Crowdsourcing: An Education Framework

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Abstract:- Crowdsourcing is one of the ancient practices which are adopted in varied ways. The primary advantage of it seems to relatively low cost and ability to scale. Considering this competitive advantage that it is enabled in the domain specific by the alteration of methodology as largely proposed by scholars. The generalized education perspective framework is not widely defined. This paper attempts in a wider perspective to bring out a generalized education framework for the crowdsourcing platform. Here the paper views the Crowdsourcing practice to be one of the alternative means to traditional learning and attempts to propose a model.

Keywords:- Crowdsourcing, Education, Teaching Framework, Online Education, E-Learning, Mobile-Cloud Crowdsourcing.

I. INTRODUCTION

Crowdsourcing is the future of the marketing, advertising and industrial design industries. The phenomenon will accelerate creativity across a larger network (John Winsor, 2006).

Crowdsourcing is one of the important trends fundamentally revolutionizing the manner in which business firms, governments and humanitarian organizations view the internet and the mobile phone market. Although, crowdsourcing has been practiced since 1990's (Roth, 2009), as a concept it came into prominence after June, 2006. 'Crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. . . The crucial prerequisite is the use of the open call format and the large network of potential labourers' (Howe, 2006).

According the research of crowdsourcing is intensely researched research area that has been steadily increasing over the last several years (Zhao, Y., Zhu, Q., 2012) and there is still an ongoing need for scientific engagement in this field(Leimeister, J.M., Huber, M., Bretschneider, U., Krcmar, H. ., 2009; Hammon, L., Hippner, H., 2012). Crowdsourcing is a powerful mechanism for outsourcing tasks, which are traditionally performed by a specialist or small group of experts, to a large group of humans (Greengard, S., 2011). The research with crowdsourcing is associated with the utilization of the crowd intelligence (Suroweicki., 2005) and exploit a crowd of innovators, and its potential for use beyond for profit sectors(Daren C. Brabham, 2008). The process of evolution of crowdsourcing and its advantages were studied and related it with enterprise. (Alonso, O., Rose, D. E., & Stewart, B., 2008; Vukovic, M., 2009)

The crowdsourcing process and factors associated with the collaboration which is generally referred to as a networked collaboration is being studied (Robert V. Kozinets, Andrea Hemetsberger, Hope Jensen Schau., 2008). The concept of the open innovation in comparison with the crowdsourcing and enabling it is being studied (Blohm, I., Koroglu, O., Leimeister, J. M., & Krcmar, H., 2011) and observed that the crowdsourcing would yield more effective outcome. Design aspects of crowdsourcing system and its components and proposal conceptual frameworks through the design process of crowdsourcing systems.(Lars Hetmank, 2011). Researchers have made a depth analysis with regards to Legal, Ethics and Economics in crowdsourcing: How to proceed? And suggested the conceptual relational approach to governance and law. (Pompeu Casanovas.,2013; Joel West, Marcel Bogers 2013). The intersection of corporate responsibility, corporate governance and strategy, public policy, and the media using web. Through crowdsourcing that had led to paradigm shifts in value creation (from value chain to value network) and in innovation (from firm-centric to network-centric) (Bill Baue, Marcy Murninghan., 2010). The definition of Vukovic addresses at least the organizational, the technical, and the process perspective, the definition of Treiber et al. is only weakly associated to the process perspective. The web is being considered to be an effective means for the crowdsourcing platform to keep the crowd engaged and informed effective with the additional semantic features(Pompeu Casanovas., 2013; Vladimir Zwass, 2010; Cristobal Arellano, Oscar Diaz, and Jon Iturrioz., 2011).

The paper attempts to look at crowdsourcing in education and systematically brings the concept as follows: section 1 – Abstract section 2 – Keyword section section 3 – Indroduction section 4 – Crowdsourcing Process, section 5 – Elements of the Crowdsourcing, section 6 – Components of the crowdsourcing system, section 7 – Crowdsourcing as Education Framework and then section 8 – conclusion.

