An Overview of Crowdsourcing

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INTRODUCTION

During the past decade, there were rapid developments in the Internet, computing technologies, wide-spread and use of location-aware technologies such as GPS and mobile phones.

These developments influenced how people communicate and share their opinions, views, knowledge, maps, and many others throughout software platforms. These technologies have participated in the creation of what is now called Web 2.0, which is a new era of web technologies enabling users to play an active role in adding contents to the web in a collaborative way, instead of just consuming the web contents.

People are now easily sharing social media posts, blog posts, product reviews, ideas, opinions, maps and others. Crowdsourcing is characterized as a phenomenon that appeared due to enabling web users to contribute to the web.

There are many online Crowdsourcing applications such as Amazon Mechanical Turk, Open Street Map, and Yahoo Answers amongst others. Thus, crowdsourcing is a collaborative process which involves four main components (requester, crowd, open call and platform). People might benefit financially or intellectually from participation in crowdsourcing. This chapter serves as a general overview of crowdsourcing research and envisages future research directions.

BACKGROUND

Due to the invasion of pervasive computing and Web 2.0 technologies (Brabham, 2013), users can not only consume information on the web by search and navigation but also, contribute their own contents. Crowdsourcing is also called fan sourcing, crowd casting, mass collaboration, socio-technical systems (Geiger, D. et al. 2012), collective intelligence, smart mobs, peer production, citizen science and user generated content (Haythornthwaite, 2009).

Many applications have been created to make use of the online crowds such as Question Answering, Mapping, Software Engineering, Healthcare and many more. Examples of Crowdsourcing systems are yahoo answers, Open Street Map, Amazon Mechanical Turk, among others. Crowdsourcing can be classified according to (Howe, J. 2008) into co-creation, crowd creation, crowd voting, crowd wisdom, and crowdfunding.

There is always confusion between the terms crowdsourcing and outsourcing. Here we distinguish between these terms. Wikipedia has created a debate; some researchers do not consider it a crowdsourcing site. Because it is not satisfying their 8 criteria listed in (Estellés-Arolas et al. 2012). On the other hand (Haythornthwaite, 2009) considers Wikipedia a crowdsourcing platform, contributed by a collection of volunteer contributors.

This chapter presents a general overview of the crowdsourcing field. It is structured as follows; it begins with the analysis of definitions of the term from literature followed by a classification of crowdsourcing activities. Then, a comparison between crowdsourcing and outsourcing is presented. After that a discussion of crowd-user motivations is presented. It also presents the benefits and problems of crowdsourcing, its applications, online crowdsourcing systems, current and future research avenues.

CROWDSOURCING DEFINITIONS

Crowdsourcing is not a new phenomenon; it has been used in the past in many cases for collecting users' participations (Howe, J. 2008). But, until now there is no standard agreed upon definition of crowdsourcing. The term was first proposed by Jeff Howe's in a Wired Magazine article (Howe, J. 2008) and defined as:

the act of a company of institution taking a function once performed by employees and outsourcing it to an undefined and generally large network of people in the form of open call.

After that, there were several other attempts to define it in the literature such as (Ambati et al. 2012 Azzam, T. et al. 2013, Von Ess 2010, Bell, 2009, Doan et al. 2011, Lebraty et al. 2013, Brabham, 2013, Estellés-Arolas et al. 2012, Sharma et al. 2014 and many more). These definitions are different in their view regarding the targeted application of crowdsourcing. The definitions of Crowdsourcing are unified in terms of the general concepts and components, but, targeting different applications.

Figure1 depicts the crowdsourcing process, showing various components. The first component is the sourcer or the requester, which can be an organization or an individual. The requester wants to accomplish a specific goal or solve a problem. This goal can be to create, test, or rate a product or a service or it can even be to collect capital investment to initiate a project. The second component is an open call (this is the call for participants to contribute to achieving the requester's goal). The third component is the crowd (the anticipated contributors to the open call). The last component is the platform that facilitates the process of interaction between the requester and the crowd. Figure1 depicts the crowdsourcing process, showing various components. It shows that the crowdsourcing process is initiated by the requester, which may be a company, an institution or an individual, having some problem to solve. This requester sends an open call for participations to the crowd. The diversity and heterogeneity of the crowd capabilities are an advantage, which produces variations of the presented solutions. The crowd participates in the open call by providing solutions to the problem. The requester receives and evaluates the presented solutions.

Figure 1. The Crowdsourcing process
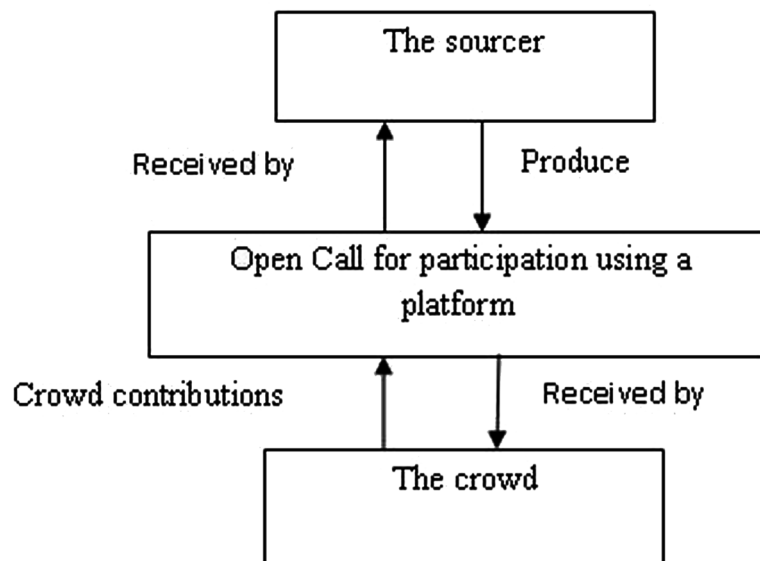
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