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Agile Tool Based Partnering Process Model for Construction Sector

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Abstract: ***Effective inter-firm collaboration i.e. 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. This paper describes a partnering process model which is completely a web-based computer application 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 for achieving successful and strategic partnering relationships. The Partnering process includes 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.***

Index Terms: Partnering, Stakeholders, Dashboard, Online system.

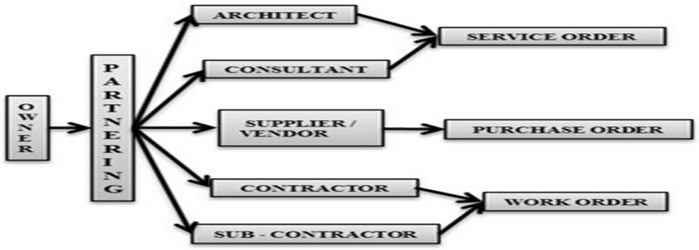
I. INTRODUCTION

In construction projects, usually the owner and the stakeholders share very formal relationships which are based only with the focus of individual benefits. Partnering is a management methodology which was conceived to achieve success in business relationships. It is a continuous process for improving the relations with the stakeholders and achieving mutually beneficial goals and objectives. But now, Partnering also aims at achieving quality project outcomes by use of ***effective communication, teamwork, collaborative problem solving and strategic planning***. It acts as a preventive process and early warning system for the stakeholders as they network together to obtain individual as well as mutual goals that they could not otherwise achieve on their own. ***Stakeholders such as Architect, Consultants, Contractors, Sub-Contractors and Suppliers/Vendors*** collaboratively work together under same terms and conditions with similar organizational culture for achieving a successful project. 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.

II. RESEARCH ELLABORATIONS

Many unsettled disagreements and disputes arise between the parties which further expand to litigation or legal conflicts. The sole reason behind these issues is lack of effective communication or interaction between the parties. To overcome this major problem, a software-based application on partnering gives perfect solution. This software application aims at keeping complete transparency in all the interaction between the owner and the stakeholders. Web based solution also proven effective in taking quick decision over all the important issues or problems faced, thus saving time, and as Time is Money, thus saving money.



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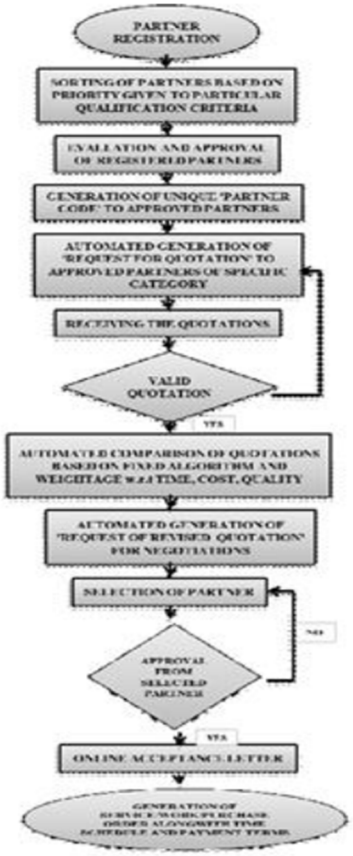
The functioning of the system is based on the following major steps:

1) Partner Registration
2) Sorting & Approval of the registered Partners based on required Qualification Criteria
3) Generating of Unique Partner code and providing Dashboard
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.

A. 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 and lastly certifications acquired by the company/firm.

1) General details include—name, address, contact number, e-mail id, website, company registration number & proof.
2) Financial details include—annual turnover for past 3 or more years, financial statement (audited balance sheet and CA certified document proof for 3 years).
3) Technical details include—number of employees with their qualification & work experience details, amount of machinery/equipment with their type & capacity etc., expertise details of company in particular type, list & details of clients and list & details of previous partnerships (if any).
4) Experience in similar works include—type of project/work executed, its locations & other details, total area & total cost of work executed till date and 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 and total quantity of material supplied till date.



B. Sorting & Approval of the registered Partners based on required Qualification Criteria

The Owner or the Builder's Organization can set baseline values to the respective qualification fields and the registered Partners will be sorted according to those values into A-B-C categories. A category being the highest qualified, B category being the averagely qualified and C category being the least qualified. 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.

C. Generating of Unique Partner code and providing Dashboard

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. Dashboard will be provided to every partner where he/she can view all the KPI's (Key Performance Indicators) related to his type of work associated with the owner. 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. 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. Any changes/alterations in the design/methodology/specification can be discussed / uploaded online and likewise changes can be carried out on site immediately.

D. Generating 'Request for Quotation'

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. This will be generated only when there are 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. The partners will be given fixed duration to reply to this quotation. If the quotations received are not valid then quotation will be sent to next set of approved partners.

E. Automated comparison of Quotations

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. Weight-age points will be given out of 10 and in any ratio as per owner's requirement. In case of same cost quotations, weight-ages help to sort them with respect to priority. At least/Minimum 3 partners will be shortlisted for the next step.

F. Generation of revised Quotation for Negotiations

The above shortlisted Partners are requested for negotiations in their quotations. And then revised quotations are received from the partners.

