A Project Report on

Survey on Crowdsourcing Technologies - Initial Experiences

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as a part of

Partial fulfilment of the degree of Bachelor of Technology in Computer Science
and Engineering

Date: 04-05-2023

Acknowledgement

I would like to express my sincere gratitude to **Mr. N.Chandra Shekar** for providing your invaluable guidance and suggestions throughout the course of the project.

I would like to thank **Mr. N.Satya Nandaram** HOD CSE for constantly motivating me to work harder and creating a nurturing environment for progressing with my project.

At the outset, we would like to thank **Rajiv Gandhi University of Knowledge and Technologies, R.K Valley** for providing all the necessary resources for the successful completion of our course work. At last, but not the least, we thank our colleagues, our classmates and other students for their physical and moral support.

With Sincere Regards,
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Certificate

This is to certify that the report entitled "**Survey on Crowdsourcing Technologies**" submitted by G Saisree, R Anusha, M Bhuvana Rekha in partial fulfillment of therequirement for the award of Bachelor of Technology in Computer Science and Engineering is a bona fide work carried out by us under his supervision and guidance.

The report hasn't been submitted previously in part or in full to this or any other university or institution for the award of any degree.

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Declaration

We **R Anusha, M Bhuvana Rekha, G Saisree** here by declare that this report entitled "**Survey on Crowdsourcing Technologies**" submitted by us under the guidance and supervision of **Mr. N Chandrashekar**,is a bonafide work. We also declare that it has not been submitted previously in part or in full to this university or other university or institution for the award of any degree or diploma.

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Abstract

Crowd sourcing is a collaboration model enabled by people-centric web technologies to solve individual, organizational, and societal problems using a dynamically formed crowd of people who respond to an open call for participation. We report on a literature survey of crowd sourcing research, focusing on top journals and conferences in the Information Systems (IS) field. To our knowledge, ours is the first effort of this type in the IS discipline. Contributions include providing a synopsis of crowd sourcing research to date, a common definition for crowd sourcing, and a conceptual model for guiding future studies of crowd sourcing. We show how existing IS literature applies to the elements of that conceptual model: Problem, People (Problem Owner, Individual, and Crowd), Governance, Process, Technology, and Outcome. We close with suggestions for future research.

1.Introduction

Having benefited from technology promoted by Web 2.0 and smart mobile devices, it is convenient for Internet users to get access to the Internet and share information with others. In this context, the Internet users distributed all over the world (the crowds) show great potential in creating amazing contents available online, and it is easier for them to take part in various aspects of our society. For example, Wikipedia is a great success which has benefited from their continuous contributions. Inspired by this, an increasing number of companies intend to take their potential customers into their decision making process related to product development, services and policies, or to seek help from the crowds in addressing some problems that they cannot solve because of the shortage of skilled employees and sufficient resources or user engagements, especially for small and medium enterprises (SMEs). In this process, the crowds need to interact with each other and the computer. How they interact is a research focus of computer-supported cooperative work (CSCW).

1.1 Key elements of a crowdsourcing process

On intermedairy crowdsourcing platforms, whatever task it crowdsources, the crowdsourcing process consists of four key elements: the requestor, the crowds, the task which needs to be crowdsourced and the crowdsourcing platform. The platform provides the requester a way to get access to large crowds conveniently and involve them into their production process and decision-making process.
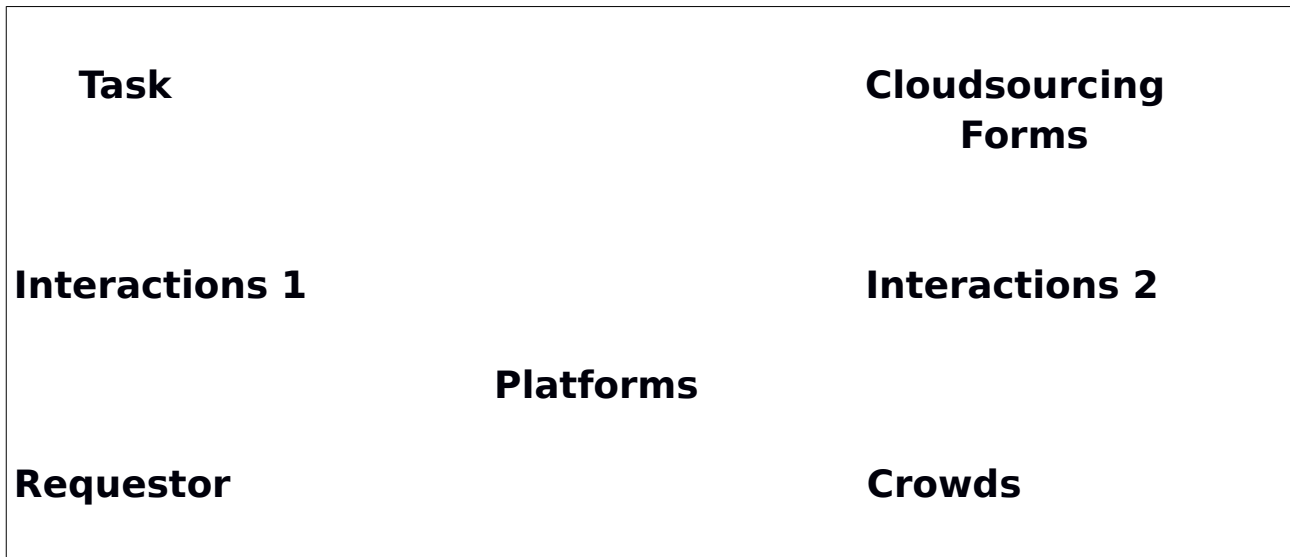
Task	**Cloudsourcing Forms**
Interactions 1	**Interactions 2**
Platforms	
Requestor	**Crowds**