II. CROWDSOURCING PROCESS

Crowdsourcing enables the means as a tool to gather the collective intelligence/effort for a variety of purposes. The definition has four elements which are of prime constituents. One is the open call function, the second one is the network of people, third the solution and finally the reward. What is the scenario that triggers the crowdsourcing in a firm? The process that constitutes the crowdsourcing is listed below.

Fig 1: Stages in Crowdsourcing Process

Crowd sourcing Process:
1. Company has a problem
2. Company make a "Open Call Function"
3. Networked people are asked to give the solution
4. Networked people submits the solution
5. Networked people/Company vets the solution
6. Company rewards the winning solver
7. Company owns the solution
8. Company profits

When one has a closer look at the process listed it can be seen that out of eight stages listed approximately two stages are related to each of the distinguishable elements that drawn from the definition. Now panoramically let's associate these stages to the physical environment with the key enablers of the crowdsourcing system. The figure below depicts the environmental implementation of the crowdsourcing process.
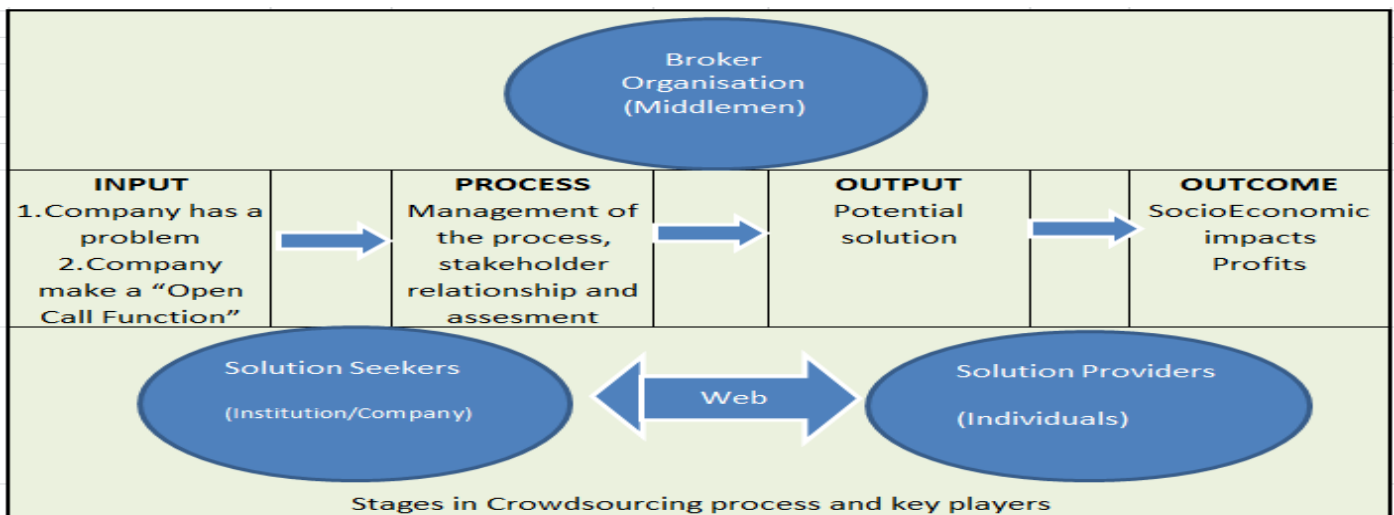

Fig 2: Stages in Crowd Sourcing Process and Key Players.

When the crowdsourcing is enabled there is a need for a platform known as Broker Organisation. Here the broker organisation is the mediator for all the four elements to interact. Here we call this broker organisation as the crowdsourcing platform. There are various commercially available platform available nowadays for ready use for one to gone in for a crowdsourcing. This all constitutes the crowdsourcing environmental implementation over a well-defined platform.

