the challenges of building trust and transparency in terms of data security (Prothit et al., 2021), there exist concerns on the side of managers in monitoring and controlling the behaviours of employees while working from home and also to

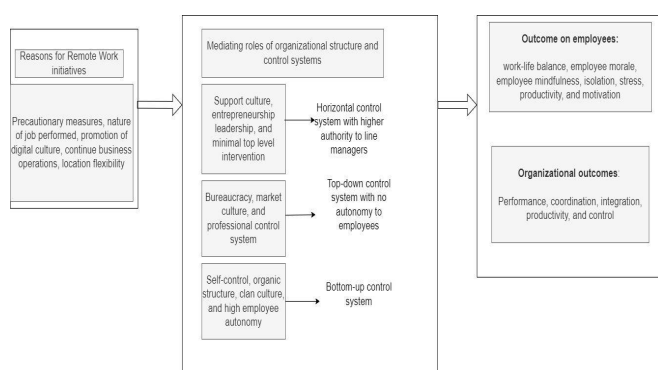
reinforce team spirit among them (Errichiello & Pianese, 2016). Further, findings has indicated a reduction in employees' cognitive actions as teams works and collaboration weakens among them (Sharma et al., 2020). Such circumstances lead to their feeling of loneliness and at times emotional exhaustion. Besides, employees lack of technical know-how in operating some of the tools designed to aid their work operations at home also calls for a concern (Ferreira et al., 2020).

More so, with the aims of evaluating remote work on employees' collaborations and communication, the findings of (Yang et al., 2021) shows a decline in collaboration and integration of employees of Microsoft. In a similar studies, communication and collaborations during meetings were further found to be at a downside in Microsoft (Teevan, J. et al., 2021), to certain degree affects their creativity performances. Despite these situations, the study further indicates general increment of the level of meetings held in the company during the pandemic. However, with regards to decision-making processes, it was observed that the company utilized more of participatory decision-making processes. Thus, with the associated benefits and challenges associated with remote working, it was suggested by (Ferreira et al., 2020) for managers to design comprehensive programs that best fits the future hybrid work environments. In support to this, it is necessary for managers to adopt leadership styles that fits the current environment.

### IV. THEORETICAL FRAMEWORK AND CONCEPTUAL MODEL DEVELOPMENT

For the past few decades, the field of organization studies witnesses a high growing number of theories surrounding working from home and the achievement of effective virtual communication in businesses. The Media Synchronicity theory (MST) as one of the widely most cited theories in literature in terms of collaboration as antecedent of virtual communication recognizes the importance of utilization of lower synchronicity as supportive mechanisms to effective communication when work activities are being performed online (Dennis et al., 2008). However, the social information processing theory (SIPT)

underlines the ineffectiveness of virtual communication because of the impossibility of using physical cues during communication which might impede the understanding of the receiver (Madlock, 1970); (Walther, 2015). The presumption of the theory is that telecommuting environment might not provide effective communication between employees and their leaders. Nonetheless, by building on the model of (Errichiello & Pianese, 2016) on the concepts of organizational control and remote work arrangements, through the mediation roles of organizational structure and control systems, this current paper outlines factors to the adoption of remote working by organizations and its outcomes on employees and the organization as a whole. As shown the diagram below, the model recognizes the significant of leadership styles and organizational culture on effective implementations of remote work arrangements.



*Adopted from: Errichiello & Pianese, (2016)*

**Figure 3:** Organizational structure and control systems as mediators between remote work implementation and its outcomes

Further, with modification to their model, new dimensions have been added to the current model considering factors that might arise from remote working during this period based on literature. As widely recognized in literature, safety and protecting of workers' health are part of the important factors to organizations adoption of remote working during this pandemic. Aside from the that, the need for continuation of business operations coupled with enhancement of digital culture of firms, the possibility of shifting some jobs online and its associated benefits are

recognized by the model as factors that induced organizations' remote working implementations. Besides, organizational structure and control mechanisms are proposed by the model as factors that can lead to successful or unsuccessful implementation of remote work on employees' and the organization. Thus, based on literature, remote work could have positive impact on employees' work-life balance, morale, mindfulness, productivity, and motivation provided it is device based on a structure that promotes these outcomes. Thus, as suggested by (Pattnaik & Jena, 2020), the current business conditions warrants the executions of employees' mindful practices as means of improvement in their morale which is believed to yield higher productivity.

However, a poorly implemented of remote work program that lacks supportive tools from management and the design systems of the organization that leads to their experience of work stress and isolation in turn could hinder their performances. Since individuals perform well when they are associated with groups than when they are isolated as indicated by the social identity theory (SIT) (Allen et al., 2003). This is further supported by the findings of (Feldman & Gainey, 1997) of employees' social belonging contributing to their effective job performances. Nonetheless, at organizational level, an effective design structure could yield high performance outcomes from employees and could enhance the level of coordination and integration of activities in the organization. The bottom line of such actions will lead to an improvement of both the financial and non-financial performances of organizations despite the setbacks of the pandemic.

## V. GENERAL CONCLUSIONS AND DIRECTIONS TO FUTURE STUDIES

The COVID-19 pandemic has significantly impeded business activities around the world leading to disequilibrium of demand of goods and services. Its effects are observed to extend to structural designs and functioning of business operations around the globe. More so, examining the impacts of remote working and organizational effectiveness provides a mixed findings by

researchers. With existing literature, its impact on employees indicates more positive insights as work schedules and activities become more flexible coupled with the benefits of merging work- life activities. However, it could be observed that the traditional leadership styles have been challenged by current business environment. Some of the previous theories on leadership like theory X of McGregor which recognizes the application of punishment and close monitoring of employees to ripe the best of them (Bedeian, 2011) might not be applicable in current digital working environments. Thus, as suggested by the current paper, the control mechanisms of managers should be centred on building trust among the employees and providing them avenues of which they can explore their skills and talents while working from home. Although, it could be observed from the review that the control systems of organizations to be more supportive during this period (BIÇER, 2021). Overall, it could be observed that the pandemic has led to structural shift of organization designs and functioning. Further, based on the review, the application of remote working is mainly applied to service sectors than to manufacturing and construction sectors.

Further, by conducting a systematic review on the impact of distant work on organizational structure during this pandemic, the paper contributes to literature by outlining a conceptual model of the application of remote work which recognizes the mediating roles of organizational structure and control systems on the effectiveness of remote work on employees and the organization that could be verified and tested by future studies. Thus, the study suggests for future researchers to evaluate and examine the impact of digital culture on employees' job engagement and motivation during the pandemic. Also, by examining the mediating roles of control systems, it would be relevant for future studies to investigate leaders' leadership styles on employees' job cognitive and productivity. Nonetheless, most of the studies done so far are mainly focused on influencing roles of remote working on employees' psychological beings and productivity leaving a gap on the side of managers on how it affected their leadership capabilities. Thus, it would be

relevant to investigate the readiness of managers based on their technical capabilities to influence the behaviours of their employees in the virtual workplace. More so, as shown by the review, most of the studies done on the topic are mostly based on developed and emerging economies leaving a huge gap on the side of developing countries. Hence, by observing the challenges of technological infrastructure in developing countries, studies could be done to examine the effectiveness of remote base working programs in those countries and its impact on employees' performances.

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