

Information Communication Technology in Managing Buyer Supplier Relationship & Increase Supply Chain Value in Procurement

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Abstract - As on a construction site, materials performance plays vital role in delays and rate swarming so as a key point procurement of materials plays an important and foremost role in Real state, which will expressively effect on corporation's accomplishment and managing buyer supplier relationship theatres a weighty role in to generate market value. This study is aimed at using the two types of relationship that is long- term relationship and competitive or short-term relationship Use of Information Communication Technology (ICT) in an organization will make the more co-ordination and teamwork between site engineers, contractor and consumer and to determine the challenges in using relationship for value creation of various companies the value chain management will be studied of those companies. It has brought improvement in the performance and process flow of connectivity of procurement of material on site in a construction process in terms of delays, quality, quantity and expenditure. Major goal of introducing ICT in a construction process is to reduce inventories and resources which are not in use in the process.

Key Words: INFOTMATION COMMUNICATION TECHNOLOGY (ICT), SUPPLY CHAIN MANAGEMENT(SCM), PROCUREMENT, SPSS.

1. INTRODUCTION

Information communication and technology describe the system that can use to store, retrieve, and manipulate data securely within the organization or between supplier and buyer. It also includes cloud computing and the security of the data. The ICT in the procurement of material and purchasing activities in an ongoing project is useful to the organization which uses ICT to drive projects, to keep an eye on procurement process and procedures also maintain collaboration between the people involved in the ICT procurement process

Material delay and management on sit is the critical aspect that further explains that material delay and control on-site play a significant role in time and cost overrun. So as of

starting a project, the procurement of material is the main key point to explain that the project will begin on time or not. Another way of understanding material procurement is the relationship between buyer and supplier how to create relationships better, which will create a significant supply chain between the supplier and the buyer. The need for research is how the organization can use ICT in their model to reduce extra cost and time and what are significant outcomes of using ICT in the project.

1.1 NEED FOR STUDY

This research found out research is how the organization can use ICT in their model to reduce extra cost and time and what are significant outcomes of using ICT in the project. Another way of understanding material procurement is the relationship between buyer and supplier how to create relationships better, which will create a significant supply chain between the supplier and the buyer

The essential for the study to understand what is the issue faced by site engineer, contractors and consumers in the use of ICT. The research will also be focusing on the small Enterprises which are entering the face of the use of ICT. To minimize manual Record-Keeping and increase computer database records, which are much harmless and precise, and it should utilize the proficiencies of ICT.

1.2 OBJECTIVES

To study on the small enterprise which are entering the face of the use of ICT and also know how to create market value by supply chain analysis. To improve supply chain management and also reduce material delay. To recommended in reduction the inventory & resources which are not in use in the ongoing project

1.3 SCOPE OF PROJECT

Construction, execution and procurement quarter in India in all kinds of initiatives, especially in commercial projects and residential homes, can be the primary region of look at most required inventory items and how it should be adequately

procured and stocked. Use of ITC transparency, flawless management, more effective supplier relationship management.

1.4 LITERATURE REVIEW

ICT adoption has been gone through unbounded logistic and inventory management and companies expand efficiency through augmented integration all midst the suppliers & buyers. And also figure out the aim of this learning how to do proper inventory management flawlessly.

The SMEs in the trade industry necessitate the execution of strategies that consent them to make decisions that encouragement the process of obtaining results. The implementation of ICT in SCM had a bright future to achieve success by use a differential strategy.

The logistics component that may affect the material procurement in any creation initiatives is (1) Delivery Inaccuracies (2) Loading Resources on Site (3) Rise Waiting Time between Activities (4) inability to forecast pastime length with accuracy (five) Late delivery of materials and additives. This also adds a valued part to the thesis that the negotiation capabilities of the procurement officer can also play a prime position in material procurement.