G. Selection of Partner based on Negotiations

The most qualified partner whose quotation after negotiation is best will be selected. Least value quotation will be shown as best by the system. The owner/CEO or the authority in charge takes this final decision of selecting the appropriate partner. 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. The owner and the partner will together set some objectives and goals for achieving best results out of their partnering.

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

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. 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.

1) Qualification Judging and Sorting Criteria will be based on the following points:

- Experience in similar works.
- Financial stability of the company/firm/partner.
- Overall Technical & Managerial knowledge of the company/firm/partner.
- Reputation & Position of the company/firm/partner in the market.
- Areas of expertise of the company/firm/partner.

- Work performance and past Business history.
- Quality of work and Timely deliveries.
- Organizational culture followed.
- Reciprocal arrangements
- Relation with the clients.
- Communication system used.
- Previous partnering performance
- Interest & ability to form Partnering alliance.

2) Disadvantages of the Traditional Manual Method

The traditional manual process has many disadvantages in its work flow or operating process in which lack of effective communication is the major problem. 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.

3) Advantages of Software system

- The online system enables features like E-Business, E-Commerce, E- Collaboration, E-payment and 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.

III. 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 'online 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) Greater focus is on the end users.
7) There are faster project start-ups.
8) There is reduction in defects during design & construction process and handover.

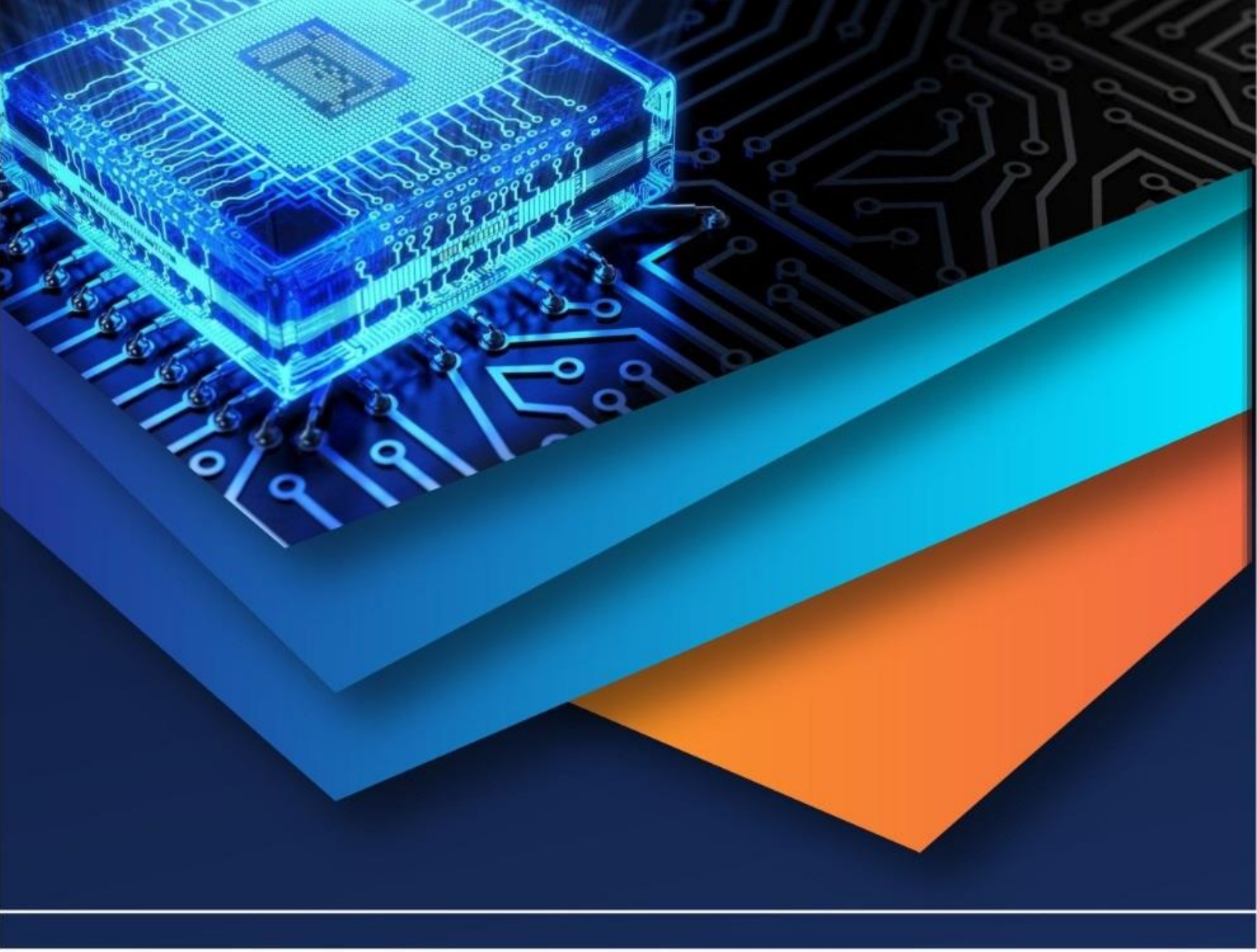
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9) There is better teamwork and stronger strategic relationships are created which attributes trust, commitment and co-operation amongst them.

10) This system aims at Zero claims & Disputes and smooth operation of the Partnering alliance.

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