THE PROCESS AND USERS' PARTICIPATION IN NEWS REPORTING ON THAI CROWDSOURCING PLATFORMS

Kultida Sayprom

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ABSTRACT

Title of Dissertation	THE PROCESS AND USERS' PARTICIPATION IN NEWS REPORTING ON THAI CROWDSOURCING PLATFORMS
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The research is aimed to study 1) the process of news reporting on the crowdsourcing platforms of the Bureau of Networking and Public Participation, Thai Public Broadcasting Service (Thai PBS), and the Southern Cities Climate Change Resilience Network Foundation, 2) factors affecting users' participation in news reporting on Thai crowdsourcing platforms, and 3) the development of the structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms. The study applied mixed methods of both qualitative and quantitative research. The qualitative research was conducted by documentary analysis and in-depth interviews with 3 groups of key informants: the organizations' crowdsourcers, users who were platform members, and 21 scholars in the field of digital journalism, while the quantitative research was conducted by survey questionnaires with 100 samples.

The findings show that the news reporting process of the C-Site and Hatyai City Climate Platforms is a process designed for the interaction between a proposing organization or an initiator and users, which is mutually beneficial relationship with 3 main sub-processes: 1) Input: the importing of data for distributing problem issues or news pieces and creation of motivation to stimulate users to participate in news reporting news and operation on three kinds of the public sphere, namely virtual, physical, and mass media; 2) process: session, crowd, content, and technology management, and 3) output, which is completed work or news pieces, guidelines for problem-solving, and common benefits of the organization and users.

The factors found to affect users' participation in news reporting on Thai crowdsourcing platforms are personal motivation, perceived usefulness, perceived ease of use, the interaction between crowdsourcers and users, organizational factors,

and users' intention to participate.

The developed structural equation model of the factors affecting users' participation in news reporting on Thai crowdsourcing platforms is found to be congruent with the empirical data, analyzing from the following congruence indices: x^2 = .170, df = 1.122, CFI = .988, TLI = .984, RMR = .028, and RMSEA = .035, which pass the determined criteria. From the analysis of direct, indirect, and total effect of variables in the structural model, only one causal variable, namely intention to participate, is found to have a positive direct effect on users' participation in news reporting at a significance level of 0.01.

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CHAPTER 1

INTRODUCTION

1.1 Background and Significance of the Problem

1) Crowdsourcing Phenomenon

When the world moves into the 21st century, the advancement of information and communication technology, i.e., increasingly inclusive and wide internet networks, smartphone technological development, high speed in connecting and delivering information, complete and effective multimedia services, and the occurrence of social media, users' co-creation and generation of content into a system, information exchanges, and sharing, etc., it leads to a change in the media landscape and communication disruption from one-to-many communication. It shifts from linear and one-way communication, including top-down communication from a group of authorized or powerful people who control and disseminate their main content to the masses of people to a new communication process, the so-called "many-to-many communication." A huge amount of information has been exchanged, which has never happened before. Simultaneously, receivers who used to be passive turn to be an active audience who can selectively receive and send messages, and also can produce user-generated content as they wish easily in all forms, i.e., texts, still pictures, moving pictures or video clips, etc. without necessarily knowing one another. (Matana Charoenwongsa, 2016, p. 26; Vikanda Pornsakulvanich, 2019, p. 5). The opportunity of users to have power in generating, transmitting, and exchanging information widely and freely enables them to increase their capabilities towards an effective generating unit. Hence, the creation of information is enhanced as a valuable result of the information society. All of these factors are important in promoting and supporting a phenomenon called, "crowdsourcing."

The term "Crowdsourcing" was coined in 2006 by Jeff Howe in his article, "The Rise of Crowdsourcing," published in Wired Magazine, an American

technology-oriented magazine. The concept is developed from two main principles: the employment of external individuals or agencies to operate some projects or missions for organizational staff, or so-called, “outsourcing” and “crowd,” which is online large-sized potential labor. (Brabham, 2013, p. 17). It leads to work delegation to large masses of people through collective thinking, production, creation, and problem-solving while these masses can still operate their work freely. (Sudarat Disayawattana Chantrawatanakul & Chakkrish Permpool, 2014, p. 254; Shirky, 2009, p. 83). Hence, it can acquire rapid, valuable, and low-cost responses and work, including access to experts and opportunities.

Later, in 2008, the definitions of “crowdsourcing” were more diverse and different, and some arguments were raised since the definitions depend on the people who define the term, such as defined by the masses’ characteristics, the tool used, initiating organizations, fund-raising aspects, work complexity, and the level of people’s participation. (Brabham, 2013, p. 2). Subsequently, Estellés-Arolas and González-Ladrón-De-Guevara (2012) tried to study and review academic literature related to crowdsourcing, i.e., from journal articles, books, conference reports, workshops, technical reports, etc. to summarize the most inclusive meaning. Eventually, they came up with the definition of crowdsourcing as a type of online participatory activity whose needs are proposed by individuals, institutes, non-profit organizations, or business companies to diverse masses of people with different backgrounds, residential areas, knowledge levels, and experience, or specialized expertise. Most of all, attendance at activities is voluntary. Thus, this kind of relationship is a reciprocal relationship. Namely, those who propose some needs to the masses will gain benefits from the masses’ participation, depending on the types of operating activities, i.e., labor, knowledge, experience, time, or money, while the masses will be paid with benefits they value, i.e., remuneration or objects, the happiness of being a giver, social acceptance, self-pride, personal specific skill development, etc. (Estellés-Arolas & González-Ladrón-De-Guevara, 2012, p. 197; Rungsun Kiatpanont, 2015, p. 24).

The concept of crowdsourcing has been applied successfully by several business organizations. For instance, Threadless.com Website in which designers all over the world were invited to design their T-shirts and let general people give scores

to the one they think is the best or they like the most. The winner was monetarily rewarded. On the other hand, the company that produced T-shirts that had been responded the most distributed such a T-shirt. Thus, it made the distributed T-shirts more novel than those sold in a shop. On the other hand, design costs were not so high. As a result, the company could gain almost two times higher income every year. Another example is InnoCentive.com, a website playing a role as a mediator in solving engineering, scientific, and business problems by the masses. Remuneration was offered as a reward to attract people all over the world to help solve problems. Additionally, iStockphoto.com is a website for selling online images through popular votes or downloading frequencies. After accumulating popular votes increasingly, the reliable ranking was then introduced to help users to access the best images more easily. Frequencies of downloading images are also an indicator of the commercial popularity of each image and best-sold products. (Shirky, 2009, p. 83; Brabham, 2008, pp.76-78; Kultida Sayprom, 2020, p. 275). Despite the adoption of the crowdsourcing concept only in business and private organizations at the initial period, the more the concept is diffused, the more variety of issues it covers. At present, the concept of crowdsourcing has been applied in various domains, i.e., health care, smart business solutions, database, education, social innovation, multimedia data annotation, software/web development, traffic management, etc. (Bhatti, Gao, & Chen, 2020, p. 2). It includes its application for news reporting that is focused in this study.

2) Crowdsourcing, News Credibility Crisis, and the Masses' Information Use

Journalistic work is obliged to truth presentation with correctness, accuracy, and credibility. Despite no absolute truth, it aims to present its collected journalistic truth, following its professional procedure. (Kovach & Rosenstiel, 2014, as cited in Surasit Vithayarat, 2018, p. 10). Upon entry into the age where information is rapid, receivers or users can generate their information freely in various forms, while mass media also makes use of such information as information sources or raw materials for producing news, finding clues, and setting the news agenda widely. However, from the study by Wattanee Phoovatis (2017), information from social media used in journalists' reporting was found to be erroneous, unreliable, and create

panic during a crisis. Besides, it was found to create social disharmony and violate human rights and copyrights.

From the aforementioned condition, the concept of crowdsourcing thus is suitable for journalistic work as it is a systematic online process of gathering information from the masses, which can be investigated for its correctness and accuracy. On the other hand, most people, without necessarily being trained, can also play a role in reporting their collected information to clarify complex or complicated issues. Thus, "owing to a larger number of people, while newspapers cannot deliver 25 journalists to survey the truth throughout a city, i.e., to explore if the price of cabbage is different in different supermarkets, the information obtained from the masses of people become useful since such a journalistic work is beyond a newspaper's management, information must rely on people residing in each area." (Howe, 2011, pp. 257-258). Furthermore, from the empirical study by (Aitamurto, 2013, 2015, as cited in Aitamurto, 2016, p. 189), it was found that journalists could also apply information gained from general people for investigating the truth and also seeking knowledge from those people, leading to a quick delivery of knowledge, especially the knowledge journalists did not know. Besides, they could also invite people in a community to participate in their investigative journalism process, aimed to search for quality information sources and utilize the collective wisdom of the civic sector. It thus means they can draw collaboration and wisdom of people in a community to help solve problems or conduct any activity as their news reporting covers inclusive and diverse perspectives. Especially, it enables the ignored voices to have a sphere for their expression. (Sudarat Disayawattana Chantrawatanakul & Chakkrish Permpool, 2014, p. 208; Pirongrong Ramasoota & Thomtong Tongnok, 2020, p. 156).

To illustrate this, the PetaJakarta.org platform in Indonesia allowed Indonesian citizens to participate in reporting their current situations, helping to surveillance, and forewarning about flooding from 2013 to 2016 through a system that collected all reported flooded sites and events by citizens. A map of real-time flooding situations in Jakarta thus was drawn and used to provide information about the level of flooding. Similarly, the Sinsai.info website was introduced in Japan four hours after the gigantic earthquake in the eastern part of Japan. In 2011, it was found that

digital volunteers helped to proceed and investigate the correctness of information reported via Twitter and emails, including recording information on online warning maps. The information included official government announcements, lists of the deceased and missing persons, requested help, information about contemporary residence, etc. All information helped the public to be informed of the damages and needs of each area rapidly and inclusively. (Song, Zhang, & Dolan, 2020, p. 5; Thanikun Chantra, 2021, p. 246). In Thailand, JS 100 radio station started to let the public sector participate in reporting current traffic jams in 1991 by phone-in and live to report, including notifying accidents, needed assistance, and collaboration. During the initial period, it was criticized that participation was limited only to middle-class people. However, later, a more variety of groups of people have participated and news content has been expanded to cover more diverse news, i.e., accidents, public hazards, civil services, etc. At present, due to more technological and communication advancements, JS 100 also opens for citizens' news reporting through other new platforms, namely Twitter @js100radio, about accident news, and opens @traffic for traffic conditions reporting throughout Bangkok. The expanded communication channels do not only reflect people's curiosity about information sharing, but also horizontal communication in which people and professional news reporters can collaboratively gather and disseminate useful news for society. (Matana Charoenwongsa, 2019, pp. 145-146). Accordingly, it does not only bring about innovation to the mass media circle, but also increases mass media's awareness of the shared agenda to which a society should give importance, pay attention, and enhance the collaborative gathering and the creation of useful information for public benefits. Hence, it will arouse more attention to information sharing, including inducing a transparent and auditable system. (Pirongrong Ramasoota & Thomtong Tongnak, 2020, pp. 156-159).

3) News Reporting on Thai Crowdsourcing Platforms

Typically, the development of a specialized platform for gathering information from general people who are knowledgeable or have specific expertise or personal interest is a process of creating participation in communication purposefully. Thus, it enables the gathering, collection, investigation, and information analysis more easily than monitoring information from an online community only. Besides, it helps to enhance the effectiveness of using the masses' information and leads to

establishing a big database. The notion accords with the recommendations from the study by Sakulsri Srisaracam et al. (2016) that media organizations should develop specialized platforms for assembling information from online media to create participation and make use of information from such media. It is thus a collaboration between content creators and technology or platform developers. The use of such a platform is thus the establishment of a community. When receivers in a community have a sense of participation, they will share their information, experience, and knowledge. The power of receivers can then help the media to mobilize people towards the target issues and find solutions for the facing problems. By doing so, exchanges and interaction among users are stimulated. Furthermore, viewing others' information encourages each user to disclose his/her information increasingly. Mostly, journalists view this method to be more efficient than traditional interviewing. Especially in public hazard situations, the news is the information needed the most by general people to explain what is happening or what they are facing so they can decide to respond to the situation promptly and properly. (Sermsiri Nindum, 2007, p. 1). Information management before, during, and after public-danger incidents is thus a challenge for mass media, especially in terms of their accessibility to the scene of any incident and their capability to establish communication networks with information sources. (Academic Institute of Public Media, Thai Public Broadcasting Service, 2012, p. 8).

www.thaiflood.com or an information center for helping floods victims is an example of an effort in developing a platform of online news producers by a collaboration between Poramate Minsiri, Managing Director of Bundit Center Co., Ltd., and www.kapook.com, content creators and web portal service providers, and networks of the public sector, i.e., ArsaDusit Group, SiamArsa Group, Chumchon Thai Foundation, OpenCare Foundation, Disabled Volunteer Network for Helping Disaster Victims, Poh Teck Tung Foundation, Narenthorn EMS or Rescue Center, etc. These organizations collaboratively prepared a platform for providing basic and needed information during the big flood crisis in 2011. They also display a crisis map and gather information, including assistance, from the public sector, in the form of information notification, pin location, mobilization of all forces, ignition of new ideas or issues, and problem resolution during natural disasters situations happening in

Thailand (Nantaporn Techaprasertsakul, 2013, pp. 62-63). Although all these platforms are easy to use, contain a clear reporting format, and reflect the power of people's participation in the public hazard situations, they tend to be discontinued and close themselves later.

From the survey of Thai crowdsourcing platforms, it was found that there have not so many permanent platforms. Most of them are online platforms designed for a certain period or particular situations only. To illustrate this, VOTE 62 (https://vote62.com/) was a platform providing services in checking the database of the House of Representatives applicants and reporting the informal election results throughout the country in 2019. Likewise, the platform called "Mask Map Thailand "(https://maskmapthai.web.app/) was introduced during the shortage of surgical masks that were highly needed at that time due to the epidemic of COVID-19 in 2020. Shops were allowed to increase their coordinates for selling masks through the identification of detailed information and shops' location so buyers could search for the masks in real-time.

However, the abovementioned platforms differ from the C-Site platform, developed by public media organizations like Thai PBS, which opens an opportunity for the public sector to participate in news reporting continually on various issues, i.e., incidents, disasters, lifestyles, the epidemic of COVID-19 in the form of texts, still pictures, video clips, hashtags, and map pins. All information will be coded in a geocode form and the results will be displayed on a map. Users can access to see where each news happens or which issue it involves. Thus, it helps general people to communicate with their society timely, especially during a public hazard or disaster. Besides, it encourages collective thinking and content design, up to the level where general people can generate their news or co-create news with TV stations. Thus, it is expected to become another channel for the public sector in public communication to create perception, learning, and mobilize social agenda. (Somkiat Chantarasima, personal communication, April 10, 2020)

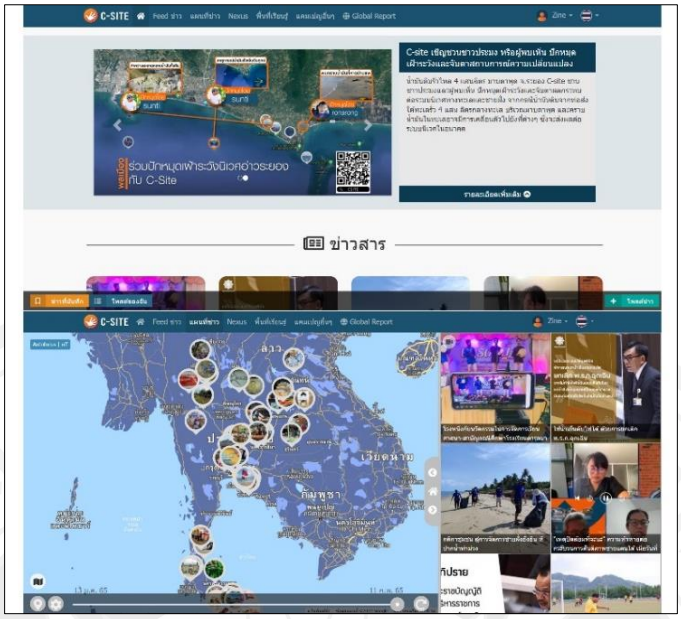

Figure 1.1 Samples of the C-Site Platform
Source: C-Site (2021).

The initial information reported on the C-Site platform is shops and stores pins and toilets along Chalathat Beach, Songkhla Province. After users reported news on the platform, they found other interesting information. Namely, along Chalathat Beach, besides the invasion of public space, there were very few toilets despite a lot of food shops and restaurants. (Somkiat Chantarasima, personal communication, April 10, 2020). Another example is Yang Na (a kind of rubber tree) health care, Chiangmai Province, operated by Rukkakorn Volunteer Group who had a field trip to pin a map of each Yang Na tree to explore the fertility of Yang Na trees and collect information for a design of proper nurture to find ways to solve problems caused by the falling of Yang Na trees over people's houses. (Matana Charoenwongsa, 2019, p. 129). Therefore, the development and opening of the C-Site platform by the Bureau of Networking and Public Participation, Thai PBS as the public sector (a government agency) induces the exchange of opinions and information, and conversation at the area level closely. Thus, issues from the public sector can be mobilized fluidly, while the organization can get interesting opinions and information from users directly.

On the part of people as the civic sector (civil society), new community platforms are also created with similar functions. An example is the Hatyai City Climate Platform for flood surveillance and forewarning in the area of Hat Yai District, Songkhla Province, and the lowland of the U-Tapao Canal. The platform is operated by the civic sector of Hat Yai District under the management of the Southern Cities Climate Change Resilience Networks Foundation (SCCCRN) in collaboration with other related organizations and agencies, such as Asian Cities Climate Change Resilience Network (ACCCRN), Thailand Environment Institute (TEI), Rockefeller Foundation, Hat Yai City Municipality Office, the Department of Disaster Prevention and Mitigation, the Southern Eastern Meteorological Center, the Songkhla Chamber of Commerce, Public Relations Department of Thailand, etc. Normally, people reported situations occurring in their areas all the time, in both normal situations with no flood-related activities and during the surveillance of flooding and flooding situations. After opening the said platform for a year (from July 2011), there were 800,000 visitors or approximately 2.5 visits. Such a platform played a part in supporting the success of Hat Yai Municipality in forewarning and operation during the flood situation at the end of 2011 and early 2012 at a satisfactory level. (Office of the Public Sector Development Commission, 2012, p. 91)

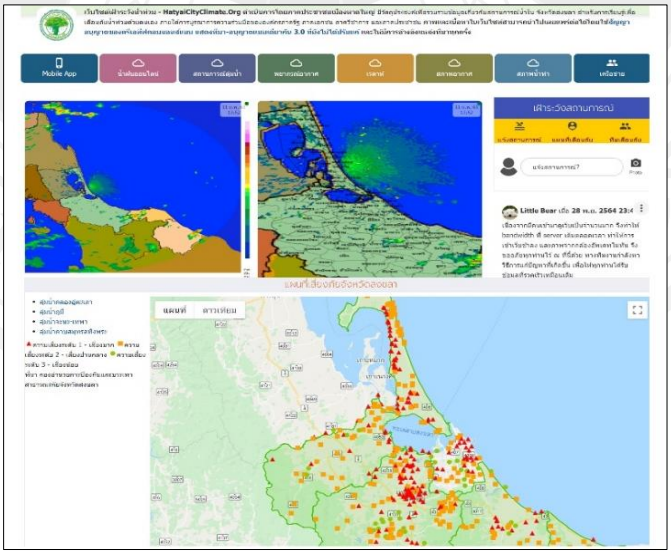

Figure 1.2 The Example of the Hatyai City Climate Platform

Source: Hatyai City Climate (2021).

Thus, the crowdsourcing platforms in the context of news reporting are the public sphere that is the central stage for presenting information and connecting everybody's "sense of public" equally in a democratic society via a process of argumentative communication based on communicating causality toward the best-shared answer, not decision-making based on only one single authority or institute or inherited tradition. (Kanjana Kaewthep & Somsuk Hinviman, 2010, p. 374).

It is interesting to know if the news reporting procedure on the crowdsourcing platforms of both organizations with different statuses, namely Thai Public Broadcasting Service (Thai PBS) as the public sector (a government agency) and Southern Cities Climate Change Resilience Networks Foundation (the civil society) is operated differently or not. What are the commonalities and differences in their process of news reporting on the crowdsourcing platforms?

4) Public Participation: A Key in a Crowdsourcing Process

Although in the process of crowdsourcing, competency in technology is a tool for raising the level of collaboration in news reporting that has never happened before, or it is used as a center for information and knowledge sharing among people of different backgrounds and from different areas, "the online crowd" are the key elements of a crowdsourcing process. (Howe, 2011, pp. 28-29) It is because the key to success mostly depends on the availability of members and their motivation to participate, which determines both the quality and quantity of participation (Hossain, 2012, p. 310). Besides, from the study by Sharma (2010), the masses' motivation (or expectation towards operation outcome), the expectation of the effort, social influence, and operation support conditions were found to be key factors of successful crowdsourcing, whereas vision and strategies, human capital, infrastructure, connectivity and credibility, and external environment were found to be external factors. Moreover, Hossain (2012) found that proper motivation for driving the masses to participate in the crowdsourcing platform were both internal and external motivations (i.e., monetary, social, and organizational motivation), which is similar to the findings from the study of Patthama Sukthong (2012), which found that both internal and external motivations affect the use of crowdsourcing. Besides, it was found that crowdsourcing facilitates users' learning as it is convenient for use and can respond quickly, provides flexibility, and is reliable. All of these factors affect the

masses' intention in applying to crowdsourcing. Furthermore, from the study, "Crowdsourcing Critical Factor Model Strategies to Harness the Collective Intelligence of the Crowd," by Sharma (2010), it was found that the motive alignment of the crowd (expectation of operation outcome, an expectation of an effort, social influence, and operational supporting conditions) is the main factor in operating successful crowdsourcing, while vision and strategy, human capital, infrastructure, linkage and trust, and external environment are external factors, as illustrated in Figure 1.3.

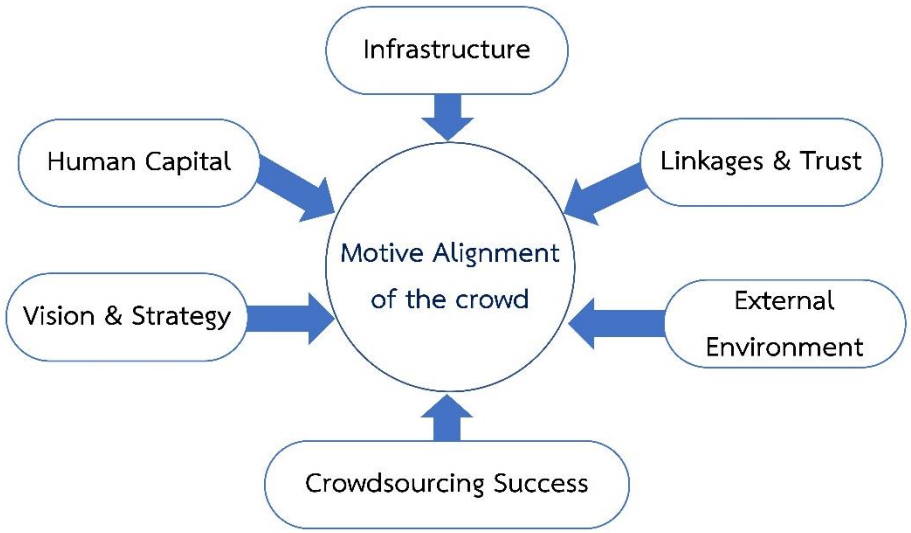

Figure 1.3 Crowdsourcing Critical Success Factor Model
Source: Sharma (2010, p. 10).