Thoughtful adoption and use of ICT in production projects over the lens of context, "tells approximately how ICT impact and use of ICT in production and building tasks. It additionally concludes that the enormous functions with the prime awareness of time and fee overruns, it also indicates how to create an area for innovation of ICT adjustments. This paper, in particular, focusses on the acceptance and use of ICT within the production industry and building projects. This will help in knowing the higher. Purpose of ICT in the creation and the way the corporation suffering from using ICT in the ongoing tasks. It additionally tells how ICT is facilitating the monitoring and control of procurement sports. Within the task. The adoption of ICT and the use of the same in the permanent and temporary organization.

The IT enabled SCM services in tumbling cost and civilizing SCM efficiency. The aim of this paper is IT enabled SCM and features for effective operation. The exploration mainly highlights on SCM, IT-enabled supply chain and also do reputation of 12 most factor which know as accomplishment features permitting implementation of IT-enabled SCM.

2. METHODOLOGY:

The methodology flow chart indicates that how the occupied movement of the study will be tracked. The Starting phase of the chart indicate reach to the goal of the objective and the subordinate is scope of work, then further reviewing the literature related to the study in which the theoretical tactic and approaches adopted are used to carry out the research. Preliminary data ad secondary data collected and a

Comparison of the study with data analysis will further Conclude and suggest any further improvements.

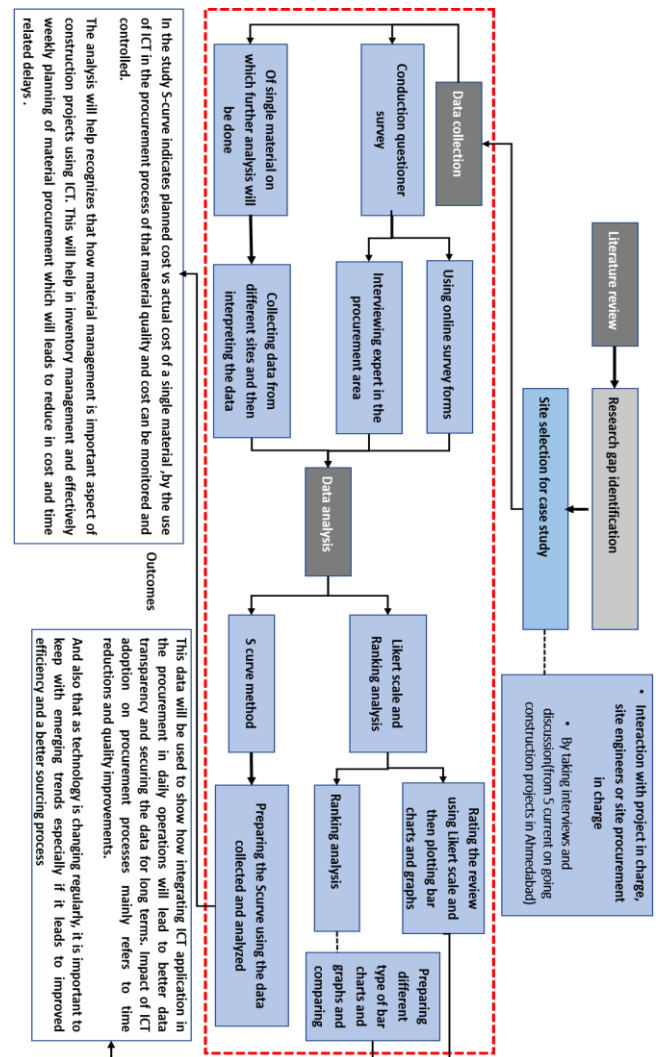


Figure 1-FLOW CHART OF METHODOLOGY

2.1. Target Population

The population target for the data collection was considered between 50-80 is because there are less personal recognized to the use of ICT in procurement department.as we were pointing small firms so there was only one form that was having its procurement department other than that all other small firms was not having a different procurement department.

