iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 13 **Issue:** IV **Month of publication:** April 2025

DOI: https://doi.org/10.22214/ijraset.2025.69715

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue IV Apr 2025- Available at www.ijraset.com

New Era of Agile E - Partner System for Business Partnering in Construction Industry

Gaurav Navnit Nagavkar[1], Prof. Mr. Rahul D. Shinde[2]
[1]*PG Student, 2nd year student of Masters in Construction Management, RMD Sinhgad School of Engineering, Pune*
[2]*Assistant Professor, Department of Civil Engineering, RMD Sinhgad School of Engineering, Pune*

Abstract: ***Partnering is a set of actions, from Project Management, that help project teams improve their performance and thus, provide substantial benefits. Business partnering is "the development of successful, long term, strategic relationships between customers and suppliers, based on achieving best practice and sustainable competitive advantage"(Lendrum, 1997). Partnering attributes commitment, trust, mutual objectives & goals and developing long term relationship with all the stakeholders associated with the project. Stakeholders such as Architect & Designers, Consultants, Contractors & Sub- Contractors and Suppliers & Vendors collaboratively work together under same terms and conditions with similar organizational culture for achieving a successful project.***

This paper describes a web – based Partnering System with the principle of overcoming the various problems that are associated with the traditional or manual process to achieve complete transparency at every step and at every transaction. Thus, increasing competitiveness of companies/firms by taking advantage of mutually developed relations & opportunities and reducing risks . It is an attempt to bridge the gap between the Builder's Organization and the various Stakeholders associated with a Project. Analysis and thus, System Development has been done with the objective of identifying a standard operating procedure for successful and strategic partnering relationships. Partnering strategy focuses on developing guidelines which include Partner Registration, Partner Selection & Approval based on qualification criteria, Partner Evaluation based on weighted grade point average, Automated Generation of Quotation and Negotiation, forming a Partnering Agreement & setting up mutual goals & objectives and Generating automated Purchase/Work/Service order along with Time & Payment Schedule. Basis for Project Partners is to adopt a "Win - Win" approach to solve problems and develop 'Synergistic' team work amongst them.

Keywords: Business Partnering, Web - Based System, Stakeholders, Evaluation, Dashboard.

I. INTRODUCTION

Partnering in construction sector can lead to successful projects reflecting reduction in costs, timely completion as per schedule, improved safety, total quality management and reduced claims/conflicts or disputes. In the construction industry, usually the construction organization and their stakeholders share very formal relationship which is based only with the focus of individual benefits from the relevant projects. Partnering is a management methodology used with a new approach in achieving success in mutually beneficial goals and business objectives. It eventually helps in improving business relationships.

It replaces the traditional customer-supplier model with a collaborative approach to achieve an individual objective. Partnering requires all Partners to transform their businesses in terms of relationships, behaviors, processes, communications and leadership with an aim to achieve quality project outcomes by use of effective teamwork, collaborative problem solving and strategic planning.

Strategic Partnering takes the stakeholders beyond their traditional concentration on individual projects. Its purpose is to enable them to carry out project effectively by acting and thinking long term. It provides more benefits than simple project partnering and enables stakeholders to deliver greater value to clients and earn larger and more secure profits. Partnering acts as a preventive process and early warning system for the stakeholders as they network together to attain individual as well as mutual goals that they could not otherwise achieve on their own. Formal relations are often linked to contractual elements (e.g. Time, cost & safety) while partnering along with contractual elements, is often linked to non-contractual elements human interaction (e.g. Trust, respect, appreciation & honest communication) Formal relations with strict contractual conditions lead to unhealthy working environment which further leads to loss in both 'time' and 'money'. Thus, partnering gives rise to new environment that nurtures team building and co- operation and replaces the 'we' versus 'them' attitude with a 'us' mindset.