Furthermore, from the research of Hossain (2012), the proper motivation for enhancing public participation in the crowdsourcing platforms is intrinsic and extrinsic (i.e., monetary, social, and organizational motivation). Similarly, Aitamurto (2016) states that motivation affects public participation, especially internal motivation, such as conscience in participation as the citizen's duty, ideology, and enjoyment from activities. Besides, from the study of Patthama Sukthong (2012), it was found that both internal and external motivations affect the use of crowdsourcing as crowdsourcing facilitates users' learning as it is convenient for use and can respond quickly, provides flexibility, and it is reliable.

Additionally, the study by Panumas Nontapan (2014) found that one of the key successes of developing a surveillance network map for helping disaster victims through the application of crowdsourcing was the relationship between working teams and the masses. Thus, a project needs to have a working team that has good relations with people in the target community. If working teams used to work with the community for a certain time until they can work with such a community, it will establish trust and motivate the community to collaborate in developing a network map.

Another important and interesting issue in the crowdsourcing process is the potential of drawing a large group of people to participate in creating prosperity and be united to be a strong society, which is called "a network society." A network society is a society with an interconnected structure and its operation is done through information and communication technology, so human labor can lead to the use of the internet (Howe, 2011, p. 25; Asawin Nedpogaeo, 2018, p. 223). The overwhelming task should be distributed to small sectors to help accomplish such a task and this can affect the management and problem-solving at various levels, i.e., community, societal, and national levels. Besides, task accomplishment induces enjoyment in working as well.

However, the aforementioned studies focus on motivation and factors affecting users' participation on crowdsourcing platforms, but with different purposes and in different contexts, i.e., in the context of organizational problem-solving (De Vreede et al., 2013; Patthama Sukthong, 2012), information presentation and the development of surveillance network map for helping disaster victims, (Rungsun Kiatpanont, 2015; Panumas Nontapan, 2014), open journalism (Aitamurto, 2016; Alam & Campbell, 2012), etc.

Accordingly, the raised questions for further study are what is the process of news reporting on the crowdsourcing platforms of both C-Site and Hatyai City Climate, which factors can predict users' participation on Thai crowdsourcing platforms if each factor is related to users' participation, and which factors can predict the participation of users as citizens in the crowdsourcing process. All these questions will lead to the design of participation development in a crowdsourcing process of the crowd as citizens. As a result, it will lead to social mobilization through the use of

information and knowledge, based on the collective intelligence, including quality and reliable news reporting to increase people's adaptation and resilience capabilities to any coming public hazard, which are crucial indicators of human survival amidst such a risky society.

1.2 Research Questions

1) What is the process of news reporting on the crowdsourcing platforms of the studied organizations?

2) Which factors affect users' participation in news reporting on Thai crowdsourcing platforms?

3) What is the structural equation model affecting users' participation in news reporting on Thai crowdsourcing platforms?

1.3 Research Objectives

1) To explore a process of news reporting on the crowdsourcing platforms of the studied organizations.

2) To examine factors affecting users' participation in news reporting on Thai crowdsourcing platforms.

3) To develop a structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms.

1.4 The Scope of the Study

The research, "The Process and Users' Participation in News Reporting on Thai Crowdsourcing Platforms," uses mixed methods of both qualitative and quantitative, with the following scope:

1.4.1 The Scope of Content

1) Qualitative research: The research by this method studies 1) the process of news reporting on the crowdsourcing platforms of two studied organizations: a) the Bureau of Networking and Public Participation, Thai PBS as the

public sector (a government agency), which developed the C-Site Platform, and b) Southern Cities Climate Change Resilience Networks Foundation (SCCCRN) as the civic sector (civil society), which developed Hatyai City Climate Platform. The analysis of both platforms is based on the concept of a crowdsourcing process, modified from the study of Ghezi et al. (2018) and Karlsson and Martinsson (2014). The process comprises an input, process, and output factors. 2) Factors affecting users' participation in news reporting on Thai crowdsourcing platforms, namely the said two platforms. The analysis is based on the reviewed concepts, theories, and previous studies related to personal motivation, perceived benefits of system application, perceived ease of usage, the interaction between process/content managers and users, organizational factors, users' determination and participation in news reporting on Thai crowdsourcing platforms. The research was conducted in combination with an in-depth interview with key informants and the findings were used to construct questions for the quantitative research.

2) Quantitative research: The research by this method studies factors affecting users' participation in news reporting on Thai crowdsourcing platforms by analyzing the causal relationships among factors affecting users' participation in news reporting on Thai crowdsourcing platforms.

3) The development of a structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms that is congruent with the empirical data was constructed from the collection of both qualitative and quantitative data to acquire an appropriate model that can be used as guidelines for designing the process of creating users' participation in news reporting for individuals, groups of individuals, and organizations that need to apply the concept of crowdsourcing in the context of news reporting.

1.4.2 The Scope of Population and Research Areas

1) Qualitative research: The research by this method studies 1) the process of news reporting on the crowdsourcing platforms of two studied organizations, and was conducted by an in-depth interview with key informants who were project managers, or process/content managers (crowdsourcers) of the C-Site and Hatyai City Climate Platforms. 2) Factors affecting users' participation in news

reporting on Thai crowdsourcing platforms. An in-depth interview was conducted with three groups of key informants: project managers or crowdsourcers, experts or scholars in the field of digital journalism, and users who participated in news reporting on the C-Site and Hatyai City Climate Platforms, who had knowledge, expertise, or experience in news reporting on Thai crowdsourcing platforms. (Chai Podhisita, 2019, p. 170).

2) Quantitative research: The population of this study was 13,098 people who applied to be members of the C-Site Platform and 2,124 people of the Hatyai City Climate Platform. Thus, the total population is 15,222 people (information as of April 20, 2021).

1.5 Operational Definitions

In the study, "The Process and Users' Participation in News Reporting on Thai Crowdsourcing Platforms," the following operational definitions are determined:

1) Crowdsourcing means a kind of participatory online activities in which an organization offers needs to users with different attributes, i.e., background, residential areas, the level of knowledge, experience or specialized expertise, etc., who participate in the activities willingly. The relationship between the organization and users is reciprocal. For this study, crowdsourcing emphasizes the context of news reporting, which is classified as a micro-task or in the form of a sub-division of work (a small piece of work) that is easy to do without complexity, and users have freedom in working.

2) A process of news reporting on the crowdsourcing platforms means working or operating steps of project managers or crowdsourcers in news reporting on the crowdsourcing platforms, which comprise input, process, and output factors.

3) Organizations mean the organizations that developed the crowdsourcing platforms in the context of news reporting. For this study, they are a) the Bureau of Networking and Public Participation, Thai PBS as the public sector (a government agency), which developed the C-Site Platform, and b) Southern Cities Climate Change Resilience Networks Foundation (SCCCRN) as the civic sector (civil society), which developed the Hatyai City Climate Platform.

4) Factors affecting users' participation in news reporting on the crowdsourcing platforms mean what stimulates or induces users to participate in news reporting on Thai crowdsourcing platforms. For this study, the factors are as follows:

(1) Personal motivation means a drive or stimulus attracting an individual to participate in news reporting on Thai crowdsourcing platforms, i.e., intrinsic motivation (users' interest, goal, and public mind) and extrinsic motivation (acceptance from a group or society, monetary and non-monetary rewards).

(2) Perceived usefulness means the level of benefits from using the crowdsourcing technology in the context of news reporting, perceived by users, i.e., benefits for work and benefits for a community or society.

(3) Perceived ease of use means the level of ease of using the crowdsourcing technology in the context of news reporting, perceived by users, i.e., easy-use system, no complication, convenient for use, easy to understand and learn how to use a system quickly.

(4) The interaction between crowdsourcers and users means an interactive and reciprocal relationship between process/content managers (or crowdsourcers) and users that enhances a community engagement on the crowdsourcing platforms in the form of regular conversation or communication (both online and offline) and the interaction among concerned people during the operation in the area.

(5) Organizational factors mean the image and types of organizational operation that affect users' participation in news reporting on the crowdsourcing platforms, i.e., organizational goal and credibility, trust in the organization, transparency, and sincerity of the organization.

(6) Users' intention to participate means the level of users' determination in exerting participatory behaviors or no behaviors in news reporting on Thai crowdsourcing platforms.

5) Users' participation in news reporting on Thai crowdsourcing platforms means users' information provision, ignition of new ideas or issues, creation of content, and problem solution on the C-Site and Hatyai City Climate Platforms. The level of participation is divided into 3 levels, as follows:

(1) A low level means users perceive information and forward all received information to others without any additional information or pressing “like,”

(2) A medium level means users perceive information, and express their opinion or forward it to others with their additional information to let the general public perceive it.

(3) A high level means users perceive information, search for related or relevant information further, and then present it to the public in the form of texts, still pictures, news scoops (edited video clips), map pins, and information verification, which lead to problem resolution.

6) A model of structural equation model affecting users’ participation in news reporting on Thai crowdsourcing platforms means a model that displays causal relationships among variables that influence users’ participation in news reporting on Thai crowdsourcing platforms.

7) Thai crowdsourcing platforms mean web applications, mobile applications, and social media as a public sphere for opening an opportunity for the online masses or the online crowd to communicate or participate willingly in news reporting in the form of texts, still pictures, moving pictures, video clips, map pins, information verification, and problem resolution, based on the concept of crowdsourcing. For this study, the platforms mean the C-Site and Hatyai City Climate Platforms.

8) Users mean the masses or the crowd who applied to be members of the C-Site and Hatyai City Climate Platforms.

9) Crowdsourcer means individuals or groups of individuals who play a role in managing the process of news reporting on the organization’s crowdsourcing platform, i.e., goal setting, a design of a participatory process, task proposal, a search for the crowd, outcome consideration, and performance evaluation.

1.6 The Expected Benefits

1) The findings of this study will be the body of knowledge in journalism or information processing that uses technology capacity as a tool for raising the level of collaboration in news reporting through the crowdsourcing platforms so internet users

can participate in the process of news reporting at different levels, i.e., writing, editing, or information gathering, and present news to the borderless information society.

2) The research findings will be working guidelines for individuals, groups of individuals, agencies, or mass media organizations, in the role of the public, private, or civic sector, that need to apply the concept of crowdsourcing for use in the context of news reporting, both in normal and public-hazard situations.

3) The findings will be beneficial for designing a process of creating public participation in news reporting on the crowdsourcing platforms in the context of Thai society. Besides, the findings may be used as guidelines for drawing the crowd to participate and maintain their membership, which determines the quality of news reporting based on the crowdsourcing concept.

1.7 Research Conceptual Framework

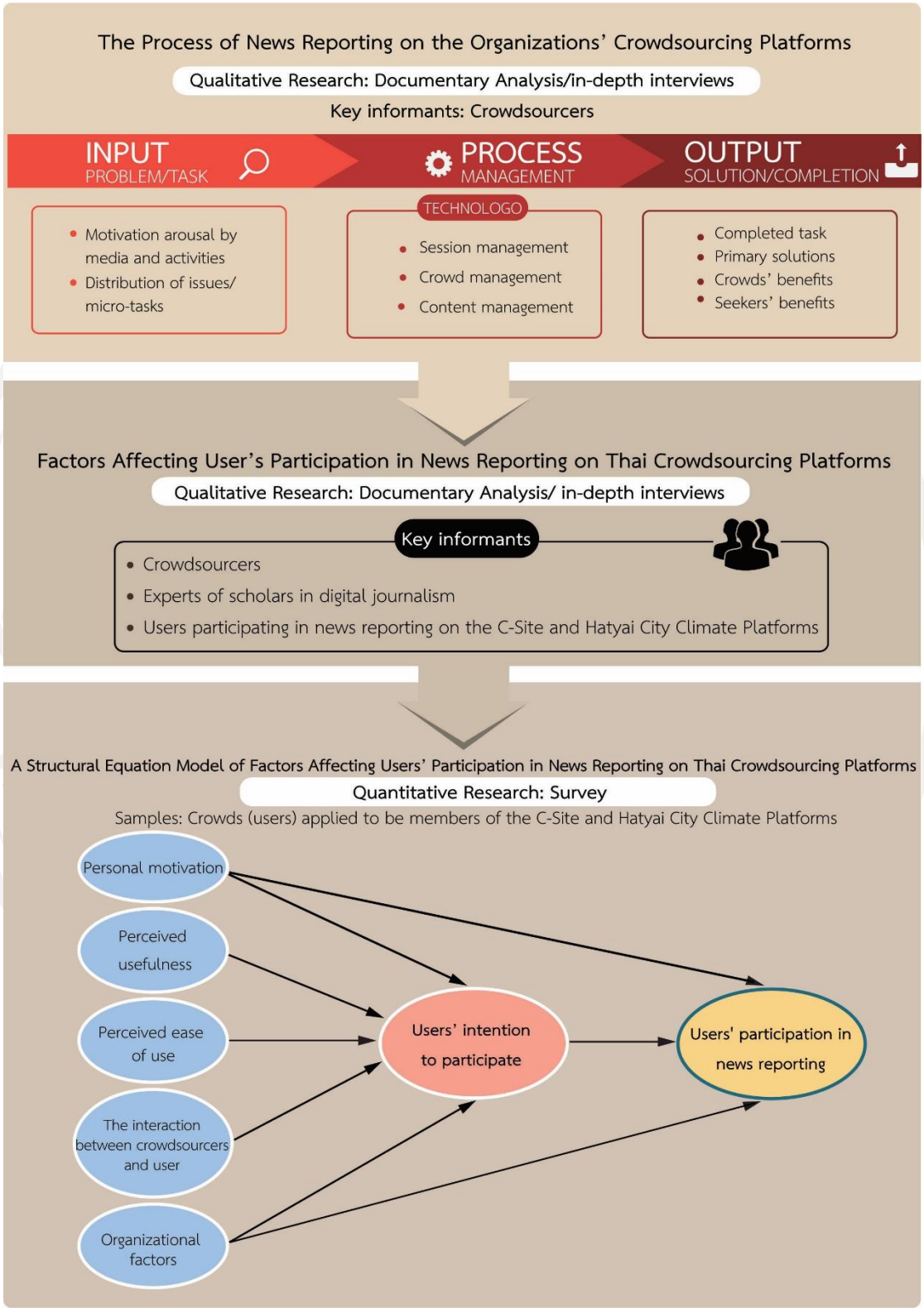

Figure 1.4 Research Conceptual Framework

CHAPTER 2

CONCEPTS, THEORIES, AND RELATED STUDIES

The research "The Process and Users' Participation in News Reporting on Thai Crowdsourcing Platforms" aims to study 1) the process of news reporting on the organizations' crowdsourcing platforms, 2) factors affecting users' participation in news reporting on Thai crowdsourcing platforms, and 3) the development of a structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms. The following reviewed concepts, theories, and related studies were applied as a research conceptual framework and discussion for this study:

2.1 The Concept of Crowdsourcing in the Context of News Reporting

2.2 The Concept of Participatory Communication, Public Mind, and Public Space or Sphere

2.3 The Concept of Social Sectors: Public, Private, Civic, and Case Studies

2.4 Motivation Theory and Personal Motivation Concept

2.5 Technology Acceptance Model and Related Theories

2.6 Related Studies

2.1 The Concept of Crowdsourcing in the Context of News Reporting

2.1.1 Concepts of News Reporting

2.1.1.1 Meanings and Significance of Journalistic Work

Journalism or Journalistic work is a process in which journalists or reporters operate news, comprising the seeking for information, the invention of issues, the collection of information, the selection and assessment of information, and presenting information to the audience or receivers. (Wattanee Phoovatis, 2018, p. 2; Punnarat Pingkanon, 2005, p. 43; Surasit Wittayarat, 2022, p. 174), while news reporting is the presenting or distribution of news via mass media to receivers

(readers, listeners, or viewers) through different presentation forms depending on their platforms, i.e., structure and format of writing, visual-audio editing, and news editing. Thus, news reporting is a step after the journalistic-work process or after the step of facts seeking and gathering. Still, in some kinds of mass media, news reporting may be the step during the journalistic work or in the form of live reporting. Therefore, journalism and news reporting are continually sequential and related. (Surasit Wittayarat, 2022, p. 175).

2.1.1.2 The Traditional Journalistic Process

The traditional journalistic process starts with the creation of a news issue or an issue story, which is possibly stimulated by journalists' doubt or by their witnesses of any event or phenomenon. Subsequently, they will present such an issue in a meeting with the chief editor, editor, or assistant editor for agenda-setting. After the consideration of the editorial board, journalists will gather related facts from various information sources (i.e., documentary and electronic sources, personal interviews, and survey research). The information sources include sources from different types of organizations or agencies (i.e., regular, special, or exclusive), including news organizations. Then, they will write news and submit it to the editor for inspection of the quality of news, such as the correctness, completeness, and appropriateness of news references. If the news is qualified, it will pass to the process of distribution through the media organization's channel. If not or if not complete, it will be sent back to the journalist for further correction or elaboration. (Surasit Wittayarat, 2018, pp. 120-121).

Therefore, mass media organizations, editors, chief editors, and journalists play an important role in decision-making and considering which event or phenomenon should be reported. Typically, journalists and editors have to report or present information that people want to know, ought to know or have to know. Thus, news must be interesting and crucial for people. Some news may not be interesting for some groups of people, but they are important for society; thus, journalists have to report to people to be informed by concerning about public benefits. Besides, news must be correct and updated information. (Malee Boonsiripunth, 2013, pp. 122-123). Generally, after news selection, it will go through the process of investigation and correction. The editorial board of large mass media organizations may allocate

responsibilities by their staff's roles and positions so that the content management will be more fluid. However, small organizations need to manage their cost optimally and strictly. Some positions may be cut out and only principal positions are maintained without affecting the effectiveness of news presentation following mass media's role. News editors may have to perform several roles, namely, they have to supervise journalists' news seeking, while also performing as an editor to inspect and correct journalists' first drafts. It means that news editors have to do journalistic planning for writing daily news or news assignment and news editing as well. (Malee Boonsiripunth, 2013, p. 96; Surasit Wittayarat, 2018, p. 310.)

News editing thus is very crucial because before news will be distributed to people, it must be assessed until reaching a good quality to bring about public benefits, both knowledge and experience, and reliable references. News editing helps to correct, unify and make information have the same form or style without any policy contradiction. Typically, the goals of news editing are 1) correctness since human beings tend to be self-centric. If journalists correct their assigned news by themselves, it may cause some mistakes. Of course, if such erroneous news is presented to the public, it surely yields huge damage and affects a large number of people. Especially, journalistic work requires rapidity and timeliness so it must proceed with caution and prudence. Therefore, it is important to expose strict measures to ensure the least mistakes. Thus, news editing is separated from journalists' news writing. 2) Unity. Another significant feature of news editing can be assessed from the creation of unified news and news presentation with the determined criteria, such as the usage of correct Thai language, abbreviation and abridgment, reported dates, and identification of persons in news, which can make people trusted. (Surasit Wittayarat, 2018, p. 312).

At present, due to media landscape transformation, the seeking and gathering of news in the media convergence era are not only derived from journalists' efforts, but from the use of social media in a production process, starting from seeking, creating, and distributing information, as follows:

2.1.1.3 A Journalistic Process Through the Use of Social Media

Nowadays, the traditional procedure of journalism, namely from journalists' newsgathering and transmission to the editorial board for validation,

agenda-setting, and disseminating to receivers, has been changed. (Sudarat Disayawattana Chantrawatanakul & Chakkrish Permpool, 2014, pp. 100-101) as shown below:

1) A journalistic process is two-way communication between a journalist and the editorial board with immediate and constant interaction. Therefore, news can be distributed all through the process, starting from news gathering and facts finding, including continued news phenomenon. It thus differs from the former process in which journalists cannot report the news to receivers unless such news has been proved by the editorial board. The main factor of such a change is the competition for quicker news. Accordingly, journalists have to play the role of a gatekeeper who screens news and information by themselves increasingly. Similarly, in agenda setting, journalists play an important role in determining the significance of any issue to be presented to the public. The roles of journalists are thus increased and require more discretion to ensure the presentation of correct news to general people.

2) Receivers play more roles in a journalistic process due to the adoption of internet technology and social media, which induces information exchanges between journalists and receivers, including providing opportunities for receivers to assist in the process, i.e., sending information for processing, extending the scope of issues, or being a part of investigative or insightful news. Thus, receivers can help in seeking information, finding news sources, and investigating facts.

3) News produced from a journalistic process must respond to the required news presentation in terms of rapidity, timeliness, and an ability to establish receivers' participation in developing in-depth news for detailed explanation and insightful analysis.

Accordingly, a journalistic process is a working system requiring sequences: searching and seeking for information, issue raising, assessing and selecting information, inspecting the correctness and completeness of information, and organizing information for presenting it to receivers. Besides, not only stories or the reporting of an event, other related facts are needed to explain and interpret what happens as well. Furthermore, in-depth analysis for pointing out the cause of an event or phenomenon is required, especially for doubtful news or social problems that cause

people's anxiety and affect people at that time. Concurrently, such factual information can stimulate public participation in expressing their opinions to help solve problems as well. (Cha-an Wutthikamraksa, 1993, p. 37).

2.1.2 The Concept of Crowdsourcing

2.1.2.1 Meanings and Elements of Crowdsourcing

The term "Crowdsourcing" was coined in 2006 by Jeff Howe, based on two main concepts: the employment of an external agency or individuals to operate some projects for the organizational staff or the procurement of outsourcing and the crowd, who are online large-sized potential labor, (Brabham, 2013, p. 17) leading to the form of work delegation to the large masses instead of organizations' employees. (Shirky, 2009, p. 83) The term has also been defined diversely, but for this study, the definition of crowdsourcing is based on the findings of the study by Estellés-Arolas and González-Ladrón-De-Guevara (2012) and Rungsun Kiatpanont (2015), which define "crowdsourcing" as a type of participatory online activities in which individuals, institutes, non-profit organizations, or business companies to diverse masses of people with different backgrounds, residential areas, knowledge levels, and experience, or specialized expertise. Most of all, attendance at activities is voluntary. Thus, this kind of relationship is a reciprocal relationship. Namely, those who propose some needs to the masses will gain benefits from the masses' participation, depending on the types of operating activities, i.e., labor, knowledge, experience, time, or money, while the masses will be paid with benefits they value, i.e., remuneration or objects, the happiness of being a giver, social acceptance, self-pride, personal specific skill development, etc.

From the above definitions, Tsuma, Kahl, and McConnell (2012) further explain that crowdsourcing must always consist of three main elements: 1) Needs or a task needed to communicate to the crowd, 2) the crowd, and 3) tools used for communication and information transmission between initiating organizations and the crowd. Following Tsuma et al. (2012), Brabham (2013, p. 3) describes the major components of the crowdsourcing phenomena as follows:

1) Crowds who participate and help to operate the task voluntarily.

2) Organizations, agencies, or companies needed to propose a task to the crowd.

3) Crowd-market or the space of online people where the crowd's participation is managed or a task occurs. However, a crowd market is not always like a market as it is mostly called "a platform" or "crowd site" for registration in the market like the registration on the websites. Namely, crowds register, identify their passwords, and provide a certain amount of personal information to the websites.