fig 1:Key elements of cloudsourcing process

A simplified crowdsourcing process is shown in Fig.1. "Interactions 1" mainly means task input and the feedback from the platform, while "Interactions 2" refers to the broadcast of a task to crowds and crowd´s submissions of the performed task (including other communications with the platforms).In the process, "Requester" refers to an individual institution seeking help from crowds. "Crowds" refer to large group of people working on an internet-base crowd sourcing platform and they take on tasks that are advertised via an open call. Only when the crowd sourcing task is well-defined, then the proper crowds with specific knowledge and skills will be selected. The crowd sourcing task proposed by the requester needs to be mapped from the high-level goal to specific subtasks to be completed by the crowds. The crowdsourcing form depends on the nature of crowdsourcing tasks. Beforecrowdsourcing the task, an open call including the specific task and its evaluation criteria need to be defined firstThe evaluation criteria can be provided by the requested directly or be collected through crowdsourcing. The related technology in each element will be presented in later parts.

2. Literature Survey

2.1 What is crowdsourcing

Crowdsourcing is the collection of information, opinions, or work from a group of people, usually sourced via the Internet. Crowdsourcing work allows companies to save time and money while tapping into people with different skills or thoughts from all over the world.Crowdsourcing involves seeking knowledge, goods, or services from a large body of people. These people submit their ideas in response to online requests made either through social media, smartphone apps, or dedicated crowdsourcing platforms.A flexible method for innovation, data collection, and analysis in social science research.

Crowd sourcing can play an important role in the Internet of things(IOT) applications for information sensing and gathering where the participants are equipped with geolocated devices. Mobile crowdsourcing can be seen as a new paradigm contributing to the development of the IoT.Crowdsourcing is a decentralized model used to provide solutions to design or production problems by outsourcing the task to people from the crowd.

Crowdsourcing is the act of collecting services, ideas or content through the contributions of a large group of people. Typically, the "crowd" in crowdsourcing is a third-party unrelated to the business seeking results. Crowdsourcing can help quickly assemble the data, expertise and resources required to perform a task or solve a problem by "allowing people and organizations to collaborate freely and openly across disciplinary and geo-graphic boundaries". Crowdsourcing is a way to get your ideas and content directly from the source and develop training that is more personal and relevant.

2.2 Types of crowdsourcing
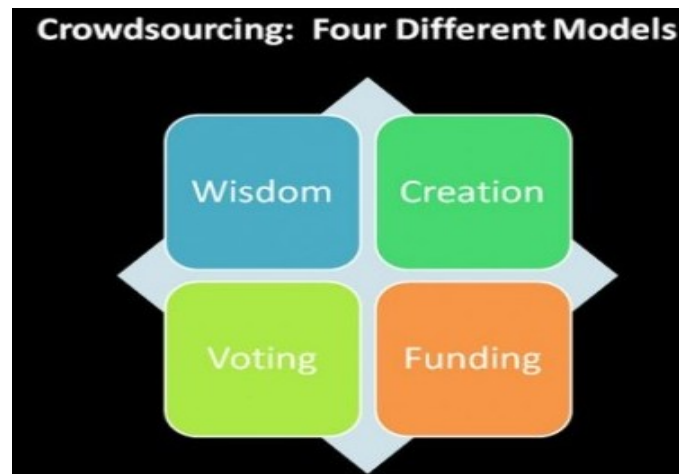
There are four main types of crowdsourcing:

fig 2: Types of Crowdsourcing

➤ **Wisdom of the crowd:** It's a collective opinion of different individuals gathered in a group. This type is used for decision-making since it allows one to find the best solution for problems.