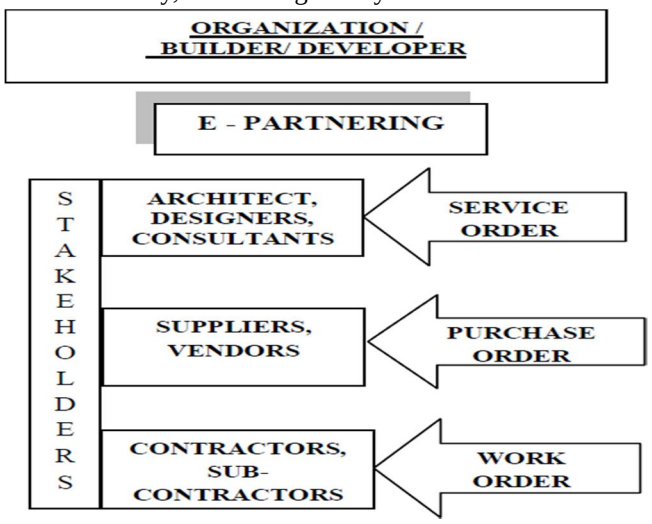
©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue IV Apr 2025- Available at www.ijraset.com

II. RESEARCH ELLABORATIONS

Analysis was done about the different processes, right from selecting a supplier/contractor to the contractual agreements, followed by the organizations in the construction industry, The results concluded that the major lacking point is the initial step of selecting the stakeholders. They were been selected with improper validation of their experience, work structure and qualifications. Many unsettled disagreements and disputes were raised in future between the parties which further expanded to litigation or legal conflicts. Other finding for these problems was lack of effective communication or interaction between the parties.

To overcome such problems, a web-based system on partnering is a perfect solution. This software application aims at keeping complete transparency in all the interaction between the construction organization and the stakeholders. Most of the comparisons and evaluation are automatic based on a algorithm given to the system. Also, the Organization/ Builder/ Developer have the access to give qualifying criteria values according to them. Web based solution also proven effective in taking timely & quick decision over all the important issues or problems faced during the Planning, Designing, Execution and Monitoring Phases of a Project Lifecycle. Thus, saving time, and as Time is Money, thus saving money.



III. EVALUATION MATRIX

Evaluation will be done on the basis of the following main points and its sub-points.

1) Total Number of Years of Experience (Weightage: 1)
2) Financial Details (Weightage: 2)
3) Experience in Similar Works (Weightage: 3)
4) Technical Details (Weightage: 3)
5) Certifications (Weightage: 1)

Following matrix is created where rating/ points will be given to Partner as per their given details and evaluated to check whether they meet the organization's expected qualification criteria's. And thus, they will be classified into A-B-C categories.

	Qualification Criteria	Expected Values	Weightage/ Credits	Result/ Score
1	Total Number of Years of Experience			
2	Financial Details			
a	Annual Turnover			
b	Working Capital			
3	Experience in Similar Works			
a	Total Number of Projects / Materials Supplied			
b	Total Cost of Work Executed / Material Supplied			

©IJRASET: All Rights are Reserved

c	Total Area / Quantity of Work Executed / Material Supplied			
4	Technical Details			
a	Total Number of Employees			
	Technical			
	Managerial			
	Labours			
b	Total Resources - Machinery			
	Owned			
	Hired			
c	Total Number of Clients			
5	Certifications			
	ISO			
	Others			

Expected values will be given by the organization and the partner details will be evaluated according to this matrix. Organization will also have the access to change the weightage / credits as per their requirements.

Partner Category	A	B	C
Expected score	<9	7 to 9	>7 to 5

These calculations will be done on the basis of an algorithm set by the system. The expected score values can also be as per requirement of the organization.

A. Qualification Judging and Sorting Criteria will be based on the following points

1) Experience in similar works.
2) Financial stability of the company/firm/partner.
3) Overall Technical & Managerial knowledge of the company/firm/partner.
4) Reputation & Position of the company/firm/partner in the market.
5) Areas of expertise of the company/firm/partner.
6) Work performance and past Business history.
7) Quality of work and Timely deliveries.
8) Organizational culture followed.
9) Reciprocal arrangements
10) Relation with the clients.
11) Communication system used.
12) Previous partnering performance
13) Interest & ability to form Partnering alliance.