4) Internet systems, helping for communicating with the masses.

5) Common benefits between the initiating organizations and the crowd who participate and operate in a task.

Besides the aforementioned five components, Grier (2013) adds one more important component, which is

6) Process/content managers or "crowdsourcers" who play a role in a crowdsourcing process, design the crowd's participatory process, and create proper motivation, including establishing community engagement towards trust and continual collaboration.

2.1.2.2 Types of Crowdsourcing

After continuous development of the crowdsourcing concept in its forms and operation methods, crowdsourcing has been classified diversely; for instance, a) the classification by uses of the crowd's operation, such as collective intelligence or crowd wisdom, crowd voting, crowdfunding, and crowd creation. (Howe, 2011), b) the classification by kinds of IT-mediated technological forms, i.e., virtual labor market, tournament crowdsourcing, and open collaboration, (Prpić, Taeihagh, & Melton, 2015) c) the classification by types of practical approaches for solving the target problems, i.e., knowledge discovery and management, broadcast search, peer-vetted creative production, and distributed human intelligence tasking, (Brabham, 2013) d) the classification by collaborative tasks, i.e., virtual labor marketplace, closed collaboration, and open collaboration, (De Vreede et al., 2013) and e) the classification by task nature, i.e., crowd contests, micro-tasks, macro-tasks, self-organized crowds, and crowdfunding. (Grier, 2013)

This research aims to study only tasks related to news reporting on Thai crowdsourcing platforms. Thus, to correspond to the research objectives, the forms of crowdsourcing are based on task nature, (Girer, 2013, pp. 19-24), as follows:

1) Crowd-contests are the delegation of a task to the crowd or masses of people for searching for the most suitable persons to operate the task. Crowds will send their best piece of work for the contest and the winner will be rewarded. This form of crowdsourcing is often used for creating or developing products requiring rapidity and without complexities, especially for creative activities, such as graphic design, package design, video clip production, etc. Therefore, it is suitable for a task that may not pay much attention to a long-term relationship with the crowd. This type of contest is believed to provide benefits for contest participants despite no received rewards since the crowd can develop their skills from the contest. However, the limitations of crowd contests are two-folded: 1) they are not suitable for a lengthy task and a task requiring large investment as the initiating organizations have to propose a lot of rewards to get a quality crowd, and 2) they lack a long-term relationship with the crowd as the initiating organizations cannot contact the most recent contest winner or when further collaboration is needed in the future. Examples are 99design, Threadless, etc.

2) Macro-tasks are the delegation of a big task to the crowd based on their expertise. The initiating organizations have to organize a process and pay for these crowds. Macro-tasks are the most flexible form of crowdsourcing since they are similar to freelances. By a micro-task, initiators can specify certain needed skills and process the application for those who want to help the organization for a short time, i.e., the employment of people who are skillful in marketing for managing communication problems, and preparing public relations strategies; business and administrative programming, communication skills, management skills, etc. for maintaining a long-term relationship with the crowd with specialized expertise or so-called, “macro-taskers.” The limitation of macro-tasks is the difficulty in searching for persons with the needed skills or expertise. Sometimes, it is a challenge to communicate with macro-taskers across time, places, and cultures. Examples of macro-tasks are InnoCentive, Quirky, Freelancer, etc.

3) Micro-tasks are the delegation of sub-tasks or small-sized tasks of a project. With this form of crowdsourcing, initiators can participate with crowds increasingly and enable to finish their work more quickly. The basic pattern of micro-tasks is not complicated but normally is easier to implement. Initiators can explain what they want by posting their tasks on platforms and waiting for crowds' responses. Initiators can consider the submitted work per time without checking the crowd's background since it requires no specialized skills or expertise, i.e., mass mobilization for translating a handbook, the presentation of E-products in different correct languages, crowd information management (i.e., handwriting, photos, etc.) and information gathering from places that initiators cannot access, and news reporting. However, the limitation of micro-tasks is the crowds' credibility. Thus, initiators need to inspect the task every time to make sure that each task is complete. For micro-tasks, initiators have to establish a system to verify and confirm the tasks submitted each time. However, such a system may be complex to a design and difficult for the crowd to use. Examples of micro-tasks are Amazon Mechanical Turk (Mturk), C-Site, Hatyai City Climate, etc.

4) Self-organized crowds are the form of crowdsourcing in which crowds delegate tasks by themselves. After initiators post their needed tasks on a platform and offer a reward for individuals or groups of individuals with the best work. A clear deadline is specified, i.e., innovation management, problem-solving of the existing system, and requirements for establishing a new system. The limitation of this form of crowdsourcing is it is a new form of crowdsourcing that has not been clarified well, such as collaboration arrangement and determination of the crowd's activities, etc.

5) Crowdfunding is the funds raised by the crowd. It changes from task delegation to crowdfunding. There are two ways of crowdfunding: For charity, i.e., fundraising campaigns for founding a new building of animal shelters after getting damaged from the previous storm, etc., and for business or "equity crowdfunding." In this case, the crowd who provides financial support are co-shareholders. The limitation of this form is the fundraisers have to make a project or an activity interesting through rationality, explanation of its significance, and the persuasion of its interestingness. Notably, crowdfunding enables more opportunities

for success than fundraising by general methods. Examples are Kickstarter, Indiegogo, Taehai, Sinwattana, etc.

Moreover, Grier (2013) also offers ways for considering forms of crowdsourcing based on two rules in operating a crowd market:

1) The first rule, generally called "a contract or competition/contest rules" is the determination of types of returns to group members. When initiators post a task on a crowd market, they can reward the crowd in two ways: by paying remunerations to all members who help the project. This way is called "contract market or pay-all market," and by paying remuneration to members who submit the best task.

2) Rules for determining ways of collaborative working. Crowd-markets can encourage members toward collaborative working; thus, it is called "a collaborative market." However, if some members want to work alone or independently, it is called, "an independent market."

The four forms of crowdsourcing based on these two rules (excluding crowdfunding) are displayed in Table 2.1.

Table 2.1 Different Forms of Crowdsourcing

	Independent Markets	**Collaborative Markets**
Pay one member of the crowd (Contest market)	Crowd-contests	Self-organized crowds
Pay all members of the crowd (Contract market)	Micro-task	Macro-task

Source: Grier (2013, p. 28).

Notably, each form of crowdsourcing has both advantages and disadvantages in operation. Therefore, to understand news reporting on the crowdsourcing platform, which is classified as micro-tasks, it is essential to understand the operation nature of micro-tasks, which can be explained as follows:

2.1.2.3 Micro-task Management

Micro-tasks are the easiest and most needed form of crowdsourcing since it is a small piece of work or task that is easy to explain and operate. To prepare micro-tasks, firstly each micro-task should be checked for its suitability for each requested task through the following preliminary consideration: 1) tasks with high quantity, 2) the possibility for the crowd to work all independently, and 3) human judgment since it is human work, not a mechanic. In short, if a task is numerous and its information can be processed individually through human wisdom in information processing, such a task will be the best for being operated by micro-tasks. (Grier, 2013, p. 125)

After investigating the form of tasks that can be operated by micro-tasks, the next step is to find ways for micro-task management (Grier, 2013, pp. 125-128), with details as follows:

1) To make a task small and easy. As micro-tasks try to gain utmost benefits from the crowd, while the crowd also looks for a small and easy task, crowds have to work alternatively. Thus, they can seek an easy task in which they do not have to review the instruction every time or they may take only a little time to understand the whole process.

2) To set basic requirements. In preparing Micro-tasks, initiators can determine the task, both the overall and sub-units of each task for presenting the task to the crowd and for task collection. This step is similar to a set of orders used as guidelines for the crowd in the form of written recommendations of which they should be aware increasingly. However, such orders or recommendations must be clear and not be too detailed, which may cause confusion and makes it perceived to be a complicated task easily.

3) To organize information by spreadsheet, which is an arrangement timetable. It is a normal tool for preparing micro-tasks. After the completion of work, all information should appear in every row of the developed spreadsheet.

4) To examine the outcome for correctness, which depends on the nature of tasks and the level of error-tolerance acceptance (normally approximately 5-10%). In micro-tasks, the undesirable outcome may be non-

intentional or intentional mistakes caused by the crowd with no desired capabilities or no interest in producing a desirable outcome. Mostly, the crowd's accidental mistakes come from their perception that they are doing the right thing. Therefore, initiators should be able to set a goal to reduce the least non-intentional errors, and attract capable crowds with the highest quality to work on a task, i.e., give an example of the task to potential crowds, then select only those who can answer correctly to work further, etc. or by testing the outcome of each task after completion three times. Outcomes should be compared. If they are all consistent, they will be allowed to work further. If the outcomes are consistent only two times, they may be considered to work further; however, if the outcomes are inconsistent all three times, all answers should be rejected and they should be asked to repeat their work another three times.

5) To assemble tasks. Outcomes of each task will be collected. In some cases, initiators may do nothing because the goal is to establish a database, such as a database for contacting the youth leaders, which has been coded in the spreadsheet already since the information organization or the statistical analysis of the obtained information.

Besides, the abovementioned task management, Howe (2011) proposes additional rules of crowdsourcing as guidelines for understanding the phenomenon more easily since the concept of crowdsourcing is the method of creating changes from the traditional ways completely. The crowdsourcing principles or rules proposed by Howe (2011, pp. 326-335) and Sloane (2011, pp. 19-20), are as follows:

1) Choose the right form or type of crowdsourcing. The selected crowdsourcing must be supported by the crowd. By nature, crowdsourcing may have different supporting forms. Therefore, before the initiation of any crowdsourcing project, the first step is to determine the utmost goal to decide which form of crowdsourcing should be applied.

2) Choose the right crowd. The crowd here means people all over the world who can be connected by the internet. At present, there are 4,660 million internet users from the 7,810 million world population, or more than 50% of the whole world population, and the number has increased rapidly (information as of October 2020). On the other hand, almost 2 million new users appear every day (Marketingoops, 2020) However, only a few percent of these populations (or

approximately 1%) participate. Thus, the number of participants needs to be sufficient, by firstly informing the goal of the gathering of their creativity clearly and publicizing through the right communication channels.

3) Provide the right motivational boost. Typically, the crowd's movement is mysterious and complicated; thus, attracting the crowd is much easier than maintaining them. Accordingly, the important component of a successful crowdsourcing project is a community's determination and liveliness. To draw the crowd to participate thus needs to understand what is the motivation that can buoy up the crowd's participation, such as personal satisfaction, chances to have an interaction with people of similar interest or monetary rewards. Still, mostly the crowd expects a symbolic reward for their effort; although, it is small money. Besides, the determination of composition and details of rewards is a major challenge in crowdfunding.

4) Determine the direction and answers to the crowd's questions. Mostly, successful crowdsourcing is a consequence of tight collaboration between the crowd and initiators. Moreover, it is necessary to have someone perform as a decision-maker and adviser to answer all received questions.

5) Make a task easy and subdivide it. A crowdsourcing project will be more effective if initiators can subdivide a task into pieces simply and enjoyably. Besides, they should encourage the crowd to work independently and during each individual's free time. The reason for this is not that crowds are not smart, but they are too busy.

6) Remember Sturgeon's Law. The law states that "90% of all everything (especially user-generated content) is nonsense," or conversely, only 10% of everything is considered to have good quality. Therefore, the problem is how to use which method for screening what is good and beneficial." (Panumas Nontapan, 2014, p. 26).

7) Remember that the community is always right. Although the crowd may need a persuasive leader, not coercive, who can give advice. Still, eventually, the crowd must respond to the community's needs.

8) Do not ask what the crowd does for you, but what you do for the crowd. Crowdsourcing will yield the best result when it provides what the

crowd needs so the crowd can be attracted to participate in a project if it can gratify their psychological needs, society, and emotion. If such needs are not responded to, the crowd will not participate in the project.

2.1.3 The Concept of Crowd Reporting

The crowd is not only a source of labor. It can also be a means of gathering news. It has eyes and ears and minds that can gather and process information. It can be deployed across large geography and be organized in a short time. Besides, the crowd reporting can bring about width and depth into a process of information gathering with which journalists of general news organizations cannot be compared since the crowd can obtain information from the most distant communities and can gather details from anywhere all the time, especially public-hazard situations or monitor large social allies to follow activities thoroughly. The next part is the information for understanding crowd reporting from a journalism perspective.

2.1.3.1 The Concept of Open Journalism

Crowdsourcing in the context of mass communication has been applied increasingly. (Aitamurtio, 2016, p. 185). When journalists use crowdsourcing for news reporting, it means these journalists open a mass communication process to the public. Therefore, crowdsourcing is an open mass communication process. This kind of open journalism leads to participation in the mass communication process; for instance, when journalists want an information source from more people, ask about interviewee's opinions, let the crowd propose an issue or a topic before a news presentation, etc. (Aitamurtio, 2016, p. 187)

Therefore, the crowd can be a source of information gathering across large geography that can add deep and wide information into the information gathering process and can organize and process information rapidly. (Grier, 2013, p. 63) Aitamurto (2013) proposes an open journalism process, which means the gathering of information and the creation of participation of receivers who are the target audience, as illustrated in Figure 2.1.

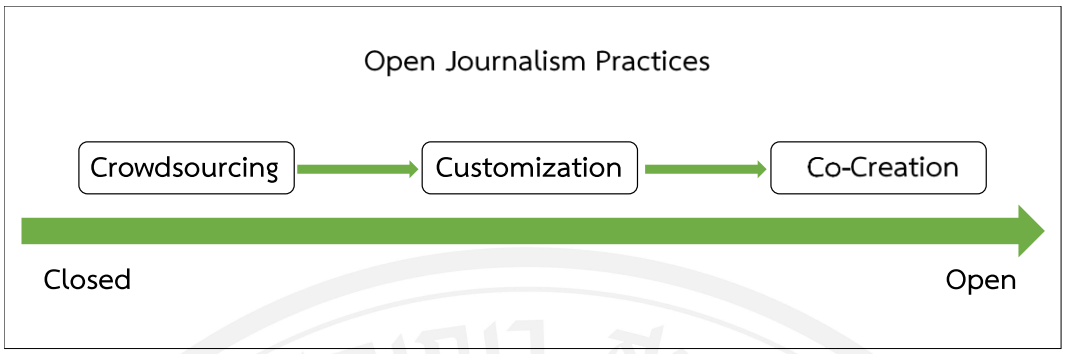

Figure 2.1 Open Journalistic Practices as Tools for Open Journalism
Source: Aitamurto (2013, p. 231).

Figure 2.1 explains that an open journalism process starts from the creation of participation of receivers who are the target audience by crowdsourcing to explore the tendency of receivers' interest. Then, content is created from alternatives and needs of the target receivers, which is called "customization," such as the selection of issues to be presented or the sharing of experiences about the raised issues. The final step is the co-creation of content between a sender and the target receivers.

Correspondingly, Alan Rusbridger, the news editor of the Guardian Newspaper, explains that a model for open journalism of the Guardian is to let readers participate in a working process of the editorial board, not only in monitoring or drawing from readers' online information. The main principle is that the process must emphasize a form of stimulating participation, interactions, and opening for discussion, consultation, and counseling, whereas readers, can express their ideas about the issues or headlines being developed or produced by the Guardian, by opening an area for people to monitor decision-making of the news issues of the editorial board, and this channel is called, "the daily news list." The daily news list will tell what the editorial board chooses to present to the public and let readers express their opinions about it. This method can stimulate readers to propose their suggestions or feedback to the editorial board, provide more diverse perspectives on the news issues, and make the editorial board and journalists who follow such issues know the direction of the news, including enabling them to choose which issue should be extended to respond to readers' needs. (Sakulsri Srisaracam et al., 2016, p. 111).

However, from the study by Aitamurto (2013) entitled, “Balancing between Open and Closed: Co-creation in Magazine Journalism,” it was conversely found that from mass communication practitioners, an open journalism process in the form of co-creation was like a commitment that requires responding to readers’ needs. When journalists confront genuine readers, not idealistic readers, co-creation can cause tension between “an open” and “a closed” process. It means that normally journalists perform their duties based on the concept of journalism mainly; however, if such a concept does not gratify readers’ expectations or agreement, it may lead to a critical relationship between readers and the magazine. Therefore, in the co-creation process, the old journalistic tradition, “We write, you read,” is adapted to suit the negotiated roles of readers and writers and becomes “We ask, you respond, we listen, we write, you read.” Therefore, the finding of the study points out that co-creation is a challenging process for journalists in using the crowdsourcing concept.

2.1.3.2 Principles of Giving Proposition for Crowd Reporting

From the study of Sakulsri Srisarakam et al. (2016), principles of giving proposition for crowd reporting based on the concept of crowdsourcing in the context of news reporting in the media convergence era were suggested:

1) Have a clear goal and clear explanation of the participation concept.

2) Screen, organize, classify, and inspect the obtained information, including contacting information owners.

3) Establish an information-transmission channel for easy gathering of information.

4) Concern about individuals’ rights in using their information.

5) Have an identifiable presentation space for crowd reporting and make the news or story a part of valuable content. ๅ

6) Encourage the team to interact, communicate, share its idea, and establish an engagement from communication for leading to participation.

7) Motivate the team to raise questions against the obtained information for seeking more information to get rid of all doubts and for verifying information.

2.1.3.3 The Application of Geographic Information Systems (GIS) for News Reporting on the Crowdsourcing Platforms

Generally, crowdsourcing also uses geospatial infrastructure, which is the application of Geographic Information Systems (GIS) or Geoinformatics on which spatial data and location are superimposed on a map or picture to see information more clearly. (Supattra Puttinaovarat, 2021, p. 2) Generally, the information used in the GIS is divided into two types: (Pratya Areekul, 2017, p. 19; Supattra Puttinaovarat, 2021, pp. 34-35)

1) Spatial data or Geo-Spatial data is the information that displays illustrations and references or geographic position related to spaces on the earth, i.e., roads, rivers, governance boundaries, etc.

2) Attribute data or non-spatial data is the information used for explaining attributes of spatial data to make the information more complete for application, i.e., names of provinces, roads, the number of patients, a river's depth, the volume of a reservoir, etc.

The development of GIS or the Geographic information applications needs to be equipped with a coordinate system for standardizing the location determination for common usage. The popular coordinate systems in Thailand and around the world comprise two kinds of coordinate: Geographic Coordinate System (GCS), which is a coordinate system for measuring and communicating positions directly on the Earth as latitude and longitude, and the Universal Transverse Mercator (UTM) is a coordinate system invented for military purposes and originated in the U.S.A. It is a map projection system in the form of grids for assigning coordinates to locations on the surface of the Earth. Grids have an equal size in every column and possess an easy coordinate determination. (Supattra Puttinaovarat, 2021, pp. 39-41). The web applications and mobile applications used in the C-Site and Hatyai City Climate platforms use the geographic coordinate system.

Information from the crowd or digital volunteers is important for geographic tasks since the information is acquired from each area throughout the country dispersedly so the acquired input information is sufficient for analyzing an event or a phenomenon in each area. For example, in developing the system for forecasting floods, only information about weather conditions gained from the

weather forecast or rainfall measurement from the measurement stations may not be sufficient. Therefore, the crowd's information (people in each area) is thus important since its information can be obtained right away and accords with real situations. Thus, it helps the analysis or forecast to be more accurate. However, one of the challenges of crowd reporting is accessibility to information sources and the correctness of data collection. Hence, to reduce errors before application, it is essential to develop a system of data filtering, data cleansing, and data validation. (Supattra Puttinaovarat, 2020, pp. 76-77).

2.1.3.4 Principles of Online Community Engagement

The creation of online community engagement is crucial in encouraging the crowd to participate on the crowdsourcing platforms as it can draw a community's collaboration and wisdom for solving problems or conducting any operation. In creating community engagement, journalists should know first who their target groups are and what their behaviors and needs are. Sudarat Disayawattana Chantrawatanakul and Chakkrish Permpool (2014) present ways of creating community engagement that good learning should start with listening from the available crowdsourcing platforms, i.e., web applications, mobile applications, Facebook, web boards, or Twitter. The next step is to participate in conversing with their target groups through opinion expression, chats on the platforms, or sharing information to let the target audience perceive by using simple and easy language like an informal conversation. Then, activities or marketing campaigns should be designed and disseminated by the target groups to ignite their curiosity.

The said crowdsourcing concept in the context of news reporting will be guidelines for understanding the nature of news reporting on the crowdsourcing platforms, classified as a type of micro-tasks and a part of an open journalism process, which will be useful for studying the process and users' participation in news reporting on Thai crowdsourcing platforms of this research.

2.2 The Concepts of Participatory Communication, Public Mind, and Public Space or Sphere

2.2.1 The Concept of Participatory Communication

"Participatory communication" is a concept developed from the Development Alternative Paradigm in the mid of 1970s, which believes that in each society, race, and group, there are different identities and development routes. Therefore, it is essential to decentralize communication to communities and allow people to participate in the communication process. Thus, the construction of village broadcasting towers, community radios, and local television stations are the consequence of such a paradigm. Notably, participatory involves all levels of communication: interpersonal, group, community, up to the mass level. (Puangchompu Chai-arla Seangrungruengrot, 2013, p. 29)

2.2.1.1 Forms and Levels of Participation

Based on communication elements, participatory communication for community development can be divided into 3 forms or levels as follows: (Asawin Nedpogaeo, 2021, pp. 134-135; Puangchompu Chai-arla Seangrungruengrot, 2013, p. 31).

1) Participation as receivers or message users is the lowest level of participation. Namely, a process of communication at the beginning is determined by a sender, i.e., issue or content selection, presentation methods determination, up to communication channels selection. Receivers are still positioned as those who receive the transmitted message. However, what is changed in receivers' roles in participatory communication is receivers' acknowledgment of their rights to know and be informed of information, while being able to share their information with the public. Besides, more inclusive communication channels are developed in a community.

2) Participation as senders/ producers/co-producers/ co-performers is an upper level of participation. Participation can occur at various stages in a media production process: Pre-production, production, and post-production. People may participate in any stage; however, in each stage, some conditions and regulations are determined. For instance, if people are invited to participate in a

production stage, they are required to be trained to know how to use devices or equipment used in media production.

3) Participation as planners/ policymakers are the highest level of participation where people can get involved in the decision-making of a media organization, i.e., determining appropriate communication forms and content, choosing time, imposing an administrative system, developing plans and policies, etc. Remarkably, the higher the level of participation is, the smaller a community that can participate in this level is. In other words, planning and policy-making of media use that include a community in the process occur relatively in a narrow structure or project.

2.2.1.2 Factors and Approaches for Stimulating Participation

Approaches for enhancing more participation of each party can be considered based on factors boosting participation (Parichat Walaisathian et al., 1999; Merrill-Sands, 1989, as cited in Narinchai Pattanapongsa, 1994, pp. 30-37), as follows:

1) Management factors. Management is a key to inviting people to participate in missions and goals that require collaboration, and for creating an understanding of the concept of interdependence or collaboration. Besides, common agreement in each party's assigned work must be approved since ambiguity in each role and responsibility often causes damage to the determined goal. Therefore, it is crucial to develop clear policies, roles, and responsibilities, which must be clearly understood by all concerned so that each group can perform its task collaboratively. Information dissemination through various media will be used regularly or something should be used to motivate people to perform their roles as determined. The establishment of mutual trust is important as participation can be effective only when each party perceives their colleagues to be competent and trustful. When one party perceives that another party has been negatively affected, or is about to be negatively affected, especially if another party does not cooperate or is unwilling to participate or disagrees with participation, problems will surely occur. Accordingly, for a successful activity, trust must be built while information must be communicated regularly and competition among parties is reduced. This will ensure that the activity is balanced as no party has a higher status than others whereas each party is assured of the benefits

gained from the participation and perceives the value of the work. Furthermore, management also includes the reduction of difficulties to participate by supporting necessary materials and equipment.