➤ **Crowd creation:** This type involves a company asking its customers to help with new products. This way, companies get brand new ideas and thoughts that help a business stand out.

➤ **Crowd voting:** It's a type of crowdsourcing where customers are allowed to choose a winner. They can vote to decide which of the options is the best for them. This type can be applied to different situations. Consumers can choose one of the options provided by experts or products created by consumers.

➤ **Crowdfunding:** It's when people collect money and ask for investments for charities, projects, and startups without planning to return the money to the owners. People do it voluntarily. Often, companies gather money to help individuals and families suffering from natural disasters, poverty, social problems, etc.

2.3 Pros and Cons of Crowdsourcing

Pros of Crowdsourcing:

- Crowdsourcing offers high probability of success.

- Building customer contact and database.

- Gain brand ambassadors - or even employees.

- Crowdsourcing saves costs and time.
- Greater diversity of thinking.
- Reduced management burden.
- More marketing buzz.
- Customer-centric data

Cons of Crowdsourcing:

- Risk of manipulation.
- Risk of image loss.
- Risk of internal disputes.
- Confidentiality.
- Potential for failure.
- Intellectual property rights.
- Quality could be questionable.
- An unreliable way to get a job done.

3. Main findings of survey

3.1 How to Crowdsource

- ➢ Design the job.

- ➢ Create the promotional materials.
- ➢ Choose a promotional strategy.
- ➢ Manage the results.
- ➢ Produce the final project.

3.2 Brief Description

Crowdsourcing can be used to find solutions to all kinds of tasks. This includes small things like a band asking its fans which cities they should play on their next tour, to ambitious projects like genetic researchers asking for help in sequencing the human genome.

The breadth and diversity of social media also offer huge potential for crowdsourcing, such as the Obama administration using Twitter tocanvas questions for town hall debates, and football clubs asking fans to vote for the team's starting lineup ahead of each match.

Crowdsourcing can also take the form of idea competitions such as Ideas for Action, a forum for students and young professionals to submit solutions to global innovation challenges.

While the concept of crowdsourcing may be simple, finding great ideas and solutions isn't as easy as just asking customers and fans for their best ideas.After all, nobody wants to give away their valuable knowledge and expertise for free. There has to be a clear incentive in place, such as a financial incentive (either a cash prize or a share of eventual sales) or professional recognition.

To be effective, a crowdsourcing project also needs:

~ A well-defined scope - respondents need to know exactly what is required in terms of a suggested idea, best practice, or solution.

~ Comprehensive background information - respondents may need access to technical data before they can make a submission.

You also need to decide whether you want to target a large group of people (e.g. through big public social networks like facebook or twitter) or a specific group with highly-developed skills and experience (e.g. through specific platforms like 99designs with targeted designers).

A specialized crowdsourcing platform can help to structure this process and guide interactions between the organization or business seeking input, and those looking to provide it.

3.3 Examples of crowdsourcing

As always, the best way to learn how to do something is to see how the market leaders are doing it. Crowdsourcing is no exception.

Luckily, there are some great examples out there of companies using crowdsourcing to seek cutting-edge ideas from customers and fans:

• **Sodexo**: InnovHub Community powered by Braineet provides a way for employees and clients to share ideas, best practices, etc... to contribute on a digitsl platform that we built. As output, we can access the latest innovative solutions.

• The "Robot food delivery" is a great example of crowdsourcing.

• **Unilever:** Launched in 2010, Unilever's Open Innovation platform poses technical problems to the public, seeking input on things like smart packaging and cooling systems. Now, the company receives thousands of helpful responses each year.

• **DHL:** DHL's Innovation Centersoffer a way for the courier company's customers to contribute ideas for improved systems and technology, such as drone delivery technology and remote navigation tools.

Dell. Before Intel Corporation launched its crowdsourcing program through the Open Innovation Challenge in 2008, Dell had already embraced the idea of generating ideas from the public with the IdeaStorm platform in 2007.

Some popular crowdsourcing platforms examples include InnoCentive Amazon Mechanical Turk, 99Designs, CrowdSpring, Openideo, Upwork, and DesignHill.Companies such as Mahindra, HUL, Toyota, Airtel, Ricoh are the few companies that are regularly investing in crowdsourcing initiatives in India. Brands are using crowdsourcing for various purposes from product development and packaging to brand communication and engagement.