B. The functioning of the Business Partnering system is based on the following major steps

1) Partner Registration
2) Evaluation & Sorting based on Qualification Criteria
3) Generating of Unique Partner code and providing Dashboard with login credentials.
4) Generating 'Request for Quotation'
5) Automated comparison of Quotations
6) Generation of revised Quotation for Negotiations
7) Selection of Partner based on Negotiations
8) Generation of Service/Work/Purchase Order with Time Schedules & Payment Terms.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

C. Partner Registration

Selection of the right partner is a very essential step. The outcome of the project whether successful or not, largely depends on the capability of the partner. Capability of the partner can be verified from detailed information provided by them on major fields such as the Company/Firm's General details, financial details, Technical details, Experience of similar works, Past project details and lastly certifications acquired by the company/firm.

1) General details include—
- Organization name
- Address
- Contact number
- Website/ e-mail id
- Company Profile
- Contact Person Details
- Tax Information – Numbers
- Registration Association, Number & Proof.

2) Financial details include—
- Annual turnover per year
- Working Capital
- Financial statement (audited balance sheet and CA certified document proof).

3) Technical details include—
- Expertise
- Total Number of employees with their qualification & work experience details
- Number of machinery/equipment with their type & capacity
- Total Number & Type of Labours
- List & details of clients
- List & details of previous partnerships (if any).

4) Experience in similar works include—
- Type of project/work executed
- Total Area of work executed till date
- Total Cost of work executed till date
- Work packages executed.

5) Experience of works for suppliers/vendors—
- Name, type & specification of materials supplied
- Lab/field test results of the materials
- Various locations to which materials can be supplied
- Total Quantity of Material supplied till date
- Total Cost of Material supplied till date

6) Certifications
- ISO
- Others

D. Sorting based on Qualification Criteria

1) The Owner or the Builder 's Organization can set criteria values to the respective qualification fields and the registered Partners will be sorted according to those values into A-B-C categories.

2) A category being the highest qualified, B category being the averagely qualified and C category being the least qualified.

3) Approval of acceptance of registration will be given to only those Partners who have filled up all valid details and have given proper proof or justification to their details.

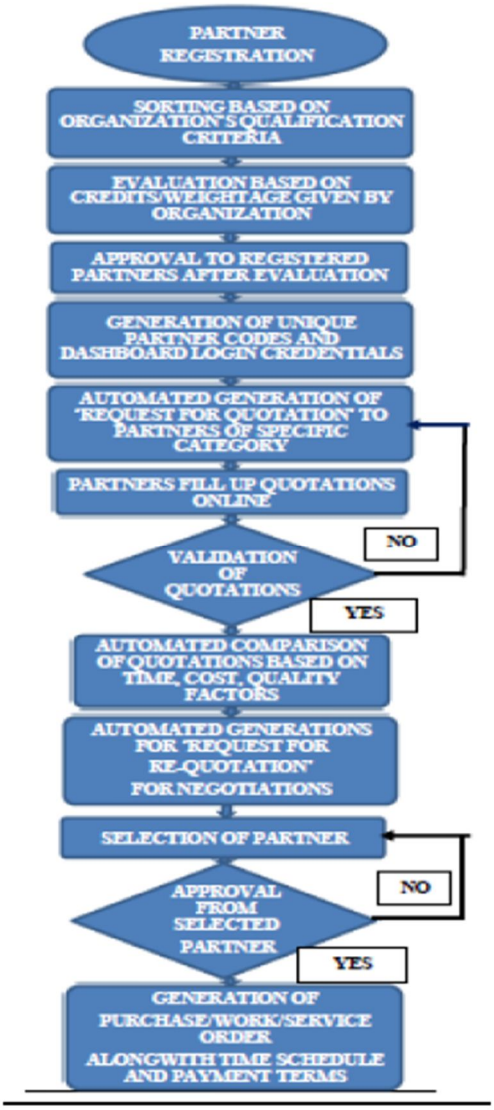
E. Generating of Unique Partner code and providing Dashboard with login credentials.