2) Communication factors are factors that support participatory communication. The goal is to make a community perceive its self-value and create assurance for people in the community. An effort is also focused on proving that people in the community can use new technologies, as they perceive appropriate, including encouraging them to express their opinions and participate in the brainstorming of problems, analyzing, and resolving them. Both parties should be induced to have mutual trust through the use of participatory communication, which emphasizes interactive dialogues between individuals or among groups through thinking and listening skills and respecting other opinions as well. Doing so will lead to effective information exchanges and public conscience. Moreover, a variety of integrated media should be applied by emphasizing horizontal communication at all levels equally. Since then, receivers will no longer wait for receiving information only, but will also be enthusiastic to send their feedback. A working group that is democratic, respects equality, is ready to listen to others' opinions, and perceives the value of people in the community (i.e., basic knowledge, technical skills, various available methods to choose, and smart ways of dealing with each situation) can satisfy participants and enhance their happiness to be a part of the process.

3) Political, social, and cultural factors. These factors are to provide people's rights as citizens, which can motivate them to participate. However, economic, cultural, and physical conditions in a community must facilitate public participation too.

4) Project factors. The factors involve a project's provision of convenience for people to participate genuinely, including making them feel like a co-owner of the project, such as their participation opportunity influences a project's decision-making from the beginning until the end of the decision-making process truly.

5) Mentor factors. It is a search for leaders or potential leaders who can help to stimulate the participation of people in a community, gather groups towards collective problem-solving, support information, encourage people, and

collaborate in eradicating participation barriers. Most of all, they must be sincere and make people trust them.

6) Leadership factors. A community leader must assist the community sincerely and be accepted by people in the community. They are capable of driving people to investigate problems and making them perceive the necessity of solving such problems.

7) Social and psychological factors. People must be aroused to pay attention to and be worried about occurring problems commonly until they feel they are a part of such problems. It can increase people's participation and their commitment to solving problems.

For this study, the concept of participatory communication was applied for creating an understanding of factors that can stimulate users' participation in news reporting and for classifying forms and levels of users' participation in news reporting on Thai crowdsourcing platforms, as follows: 1) reading news, news maps, viewing news clips, 2) sharing news, maps, and clips with or without additional opinion expression, 3) pressing likes to news, maps, and clips, 4) expressing ideas or posting a topic or comment on a discussion forum or web board, and 5) participating in developing issues or producing news in collaboration with an organization for publicizing by various media.

2.2.2 The Concept of Public Mind

2.2.2.1 Meanings of the Public Mind

Chaiwat Suttirat (2009, p. 13) defines the "public mind" as an empathetic concern to participate in public affairs that are beneficial for the nation, to have conscience and adherence to a merit system and decent ethics, and to be a shame of wrongdoing while emphasizing orderliness, economy, and balance between human beings and the nature.

Kanya Panna (2016, p. 13) defines "public mind" as empathetic concern in public interest that is common benefits, positive thinking and behaviors, adherence in individuals', social, cultural, national, and environmental benefits, by considering from people's knowledge, understanding, and expressed behaviors, which are divided into four domains: 1) Usage means individuals' behaviors in using public property,

maintaining public property, taking care of cleanliness, no destroying or damaging public property, etc., 2) responsibility means individuals' behaviors expressing their orientation towards keeping public property, i.e., performing their duties and respecting determined rules and regulations, volunteering to do something for the public, surveillance of public property, etc., 3) Respect of rights means individuals' behaviors expressing their respect for rights in using public property, no possession of public property, no obstructing others to use public property, etc., and 4) Conducting activities that are beneficial for the public means individuals' behaviors expressing their good deeds for others and for society as a whole with sincerity and willingness without expecting any returns, supporting others by their physical force, wisdom, financial assistance, etc. The results of their behaviors bring about benefits for most people.

Anek Nakabut (2002) states that the public mind or conscience of their hometown is a kind of power in Thailand, namely "local power," which is the feeling of love and high value of one's hometown so a group of people will collectively think, make decisions, and conduct beneficial things commonly.

2.2.2.2 The Formation of the Public Mind

The public mind can be categorized differently. Sompong Singhapol (1999, pp. 15-16, as cited in Kanya Panna, 2016, pp. 15-16) classifies public consciousness into three kinds: 1) Self-consciousness is the consciousness for self-development and for making oneself be a more fulfilled person, i.e., responsibility, diligence, patience, which are long-accumulated consciousness in Thai society, 2) Others-oriented consciousness is the consciousness of the relationship between individuals in a group of society, i.e., empathy, generosity, harmony, etc., which are the consciousness that is cultivated by Thai traditional values and is not difficult to build, and 3) social or public consciousness is the consciousness of realizing the importance of co-existence with others or of others who are related as the same group. It is the consciousness most Thai people seldom have, i.e., the consciousness of economic, political, environmental, health conditions, etc.

The public mind is something occurring along with each individual's ways of living and the surrounding environment, starting from a family, community, and societal level. (Pichet Srisuk et al., 2015, p. 73), which is the utmost thing that

enables people to sacrifice for the public, collaborate with others, and cooperate in doing something for public benefit to reduce occurring problems in society and create happiness in the society. Thus, the "public mind" is a factor affecting participation. For this research, two indicators were applied for indicating the forms of the public mind that influence users' participation in news reporting on Thai crowdsourcing platforms: 1) volunteering and assisting a community or society willingly, and 2) contributing one's time, physical force, encouragement, and wisdom for a community or society.

2.2.3 The Concept of Public Space or Sphere

The concept of civil rights was established during the early 18th century, which certifies individuals' freedom in rallies and expression. Besides, independent newspapers also occurred, which introduced physical public spaces, i.e., coffee shops, clubs, and literary journals, in which civilians can discuss and communicate freely. Thus, these places are a stage where people accommodate and participate willingly and freely in economic and political systems. (Finlayson, 2005/2016, p. 38). The term "public space," according to Habermas, is a matter involving "a sense of being a part or sense of the public." Such spaces are important for democratic societies since it is the space where people who enter the sphere are formed as "actors" who can participate in decision-making equally through an argumentative process based on rationality to choose the best answer or solutions together. It is not decision-making based on anyone's authority or power as it traditionally used to be. Typically, public space possesses five major features: (Kanjana Kaewthep & Somsuk Hinviman, 2010, p. 376): 1) It is the space where people are gathered for discussing public issues and public benefits, 2) it is the space free from power in society, i.e., government, economics, etc., 3) It is the space where rationality is expressed freely, 4) mass media institute is considered to be a major drive since the content of mass media is public by nature and it is the information used for argumentation rationally, and 5) the results of communication induces some following changes while some actions are also needed consequently.

Habermas's concept of public space reflects rational communication that creates the existence of oneself in public space at an individual and societal level so

people can meet, and exchanges their idea and attitude freely in an informal climate so each party can access the subjectivity of people while creating an understanding of one another, and leading to a common agreement finally. Still, there are some critical arguments against power relations among groups of people in public space. For instance, although middle-class people (white people, men, elites, capitalists) can present their logical ideas and argumentation in public space, some other groups are barred or discriminated against and expelled from the space. Therefore, participation in public spaces can be limited. (Chawitra Tantimala, 2017).

2.2.3.1 Democratic Society and Public Space

As wished by Habermas, a democratic society is his hope as it will be a society in which human beings are released towards genuine freedom or liberty. Habermas insists that in such a society, "public space" is an essential mechanism or component; however, what kind of public space it should be? Habermas views that public space established during the 17th-18th century can be used truly. Therefore, it is better to trace back and reconstruct such public space. The following addition is recommended:

1) Several forms of public space should be created diversely to ensure that all groups of people with different benefits can access and make use of these various public spaces genuinely since if there is only one form or type of public space, some groups may not be able to access.

2) Public space must be transformed to become a rigid organization or institute due to the influence of bureaucratic systems; thus, it should be a network with continual information flowing.

3) Public space should be a place that induces communicative action or activities whose goal is to create a new consciousness in people. This new consciousness must transcend a sense of "individualism" or is called the "Ethic of compassion." It means empathetic understanding and feeling or empathy. At the end of the 20th century, mass media had proved that it had the potential in creating shared feelings about human fate or the destiny of the world, such as collaborative assistance during the Tsunami disaster or global warming collective resolutions.

Founding a useful public space for a democratic society depends on two factors: The quality of discourse or communication and the amount of participation.

Habermas thus proposes to have several forms of organizations and social groups as a mediator for inducing participation, i.e., the concept of a community, the organization of a discussion forum or public hearing, etc.

2.2.3.2 Roles of the Virtual Public Sphere

Nowadays, due to new communication technological advancement that can connect people across time and space and enables simultaneous communication, the concept of "public space or sphere" has been expanded from a physical public space in which people can interact in the real world to a virtual public sphere. For example, web applications, which have a chat room for sharing public issues, have been proved to operate almost exactly like the original or prototyped public space. The difference is there is no direct face-to-face communication. (Kanjana Kaewthep & Somsuk Hinviman, 2010, p. 388)

Accordingly, Scholars in the field of futurology anticipate that it is possible that the pattern of democratic governance via the house representatives because of limitation in time and distance, which has been inherited for many hundred years, maybe no longer be prolonged since digital communication technology enables democratic governance directly to people or members of a society without their representatives. Still, to empower societal members to be able to exercise their rights and votes, a preventive mechanism needs to be established to avoid making people become only political consumers. Thus, "genuine citizens" must have public space as a stage for presenting their information or constative speech act so that people will have opportunities in utilizing practical rationality, which is a required condition. (Kanjana Kaewthep & Somsuk Hinviman, 2010, p. 388).

The aforementioned concept of public space reflects that the space for news reporting on the crowdsourcing platforms is a virtual public sphere in a democratic society that leads to a discussion on public issues and benefits in both normal and public-hazard situations of all sectors: public, private, and civic sectors. From communication, opinion exchanges, and news reporting, some social changes occur, especially in the issue of strengthening a community and society in dealing with facing problems. For this research, the virtual public sphere on the C-Site and Hatyai City Climate platforms were studied, which will be presented in the next part.

2.3 The Concept of Social Sectors: Public, Private, Civic, and Case Studies

In most societies, public activities often involve three major sectors: public (government agencies), private (business or marketing), and civic (civil society, people, and families) sectors. (Theerapat Ungsuchaval, 2016, p. 20). Government agencies are responsible for regulating and managing the national structure under the determined rule framework, collecting taxes for the national income, and are equipped with monopolized and coercive power. The major power source comes from their management and public services management for society. The government sector is often the largest in each country. The private sector, on the other hand, plays a role in supplying and transforming goods and services for society under the laws. The utmost power of this sector comes from commercial income, the exploitation of resources, and service providing. The private sector tends to be the second-largest sector. The third sector or civic sector facilitates people's group formation based on the issues of their interest and the issues they want to mobilize under the laws. The power of the civic sector comes from the assembly of groups and their negotiation. The main income depends on support in various forms, both monetary and non-monetary support. Generally, this sector is the smallest. However, compared with that of the developed or western countries, the civic sector may be the second-largest sector or equivalent to the public sector. (Theerapt Ungsuchaval, 2016, pp. 20-21), as illustrated in Figure 2.2.

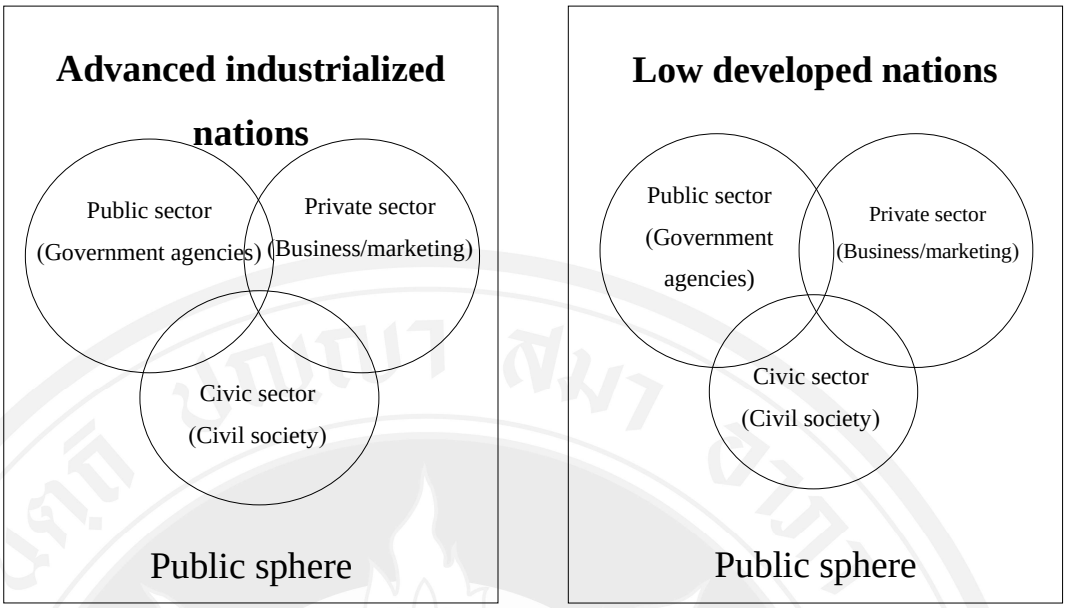

Figure 2.2 A Comparison of the Possession of The Public Sphere Between Advanced Industrialized and Low Developed Nations

Source: Tossapon Sompong (2013, p. 95).

In the early stage, the public sector was limited to covering only the state or the government only. However, after the growth of cities and capitalism, the commercial sector pressed the state or government (the public sector that owns public authority) to decentralize its power and responsibilities in public enterprises in several dimensions to the private sector or urban people for participating in supervision and to differentiate the meaning of "the public" as the government to the public as people's power and roles. (Teerayut Boonmee, 2004, p. 62). Starling (2002, as cited in Tippawan Losuwanrat et al., 2009, p. 35) compares the differences between the public, private, and civic sectors quite clearly and summarizes that government agencies, owned by the government and monitored by people while the private sector owned by private groups and regulated by private groups. On the other hand, the civil society falls between the government and the private groups, but is operated by the civil society, i.e., self-administered groups that are not profit-oriented but are willing to operate for public benefits, as illustrated in Figure 2.3.

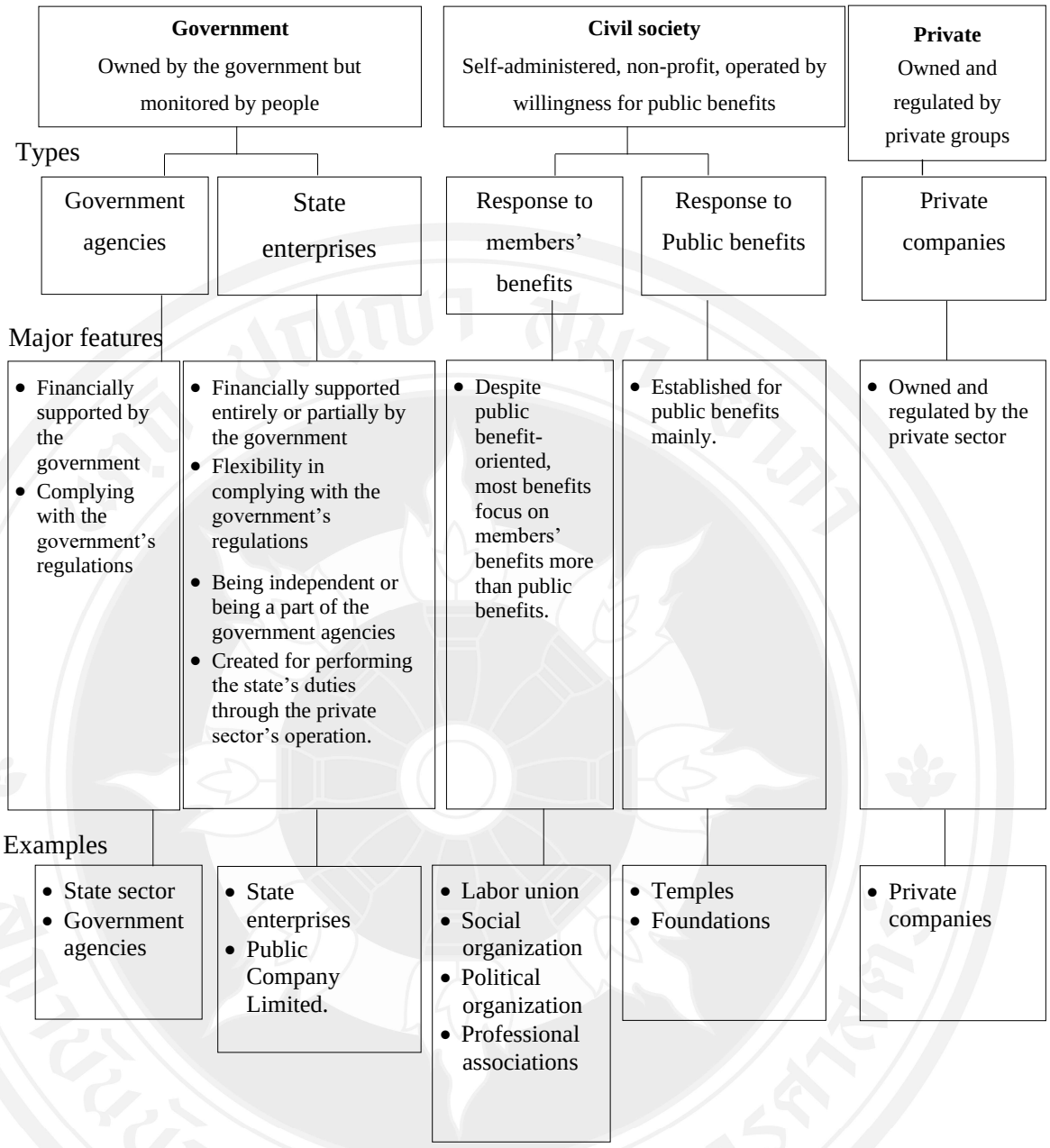

Figure 2.3 A Comparison of Major Features of the Government, Private Sector, and Civil Society

Source: Adapted from Starling (2002, as cited in Tippawan Losuwanrat et al., 2009, p. 36).

For this study, the concept of social sectors was applied as a criterion for classifying types of organizations to reflect different organizational features, in combination with the application of the concept of crowdsourcing in the context of

news reporting. According to the Public Broadcasting Organization of Thailand Act, B.E. 2551 (2008), Section 5, “The Public Broadcasting Organization of Thailand shall be established as a juristic person. abbreviated as “SAT” and used in English as “Thai Public Broadcasting Service,” abbreviated as “TPBS,” acting as a public media organization for radio and television broadcasting as a government agency that is not a government agency or a state enterprise under the law on budgeting methods but operates under the capital, assets and income of the organization.” Therefore, the Bureau of Networking and Public Participation, Thai Public Broadcasting Service, developed the C-Site Platform as a part of the public sector (Government agencies). On the other hand, Southern Cities Climate Change Resilience Networks Foundation whose purpose is to surveillance and forewarning of floods by itself in Hat Yai District, Songkhla Province and the U-Tapao low land through the operation of the civic sector in Hat Yai, with a collaboration with several organizations and agencies, i.e., Asian Cities Climate Chang Resilience Network ACCCRN), Thailand Environment Institute (TEI), Rockefeller Foundation, Hat Yai City Municipality Office, the Department of Disaster Prevention and Mitigation, the Southern Eastern Meteorological Center, the Songkhla Chamber of Commerce, Public Relations Department of Thailand, Department of Water Resources, Songkhla Chamber of Commerce, Prince of Songkla University, Cyber Tech, etc. developed the Hatyai City Climate Platform as a part of the civic sector (the civil society).

2.3.1 The C-Site Platform

2.3.1.1 Background of the C-Site Platform

The word “C-Site” is the abbreviation of “Citizen Site,” which is the platform, under the supervision of the Bureau of Networking and Public Participation, Thai Public Broadcasting Service (TPBS), which comprises the web application (www.csitereport.com), and mobile application (CSite) on the iOS and Android operating system, developed for supporting the civic sector’s activities and communication. The platform emphasizes the creation of a perception of the surrounding happenings and displays the coordinate of a scene of the incident. Users who register for membership can pin a location for news and current situation reporting. It also emphasizes the development of an area for wisdom gathering as well

as being a tool for a collaborative survey and information gathering so people's voices can be reflected directly and most powerfully. (TPBS, 2018, p. 50). Since 2015, the Bureau of Networking and Public Participation has paid much attention to new media platforms since television started to get less importance from the audience. (Matana Charoenwongsa, 2019, p. 129). At the end of 2017, the idea of developing the crowdsourcing platforms was initiated by a group of students who proposed a business platform and perceived the importance of content from the civic sector that can turn to be value-added. Besides, it can reward content owners as well. Later, the concept was modified to be "news and notification of incidents," through the use of location-based technology for displaying results. Besides, a community circle for collaborative surveillance was attempted, i.e., the surveillance of public disasters, accidents, crimes, or sick people. Moreover, the platform allowed the civic sector to participate in sharing information aimed to be a public space where people can access and make use of it. After that, in 2019, it was expanded to cover the C-Site Citizen Reporters Program, broadcasted on Thai PBS in the morning. (Somkiat Chantarasima, personal communication, April 10, 2020). At present, Thai PBS broadcasts the content of the news and pining from the C-Site program in the morning, noon, and night news, including co-creating content via several TV programs, such as Here is Our Home, Midtown, Localist: Life outside the City, and Back Pack Journalist, including websites, such as The Citizen Plus (https://thecitizen.plus/) or de/code (https://decode.plus/). The key of the C-Site is activities and communication of knowledge from collective creation. The goal is to make C-Site become a public space as another channel of civic networks of public communication to create perception, learning, and mobilization of social agenda, including becoming the main channel of public communication for mobilizing society with knowledge under the process of participation distribution as a democratic communication system and developing a public database on various networks.

2.3.1.2 Detailed Information about the Organization

Thai Public Broadcasting Service (TPBS) was founded on January 15, 2008, by the Public Broadcasting Organization of Thailand Act, B.E. 2551 (2008) as the first non-profit public media organization in Thailand and Southeast Asia. It is a media institute aimed to carry out broadcasting that may strengthen the development

of social quality and virtue upon Thai value's values through news, knowledge, useful information, quality and standardized entertainment information service, based on ethical and professional code of conduct through all kinds of media with public-benefits emphasis. (Chanansara Oranop Na Ayutthaya, 2019, p. 118)

The Bureau of Networking and Public Participation (as an agency of Thai Public Broadcasting Service in 2020, effective on October 1, 2021). The original name was the Bureau of Public Media Networking. The main mission is to respond to needs in participation of the civic sector in public communication and play a part in decision-making, co-creation, and social mobilization with co-generated content to create changes at all levels, which can strengthen democratic communication. (TPBS, 2016, p. 25). The fund, property, and income of the organization come from the levy collected from taxpayers under the law on liquor and tobacco. However, the supporting income from such taxation following the law of liquor and tobacco must not exceed 2,000 million baht yearly. Besides, the organization can gain income from network service rent (MUX), sponsorship subscriptions for resources, and funds from individuals, groups, organizations, and external institutes at all levels, both domestic and international. However, such support must not affect the organization's independence in production and broadcasting. Moreover, a part of income includes benefits from the organization's intellectual property and interest derived from the organization's finance or property.