Crowdsourcing methods include competitions, virtual labor markets, open online collaboration and data donation. Some forms of crowdsourcing, such as in "idea competitions" or "innovation contests" provide ways for organizations to learn beyond the "base of minds" provided by their employees (e.g. LEGO Ideas).

Here are a few examples of various digital platforms:
- Media sharing platforms like Vimeo, Spotify, and YouTube.
- Social media sites like Twitter, Facebook, LinkedIn, and Instagram.
- Knowledge-based platforms like Quora, StackOverflow, and Reddit.
- Service-based platforms like GrubHub, Uber, and Airbnb

Although diverse crowdsourcing models have been implemented by existing crowdsourcing systems, they have the same key components affecting product design quality, namely, the requester/crowdsourcer, the crowds (workers), the task, and the platform.

One of the biggest and most well-known crowdsourcing platforms in the world, GoFundMe is mostly used by NRIs to raise funds for any need in India In internal crowdsourcing, the company's employees form the crowd and can submit solutions, while in external crowdsourcing, the crowd is formed by an undefined number of individuals outside the company (Leimeister et al. 2015).

Entities may opt to use crowd voting to engage stakeholders, such as employees or customers, as well as the public to help prioritize ideas or help determine a course of action. Some areas of crowdsourcing have spurred specific recognition for the individuals involved.

Crowdsourcing involves obtaining work, information, or opinions from a large group of people who submit their data via the Internet, social media, and smartphone apps. People involved in crowdsourcing sometimes work as paid freelancers, while others perform small tasks voluntarily.

The leading user of crowdsourcing is the customer goods industry, which includes many of the large brands in the food and beverage industry such as Nestle, Coca-Cola, Danone and Unilever.

Crowdsourcing software development model hires skilled workers from the crowd using an open-call to carry out all or part of the development tasks. Open-sourcing software development model invites skilled volunteers from the open-source community to carry out all or part of the development tasks.

Some peculiar examples of "crowdsourcing" could be found as far back as in ancient Babylonia. Yet most pundits would agree that crowdsourcing was born in 1714, when the British Parliament launched the Longitude Prize, soliciting a reliable method of determining a ship's longitude at sea.

3.4 Crowdsourcing in marketing

Crowdsourcing marketing is a promotional strategy that involves collecting information from the general public to guide a company's product development and advertising efforts. It allows customers to contribute their ideas about how a business should operate or what features the company incorporates into its products. Crowdsourcing marketing strategies include contests where people suggest product names, vote for new product releases or show how they use a company's products in their daily life.

Companies that use crowdsourcing as part of their marketing plan aim to gather input from a wide variety of potential consumers to guide market research, make authentic connections with an audience and gain user buy-in for new products.

Crowdsourcing works as a marketing tool by providing the public with an opportunity to engage with a company, which then can lead them to learn more about what the business does and eventually make a purchase. Businesses use crowdsourcing as part of their marketing strategy to generate new ideas for their business and to customize marketing content to specifically target their customer base. They also use crowdsourcing as a publicity campaign, as people share the opportunity to contribute to a company's products and services with their personal network.

Many businesses crowdsource content from their audience to provide a personal connection to their advertisements. Companies can collect submissions from the public to use in their marketing materials or crowdsourced advertising campaigns. They ask their audience to share videos, images, audio or text, which they can then repost or use to promote their brand.

3.5 Applications

Various applications of crowd sourcing are:

Maps and traffic information using Waze app:

Traffic jams is one of the place where we lose lots of time unexpectedly so instead of sitting idly we can use waze app to inform other app users about the traffic in our route so that they can escape from this situation.

We can also report any accidents if happens in our route using this app. so, this app is using crowd source means getting data from the app users and sharing the data to others which helps to find best route and so on.

Executive Recruiting - Notch Up:

Many professionals have an existence on Facebook, LinkedIn, or in Twitter. While an individual employer may only be able to search into a few of those profiles, crowd sourcing can help this entire web for information. Notch Up helps companies hire executives by crowd sourcing information through online networks.

Notch up app hires some persons who are used to nominate the employees.

Crowd Source by Google:

Google had introduced an app called crowd source which is used to collect the data from the people like the people belongs to a specific region knows about their regional foods, culture and so on…So, Google started collecting the data belongs to various fields like image label verification, Translation, Hand writing recognition, and so on..There you can also see your level and your contributions to the Google as well. So, In this way Google is using crowd source to collect the data.