1) A unique partner code will be generated to the approved Partners. Also, login I.D. and password will be given to them for the further transactions.

2) Dashboard will be provided to every partner where he/she can view all the SOP's (Standard Operating Procedures) related to his type of work associated with the Organization.
3) Information such as Name of work, its details, payment terms, time schedule, float period, remaining time, remaining payments, e-mails, calendar, etc can be seen in one view through the dashboard.
4) The stakeholders can interact _online 'through this dashboard with all the people related to the particular work. They can solve any issues/problems pertaining with their work and thus enhances quick decisions over it.
5) Any changes / alterations in the design / methodology / specification can be discussed / uploaded online and likewise changes can be carried out on site immediately.
6) Alerts in the form of notifications will be provided to keep the Partners aware of the upcoming events and/or reminders.

F. Generating 'Request for Quotation'

1) According to the requirement as per BOQ (bill of quantities),'online Request for Quotation' will be generated by the system only to the approved partners of the required category.
2) This will be generated only when there is minimum 3 partners suitable for the particular quotation. The format of quotation will be fixed by the Owner or the Builder's Organization and the partners will have to fill in their rates/prices and send it back.
3) The partners will be given fixed duration to reply to this quotation.
4) If the quotations received are not valid then quotation will be sent to next set of approved partners.



Automated comparison of Quotations

1) The owner will set weight-age as per owner's priority in terms of 'TIME', 'COST' & 'QUALITY' and based on this an algorithm will be given to the system and the system will carry out comparison between the quotations.
2) Weight-age points will be given out of 10 and in any ratio as per owner's requirement.
3) In case of same cost quotations, weight-ages help to sort them with respect to priority.
4) At least/Minimum 3 partners will be shortlisted for the next step.

G. Request for Revised Quotation for Negotiations

1) The above shortlisted Partners are requested for negotiations in their quotations.
2) Their filled-up quotation will be sent back for updating for negotiations.
3) Negotiations up to 2 times can be carried out through the online process
4) Detailed comparisons of all the 3 values- (Initial Rate, Negotiation 1 and Negotiation 2, can be seen in the comparison report) And then revised quotations are received from the partners.

H. Selection of Partner based on Negotiations

1) The most qualified partner whose quotation after negotiation is best will be selected.
2) Least value quotation will be shown as best by the system.
3) The owner/CEO or the authority in charge takes this final decision of selecting the appropriate partner.
4) After the partner is selected, the system will generate an acceptance letter with reference to his revised quotation after negotiations and the contract procedure will be carried out.
5) The owner and the partner will together set some objectives and goals for achieving best results out of their partnering.

I. Generation of Service/Work/Purchase Order with Time Schedules & Payment Terms

1) The Service/Work/Purchase Order will be generated to Architects, Consultants/ Contractors, Sub-Contractors/ Suppliers, Vendors respectively with a detailed schedule of time and details about the payment terms of the particular allotted contract.
2) The partners are bound to follow all the terms and schedule strictly to attain the mutually set goals and objectives and for the success of the partnering relations.

J. Disadvantages of the Traditional Manual Method

1) The traditional manual process has many disadvantages in its work flow or operating process in which lack of effective communication is the major problem. There are chances of discrepancy and partiality in selecting the Partners. The parties involved do not interact with each other proactively and thus self-made analysis is concluded. Also, many disputes arise over the contract conditions as each one aims at only individual profit and not for the success of the project. There are many change orders due to less mutually coordinated work. There are strict contractual conditions which give rise to a very formal relation amongst the parties involved. And instead of solving the issues, they tend to put litigation.

K. Advantages of Software system

The online system enables features like

1) E-Business
2) E-Commerce
3) E- Collaboration
4) E-payment
5) E-Communications

An E-payment facility enables timely payment to the partners. E-Communications Speed of Data Communications Data can be sent from one side of the world to the other in a matter of seconds via the internet (e- mail) compared to days using traditional post ('snail mail'). Document database is generated online which reduces Paper work and manual maintenance of documents. Traditionally, a company's information would be stored on paper in filing cabinets which takes up expensive storage space. A computer system can store the same amount of data in a fraction of the space.