2.3.2 The Hatyai City Climate Platform

2.3.2.1 Background of the Hatyai City Climate Platform

The Hatyai City Climate Platform is a part of the Asian Cities Climate Change Resilience Network (ACCCRN) project, which has been operating since 2009 for coping with and adapting to the effect of climate change. The project is supported by the Rockefeller Foundation, U.S.A. as the national NGO, aimed to enhance the city's potential and readiness in dealing with the possible effect or risks resulting from climate change. The coordination is in the form of networks and collaboration among parties at the domestic level for developing strategies and measures for managing possible effects and assisting risky and needy people at the top priority. Such a project

has been operated in four countries in the Asian region: India, Vietnam, Indonesia, and Thailand. (ACCCRN, 2014, p. 7, 10).

In Thailand, Thailand Environment Institute (TEI) is a responsible agency for operating the project. At the initial stage of the project (May-October, 2009), a city was selected as a pilot project by surveying 5 medium-sized cities or provinces in every region, namely Chiangrai, Udonthani, and Hat Yai, Phuket, and Samutsakhon. Two cities were found to meet the criteria, namely Chiangrai and Hat Yai, and these two cities were selected to proceed to the second period or Phase 2 of the project, which focuses on enhancing the cities' potential by establishing participation of several parties to help to study and assess risks that may be caused by climate change.

Then, strategies and measures, including action plans for coping with the expected climate change were imposed. (Green Net, 2019)

Some examples of the success of the ACCCRN project and the pilot study of the flooding management network in the U-Tapao low land, specifically in the part of the web application, to follow up water situation at Klong (Canal) U-Tapao and its branches and inform people for preparation. Besides, the civic sector was allowed to participate in reporting the situation in their area. Moreover, information was also used for assessing the water situation in collaboration with the sub-committee of water situation assessment in Songkhla. (ACCCRN, 2014, p. 4)

From the study of problems that led to the preparation of project strategies for coping with climate change in Hat Yai areas and the establishment of a shared-learning dialogue or stage, it was found that the problems to which people paid high attention were water management (Floods, drought, and wastewater), food security, and tourism, but people gave the most importance to "floods." On the other hand, it seemed that the rainfall amount that could cause floods tended to be severely increasing (or the increased amount of daily rainfall), and in the future, it was anticipated to be more severe and cause more damage without integrated problem-solving genuinely. (ACCCRN, 2014) Therefore, one of the key strategies is the connection of communication and forewarning systems, especially during a flooding situation, so that people will be informed of the situation's tendency and can prepare to deal with it promptly. Consequently, the Hatyai City Climate Platform was

developed as a communication channel that is unified, rapid, practical, and reliable. People can access and see the whole picture of certain dangers or disasters all 24 hours. (Disaster Management Network of Songkhla Communities and ACCCRN, 2014). Nowadays, the project was completed (Phase 4) in June 2016, which is the period of publicity and expansion of the project via networks, including driving the project toward the provincial and national level policies, through lesson-learned, knowledge, and good examples via media.

However, the operating activities are not aimed to be completed only, but the working committee planned to proceed towards sustainability, which will affect communities in the low land of Songkhla, especially Khlong U-tapao low land so that they can cope with flooding effectively and will be good exemplars for driving the concept further under the integrated collaboration. Then, this will lead to policy planning subsequently. As a result, the Southern Cities Climate Chang Resilience Networks Foundation (SCCCRN) was founded.

2.3.2.2 Detailed Information about the Organization

The Southern Cities Climate Chang Resilience Networks Foundation (SCCCRN) is operated by the civic sector of Hat Yat District, Songkhla Province for forewarning of floods. It is operated under the integrated collaboration with several organizations, such as the Thailand Environment Institute (TEI), Rockefeller Foundation, Hat Yai City Municipality Office, the Department of Disaster Prevention and Mitigation, the Southern Eastern Meteorological Center, Meteorological Department, Songkhla Irrigation Project, Royal Irrigation Department, the Songkhla Chamber of Commerce, Public Relations Department of Thailand, Department of Water Resources, Songkhla Chamber of Commerce, Prince of Songkla University, Rajamangala University of Technology Srivijaya, Songkhla, Department of Public Works and Town & Country Planning, Public Health Office of Songkhla, Hatyaiwittayalai School, Chumchonthai Foundation, Kho Hong Municipality, Klonghae Municipality, Patong Municipality, Khuanlang Municipality, Prik Municipality, Songkhla Lake Watershed Council, and Cyber-Tech, etc. The philosophy of the Southern Cities Climate Chang Resilience Networks Foundation is “All sectors are hosts, people are owners.”

Since the Southern Cities Climate Chang Resilience Networks Foundation is a juristic-person organization that must comply with the Provisions of Civil and Commercial Code, B.E. 2535, the Ministerial Regulations of the Interior, and the regulations of the registered foundation, the income comes from the foundation's operation or other sources, i.e., interests, donation, giving by affection, project attendance fees, cooperative research, etc. (Department of Provincial Administration, 2013, p. 10, 12). During the past operation, the foundation was supported financially and by equipment supply from several organizations, i.e., Thailand Environment Institute, Rockefeller Foundation, Department of Water Resources, Panel Plus Co., Ltd., Advanced Info Service Public Company Limited (AIS), Chatthong Property Co., Ltd., etc.

2.4 Motivation and Personal Motivation Theories

Human behaviors, either in interpersonal or group communication, are all caused by one influential factor, which is motivation (Jiraporn Tangkittipaporn, 2013, p. 145). Motivation can be both a push or pull that induces persons to behave differently. Thus, motivation influences persons' behaviors directly. (Mukda Sriyong et al., 2011, p. 226).

"Motivation" is derived from the Latin word, "Movere," which means a condition or state related to behaviors in three ways: induction, inhabitation, and determination. Psychologically, motivation means power in a person, ready for urging and directing the human organism to express certain behaviors to achieve his or her desired goal; for example, walking to pick up a drink because of thirst, desiring monetary rewards from sales, working harder to get a higher income, etc. Thus, the occurring motivation can stimulate people to be enthusiastic to perform, act, or operate in a certain way towards the desired destination, especially success. Therefore, motivation plays a great role in a person's behavioral expression constantly. (Jutharat Uaamnoey, 2006, p. 128).

Motivation can be classified by several criteria, which will be indicators of different kinds of motivations. For this research, motivation classification is based on the concept of Existence, Relatedness, and Growth of Clayton P. Alderfer, as follows:

2.4.1 Motivation by Stimulus

Each person has needs at a different level. Thus, motivating a person requires different stimuli. Besides, persons' needs may be changed over time. Therefore, it is important to understand motivation by a stimulus to know which stimulus can arouse certain needs. Mukda Sriyong et al. (2011) divide motivation by stimulus into three types:

1) Primary motives are motives for a life survival so they stimulate people to express their behaviors related to food-seeking, pain avoiding, and lineage maintaining.

2) Intrinsic motives are intrapersonal motives and will occur without any external stimulus. It can be innate motives that induce people to do any activity, besides for their survival. Therefore, they are motives that induce people's learning and self-development.

3) Extrinsic motives or learning or secondary motives are persons' motives stimulated by external factors or environment towards some goals so they lead people to behave in the way that can take them to achieve such goals. They are thus social motives that induce persons to build relationships with others. Mostly, goals stimulated by these motives will be related to security or stability, status, and success.

For this research, two kinds of motives were applied to respond to research objectives: 1) intrinsic motives or the state in which persons want to do or learn something by themselves without being aroused by external stimulus, but the action is caused by persons' internal factors, such as interest, goal, or public mind; and 2) extrinsic motives, or the state in which persons are aroused by an external stimulus to induce some needs or some goals, i.e., social acceptance, monetary and non-monetary rewards, etc.

2.4.2 Existence, Relatedness, and Growth Theory or ERG Theory of Clayton P. Alderfer

Clayton P. Alderfer constructs a new theory in 1969 by modifying Maslow's hierarchy of needs or by re-organizing human needs. His basic concepts are as follows:

1) Human beings may have several needs at the same time but needs at the bottom must unnecessarily be gratified before needs at the higher level, according to Maslow's concept.

2) The less a person's certain need is responded to, the more the person will want such a need.

3) The more a person's need at the lower level is gratified or responded to, the more the person will have higher needs.

4) The less a person's need at a higher level is responded to, the more the person will need at a lower level.

Furthermore, Alderfer also categorizes human needs into three groups: (Jiraporn Tangsiripaporn, 2013, pp. 156-156; Sitthichok Waranusantikul, 2003, pp. 164-165):

1) Existence needs (E) are physical and materialistic needs that help human beings to survive, i.e., food, water, accommodation, etc., including wages, security, welfare, and safety. Compared with Maslow's theory, the need for survival is combined with all physiological needs and some parts of security needs.

2) Relatedness needs (R) are needs that include social needs, i.e., social acceptance and security in interpersonal relationships, fame, and prestige from society. Thus, compared with Maslow's theory, the need for relationships includes the need for security, social needs, and a part of ego or esteem needs.

3) Growth needs (G) are needs related to self-development, professional growth, self-pride, and self-understanding, including full self-empowerment. Compared with Maslow's theory, the need for growth includes a part of ego and esteem needs and needs for self-actualization.

Despite some similarities to Maslow's Hierarchy of Needs, the main difference is that Alderfer perceives that persons will have all three groups of needs in themselves and can have needs of more than one group at the same time. Besides, he further explains how people react when their needs are not gratified. He believes that it can be explained by "the satisfaction-progression principle" and "the frustration-progression principle." Namely, when persons perform some behaviors to gratify their needs, but such needs are not gratified, they will turn to give importance to other needs instead. For instance, when people are not happy with their monotonous and

boring work, but they still keep working since they have no higher knowledge and skill, they will perceive their work as well-paid and secure for their family. Hence, several scholars accept that ERG Theory is practical and realistic in explaining human needs (Nattaphan Kechrananta & Chattayaporn Samerjai, 2004, p. 187).

Nevertheless, a motivation process is a multiplicative approach. In other words, only motivation cannot be a determinant of human behaviors completely, but human behaviors are also influenced by other factors, such as environmental factors, types of work, or personal characteristics, i.e., attitude, attention, perception, etc. (Sitthichok Waranusantikul, 2003, p. 162). Besides, Jiraporn Tangkittipaporn (2013) summarizes factors related to motivation, as follows:

2.4.3 Factors Related to Motivation

Motivation is an important factor influencing and driving human behaviors; however, for successful motivation creation, motivators must concern about the following factors: (Jiraporn Tangkittipaporn, 2013, pp. 159-161)

1) Personal characteristics. Since each person has a different identity, creating motivation requires a concern about individuals' differences in the following:

(1) Needs are an imbalanced state, either physical or psychological, within a person. Such a state enables persons to strive to do some activities to create a balance.

(2) Attitude is evaluative belief and feeling a person has, either favorably or unfavorably, towards something facing in the person's experience, which is exhibited in the person's reaction.

(3) Values, especially personal values, are motivators leading persons to choose and want to do something differently.

(4) Anxiety affects a person's ability to learn and do activities. Persons with high anxiety tend to perform less successfully than those with low anxiety. Besides, people with high anxiety will be stimulated more easily than those in a normal state. Therefore, anxiety is another major factor affecting motivation.

(5) Intention. Intention and motivation are related and affect the success of conducting activities. Persons with high intention will have a higher motivation than those with lower intention.

2) Social conditions are things, both abstract and concrete, in society, i.e., rules, regulations, tradition, beliefs, religion, and culture, including the social institution that influences human ways of living. All of these things make each person develop his/her identity differently and have different motivations as well.

3) Situation under different circumstances. The climate in each situation causes different motivations. Some situations can make people excited and encourage them to do activities, while some may cause confusion, stunning, depression, or discouragement. Normally climate for inducing motivation can be created by three factors: competition, collaboration, and goal setting

4) Characteristics of motivators. There are two ways for motivating persons to behave as wished: rewarding, i.e., monetary rewards, gifts, compliments, praises, attention, acceptance, etc., or punishment, i.e., cutting wages, causing pain or shame, cynicism, or ignorance.

Motivation is a hypothetical construct in psychology, which can be considered as a psychological condition that can induce persons to exhibit their behaviors to acquire their specific goals or to fulfill what persons are short. Thus, some desires and expectations can occur accordingly. (Sitthichok Waranusantikul, 2003, p. 185). Therefore, for this research, Motivation Theory and Personal Motivation were applied to explain "what users' motivation is," which motivates them to participate in news reporting on Thai crowdsourcing platforms.

2.5 Technology Acceptance Model and Related Theories

The study of users' participation in news reporting on Thai crowdsourcing platforms highly requires the understanding of the Technology Acceptance Model (TAM) for explaining and predicting the acceptance of Thai crowdsourcing platforms, including the understanding of the influence of factors as facilitators and accelerators of the acceptance and the use of information or communication technology of each user. (Chumprae Boonyuen et al., 2018, p. 359).

Normally, the basic theories used to explain human behaviors in accepting the use of technology are 1) Theory of Reasoned Action (TRA) of Fishbein and Ajzen,

developed in 1975. It is a theory in behavioral science, which tries to explain the cause of individuals' actions. It believes that every human action is caused by the use of rationality and information for deciding if they will or will not do something. The factor influencing their action comes from their behavioral intention, driven by their attitude and social norms, and 2) the Theory of Planned Behavior (TPB) of Ajzen, developed in 1985, which is modified from the Theory of Reasoned Action. This theory believes that individuals may not be able to exhibit their actual behaviors if such behaviors are too complicated for them to control. Implicitly, the relationship between behavioral intention is influenced by individuals' attitude and their social norms and perceived ability to exert self-control, which influences each individual's behavior directly, and 3) Technology Acceptance Model (TAM) of Bagozzi and Warshaw, developed in 1989, which is derived from Theory of Reasoned Action. This theory believes that there are connections or interrelations between two factors, which influence technology acceptance: perceived benefits and perceived ease of usage. Besides, it is believed that there are four factors influencing individuals' behavioral intention in using technology: external variables, perceived ease of use, perceived usefulness, and attitude towards the use. (Chumprae Boonyuen et al., 2012, p. 4).

The model used for this study is Technology Acceptance Model (TAM), which is modified from TAM 1, developed and presented by Davis, Bagozzi, and Warshaw, in 1989, who found two factors influencing individuals' intention in using technology and leading to their actual use: perceived usefulness of technology and perceived ease of use. Thus, users' attitude toward the use of technology is not necessary to be discovered anymore. Thus, it is omitted from the model, as illustrated in Figure 2.4.

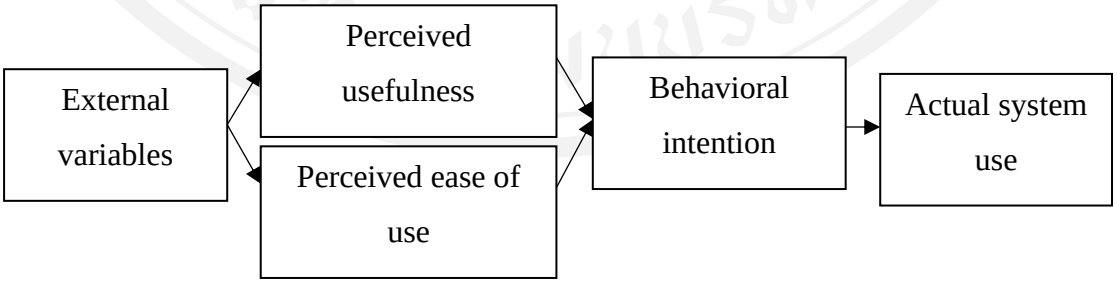

Figure 2.4 Technology Acceptance Model Modified from TAM 1

Source: Venkatesh and Davis (1996, as cited in Buncha Mankijjakan, 2017, p. 41).

From the above model, “perceived usefulness,” “perceived ease of use,” and “behavioral intention,” are factors used in this study as criteria for indicating which factors can predict users’ participation in news reporting on the Thai crowdsourcing platform.

2.6 Related Studies

2.6.1 Studies Related to Motivation and the Crowd’s Participation in Crowdsourcing

Na’in, Husin, and Baharudin (2021) studied, “Online Crowdsourcing Platform Continuous Participation during COVID-19: A Low-Income Group Perspective in Malaysia,” and found that eight internal motivations are found to stimulate users with low income to work continually on the crowdsourcing platforms during the epidemic of COVID-19 in Malaysia: 1) Personal development, which is each individual’s desire in improving their current capabilities, 2) pastime, 3) fun, 4) passion, 5) task identity, considering from the complexity of a task. (Mostly, users like the separation of work into easy sub-tasks because of its easy management and time estimation for work completion), 6) time-workplace flexibility since participation on the crowdsourcing platforms can help them manage their time and create income from working at home during the epidemic, 7) altruistic as a lot of users want to forward or share their knowledge to other users or to people who tend to be new users in the future, and 8) peers’ success. When they perceive their peers’ success (or users in the same field), it inspires them to work further on the crowdsourcing platforms. Besides, four external motivations are found: 1) income (or monetary reward), 2) job security or chances to get a job and chances to be observed by a job proposer, and 3) personal commitment, which is an individual’s desire to participate i.e., needs of security in the family during the epidemic and income, and 4) environment. The epidemic makes a lot of people change their working to online working since outdoor work is not secure anymore. Therefore, the problems caused by the epidemic stimulate users to participate in crowdsourcing continuously for their security and job acquisition simultaneously.

De Vreede et al. (2013) studied, “A Theoretical Model of User Engagement in Crowdsourcing” by presenting a model of users’ work loading agreement in open-collaboration crowdsourcing, which is caused by intrinsic motives for their contribution, varying by users’ interest in topics. Besides, the clarity of a goal is found to help screen personal interest in engagement, as summarized in Figure 2.5.

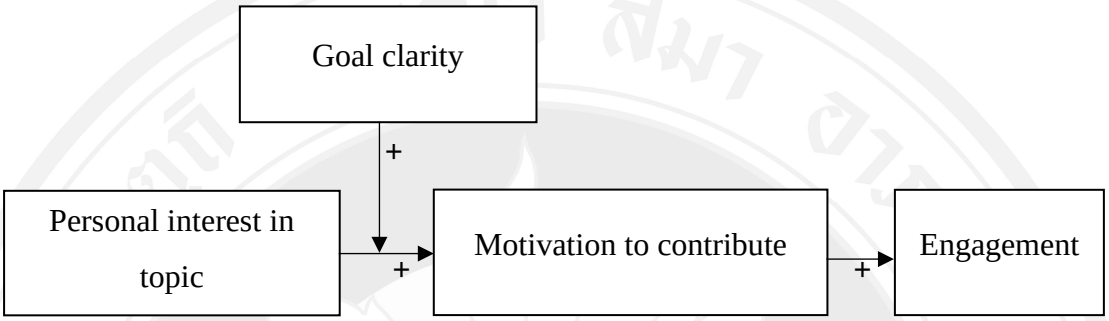

Figure 2.5 The Model of Use Engagement in Open Collaboration Crowdsourcing
Source: De Vreede et al. (2013, p. 11).

Sunan Sumataagsorn (2013) studied, “Motivation Factor: People’s Participation of Crowdsourcing Activities,”, and found that motivation factors are found to be related with the encouragement of general people to participate willingly in solving problems in the company’s crowdsourcing via the social network of each task nature (basic, creative, and complex tasks) through different motivation factors, as follows:

1) Basic tasks, which are tasks of answering general questions without specialized knowledge, are found to have a positive relationship with intrinsic motivation in terms of the willingness to devote persons’ information to the project due to their perceived usefulness of the project for the society. However, it has a negative relationship with intrinsic motivation in terms of an opportunity for self-development, skill-development, and acquisition of new experiences

2) Creative tasks, requiring imagination and creativity from various perspectives for designing a new product or service or bettering the old products, are found to have a positive relationship with extrinsic motivation in terms of being a marketing channel.

3) Complex tasks, or tasks whose problems are difficult to solve due to the requirement of specialized knowledge or expertise, are found to have a positive relationship with intrinsic motivation in terms of tasks' enjoyment and excitement and extrinsic motivation in terms of being admired, respected, and complimented by society. However, they are found to have a negative relationship with extrinsic motivation in terms of giving too much attention to rewards (both monetary and non-monetary) for motivating people to participate.

Alam and Campbell (2012) studied, "Crowdsourcing Motivations in a Not-for-Profit GLAM Context: The Digitization of the Australian Newspaper Program," and found that stimuli affecting users' participation in text correction on the website of Australian newspapers under the concept of GLAM (Galleries, Libraries, Archives, and Museums) are:

1) Intrinsic motivation comprises (1) Egoism-based motivation, i.e., personal interest, trust, work addiction, obligation, challenging jobs, and interesting topics, (2) community-based motivation, (3) enjoyment-based or task-based motivation, i.e., fun, simplicity, task autonomy, and pastime. Personal and community motivation are initiating and utmost important motivation to draw users' participation in text correction.

2) Extrinsic motivation comprises (1) the identification of text correctors, (2) recognition and reward, and (3) indirect recommendation or feedback and advocacy.

Hossain (2012) studied, "Users' Motivation to Participate in Online Crowdsourcing Platforms" and found that participation on online crowdsourcing platforms is motivated by both intrinsic and extrinsic motivation. Intrinsic motivation cannot be classified additionally, but depends on the nature of the task, while extrinsic motivation can be categorized into three groups: Monetary motivation, i.e., privileges, cash, working opportunities, income, etc., 2) social motivation, i.e., roles, peers' acceptance, status, fame, power, experiential-skill development, knowledge gathering, social interaction, network establishment, collaborative working, no need for assistance, and 3) organizational motivation, i.e., career or professional development, professional reputation, responsibilities, etc.

Patthama Sukthong (2012) studied, “Crowdsourcing for Organization Problem-Solving,” and found that factors affecting the use of crowdsourcing for organizational problem-solving are the quality of information, systems, and users. Both intrinsic and extrinsic motivation influences the intention to use crowdsourcing systems for solving organizational internal problems. Moreover, the quality of users is found to affect the quality of information. Namely, if users are quality users, the obtained information will have good quality as well. Moreover, it is found that intrinsic motivation as an independent variable affects the intention in using crowdsourcing the most, followed by the quality of users and systems respectively, with details as follows:

1) Users’ perception of quality (the quality of information, user groups, and systems, affect the intention in using crowdsourcing systems for organizational problem-solving. It is further found that the quality of obtained information emphasizes the completeness, information accountability, and information correctness; the quality of user groups focuses on users’ experience, knowledge, capability, expertise, and credibility; and the quality of systems gives high importance to easy use, convenient usage that can access by general web browsers, easy learning, flexible use, and accountability.

2) Motivation affecting the intention in using crowdsourcing systems in solving the organization’s internal problems is (1) intrinsic comprises knowledge enhancement, skill development, experiential accumulation, leadership skills, confidence in expression, self-perception, wider perspectives, and opportunities for helping others. (2) Extrinsic motivation consists of knowing more friends, opportunities for creating good relationships with others, having roles in co-planning for problem-solving, and getting an operational performance.