Table 1: Target Population

Category	Target population
Other professionals	50-80
Expert interviews	4-6
Companies reviews	4-6
Total	58-92

2.1.1 Sampling size and Sampling technique

In this the sample size for collection of data is set of entries drawn from the online surveys. The sample size for the study was different for all three questioners. For online questioner survey the sample size decide was 50-80 respondents which must be having knowledge of procurement and use of ICT in the construction industries, this respondent also includes some buyers a supplier and other officials or staff. The case study was decided to be on for ongoing projects were there which are having or not having procurement departments. The sites targeted were of small size i.e. small firms working tin the construction industry (commercial or residential projects). Out of this the collected respondents' numbers are shown in the table

Table 2: Sampling size

Category	Target population	Respondents till date 17-5-2020
Other professionals	50-80	51
Expert interviews	4-6	-
Companies reviews	4-6	5
Total	58-72	55

2.1.2 Data collection method

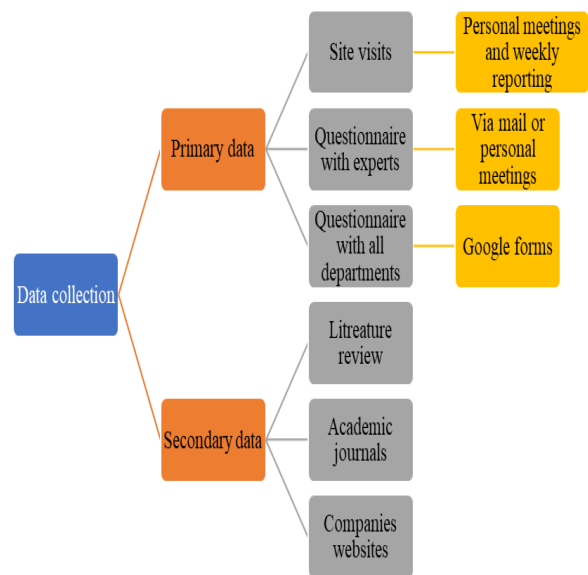


Figure 2: Data collection method

2.1.3 Primary data collection

The live site was selected as how in the table below of them had given access two were denied.so for a live case study the site considered was 5. All these four companies are occupied for case study because this is insignificant firms with less budget project as compare to big MNC companies. All the respondents from the small firms i.e. for the case study will be having minimum of 2 to 3 years of practice in the same organization in procurement department. Questioner to be used for Site information related to case study.

• **Vendor**

- How do you negotiate with the vendors?
- What criteria are you considering for selection of vendors?
- Selection Procedure of vendor
- How Would you rate the team on the following qualities?

• **Buyer**

- Types of sources from where you bring the material?
- What is the material handling equipment on site?
- Do you have any policy Regard to the material? (insurance)
- What is your expectation from the vendor?
- Do You Know About ICT? (information communication technology)

• **Procurement**

- Is there a procurement department?
- At what level does the department report?
- How are you deciding the material quantity requirement?
- Up to what level Procurement plan is prepared?
- Are you checking the material sample from supplier before procuring the material?
- Is there a procurement training program?
- For what period are record kept and how

• **Quality control and quality assurance**

- What is the lead time of the materials? (Specify in days)

- What is the buffer time of the materials? (Specify in days)
- What is the location of material delivery on-site?
- What if delivered materials are not as per the specification or quality requirements?

2.1.4 Data Collected from online survey

The collected data is shown in the table and for a single respondent and the other collected data is available on google forms which will be later taken under consideration for analysis of the software which name is SPSS and liker scale.as the respondents are more there for the graphs and bar charts will be a shown in the data analysis part.