All the project related documents can be viewed through the system and data can be retrieved quickly and easily. Even if data is lost, it can be retrieved which is not possible in traditional process.

All the details and documents are highly secured. Computer- based information system can be password-protected and encrypted, so that only authorized users can access the data. Reports of the interaction can be generated wherever necessary. Filters can be applied while generating reports which give us details about what we want exactly. System has the Ability to Produce Different Output Formats— Information can be output from a computer system, either on-screen or printed, in the form of graphs, charts, reports, pictures, sound etc. Detailed project catalogue is available online and there is more accuracy. Fast confirmation and quick decisions through e-mail can be done.

IV. CONCLUSION

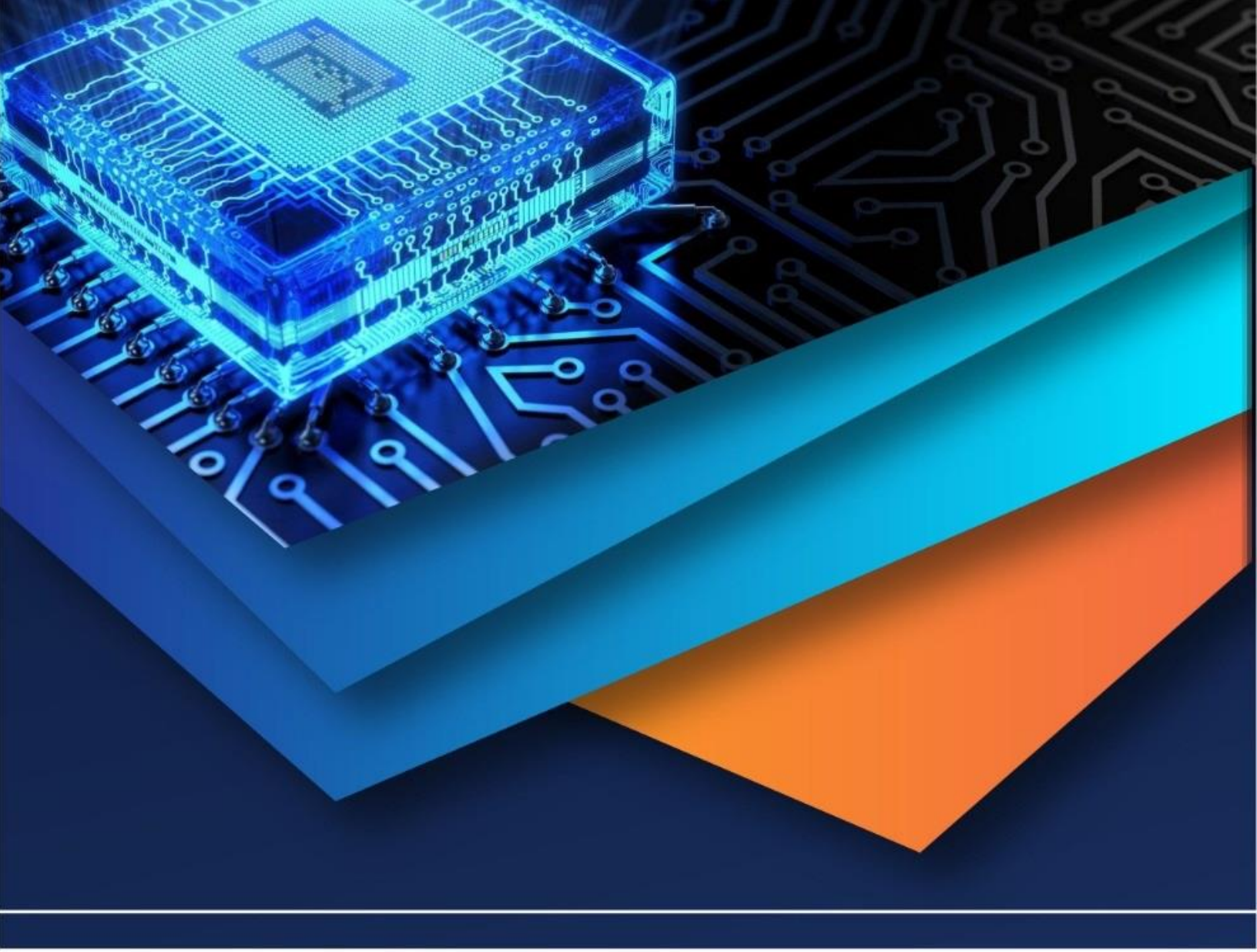
Due to the competitive market of the construction industry, partnering has become an alternative way of doing business by encouraging the parties to work together towards shared objectives and achieve win-win outcome. Two individual parties come together to form partnering alliance so that they can make use of strengths and weaknesses of each other for successful outcome of the project.