Nichapa Kaewpradub (2008) studied, “The Roles of Media for Public Consciousness: Case Study of Ruam Duey Chuey Kan Radio Station, FM 96.0 MHZ,” and found that for over 10 years of the broadcasting of Ruam Duey Chuey Kan radio station, it shows support among people in society and networking among communities for concrete assistance. Besides, it reflects the role of the radio station as the space of collective spirit and civic consciousness in solving communities’ problems, which leads to community development and a bettered society under a civic

network management system that connects government, private, and civic sectors. Interestingly, several stories from the civic sector were brought up in the public space, i.e., lost and found, missing people, patient delivery, job application, etc., which reflects listeners' trust in the radio station as a shelter for listeners and general people. Besides, it was found that listeners of the radio station did not play a role as listeners only, but also relatives who offered help by phone-in to provide information or express their useful opinions to help solve problems for people in trouble. Furthermore, the station listeners also extended and strengthened their linkage process on-air through several activities, such as the founding of "Friend Club on the Road," "Crime Suppression Volunteers," "the Village of Ruam Duey Chuey Kan or Join and Help" for mutual support and assisting the society as a whole. In all activities, people were allowed to participate in the program as a sender with "a real identity and real voice," and this enables the radio station's program to increase its power.

Zheng, Li, and Hou (2011) studied, "Task Design, Motivation, and Participation in Crowdsourcing Contests," and found that the intention to participate is an efficient predictor of participation in a contest for problem-solving via Chinese crowdsourcing platforms. Extrinsic motivation in terms of monetary reward is found to have no relationship with the intention to participate, while extrinsic motivation in terms of gaining acceptance is found to have a positive relationship with the intention to participate. Conversely, intrinsic motivation (fun gained from the process of fixing a task and pleasure in experiencing the challenge of a problem) is found to influence the intention to participate highly. In comparison, intrinsic motivation (gaining new experiences, fun in a process of fixing an ask, and self-challenge in problem-solving) is found to influence the intention to participate two times higher than extrinsic motivation. Thus, the study indicates that intrinsic is more important than extrinsic motivation.

Ke and Zhang (2009) studied, "Motivations in Open Source Software Communities: The Mediating Role of Effort Intensity and Goal Commitment," and found that 1) Among four control variables: a project size, type of product, remuneration, and a participant's main role, only remuneration variable is found to have a negative relationship with goal commitment of participants in the Open Source Software (OSS) project, 2) motivation in social identification in the OSS project is

found to have the highest effect on effort intensity and project participants' goal commitment, 3) Differences in extrinsic motivation (monetary reward, professional promotion, usefulness for work) is found to have a relationship with participants' determination towards a goal but no relationship with effort intensity, which can be explained that most project participants are volunteers and almost 80% of them did not get any remuneration from the project. Therefore, participants might not be able to give the utmost importance to participation in the OSS project or provide much time for it, 4) ideology conviction is found to have a negative relationship with effort intensity, which indicates that it may not be proper to expect that high ideology conviction will lead to high effort intensity, and 5) the relationship between effort intensity and determination towards a goal is found to be varied by motivation (intrinsic and extrinsic motivation, social identification, and ideology conviction) and outcome of the participants' participatory behaviors.

Hars and Ou (2002) studied, "Working for Free? Motivations for Participating in Open-source Projects," and found that motivation in participating in an open-source project for programmers who are directly paid, salaried, part-time, and students, is found to be more complicated than expected. Intrinsic motivation, namely self-decision-making, altruism, and self-identification in a community, is found to influence the participation in the Open-source project, while external factors, namely direct or instant remuneration and expected future remuneration, i.e., a salary, an employment contract, and self-marketing, is found to influence the participation in the project. Besides, it was found that the programmers who participated in the project are part-time programmers and those with intrinsic motivation the most, while the programmers with salaries and employment contracts, and extrinsic motivation expect that they can sell their related product or service and can do their self-marketing the most. The study illustrates that extrinsic motivation is more important than intrinsic motivation, especially the participation is found to be motivated by the Open-source project proposer.

Phattra Burarak and Samatcha Nilaphatama (2019) studied, "Citizen Material Management in News of Mass Media," and found that the usefulness of a workpiece from citizens of a media organization consists of 1) repeated presentation, which is the direct dissemination of citizens' workpiece content without modifying or

expanding its original content to add more value or well-rounded perspectives, 2) a clue and precursor or initial substance for journalistic work. It is the use of citizens' news to develop, extend, or seek additional information to get more well-rounded news, 3) the use of citizens' news as information or raw material, i.e., images, sound, and video clips as a news source or illustration of news to provide evidence for journalistic reporting, 4) the use of citizens' workpiece as a tool for establishing relationships with citizens, which can occur when journalists interact with workpiece owners, either before or after the publication, i.e., asking for permission, asking for additional information, sending the publicized news to workpiece owners, which is often found in the citizen journalist program that requires interaction with owners before or after the use or dissemination, and 5) the use of citizens' workpiece as a tool for reflecting characteristics of a media organization, which is often found in the work of television station, news programs of public media groups, which are not daily news reporting and are a part of requirement as a role of public media.

2.6.2 Studies Related to the Concept of Crowdsourcing

Ghezzi, Gabelloni, Martini, and Natalicchio (2018) studied, "Crowdsourcing: A Review and Suggestions for Future Research," which aimed to find guidelines for searching for the crowd based on the Input-Process-Output framework for crowdsourcing, as illustrated in Figure 2.6.

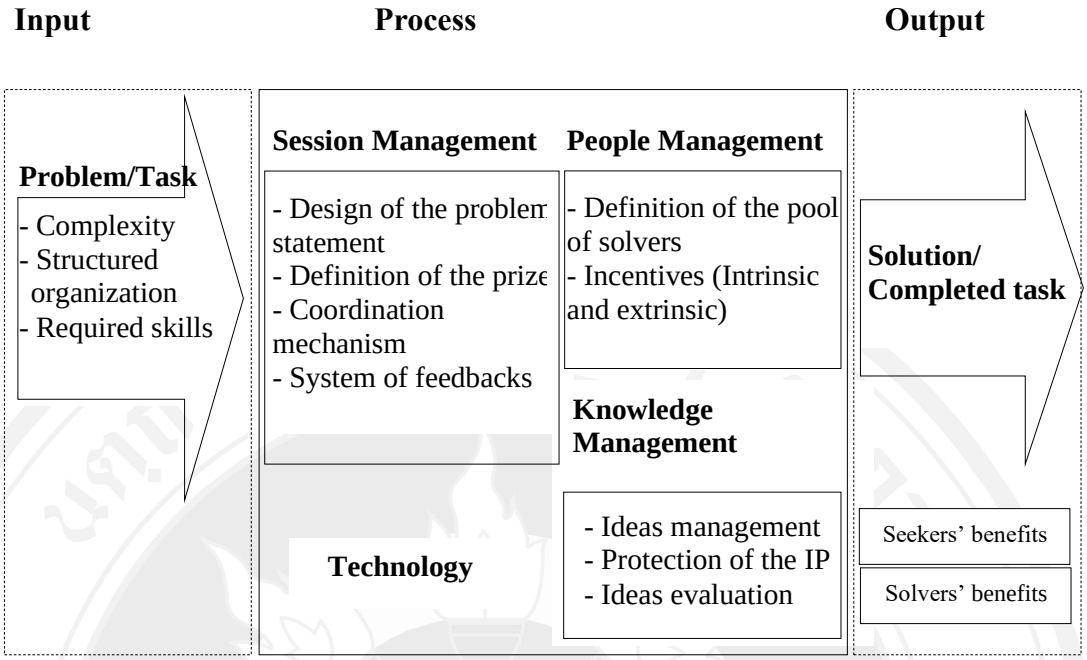

Figure 2.6 Input-Process-Output for Crowdsourcing
Source: Ghezzi et al. (2013, p. 346).

1) Input is the first part of a working process related to types of needed problems or tasks, which depend on a task's complexity, organizational structure, and required skills or knowledge for participants

2) The process is the second part of the process related to Management (i.e., Session, knowledge, people, and technology management), with details as follows:

(1) Session management involves all operations needed to proceed by initiators for coordination and work-agenda setting through the following steps: 1) proposers must design the problem statement by specifying clear problems understood by all concerned, while problems to be solved must have clear, not ambiguous, and easy for assessment. Besides, the instruction may have some suggestions and notify participants about their possible work-quality improvement, 2) prize or remuneration must be determined and defined, 3) coordination mechanism and 4) feedback systems.

(2) Knowledge management is an operation related to the collection, organization, and utilizing knowledge obtained during or after the operation. A design of

a tool or software for collecting and analyzing such information can increase more effective knowledge management. Otherwise, the assessment can be conducted by a contest design or by experts.

(3) People management is the determination of participants' qualification of their knowledge, expertise, and experience, including the determination of the number of participants and motivation creation methods, i.e., intrinsic motivation (ideology, fun, psychological or emotional rewards, self-value, etc.) and extrinsic motivation (i.e., monetary reward, fame, social identification, professional growth, etc.) However, motivation depends on the complexity of a task or problem, its nature or characteristics, and the procedure of an innovative process. The more tangible the outcome is, the more extrinsic motivation should be used.

(4) Technology is something used as a tool, i.e., websites, blogs, social media, or mobile applications, which helps to increase more participants to access the platforms anywhere and anytime conveniently.

3) Output is the third part of the operation process related to the outcome that aims to problem-solving or completed work, including benefits or project proposers and participants, or seekers and solvers.

Karlsson and Martinsson (2014) studied, "How Can the Relationship Be a Motivator?: A Qualitative Study of Motivation towards Crowdsourcing," and found that participants' motivation will occur from the interaction between project or task proposers and participants in a crowdsourcing process, as illustrated in Figure 2.7.

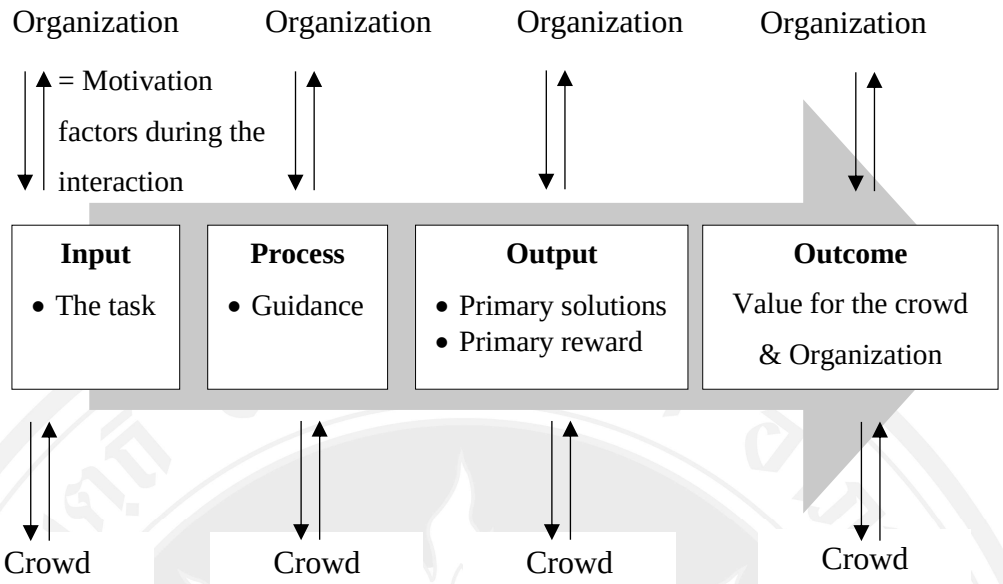

Figure 2.7 The Relationship between the Two Actors in the Crowdsourcing Activity
Source: Karlsson and Martinsson (2014, p. 14).

The findings of the study can be summarized as follows:

1) Input. Almost all participants explained that they had interacted with a task proposer or project owner before, which was the interaction before they decided to participate in the project. Moreover, it was found that the contact and interaction by email between proposers and participants have a positive relationship and can induce participants' engagement. Motivation involved in this step is fun and pleasure, social motivation (socialization and enhancement of the relationship with others), goal accomplishment, the nature of the task (small-sized, simple, easy, not complex, enjoyable and the compatibility between participants' working time and free time), learning from collaborative working, and opportunities for using their equipped skills.

2) Process. In this step, there is no interaction between proposers and participants; thus, it is found a negative relationship and participants' task quality. Therefore, task proposers should advise and coordinate with participants. The motivation used in this step is personal interest, fun, and goal accomplishment.

3) Output. Despite the increased interaction between proposers and participants after a process step, it is insufficient for improving the damage of the

previous relationship. Therefore, the lack of interaction harms participants' satisfaction increasingly, compared with the process step. The motivation used in this step is social, learning from participation, and rewards.

4) Outcome. In this part, it was found that the effect of the relationship in all steps affects participation in crowdsourcing activities. It thus reflects that working relationship is very vital. The motivation used in this step is reward or incentives, especially monetary, for stimulating the crowd to participate at a higher level and improving the quality of participation as well.

However, how to keep the relationship in a crowdsourcing process constantly all through the process is a challenge. Still, it is confirmed by empirical findings that the interaction between proposers and participants is significant and affects both output and outcome.

Bhatti, Gao, and Chen (2020) studied, "General Framework, Opportunities and Challenges for Crowdsourcing Techniques: A Comprehensive Survey" and proposed a crowdsourcing operation framework, which comprises 1) task, 2) requester or crowdsourcer, 3) worker, and 4) platform. Requesters or crowdsourcers with clear detailed information about a task will deliver it to a platform. Then workers will search or study the task, and send feedback to requesters or crowdsourcers via the platform. Finally, workers will be rewarded after the requesters inspect its correctness.

The study found that a crowdsourcing process is divided into three main steps: 1) Initialization is the step of preparation, consisting of (1) task design. Requesters will provide a task definition by giving key word and details of the task or task granularity, complexity, and duration, including the design of the user interface, (2) task settings, which is the setting of general and specific requirements (i.e., task attributes, explanation, types of work, time, etc.), and (3) incentives. It is found that proper incentives and remuneration affect workers' working effectiveness and the quality of output of the crowdsourcing system. Furthermore, it was found that motivation composes of 1) intrinsic motivation as persons may not always seek monetary incentives, such as entertainment, personal amelioration or needs for self-improvement of knowledge and skills, humanitarian or needs for helping others, especially during a disaster or an emergency as they wish to work for expressing their goodwill to society, such as support or assistance, saving others' life, relieving others' suffering, or bettering the society they

live, including needs for expressing their status or identity in society. 2) Extrinsic motivation, i.e., monetary incentives, reputation, common benefits, reciprocal service between requesters and workers, credits, and rewards.

Implementation is the step requesters disseminate workpieces and workers. This step consists of 1) task decomposition to reduce the complexity and avoid disturbances, so that all work can be proceeded easily, 2) finding crowds and platform selection. The proper crowd finding is a key to success in a crowdsourcing process. Therefore, workers may be selected from the preliminary assessment before their participation. From the study, workers can be classified into 5 types: reliable workers, ordinary workers, sloppy workers, partial spammers, and random/uniform spammers, and 3) task assignment, which is also an important step in the process since ineffective

Finalization is the step in which all activities yield the outcome. This step comprises 1) the collection of task outcomes. Requesters can either gather workers' answers by themselves or manually for an easy task by automatic collection system, 2) validation and rewards. Workers' obtained information assessment depends on workers' and tasks' characteristics. The common way is to validate answers by fields and attributes of information, determined in the user interface. For a reward policy, typically rewards will be given to all participants or none without concern about requesters' satisfaction with workers' workpiece. However, this kind of policy is often used in an easy task. Another reward policy is payment upon confirmation, which is used the most often. Workers will be rewarded after requesters' confirmation, which is to confirm the result from the validation of task correctness. This type of reward is for a complex task, and rewards will be given for the best outcome or solution, especially for a task demanding a contest. Still, for a successful crowdsourcing process, workers and requesters should receive common benefits.

Besides, it was found that in a crowdsourcing process, workers participated more when requesters were honest or had a reputation. The reputation here depends on if such a task is well-determined and honest, and if the received remuneration is fair and sufficient as declared, including to what extent communication can respond to workers' anxiety. On the contrary, workers' reputation is also an indicator of their expertise, assessors' acceptance, workers' completed work, and their accountability, which affect requesters' hiring decisions after the validation process.

Song, Zhang, and Dolan (2020) studied, “Promoting Disaster Resilience: Operation Mechanisms and Self-organizing Processes of Crowdsourcing” and found that crowdsourcing consists of three main components: platforms, initiators, and contractors. A self-organizing crowdsourcing mechanism in the context of disasters occurs from multidirectional interactions among platforms, initiators, and contractors, as illustrated in Figure 2.8.

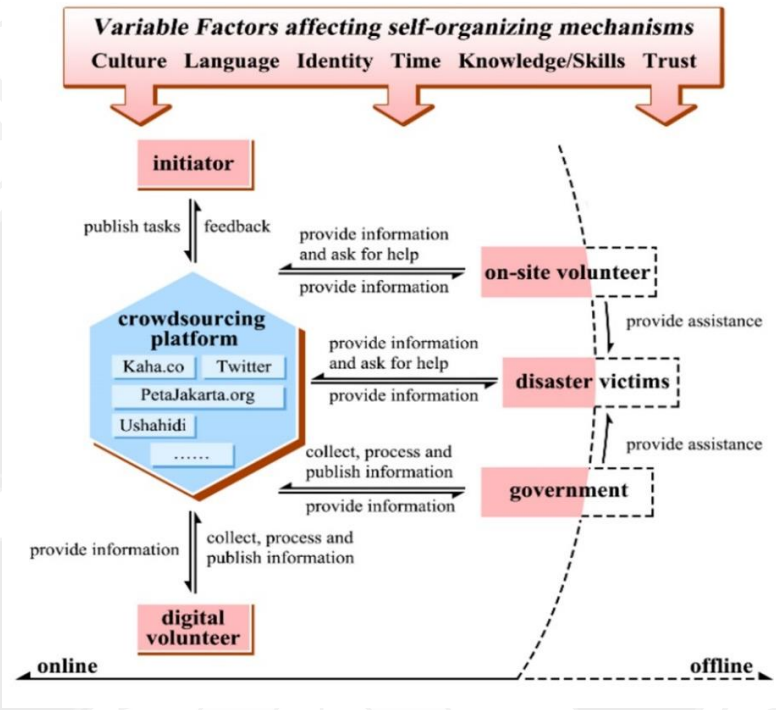

Figure 2.8 Self-Organizing Operation Mechanisms of Crowdsourcing in the Disaster Context

Source: Song, Zhang, and Dolan (2020, p. 6).

Figure 2.13, illustrates 6 factors affecting self-organizing crowdsourcing mechanisms in the disaster context, namely culture, language, identity, time, knowledge/skill, and trust. Actors involved are 1) initiators, i.e., individuals, governmental organizations, non-governmental organizations, business organizations, etc., 2) digital volunteers or persons from all over the world with different knowledge basis who use crowdsourcing platforms to operate with disaster phenomena, 3) on-site volunteers or persons at the incident spot or disaster victims, and 4) the government or governmental organizations responsible for disaster management. Concerning

operation mechanisms, it starts with the publicity or information provision of initiators on crowdsourcing platforms, both specially-designed platforms (i.e. Kaho.co/PetaJakarta.org/Ushahidi, etc.) and existing social media (i.e., Twitter, Facebook, YouTube). Next is the operation step in which digital volunteers will collect, process, and publish information on the platforms while on-site volunteers will provide information and ask for help on the platforms for helping disaster victims. Concurrently, governmental organizations will also collect, process, and publish information and help on the platforms directly.

Amrollahi (2015) studied, “A Process Model for Crowdsourcing: Insights from the Literature on Implementation,” and found a crowdsourcing process model, as illustrated in Figure 2.9

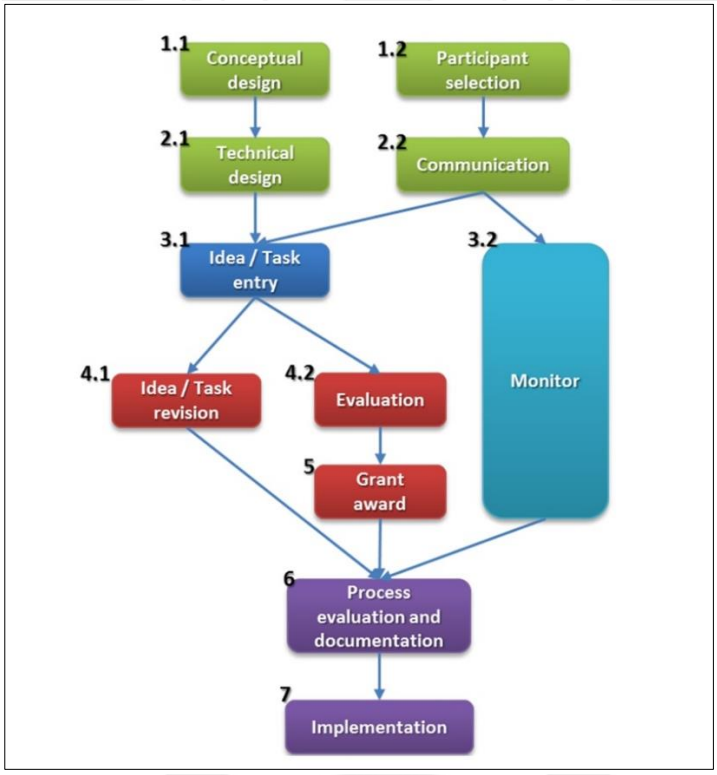

Figure 2.9 Crowdsourcing Process Model

Source: Amrollahi (2015, p. 6).

Figure 2.9 describes the model as follows:

1) The initial stage. It comprises two sub-stages:

(1) Conceptual design stage is a design process before starting a crowdsourcing project. Task definition and goals will be determined, including the design of a motivation system for encouraging people's participation that requires both intrinsic motivations (i.e., fun, enjoyment, and social interactions) and extrinsic motivation (i.e., monetary and social rewards). Moreover, a collective working pattern, task planning, and activity details preparation for operating via platforms will be determined.

(2) Participant selection stage is the stage of selecting and contacting crowds or participants for participation. In some cases, a test may be conducted for crowd selection.

2) The second stage consists of two sub-stages:

(1) Technical design. It is the stage to answer how crowdsourcing should be operated and if existing or new platforms should be used. Besides, details about how the platforms will be operated are determined.

(2) Communication. A project management team will invite crowds or participants to participate in the project, and introduce tools by the project's document. Sometimes, they may contact their tentative participants by phone, through direct communication, advertisements, or workshops.

3) The third stage is as follows:

(1) Idea/Task entry is the step of the crowds' or participants' operation and task selection, including creating concepts, collecting information, or seeking ways for problem-solving.

(2) Monitoring is the step of validation of the operation to ensure the process is operated as wished through the coordination with the crowds or participants, time, and task management.

4) The fourth stage consists of two steps:

(1) Idea/Task revision. Participants' responsibility is not only limited to information transmission into the system, but not also includes the organization, screening, correcting, and expressing opinions about other related

information. The main objective of this step is to eradicate errors that may be caused by the transmitted information.

(2) Evaluation. It is the step of evaluation, analysis, and decision-making that might occur simultaneously with the earlier stage or it may be done by the selected or assigned experts in each area.

5) The fifth stage: Grant award. Generally, awards will be granted in two ways: Contest or competition and collaborative working based on an outcome or a workpiece.