III. ELEMENTS OF THE CROWDSOURCING

Now let's examine these four elements very closely and look at the prominence and variability associated with these sections.

A. Open Call Function

Though here we analyse the "open call function" as a phrase but from the point of understanding it lets look it closely, here **open** means it does not have anything to hide. It signifies that it does distinguish the any class differentiation too with pre-criteria to have the access to it. **Call** generally means to draw a attention towards the source. So here the object is the function. So the phrase "open call function" means that the drawing attention towards the object of interest for all the with willingness to hear. The open call function is the problem description of the company/institute for which it calls for a solution from the crowd. The crowdsourcing can be further classified into two types based upon the call function addressing the crowd definition that it implies in the description. Literally four types crowds can be classified—Crowds, Hives, Mobs, and Swarms. A commercial business is generally referred as company or an organization providing residential care for people with special needs is referred as institution. So the company/institution constitute can be referred as company networked people who are drawn from the larger network of people. Here crowdsourcing system categorise people into two sub-category, namely

- Internal networked people (Internal Crowd)
- Networked people (External Crowd)

B. Networked People Need to Collaborate

To accomplish the solution for the task that is defined in the open call. In the phrase "network of people" **network** is interconnected similar kind of object and here within the phrase the object is represented by people. Wherein **people** is indefinite number of humans. So the phrase "network of people" means indefinite number of human being interconnected for the collaboration. The need of the collaboration can be for two purposes, mainly.

➢ *Participation*

• Open Collaboration
• Closed Collaboration

➢ *Governance*

• Hierarchical
• Flat

➢ *Based on this there can Different of Setups as Shown Below:*

Fig 3: Classification of Collaboration based on Governance and Participation

C. Solution

The act of solving the open call function by the crowd is referred to as a solution. Based the nature the solution that a company / institution intends in the call description, these can be broadly of the following nature, namely.

• Creative work and entertainment
• Innovation processes
• Crowd mapping
• Crowd funding

D. Reward

Reward is something that given in recognition of service, effort, for achievement of solution for the problem that is described in the open call function. This reward can be motivational factor to keep the crowd together to put the effort to solve call function problem. The motivation can be intrinsic or extrinsic. Accordingly the crowdsourcing can be.

• Voluntary (non-pecuniary) crowdsourcing
• Paid (pecuniary) crowdsourcing

All the elements of crowdsourcing are of highly varied in nature and according the crowdsourcing can be classified. In the following second section the components of the crowdsourcing are put together to form a crowdsourcing system as a mechanism is described. The third section looks the literature Review of Crowdsourcing. The fourth section deals with the introduction to web technologies, then this is followed by the brief insight of the influence of web technology on Crowdsourcing is being explained. Lastly the article is concluded with brief on discussion and conclusion.

IV. COMPONENTS OF THE CROWDSOURCING SYSTEM

The crowdsourcing mechanism with all of its elements, a part or whole forms a working component of the crowdsourcing system. The system is a set of things working together as parts of a mechanism or an interconnecting network. According the crowdsourcing system (CSS) has a set of components namely.

➢ *User Management:*
The initial component of CSS is user management. The main responsibility of this component is orchestration of the crowd. The sub-function are:

• Register User
• Evaluate User
• Form User Group
• Enable Coordination

➢ *Task Management:*
Handling of the incoming submissions of tasks and assigning to the crowd who are intended to solve happens to be the main function of the task management component. The functions associated with this components are:

• Design Task.
• Assign Task.

➢ *Contribution Management:*
The responsibility of quality, evaluation, pre-process and integration are the functional takes of the contribution management. In general the broad sub-functions of this component are:

• Evaluate Contribution.
• Select Contribution.

➢ *Workflow Management:*
The traceability of the progress and tracking of the tasks progress is the responsibility of this component. The sub-functions associated with this are:

• Define Workflow.
• Manage Workflow

When all these components are put together to enable the working model of the crowdsourcing system is as shown in the fig.5.