The purpose of this paper was to introduce a software based partnering process model and state its benefits over traditional manual method.

1) Effective communication is achieved with the help of the partnering process through only one medium that is the 'WEB BASED system'.
2) There is complete transparency in all the transactions and dependency over human interactions is reduced considerably.
3) The risks associated are shared mutually and both the parties aim for effective outcomes.
4) There is Quick decision making and responsiveness in all the steps of the process.
5) Only genuine partners are selected due to the qualification criteria set right at the level when any Partner gets involved i.e. at the Registration.
6) Supplier Evaluation as per ISO 9001:2008 – Quality Management System, Clause no. 7.4.1
7) Greater focus is on the end users.
8) There are faster project start-ups.
9) There is reduction in defects during design & construction process and handover.
10) There is better teamwork and stronger strategic relationships are created which attributes trust, commitment and co-operation amongst them.
11) This system aims at Zero claims & Disputes and smooth operation of the Partnering alliance.

REFERENCES

[1] Partnering in the Construction Industry, Code of Practice for Strategic Collaborative Working, authors- John Bennett, P.A, Sarah Peace.
[2] Critical Success Factors for Partnering in The Turkish Construction Industry, Irem Dikmen1, M. Talat Birgonul, Beliz Ozorhon and Koksal Eren, - Arcom.Ac. Uk
[3] Bayramoglu, S (2001) Partnering in construction: Improvement through integration and collaboration. Leadership and Management in Engineering, 1(3), 39-43.
[4] Drexler, J.A., Larson, E.W. ―Partnering: Why Project Owner- Contractor Relationships Change? ‖ Journal of Construction Engineering and Management, American Society of Civil Engineers. July/August 2000, pp. 293-297.
[5] Black, C, Akintoye, A and Fitzgerald, E (2000). An analysis of success factors and benefits of partnering in construction. International Journal of Project Management, 18(6),423-432.
[6] Jeroen Bemelmans, Hans Voordijk, Bart Vos, and Jan Buter. (2012) Assessing Buyer-Supplier Relationship Management: Multiple Case- Study in the Dutch Construction Industry. Journal of Construction Engineering and Management 138:1, 163-176 Online publication date: 1-Jan-2012.
[7] Jeroen Bemelmans, Hans Voordijk, and Bart Vos. (2012) Supplier- contractor collaboration in the construction industry: A taxonomic approach to the literature of the 2000-2009 decade. Engineering, Construction and Architectural Management 19:4, 342-368 Online publication date: 1-Jan-2012
[8] Lena E. Bygballe, Marianne Jahre, and Anna Swärd. (2010) Partnering relationships in construction: A literature review. Journal of Purchasing and Supply Management 16:4, 239-253 Online publication date: 1-Dec-2010.
[9] Crane, T., Felder, Thompson, Thompson, and Sanders, (1997). ‖Partnering Process Model.‖ J. Manage. Eng., Journal of Management in Engineering.
[10] Crowley, L. and Karim, M. (1995). ‖Conceptual Model of Partnering. ‖ J. Manage. Eng., 11(5), 33–39. Journal of Management in Engineering.
[11] Caltrans. Field Guide to Partnering on Caltrans Projects. California Department of Transportation Statewide Planning Steering Committee. April 2000.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)