6) The sixth stage: Process evaluation and documentation is the evaluation of the project, operation, document, and management for improving a future project.

7) The final stage: Implementation, which is the stage of publicizing and presenting concepts or performances, including an analysis after a contest or the application of workpieces for commercial purposes.

Rungsun Kiatpanont (2015) studied, “An Innovative Process for Managing Crowdsourced Information during the Disaster Response.” The study presents the process for more effective information management during disasters. The process is as follows: 1) Listening is the listening of communication information from the public space, especially input from Twitter mainly, 2) Information processing by grouping redundant information, classifying it, and locating coordinates on a map or mapping for identifying coordinates on a map that connect with information by using a simple-rule base for searching keywords that can identify their positions from the location mapping to specifying the location of statements (i.e., names of sub-districts, districts, provinces, temples, hospitals, schools, etc.), 3) visualization. The system can display all statements or the overview of all statements in the system and allows to choose to view any part of the information, such as being able to select from the scene of an incident, time, or types of statements, i.e., zoom and filter, etc. Besides, it provides details-on-demand if needed, 4) data validation. The system emphasizes flexibility in the stage of data validation by specifying names of those who confirm the information in creating fields of information without being forced as non-mandatory fields, and 5) action or support and evaluation, which is a matter of resource, inventory, and resource-transportation management to the areas for helping disaster victims.

Regarding the findings on the acceptance of system-operation technology, it was found that users who are practitioners of the Bureau of Information, the Department Disaster Prevention and Mitigation, Disaster Surveillance Center, Friend in Need of Pa Foundation, Relief and Community Health Bureau, the Thai Red Cross Society, are found to accept technology at a high level and the main factors facilitating their acceptance are 1) Perceived ease of use as the system is clear and easy to understand, and 2) perceived usefulness, i.e., working faster, increased working effectiveness, increased capability in yielding outcome, goal achievement, and usefulness for their task.

Panumas Nontapan (2014) studied, "Applying Crowdsourcing Approach for the Development of Monitoring and Mitigation Network Map in Songkhla Province," and found that the network maps for monitoring and assisting disaster victims based on the crowdsourcing concept must be designed to be convenient, easy, and rapid by dividing needed tasks for the crowds clearly to the smallest task as much as possible, including by reducing the complexity of information feeding as much as possible as well. The steps of data collection consist of location mapping, map pinning, details feeding, and information saving for each field of information, such as "who, what, when, where, and how," and coordinates of map pinning, which is sufficient for useful use for supporting work in managing a disaster at a certain level. Besides, other needed information can be additionally collected at proper timing. The crowdsourcing process in conducting network maps is as follows:

1) Crowd determination. If any crowd knows its community well, it can help the crowd to express their knowledge correctly and quickly. From the study, crowds can be divided into two groups based on their potential in using technology: High- and low-potential crowds.

2) The diffusion of problems and motivation creation. Wild diffusion of problems to let crowds be informed as much as possible can be done by various channels and forms, both offline (i.e., forums, meetings, word-of-mouth, etc.) and online (i.e., social media) with the most frequencies. Besides, proper motivation for persuading crowds to participate in creating information in terms of intrinsic motivation is volunteers' pride in contributing to community benefits and extrinsic motivation is perceived benefits of the network maps both directly and indirectly.

However, it is recommended that incentives be tangible, i.e., identification of working groups for collecting network maps, granting a designed shirt as a reward for working groups, etc.

3) The development of monitoring and mitigation network maps for assisting disaster victims.

4) The maintenance of the crowd can be done by the continual creation of motivation all through the project process, especially during a normal situation where there is no activity related to flood monitoring. Besides, continuous dissemination of the finding of the development of monitoring and mitigation network maps can keep the crowd's interest constantly until entering the next year of monitoring. Moreover, it was found that the stimulation towards motivation during heavy rainfalls, floods, or at the beginning of flood surveillance could induce the crowd to participate in the project additionally.

2.6.3 Studies Related to the Key Success of Crowdsourcing

Panumas Nontapan (2014) studied, "Applying Crowdsourcing Approach for the Development of Monitoring and Mitigation Network Map in Songkhla Province," and found that key success factors in developing monitoring and assisting disaster victims by the application of a crowdsourcing process are:

1) Information creation by emphasizing benefits the crowds will receive for motivating them to participate in preparing a network map for monitoring and assisting disaster victims, i.e., direct benefits or a network map that can be used for forewarning before flooding, and be supporting information during and after the floods situation, and indirect benefits, i.e., collaboration and linkage between governmental agencies and communities or among communities, pride, and communities' strength in managing floods by communities themselves.

2) The crowds' interest and potential. Generally, the crowds participating in preparing a network map for monitoring and mitigating disaster victims are those knowledgeable in their area map. The support of these crowds can be done diversely, such as teamwork formation for creating workpieces, instruction of work, and the development of supporting tools and systems to increase convenience for working. Consequently, when the interested crowds participate in a task or project,

the potential for work creation will be increased until the crowds' embedded knowledge can be extracted and collected increasingly.

3) Complexity and sequences of data collection program operation. Each crowd will have unequal potential and time for participation. A less complex program for data collection will make the crowds' creation of work easier, while fewer and clear steps of working enable faster work completion.

4) Highly detailed satellite maps or with high HD images enable users to see details of community areas, i.e., roads, canals, houses, buildings, and important places, so it helps use maps conveniently and easily.

5) Proper operation timing depends on the situation background as a stimulus. The proper time for a motivation creation process at the low land of Khlong U-tapao is the period before the arrival of the rainy season, namely between September and December, which is the period in which each agency or office starts to prepare for their surveillance, while communities are ready to cope with coming floods.

6) The relationship between a project working group and crowds. It is important that in designing an initiating process of preparing a network map for monitoring and mitigating disaster victims, a project working group must have good relations with the crowds in its target community. Such a relationship will bring about trust and be a motivator towards collaboration to ensure sufficient information as a reference example.

Puah, Bakar, and Ching (2011) studied, "Strategies for Community-Based Crowdsourcing" by presenting strategies for supporting a crowdsourcing project since besides keeping the sustainability of the crowds, such strategies are found to draw new participants that are the expansion of communities in the project, with details as follows:

1) Rewards are granted to crowds for their participation and an effective operation in a project. Rewards are divided into two types. Firstly, it is a monetary reward, which is the most effective reward in asking for a crowd's cooperation. However, its disadvantage is that the outcome or result of such a motivation may be only short-term. The other type of reward is non-monetary, which depends on the type of participation. The most popular reward is "scores," which the

participating crowds can collect for trading for other types of rewards, such as products, promotions, gift vouchers, or cash. However, the grant of this kind of reward is found to draw crowds' participation at a lower level than monetary rewards. Still, it is the most used strategy for a long-term project.

2) Competition is the best strategy for attracting crowds to participate in a project, i.e., a slogan contest, product development and design, engineering problem-solving, etc. However, the strategy is suitable for a short-term project.

3) Leaderboards or ranking is another strategy for stimulating crowds' participation by informing the participating crowds at which rank they stand among all participants. The important thing is to let them be informed about how to reach the highest rank. This strategy exploits personal motivation and is suitable for a long-term project.

4) Goal or badge completion. This concept encourages crowds to start their participation at the bottom level. Badges, or something similar to a position seal affixed, will be granted for increased participation for climbing up to a higher level or position. The strategy is appropriate for both medium-term and long-term projects.

5) Reputation. Motivating participants to express their opinions to others requires some kinds of mechanisms that can help participants' self-assessment at which level their reputation is. Nevertheless, this strategy differs from the ranking strategy in the way that the ranking will display lists of participants at the top ranks only, while the reputation strategy uses participants' titles, positions, or status. The more participants participate, the higher status they will earn in the system whereas they can also access to more other parts of the system. This strategy thus will motivate participants to work harder for upgrading their reputation and is suitable for a long-term project.

6) A user-friendly platform. A platform or platform management is another factor or strategy affecting crowds' participation. Therefore, it is essential for designing a system that is compatible with communities' ways of living, including physiological design, i.e., the use of bigger and highlighted fonts for emphasizing project objectives and drawing crowds to read and use the system. Moreover, a system should present clear content, easy for searching. When users search for a

keyword, not only keywords should be displayed, but also other similar or related words.

7) Good infrastructure means facilities for reaching quality, rapid, and trustworthy communication. The initiation of all in a crowdsourcing project can be operated on platforms, available on computerized devices, tablets, and mobile phones. Importantly, crowds must be able to access the platforms and devices that are sufficient, trustworthy, and economical to induce crowds' participation easily.

8) Community awareness or advertising. Initiators necessarily have to create crowds' awareness or acknowledgment of the existence of crowdsourcing platforms in a project or activity. The best creation of awareness is by advertising on high-impact websites or by sending emails to communities to notify recent or current news or activities.

Sharma (2010) studied "Crowdsourcing Critical Success Factor Model: Strategies to Harness the Collective Intelligence of the Crowd" by developing key success factors of crowdsourcing. In the constructed model, motive alignment of the crowd is the central factor for crowdsourcing while vision and strategy, human capital, infrastructure, linkage and trust, and external environment are peripheral factors.

Motive alignment of the crowd is the boundary or scope in which the crowd can participate in crowdsourcing long-term objectives through stimulation towards wider collaboration. In this model, an expectation of the operation outcome, an expectation of the effort, social influence, and operational supporting conditions are direct indicators of the acceptance of crowdsourcing technology use. Besides, it indicates that peripheral factors affect specific indicators of motive alignment of the crowd, as illustrated in Table 2.2.

Table 2.2 Illustrates the Relationship of Indicators of Motive Alignment of the Crowd

	The Expectation of Operation Outcome	**Expectations of the Effort**	**Social Influence**	**Operational Supporting Conditions**
Vision & Strategy	✓		✓	
Human Capital	✓	✓		
Linkage and Trust	✓		✓	
Infrastructure		✓		✓
External Environment		✓	✓	✓

Source: Sharma (2010, p. 15).

In short, all five peripheral factors affect one or more than one indicator; for example, human capital affects the expectation of operation outcome and expectation of the effort. Likewise, other peripheral factors can also affect other indicators. Accordingly, peripheral factors affect the motive alignment of the crowd towards crowdsourcing project initiation differently.

2.6.4 Studies Related to Participatory Communication and Public Space

Jantana Suttijaree and Worrapong Trakarnsirimont (2020) studied, "Public Space on Social Media and the Citizenship Role: The Case Study of Korrum Subdistrict, Uttaradit Province, and found that the participatory process of Korrum citizens was conducted via public space by using social media as a tool in accessing the local participatory process, which composes of six participatory levels:

1) The level of informing. Korrum Sub-district Administrative Organization (SAO) provided information about the operation of development activities or projects, specified in the central plans and policies. Citizens had a right only to perceive and access information, but could not participate in making decisions in activity or policy operation.

2) The level of people's information provision. Citizens could express their opinions on the Korrum SAO's policy and activity operation via three channels: websites, Facebook, and LINE.

3) The level of consultation was the level in which two-way communication between policy-makers or project operators and citizens who were stakeholders was allowed to create an understanding of citizens' problems and needs so that they could use it as public alternatives before the actual operation or implementation of such policies. At this level, citizens had a right to express their opinions appropriately.

4) The level of collaboration establishment and involvement in planning is the level where citizens were allowed to participate in the operation from the beginning. Korrum citizens exchanged their opinions among the government agencies and Korrum citizens officially. However, despite citizens' participation, at this level, the authority in making decisions was in the hand of the government sector.

5) The level of partnership. Korrum SAO and citizens collaboratively prepared and operated policies or projects by establishing a civic working group to accomplish imposed objectives and goals.

6) Citizen control. Citizens could initiate policies, planning, and activity operation from the beginning, but were promoted and supported by Korrum SAO (the government sector).

From Korrum SAO's support of social media utilization in operating the agency's activities, starting from providing information via platforms, using them as communication channels and as a channel for hearing citizens' opinions on any activity operation that might affect people in the area. Accordingly, Korrum SAO could acknowledge citizens' problems and needs since citizens had their communication channels and could voice to the government sector to respond to their needs and solve problems rapidly and effectively. It bettered their quality of life and promoted them to be citizens who could understand communities' and social problems, tried to solve them, and could help solve problems with local people in communities, including knowing the rights they should have well.

Pajaree Puangsri (2012) studied, “Communication and Construction of the Public Sphere for Marginalized People in the Thai PBS Programme, “Citizen Reporter,” and found that the opening of a public sphere in the Citizen Reporter Program of Thai PBS TV Station is a great challenge since it turns the role of marginal men from powerless people and the disadvantaged in society as only receivers to senders on the television space, which is the territory of powerful and middle-class people in society. Thus, the findings reflect that the Citizen Reporter Program is the public sphere of various groups of marginal people who can participate in the communication. However, behind the scene of using such a space for fighting against other powerful groups in society, there is also a negotiating struggle between these marginal people and the Thai PBS TV Station, starting from the struggle of ideas on public issues and communication codes so that the marginal can enter this public sphere as intended. On the other hand, the program can also maintain its required televised communication pattern.

Torsangrasmee Teetakaew (2010) studied, “The Role of Thai Public Broadcasting Services to Make Political Public Sphere through Public Forum and Citizen Journalist Program,” and found that the Public Forum and Citizen Journalist Program is a part of TPBS in creating a political public sphere by opening an opportunity for grassroots or people at a low level to voice out their trouble through its media. It was further found that their continuously-presented issues affected policy decisions of the government sector. Citizen journalists had a chance to work with the Thai PBS TV station. At the initial stage, most citizens were NGOs and the network of local administration that had worked with Nattaya Waewweerakup, the news editor, and Somkiat Chantarasima, the citizen news chief editor before. After broadcasting, more people in other areas were interested in participating in being trained for presenting their news. However, such a public space has not been a complete political public sphere yet due to limitations of several factors, such as broadcasting time, the selection of issues to be presented in the program, and collaboration with other related agencies.

CHAPTER 3

RESEARCH METHODOLOGY

The study, "The Process and Users' Participation in News Reporting on Thai Crowdsourcing Platforms," is mixed-method research, conducted by qualitative research through documentary analysis and in-depth interviews and quantitative research by survey questionnaires, aimed to study 1) to explore a process of news reporting on the crowdsourcing platforms of the studied organizations, 2) to examine factors affecting users' participation in news reporting on Thai crowdsourcing platforms, and 3) to develop a structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms. The detailed research methodology is as follows:

3.1 Types of Research

3.2 Documentary Analysis

3.3 In-Depth Interview

3.4 Survey Research

3.5 Information Presentation

3.1 Types of Research

3.1.1 Stage 1: Qualitative Research

Documentary analysis was conducted from both documentary and online information sources, in combination with a literature review of concepts, theories, and related studies to formulate questions of a semi-structured interview guide for in-depth interviews with crowdsourcers or process/ content managers to examine a news reporting process on the crowdsourcing platforms of the Bureau of Networking and Public Participation, Thai Public Broadcasting Service or Thai PBS, which developed the C-Site Platform, and Southern Cities Climate Change Resilience Networks Foundation (SCCCRN), which developed Hatyai City Climate Platform based on a

crowdsourcing process comprising input, process, and output to answer the research question and research objective No. 1. The study of this part is expected to understand sub-components in each process, working sequences, and the relationships between the process and consequences.

Then, groups of experts or scholars in digital journalism, users, and crowdsourcers were in-depth interviewed on the factors affecting users' participation in news reporting on crowdsourcing platforms in the context of Thai society to answer the research question and research objective No. 2, to find related facts or "variables" affecting users' participation in news reporting on crowdsourcing platforms in the Thai society context from the perspectives of users in the process who have the knowledge, experience, and expertise, including their experience in participation in news reporting on an organization's crowdsourcing platforms. All the studied variables will be extracted from the research questions directly and synthesized with concepts, theories, and related studies. There are three groups of variables: independent, dependent, and mediating variables, including a series of variables to formulate questionnaire questions for further collecting data in the quantitative research.

3.1.2 Stage 2: Quantitative research

Survey research was conducted based on the findings obtained from the qualitative research, namely factors affecting users' participation on Thai crowdsourcing platforms, in combination with the information reviewed from concepts, theories, and related studies, that formulate questions in the survey questionnaire. The samples of the quantitative research were members of the C-Site and Hatyai City Climate platforms who expressed their opinions on an online questionnaire to find out which factors are related to users' participation in news reporting on Thai crowdsourcing platforms.

After the completion of Stage 1 (Qualitative research) and 2 (Quantitative research), the findings were applied to develop a structural equation model of factors affecting users' participation on Thai crowdsourcing platforms based on the Structural Equation Modeling (SEM) for validating the congruence of the developed model with the empirical data. Furthermore, to ensure that the developed model can be used for

measuring participatory behaviors in news reporting on crowdsourcing platforms of the target users effectively, which can lead to the design of the creation of participation in the Thai crowdsourcing process in the future

3.2 Documentary Analysis

Qualitative research by documentary analysis aims to create an understanding of the background or history of crowdsourcing platform development in the context of news reporting, its organizational structure, policies, and operational approaches of the Bureau of Networking and Public Participation, Thai Public Broadcasting Service who developed the C-Site Platform and Southern Cities Climate Change Resilience Networks Foundation (SCCCRN), which developed Hatyai City Climate Platform. The information sources are as follows:

3.2.1 Documentary Sources

1) Documents of the Bureau of Networking and Public Participation that are content about organizational information, background or history, organizational structure, documentation, and related handbooks, such as the 2016-2020 Annual Performance Report, Thai Public Broadcasting Service Act, B.E. 2551 (2008), guidelines, and the C-Site Platform user manual.

2) Documents of the Southern Cities Climate Change Resilience Networks Foundation (SCCCRN) that are content about organizational information, background or history, organizational structure, documentation, and related handbooks, such as strategies for coping with the climate change of Hat Yai District, Songkhla Province, Hat Yai Coping with Floods, lessons learned from the use of community base for handling floods in the urban areas, guidelines and the Hatyai City Climate Platform user manual.

3.2.2 Online Information Sources

1) Web applications and mobile applications, which are principal platforms of the Bureau of Networking and Public Participation and Southern Cities

Climate Change Resilience Networks Foundation (SCCCRN). Two main parts of the information were analyzed:

(1) Information appearing on the web applications and mobile applications from April to June 2021, by analyzing appearing content, its design, and information grouping or categorization.

(2) Spaces for news reporting and opinion expression on the web applications and mobile applications related to news reporting, map pinning, hashtags, and interactions appearing on the opinion-expression spaces, discussion boards, or online forums, and like and share pressing, during April-June 2021.

2) Facebook page of the Bureau of Networking and Public Participation and Southern Cities Climate Change Resilience Networks Foundation (SCCCRN), by analyzing information appearing on the Facebook page and the interaction between crowdsourcers and users, or among users, i.e., opinion expression, like and share pressing, during April-June 2021.

The findings from this part led to the formulation of questions for an in-depth interview to answer the research objective No. 1, namely, a process of news reporting on the organizational crowdsourcing platforms, and the research objective No. 2, namely, organizational factors affecting users' participation in news reporting on Thai crowdsourcing platforms.

3.3 In-depth Interview

3.3.1 Population and Samples

Qualitative research by in-depth interviews with key informants aims to study the process of news reporting on the organizational crowdsourcing platforms and factors affecting users' participation in news reporting on Thai crowdsourcing platforms. The population is classified, based on research objectives, as follows:

1) Research objective No. 1, namely to examine a news reporting process on the organizational crowdsourcing platforms, collected data through in-depth interviews to analyze a news reporting process on the crowdsourcing platforms of the Bureau of Networking and Public Participation, Thai PBS, who developed the C-Site Platform, and Southern Cities Climate Change Resilience Networks

Foundation (SCCCRN), who developed the Hatyai City Climate Platform. Key informants or interviewees were crowdsourcers, who played a role in the stage of input, process, and output.

2) Research objective No. 2, namely to explore factors affecting users' participation in news reporting on Thai crowdsourcing platforms collected data by in-depth interviews with three main groups of key informants or interviewees: 1) Crowdsourcers, 2) experts or scholars in the field of digital journalism, and users who were members and used to participate in news reporting on either the C-Site or Hatyai City Climate Platforms, who have knowledge, expertise, or experiences in news reporting on Thai crowdsourcing platforms.

3.3.2 Sampling

The sampling was conducted by non-probability and purposive sampling, based on the samples' needed characteristics or qualifications per research objectives, including snowball sampling for the key informants who were experts or scholars in digital journalism, with details as follows:

1) The group of crowdsourcers of the Bureau of Networking and Public Participation, Thai PBS, that developed the C-Site Platform and Southern Cities Climate Change Resilience Networks Foundation (SCCCRN), that developed the Hatyai City Climate Platform. Seven crowdsourcers who had experience in crowdsourcing platform management, during this study, for no less than 3 years. The following aliases and codes were used:

Table 3.1 The Determination of Codes of Key Informants in the Crowdsourcer Group

Code	Platform/Province	Experience (Years)
Crowdsourcer 1	C-Site Headquarters: Bangkok	3
Crowdsourcer 2	C-Site Hat Yai News Center	3
Crowdsourcer 3	C-Site Hat Yai News Center	3
Crowdsourcer 4	C-Site Chiang Mai News Center	4
Crowdsourcer 5	C-Site Khon Kaen News Center	4

Code	Platform/Province	Experience (Years)
Crowdsourcer 6	Hatyai City Climate, Songkhla	11
Crowdsourcer 7	Hatyai City Climate, Songkhla	10

2) The group of five experts or scholars with knowledge, expertise, experience, or academic performance on digital journalism, i.e., crowdsourcing, citizen journalism, participatory journalism, open journalism, open innovation, or data journalism, for no less than 3 years. The following aliases and codes were used:

Table 3.2 The Determination of Codes of Key Informants in the Group of Experts/Scholars in Digital Journalism

Code	Position/Workplace	Experience (Years)
Scholar 1	Regular instructor, state autonomous university	5
Scholar 2	Regular instructor, private university	12
Scholar 3	Regular instructor, state autonomous university	10
Scholar 4	Regular instructor, private university	13
Scholar 5	Regular instructor, state autonomous university	13

3) The group of nine users who applied to be the C-Site or Hatyai City Climate Platform members and used to participate in news reporting as senders/ news co-creators, platform planners, or policymakers, for no less than 3 years. The following aliases and codes were used:

Table 3.3 The Determination of Codes of Key Informants in the group of Users Who Participated in News Reporting on Crowdsourcing Platforms

Code	Platform Members	Occupation/ Living District and Province	Experience (Years)
User 1	C-Site	Occupation: Private developer Residence: Muang District, Songkhla	3
User 2	C-Site	Occupation: Government officials Residence: Muang District, Ayutthaya	3
User 3	C-Site	Occupation: Independent communicator and agriculturist Residence: Khun Han District, Sisaket	4
User 4	C-Site	Occupation: Student-teacher Residence: Wang Sa District, Nan	3
User 5	Hatyai City Climate	Occupation: Government employees Residence: Sadao District, Songkhla	11
User 6	Hatyai City Climate	Occupation: Commerce Residence: Hat Yai District, Songkhla	11
User 7	Hatyai City Climate	Occupation: Retiree Residence: Hat Yai District, Songkhla	11
User 8	Hatyai City Climate	Occupation: Regular teacher Residence: Hat Yai District, Songkhla	10
User 9	C-Site Hatyai City Climate	Occupation: Community leader Residence: Bang Klam District, Songkhla	3 10

3.3.3 Research Tools

Qualitative research collected data through in-depth interviews with key informants by purposive sampling, based on the needed qualifications that respond to the research objectives, and by snowball sampling. A semi-structured interview form or guide, developed from the review of literature of concepts, theories, and related studies, was used for data collection. The interview questions were classified by key informant groups, as follows:

3.3.3.1 The Group of Crowdsourcers:

1) Why did your organization develop a crowdsourcing platform for news reporting?