4. Future Scope

4.1 Crowdsourcing in future

We presented crowd sourcing in the extent of re-appropriating, and we accept the fundamental of crowd sourcing is the equivalent. The explanation crowd sourcing turns into a popular expression is on the grounds that it additionally presents open development. With our investigation, we trust later on, crowd sourcing will advance in two measurements. Horizontally, the business procedure of publicly supporting will be sectioned into sub-assignments. For each sub-task, proficient associations will possess the market. Vertically, publicly supporting will be applied into various fields of business, which implies the necessity of information and yield of a publicly supporting undertaking will be carefully characterized and the general nature of the last yield will be improved.

Crowdsourcing will become an essential component of this structure. Organizations will be using their own employees to perform the "core" activities. But for the tasks they lack internal resources or expertise for, crowds of independent on-demand contributors will be assembled. Many organizations will start nurturing their own crowds which will be repeatedly used for similar projects and tasks. The future competition will become competition for the quality of the crowds each organization can rapidly assemble to perform an urgent job.

Crowdsourcing of the future will be assisted by advancements in technology, of which using AI/ML tools will be the most obvious development. First, large datasets will be available on both successful and failed crowdsourcing campaigns. Analyzing the data will help identify types of problems most amenable to solving by applying the wisdom of crowds. Moreover, it'll be possible to design algorithms allowing users to translate their technical or business challenges into specific problem statements with the highest expected levels of success.

4.2 Crowdsourcing tips:

Every entrepreneur has the opportunity to use crowdsourcing, regardless of the size of the company. To get the most out of it, it is necessary to take crowdsourcing advice from leading experts into account.

Tip 1: Motivate the crowd - but do it right!

Yes, they do exist, the highly motivated participants who do not want any financial or material reward for their commitment. Especially when it comes to a social project. But such co-workers are rare. You should motivate your target group with an appropriate reward.

But appropriate also means: Don't overdo it! This will attract people who have no interest in your open innovation project, but are only interested in the reward. Prize competitions that reward the best feedback increase the quality of the feedback. However, some people will give up if the chance of winning seems too small.

Tip 2: Work transparently!

A good communication strategy is elementary in crowdsourcing and open innovation. Inform the project participants transparently about the next steps and communicate at eye level. **Important :** The participants must not feel exploited under any circumstances, otherwise you put the good reputation of your company at risk.

Tip 3: Hold out for any feedback!

Market research can hurt. If you're secretly hoping for nothing but praise for your idea or product, you're not on the right track. So if 95 percent of those surveyed express skepticism or open criticism, you should also be prepared to radically rethink. Better at this point than when the end consumers decide in the store.

Tip 4: Contact especially qualified feedback givers!

Not all feedback will get you anywhere. But there are some participants in every project who will amaze you - with razor-sharp analysis and tremendous subject matter expertise. Reach out to these experts and engage them in the future. You may even find a new brand ambassador or collaborator.

Tip 5: Use the social networks - but not only!

Theoretically, this would also be a form of open innovation: You post an idea or a photo of a prototype on your Facebook channel and ask people what they think of it.

Technology is making it progressively easier to access the knowledge, experience, and resources of the crowd. We have already seen how applications of crowdsourcing technology can provide funding, services, and navigation. Now this technology will accelerate innovation, problem solving and even politics.

Current crowd work typically consists of small, independent, and homogenous tasks, as shown in Figure 1. Workers are paired with an instance of each task to produce an output. Such simple, small-scale work has engendered low-pay, piece rate reward structures, in part due to the perception that workers are homogenous and unskilled. The current model is also insufficient to support the complexity, creativity, and skills that are needed for many kinds of professional work that take place today. Nor can it drive factors that will lead to increased worker satisfaction, such as improved pay, skill development, and complex work structures.

5.Conclusion:

Crowdsourcing is a good idea that must be practiced with a lot of care. One must consider the expertise of those he is employing to ensure that he gets what he actually needs at the end of the project. The experts who are the crowd workers should also take it as their responsibility to ensure that they do not practice unacceptable behavior and that they only pick jobs that they are comfortable with. To pick tasks that you cannot perform unprofessional.

Our research shows that crowdsourcing has been credited with helping to create amazing acts of journalism. It has transformed newsgathering by opening up unprecedented opportunities for attracting sources with new voices and information, allowed news organizations to unlock stories that otherwise might not have surfaced, and created opportunities for them to experiment with the possibilities of engagement just for the fun of it.

In short, it has done just what the pundits predicted a decade ago: helped turn journalism into more of a conversation than a one-way megaphone.

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