As mentioned in Fig.5 the crowdsourcing elements have lot of variations, when these are put together into a conceptual framework as shown they give rise lot of questions with regards to the uniqueness of system design like

- What is Being Done?
- Who is Doing it?
- Why are they Doing it?
- How is it Being Done?

The prominence of design of crowdsourcing systems takes the central means of attention. According the design of crowdsourcing can classified as.

- Crowd Processing
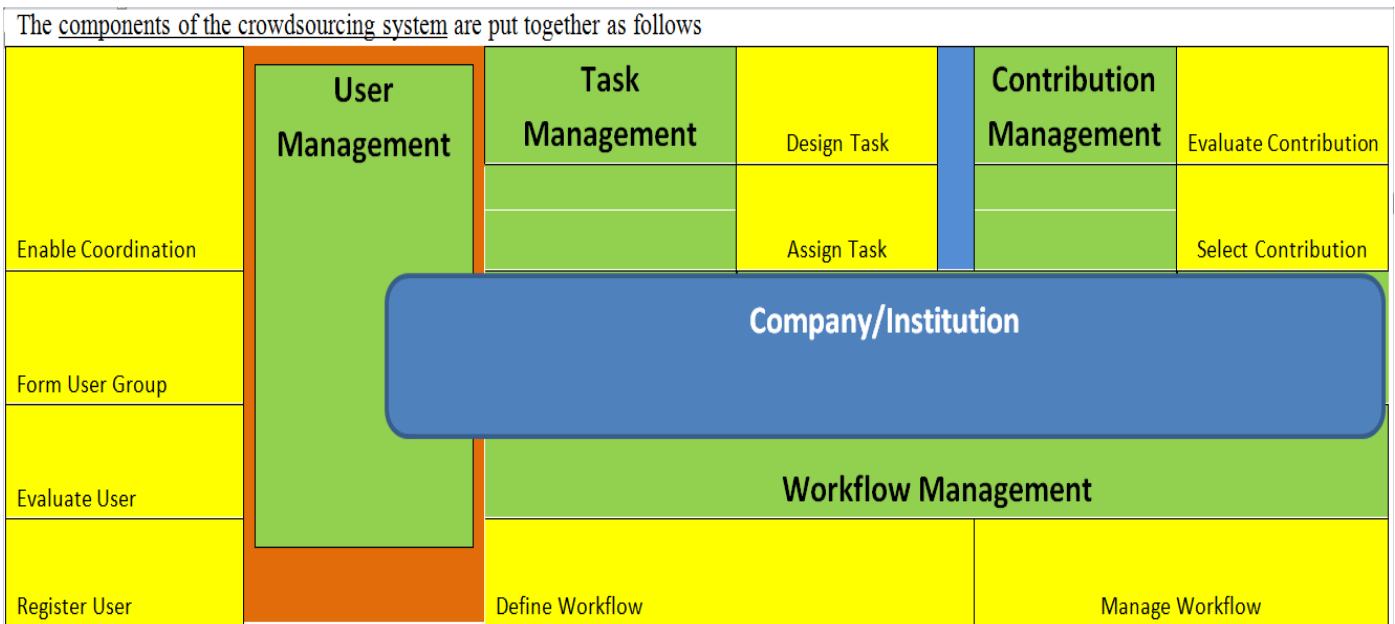- Crowd Rating
- Crowd Solving
- Crowd Creating