2.2 Data Analysis

Main aims of this study are to grow information that at how much extent is Role of Information communication & technology in Managing supply chain to enhance procurement capabilities of materials in residential and commercial projects used in the Indian context. The researcher achieved a total of 51 responses, i.e., 63.75% response out of targeted 50-80 Individual(s). The questionnaire was thru and handed to various construction developers and contracting firms; only fifth teen have responded, and we are not considering those 15 for the data analysis just because of the corona pandemic. As we get 63.75% of response; therefore, Gay (1995) told that the response rate can be considered when if it is 50% and so, we are getting 65.75% of an online survey and other expert interviews considered now it is perfect and researcher can further continue with the data analysis and interruption part.

2.2.1 Data Analysis Method

In this thesis, data analysis has been done with the software of the SPSS. Core area of analysis is “reliability analysis, frequencies analysis and also Likert scale method”

1) Reliability test

		N	%
Cases	Valid	47	92.2
	Excluded ^a	4	7.8
	Total	51	100.0

Figure 3: Case processing summary

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.805	.930	28

Figure 4: Reliability test

Hence our result is 0.934 so our thesis works excellent as per Cronbach alpha result.

2) Likert scale method

1) The extent to Which IT utilized in the acquirement procedure in the association

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Assessing_the_needs_of_procurement	51	4	1	5	2.98	1.225	1.500
Risk_assessment	51	4	1	5	2.69	1.257	1.580
Specification_of_the_material_procured	51	4	1	5	3.45	1.390	1.933
Risk_reduction_mitigate_of_those_that_are_most_likely_to_occur	51	4	1	5	3.18	1.260	1.580
Measuring_overall_performancecost	51	4	1	5	3.47	1.046	1.094
Improves_the_quality_of_services	51	4	1	5	3.69	1.085	1.180
Valid N (listwise)	51						

Figure 5: IT Utilized in the acquirement procedure

From the above the table 47 demonstrates up to which context ICT is used in the procurement procedure within the company they were working. The table show the mean as 2.98,3.45,3.18,3.69 separately. The table contains of SD (standard deviation) which shows the review of individuals. Table SD range from 1.04 to 1.39, demonstrating that it is worth. The main problem occur in procurement procedure is improves the quality of services

2) Procurement Practice in the utilization of Information communication and technology

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Data_transfer	51	4	1	5	3.29	1.119	1.252
Placing_Tracking_orders_online	51	4	1	5	3.41	1.203	1.447
Quick_Response_and_Just_in_time_Replenishment	51	4	1	5	3.69	1.208	1.460
Suppliers_access_to_Internal_Data	51	4	1	5	3.47	1.222	1.494
Supply_chain_relationships_improved_information_flow	51	4	1	5	3.25	1.017	1.034
efficiency_of_the_purchasing_department	51	4	1	5	3.35	1.092	1.193
ICT_process_brings_strong_Relationships_with_suppliers	51	4	1	5	3.35	1.055	1.113
visibility_purchasing_creating_the_opportunity_to_negotiate	51	4	1	5	3.41	.963	.967
Valid N (listwise)	51						

Figure 6: Utilization of ICT

From the above the table 48 demonstrates up to which context ICT adopt organization. The table show the mean as 3.69,3.47,3.41,3.35 separately. The table contains of SD (standard deviation) which shows the review of individuals the S.D vary 0.983 to 1.208. the problem occur in procurement practice is quick response in just in time.

3) Provocation Looked in Actualizing ICT for Procurement

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
High_introduction_costs_for_new_solutions	51	4	1	5	3.16	.925	.855
Supplier_facing_issues_in_linking_up_ICT_procurement_system	51	4	1	5	3.00	1.114	1.240
Less_user_acceptance_use_friendly_application	51	4	1	5	3.06	.925	.855
Lack_of_staff_who_is_qualified_to_work_ICT	51	4	1	5	3.04	1.058	1.118
Consultant_expertise_is_lacking_for_ICT_based_procurement	51	4	1	5	3.10	1.100	1.210
Employee_training	51	4	1	5	3.35	1.262	1.593
Encourage_user_acceptance_readiness	51	4	1	5	3.37	1.095	1.198
Senior_Management_Commitment	51	4	1	5	3.29	1.221	1.492
Efficiency_in_supply_chain_management	51	4	1	5	3.61	1.097	1.203
Capital_investment_in_Technology	51	4	1	5	3.65	1.016	1.033
Valid N (listwise)	51						