Fig 5: Crowdsourcing System with all its Components

V. CROWDSOURCING AS EDUCATION FRAMEWORK

Education is one of measuring factor for any country or community to exhibit their civilization progress. Since the present trend happens to be the mobile generation, considering this proposed mobile-cloud crowdsourcing in educational architecture and needs to be validated empirically (Tshepiso H. Nkoana, 2016). The primary elements of this proposal are as shown in the figure 6.
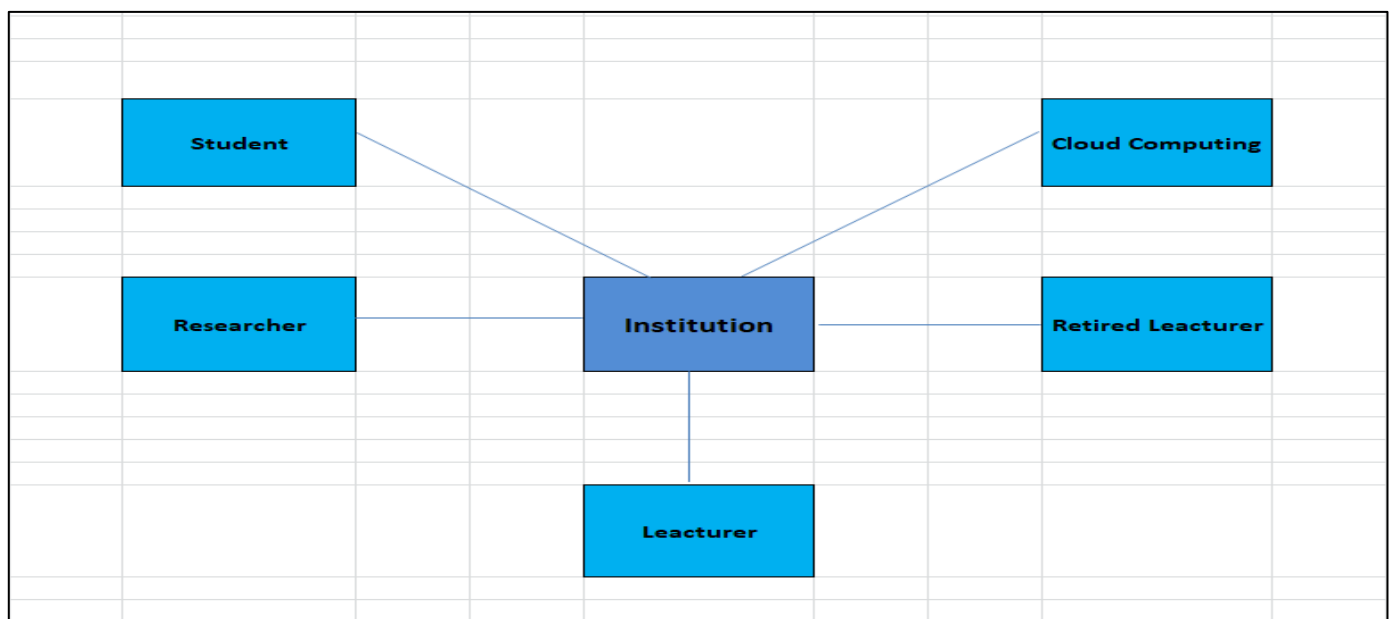

Fig 6: Proposed Mobile-Cloud-Crowd Sourcing in Education Architecture

The mobile-cloud-crowdsourcing in education architecture may be used to empower educational institutions to archive a successful, web-based, decentralized teaching, research and problem solving model. Crowdsourcing has emerged as an important aspect of education on the web as it promotes the honesty and sharing of resources and knowledge contributed by crowds. The future trends in the industry are fast approaching towards the attainment of the above depicted architecture for the need based education in the coming days. Colleges, Research Centres and Universities are required to spend a lot of time in managing a large scale of crowds, instead of focusing on the solution. Finally, there are few challenges that these institutions need to resolve such as: Automating the process of Quality Assurance, task assignment, and most importantly remuneration, when the size of crowd sourced project is large. (Saurabh RamBihariLal Shrivastava , Manoj Patil, 2023).

VI. CONCLUSION

The fig.5 and fig.6 consists of all the major subsystem that in general makes a generalised crowdsourcing system. The depicted system can be viewed through different business environment lenses for the personalised customisation in accordance the additional features that enable the competitive advantage. Further the above framework can foundational frame that might be required to design the education model at a specific organizational level customization.

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