Figure 7: Provocation looked in Actualizing ICT for procurement

From the above the table 49 demonstrates up to which context ICT facing such a problem. The outcomes show that data of problem orientated. The table show the mean as 3.61,3.65,3.35,3.10 separately. The table contains of SD (standard deviation) which shows the review of individuals the S.D vary 0.925 to 1.262. the problem occurs in procurement facing problem is efficiency of SCM

4) The point of view of Supplier on ICT Adoption when asked

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
mind_set_of_your_Suppliers_on_ICT_adoption_on_Procurement	51	1	1	2	1.06	.238	.056
relationships_does_organization_currently_have_with_suppliers	51	3	1	4	1.76	.764	.584
Valid N (listwise)	51						

Figure 8: ICT adoption

From the above the table demonstrates up to which context ICT facing adoption. The outcomes show that data of adoption of method or else mind set of the locality. The table show the mean as 1.76, 1.06 separately. The table contains of SD (standard deviation) which shows the review of individuals the S.D vary 0.764 to 0.238. this portion express the mindset of the corporate in real state.

2.2.1) most accrued problem found in analysis

The manifestation of problems effected by individual or organizational factors has been shown in table with the mean and standard deviation values.

Table 3 Most accrued problem

Sr. No.	Description	Rank
1	Improves the quality of services	1
2	Quick Response and JIT (just in time) Replenishment	2
3	Capital investment in Technology	3
4	Measuring the overall performance of the procurement feature benefits to the organization in the form of cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage	4
5	Efficiency in supply chain management	5
6	Suppliers access to Internal Data	6
7	Specification of the material procured	7
8	Staff competencies in the adoption of ICT in the procurement process in the organization?	8
9	Placing and Tracking orders online	9
10	Assessing the needs of procurement	10

Accordingly, this is the most top ten problems that have arisen in the adoption of ICT in the procurement process. " Improves the

quality of services " is the most occurred problem out of all 26 problems. Therefore, based on mean and standard deviation values, ranking analysis has been thru to treasure out the furthestmost occurred problems.

3. CONCLUSIONS

At the termination of the Review in the attention of adoption of ICT shows that in India procurement process is being incorrectly viewed by the used of ICT .the main reason use of ICT is not only effect the inner association but also the buyer supplier relationship which further leads to many advantages.in past the authors discussed more on advantages of use of ICT in big companies and their faults instead of surveying the whole or overall impact of the application in the procurement process in smaller firms in India.The base of the study was firmly on to the initial idea to utilise the ICT procurement process in the smaller construction companies in India. The sole purpose of the questioner survey was to get a better idea that which are the main factors involved in the adaptation of ICT, the questionnaires don't focus only on the advantages of ICT but also the factors affecting smaller companies entering the phase of use of ICT. In reality, operational closeness and the level of participation are two of the segments that accept a determinant job in extended ICT apportionment and impact. The individual factors also effect the use to training the individuals in the organisation can also leads to many advantages to the organisation. And even on-site use of ICT will lead to less required space for material management and handling and better quality of material just in time. The study also concludes that the record keeping can be easier using ICT applications.

Future scope

The study was limited to small construction companies. The researcher would thus recommend for further study in the topic of ICT adoption among the more significant, well-established construction companies and an analysis of the challenges experienced. To develop application for the procurement.

Recommendations

Procurement regulations that refer to paper documents and processes need to be reviewed for modernization. Procurement management and executive courses and seminars should be held to address the effect of automation on the procurement function. Basic procurement courses should be revised to present automated contracting processes and techniques. Business and political agents should be instructed on the dynamic changes that data innovation and information technology will bring to procurement and markets

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