2) What is the news reporting process on the crowdsourcing platform of your organization?

3) In your opinion, which factors or reasons induce users to participate in news reporting on your crowdsourcing platform?

4) In your opinion, what are the methods that help to promote users' participation in news reporting on your crowdsourcing platform?

3.3.3.2 The group of experts or scholars in digital journalism

1) What do you think about the development of Thai crowdsourcing platforms for news reporting?

2) In your opinion, what are the factors or reasons that induce users to participate in news reporting on Thai crowdsourcing platforms?

3) What do you think about the creation of users' participation in news reporting on organizational platforms nowadays?

4) In your opinion, what are the methods that help to promote users' participation in news reporting on your crowdsourcing platform?

3.3.3.3 The group of nine users who applied to be the C-Site or Hatyai City Climate Platform

1) What do you think about the development of Thai crowdsourcing platforms for news reporting?

2) Why did you participate in news reporting on Thai crowdsourcing platforms?

3) What do you think about the creation of users' participation in news reporting on organizational platforms nowadays?

4) In your opinion, what are the methods that help to promote users' participation in news reporting on your crowdsourcing platform?

3.3.4 The Validation of the Tool

After a literature review of concepts, theories, and related studies for constructing questions, those questions in a semi-structured interview form or guide were analyzed for their content validity by having the thesis advisor examine and validate the correctness, completeness, clarity, and appropriateness of the questions and language used, before applying them for in-depth interviewing with the qualified key informants. Before interviewing, the language used in the questions was adjusted for proper communication with each group of the key informants.

3.3.5 Data Analysis

A research framework and criteria for data analysis, obtained from the literature review, were determined, as follows (Kanjana Kaewthep, 2017, pp. 70-111)

1) Objective No. 1: To examine a news reporting process on organizational crowdsourcing platforms.

(1) Grouping: Data were grouped by using the criterion of social sectors (Theerapat Ungsuchaval, 2015, p. 47) into two groups by types of the organizations that developed the studied crowdsourcing platforms, namely the C-Site Platform as the public sector (of a government agency) and the Hatyai City Climate Platform as the civic sector (of the civil society).

(2) Procedure analysis: The crowdsourcing procedure was analyzed by the concept of a crowdsourcing process adapted from Ghezzi et al. (2018) and Karlsson and Martinsson (2014), which divides the procedure into 3 steps: Input, process, and output.

(3) Comparison. Commonalities and differences in news reporting procedures on crowdsourcing platforms and a news reporting procedure of traditional mass media organizations, including a journalist procedure through social media were compared.

2) Objective No. 2: To explore factors affecting users' participation in news reporting on Thai crowdsourcing platforms

(1) Grouping of data by dividing data into the following factors: personal motivation, perceived usefulness, perceived ease of use, and the interactions between crowdsourcers and users, including organizational factors.

(2) Comparison by comparing commonalities and differences of the said factors and using them to be questioned in the quantitative research by survey questionnaires.

3.4 Survey Research

3.4.1 Population and Samples

The population of the study was 13,098 users who applied to be members of the C-Site Platform and 2,124 users of the Hatyai City Climate Platform, a total of 15,222 users (information as of April 20, 2021).

For the consideration of a proper sample size for the study, the criteria for determining sample size for structural equation modeling of Bentler and Chou (1987, p. 91) were applied, which proposes that sample size can be reduced by 5:1, which is the proportion between sample units and observed or manifest variables. For this study, there are 19 observed or manifest variables: 1) Intrinsic motivation, 2) extrinsic motivation, 3) perceived task usefulness, 4) perceived usefulness for a community or society, 5) perceived ease of use, 6) perceived application methods, 7) interaction and opinion expression, 8) activity participation, 9) working participation, 10) clear goals of an organization, 11) organizational credibility, 12) organizational transparency, 13) intention to press shares, likes, and comments, 14) intention in news reporting, 15) persuasion and word-of-mouth, 16) news reading, 17 a) share, like, and comment pressing, 18) news reporting, and 19) issue development and news co-creation with an organization. Typically, a proper and sufficient sample size should be at least 5 times x 19 manifest variables = 95 samples, which is found to be the smallest sample size that can be used for analyzing by the structural equation technique. Besides, Ding, Velicer, and Harlow (1995, p. 126) and Schumacker and Lomax (2010, p. 42) propose that the acceptable sample size should be at least over 100 samples. Thus, the samples

of this study were 100 samples, which was sufficient and higher than the sample size at the lowest acceptable level.

3.4.2 Sampling

Non-probability and purposive sampling was conducted with the crowds who applied to be members of the C-Site and the Hatyai City Climate Platforms, followed by a quota sampling based on the proportion of the number of populations in each platform, namely 70 samples of the C-Site and 30 of the Hatyai City Climate Platform, a total of 100 samples.

3.4.3 Research Variables

The development of a structural equation model is to explain the linear causal relationship between causal variables or exogenous variables, which are independent, and endogenous variables, which can be both mediating variables and dependent variables (Kanlaya Vanichbuncha, 2021, p. 5). Thus, the variables for this study, which were synthesized from a literature review and in-depth interviews with key informants, are as follows:

1) Exogenous variables: 5 variables, namely Personal motivation, perceived usefulness, perceived ease of use, the interaction between crowdsourcers and users, and organizational variables (Independent variables)

2) Endogenous variables: 2 variables, namely users' intention to participate in news reporting on Thai crowdsourcing platforms (Mediating variable) and users' participation in news reporting on Thai crowdsourcing platforms (Dependent variables)

3.4.4 Research Tools

After the completion of data collection from in-depth interviews on the issue of "factors affecting users' participation in news reporting on Thai crowdsourcing platforms," with key informants, the findings were applied to construct questions in the questionnaire for analyzing factors affecting users' participation in news reporting on Thai crowdsourcing platforms, and some questions were added from the literature

review of concepts, theories, and related studies. The questions in the questionnaire are closed-ended questions, which are divided into 3 parts, as follows:

Part 1 Questions specifically for the crowds applying to be the members of the C-Site or Hatyai City Climate Platforms.

Part 2 Questions on the respondents' demographic attributes, i.e., sex, age, the highest education level, occupation, the current residence, the length of platform membership, types of the system use and frequency, and social media users. The questions are checklist questions and 8 open-ended questions.

Part 3 Questions on factors affecting users' participation in news reporting on Thai crowdsourcing platforms, i.e., personal motivation, perceived usefulness, perceived ease of use, the interaction between crowdsourcers and users, organizational factors, and intention to participate. The questions are 5-level rating scales, from the highest to the lowest level, based on the Likert Scales, as follows:

The rating scales are as follows:

5 Means Highly Agree

4 Means Agree

3 Means Uncertain

2 Means Disagree

1 Means Highly Disagree

Regarding the part of questions on users' intention to participate in news reporting on Thai crowdsourcing platforms, the total scores of means are divided into different levels of the intention with equal interval classification

by the following formula:

$$\text{Width of an interval} = \frac{\text{The Highest Score} - \text{The Lowest Score}}{\text{The Number of Levels}}$$

$$= \frac{5 - 1}{3} = 1.33$$

Mean 2.67-5.00 Means users have a high level of intention to participate in news reporting on Thai crowdsourcing platforms

Mean 2.34-3.66 Means users have a moderate level of intention to participate in news reporting on Thai crowdsourcing platforms

Mean 1.00-2.33 Means users have a low level of intention to participate in news reporting on Thai crowdsourcing platforms

Part 4 Questions on Users' participation in news reporting on Thai crowdsourcing platforms, which are Likert's 5-level rating scales from the highest to the lowest, as follows:

5 Means Participation in News Reporting at the Highest Level
4 Means Participation in News Reporting at a High Level
3 Means Participation in News Reporting at a Moderate Level
2 Means Participation in News Reporting at a Low Level
1 Means Participation in News Reporting at the Lowest Level

The total means of users' participation in news reporting on Thai crowdsourcing platforms are divided into different levels of the intention with equal interval classification by the following formula:

$$\text{Width of an interval} = \frac{\text{The Highest Score} - \text{The Lowest Score}}{\text{The Number of Levels}}$$

$$= \frac{5 - 1}{3} = 1.33$$

Mean 2.67-5.00 Means users have a High Level of Participation in News Reporting on Thai Crowdsourcing Platforms

Mean 2.34-3.66 Means users have a Moderate Level of Participation in News Reporting on Thai Crowdsourcing Platforms

Mean 1.00-2.33 Means users have a Low Level of Participation in News Reporting on Thai Crowdsourcing Platforms

3.4.5 The Validation of The Research Tools

The research tool, namely a questionnaire used in this study, was tested for its validity and reliability by the following: (Patchanee Cheyjunya, 2015, pp. 155-158).

1) Validity test. A questionnaire was constructed from in-depth interviews with key informants, in combination with the reviewed concepts, theories, and related studies, to test its congruence with the objective and content needed to measure (Content validity) by three experts based on the IOC (Index of Item

Objective Congruence) whose value must pass the determined criterion, or over .50. Questions then were revised as recommended by the experts to make them more complete and clearer.

2) Reliability test. The revised questions, particularly those in the form of rating scales in Part 3-4, were tested for their reliability by Cronbach's Alpha Coefficient to find the congruence of questions in the questionnaire (Patchanee Cheyjunya, 2015, p. 166), with a crowd of 30 members of the C-Site or the Hatyai City Climate Platform and were not actual samples of the study, but with similar characteristics to the actual samples. Such a sample size is appropriate and sufficient for a statistical test. The level of reliability falls between 0-1. The coefficient of 0 means no reliability whereas 1 means 100% or perfect reliability without any variance. However, practically, it is difficult to have any measurement tool with 100% reliability. Thus, the reliability of 0.7 (49%) or higher is acceptable and reliable. (Chalisa Makphanthong, 2016, p. 143; Parichart Stapitanonda, 2014, p. 185). The questions of this study were tested and found to have validity and be acceptable, as illustrated in Table 3.4.

Table 3.4 Cronbach's Alpha Reliability Coefficient for Likert-Type Scales

Variable	**Number of Items**	**Cronbach's Alpha**
Personal motivation	15	.939
Perceived usefulness	4	.857
Perceived ease of use	3	.845
The interaction between crowdsourcers and users	5	.874
Organizational factors	5	.944
Users' intention to participate in news reporting on Thai crowdsourcing platforms	6	.861
Users' participation in news reporting on Thai crowdsourcing platforms	7	.952

3.4.6 Data Analysis

After data collection, all data were coded, processed by SPSS (Statistical Package for Social Science), and analyzed by 3 kinds of statistical analysis:

1) Descriptive Statistics for describing demographic variables, personal motivation, perceived usefulness, perceived ease of use, the interaction between crowdsourcers and users, organizational factors, intention to participate, and users' participation in news reporting on Thai crowdsourcing platforms in the form of frequencies, percentage, mean, and standard deviation.

2) Multiple Regression Analysis for predicting the relationship between independent and dependent variables and the level of the effect.

3) Structural Equation Modeling (SEM) for examining the congruence between the developed model of users' participation in news reporting on Thai crowdsourcing platforms and the empirical data by measurement of model fit based on nine indices, as illustrated in Figure 3.5

Table 3.5 Criteria for Considering the Fit Indices of a Model with the Empirical Data

Index	Criteria	Consideration
Chi-Square ($\boldsymbol{x}^2$)	p-value > 0.05	If P is higher than 0.05, it means the model has Goodness of Fit and is congruent with the empirical data
$\boldsymbol{x}^2$ /df	< 3.00	CMIN/df must be less than 3.00. The closer to 0 the value is, the more a model is congruent with the empirical data.
The Goodness of Fit Index (GFI)	> 0.95	GFI must be higher than 0.95, the closer to 0 the value is, the more a model is congruent with the empirical data.
Adjusted Goodness Fit Index (AGFI)	> 0.95	AGFI must be higher than 0.95, the closer to 0 the value is, the more a model is congruent with the empirical

Index	Criteria	Consideration
		data.
Comparative Fit Index (CFI)	> 0.95	CFI must be higher than 0.95, the closer to 0 the value is, the more a model is congruent with the empirical data
Normal Fit Index: NFI)	> 0.95	NFI must be higher than 0.95, the closer to 0 the value is, the more a model is congruent with the empirical data
Tucker Lewis Index (TLI)	> 0.95	TLI must be higher than 0.95, the closer to 0 the value is, the more a model is congruent with the empirical data
Root Mean Squared Residual (RMSR)	< 0.05	RMSR or the mean of residual must be lower than 0.05, the closer to 0 the value is, the more a model is congruent with the empirical data
Root Mean Squared Residual Error of Approximation (RMSEA)	< 0.05	RMSEA must be lower than 0.05, the closer to 0 the value is, the less the variance is and the more a model is congruent with the empirical data

Source: Yuth Kaiwan (2013, pp. 224-227).

3.5 Data Presentation

The analyzed data was organized and the findings were presented by the determined research objectives as follows:

1) To explore a process of news reporting on the crowdsourcing platforms of the studied organizations.

2) To examine factors affecting users' participation in news reporting on Thai crowdsourcing platforms.

3) To develop a structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms.

CHAPTER 4

THE FINDINGS OF QUALITATIVE RESEARCH

The research, "The Process and Users' Participation in News Reporting on Thai Crowdsourcing Platforms," in the part of qualitative research, was conducted by documentary analysis and in-depth interviews to study the news reporting process on crowdsourcing platforms of Thai Public Broadcasting Service and Southern Cities Climate Change Resilience Networks Foundation, and factors affecting users' participation in news reporting on Thai crowdsourcing platforms. The analysis and presentation of the findings are presented in two parts, as follows:

Part 1: The process of news reporting on the organizations' crowdsourcing platforms.

1) The process of news reporting on the C-Site Platform
2) The process of news reporting on the Hatyai City Climate
3) Commonalities and differences between the C-Site and Hatyai City Climate Platform

Part 2: Factors affecting users' participation in news reporting on Thai crowdsourcing platforms

4.1 The Process of News Reporting on the Organizations' Crowdsourcing Platforms

4.1.1 The Process of News Reporting on the C-Site Platform

The C-Site Platform is operated by the Bureau of Networking and Public Participation, Thai Public Broadcasting Service, as a public sector (A government agency), which opens an opportunity for the public sector to participate in news reporting on various issues, aimed to provide a public space for people to access and utilize the service. From both in-depth interviews and documentary analysis, a news

reporting process on the C-Site Platform is found to be composed of input, process, and output factors, as illustrated in Figure 4.1.

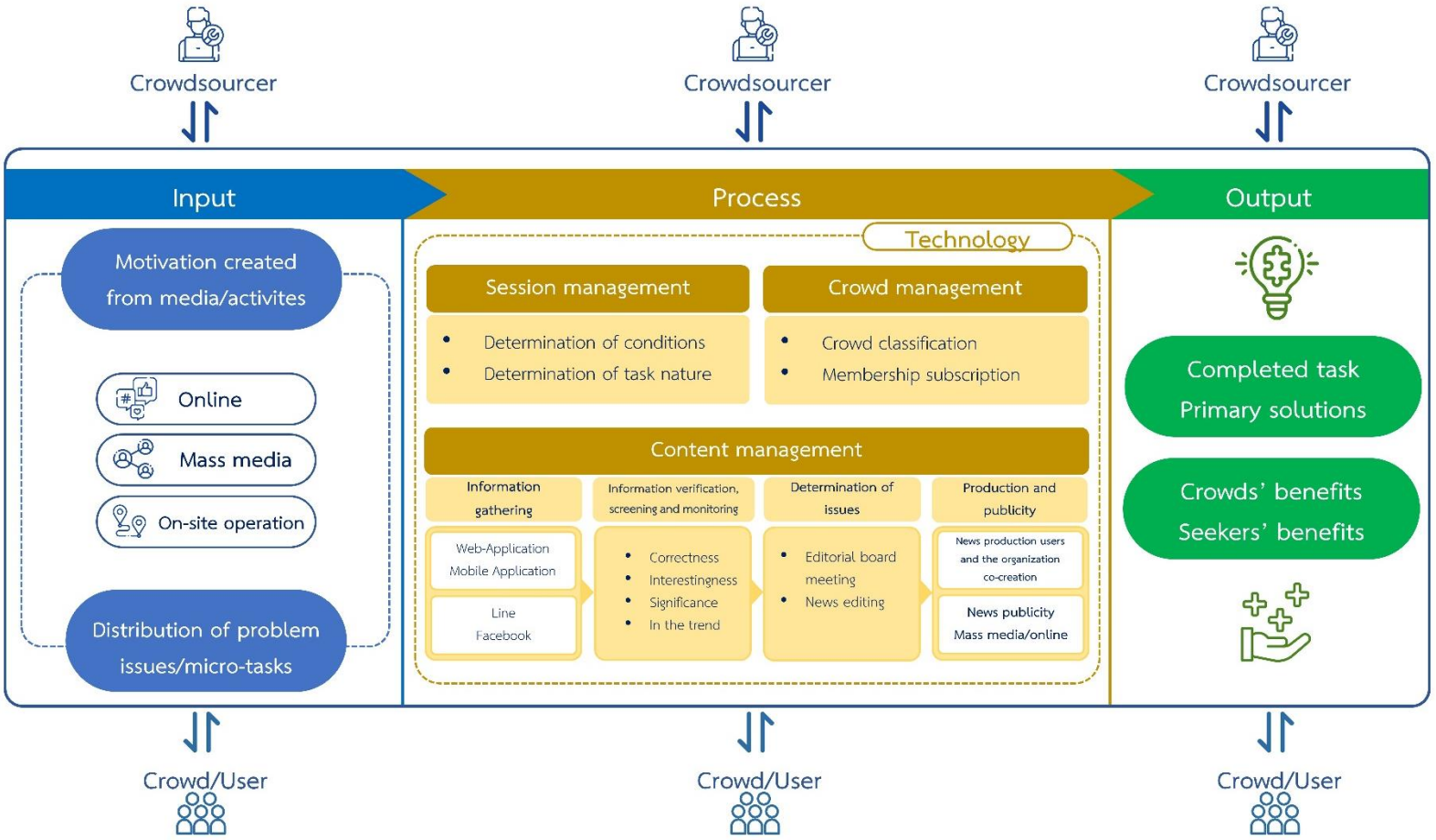

Figure 4.1 The News Reporting Process on the C-Site Platform

4.1.1.1 Input Factors

The stage of input factors is the importing of information for distributing problem issues or news pieces (or micro-tasks) in which the Bureau of Networking and Public Participation stimulates users' motivation to participate in news reporting on the C-Site Platform. From the analysis, it is found that the Bureau of Networking and Public Participation administered and followed the policies and operational framework of the public sphere or space by creating and supporting the public sphere as planned (Matana Charoenwong, 2019, p. 133) for three kinds: Virtual, mass media, and physical public sphere, as follows:

1) Online Media: It is the use of the public sphere via online media. The Bureau of Networking and Public Participation applies the term, "online," to cover web applications, mobile applications, and social media as public relations as channels for publicizing the C-Site Platform, its activities, and campaigns, including users' news workpieces, and for being an interaction channel. Accordingly, it is expected to induce participation in news reporting, discussion, and brainstorming, which may lead to solutions introduced in the civic sector. Types of media used are banners, infographics, animation, video clips, and CL Clip (Commentary less video). The examples are "Songkran Festival campaign" (Songkran Fuen Foo Jai), "Civilians keep an eye on the local election" (Local election), and "on the Teacher's Day of this year, it is expected to see teachers' spirit (Teacher day), citizens are aware, communities are ready to fight with COVID (COVID-19 Crisis), etc.

> "What the Bureau has tried to do consistently is to organize a campaign in different periods… for persuading people to participate on our space. A campaign is a part of attracting new generations." (Crowdsourcer No. 3, personal communication, April 8, 2021)

Still, some campaigns are area-specific since people in each area have different social agendas and needs. For instance, a campaign after a fire accident at a plastic factory invited Bangkokians and people nearly to collect rainwater samples (2021), the report of tropical storm Pabuk situations (2019), etc. Besides, a Facebook Fan Page for citizen reporters from the central area, the Bureau of Networking and Public Participation also opens Facebook Fan Page at Chiang Mai,

Khon Kaen, and Hat Yai news centers as a public space for driving local issues to the public for reflecting their situations and searching for a proper development direction responding to people's needs by connecting their work with the civil society in the northern, northeastern, and southern parts for collaborative content production and communication activities creation, as follows:

(1) The North Degree Page. It is the page of northern people's communication operation to connect with the borderless world as their presentation space for seeking local solutions, and proper directions and resolutions needed by people in the area to bring about more diverse perspectives and a database collected by local people.

(2) Youdeemeehang Page: It is the page narrating stories of northern people for northern people to expand their perspectives towards universality. It is the space based on the social situation in the northeastern region, narrated or communicated by northeastern people. The main purpose is to reflect the origin, background, future, and new definition of northern people to receivers "to know, understand, and value their hometown."

(3) LaetaLaetai Page: It is the southern people's communication space to acquire, "knowledge, a sense of cherishment, and protection." It is the space for presenting stories and background of the South, and persuading southern people to perceive, know, and have a nostalgia, while being able to connect with the glocalization to inspire and transfer the body of knowledge to people of the next generation.

> "Actively, online media will be used for public relations and campaigns and give an opportunity for citizen reporters." (Crowdsourcer No. 4, personal communication, April 26, 2021)

Figure 4.2 Logo Facebook Fan Page

Source: Citizen Reporters' Page: The North Degrees, Youdeemeehang, and LaetaLaetai

Interestingly, the Bureau of Networking and Public Participation has organized an online big database for data storage by the database management system called, "NexusDB," which is like a data lake, aimed to be able to apply the storage data for analyzing each area campaign to find insightful ways for solving problems, as each area requires different specific models, especially, long-term campaigns.

> "We do not view the C-Site Platform as a narration platform. Rather, it is the creation of primary data for people, especially for our work. The C-Site Platform is information presentation at a primary level, which will be useful. If a lot of data are collected, it provides a chance to apply them for further communication. Personally, it is a very useful tool." (User No. 2, personal communication, May 27, 2021)

To illustrate this, campaigns of Hat Yai News Center in collaboration with LaetaLaetai Page and Beach for Life Networks mobilized people to pin the location for surveying a proper seawall or revetment against coastal erosion, and report the effects caused by such seawalls or revetments. All received information (texts, still pictures, motion pictures, video clips, etc.) was recorded in the form of geocoding, which displayed results on a map. All through 10 months since the beginning of the campaigns, several pins were found on a map and displayed the overall image of the seawalls all over the beaches in Thailand, which led to the forum, "The Presentation of Coastal Erosion Situations and Related Policy Problems."

Consequently, solutions for solving coastal erosion at a policy level were sought to respond to people's needs and suit each area's context. The participants were the Department of Marine and Coastal Resources, Marine Department, and the House of Representatives on December 8, 2020, at the Prince of Songkla University. (LaetaLaeTai, 2020).

Another example is a campaign for the Mekhong River, a collaborative project among Khon Kaen News Center, Youdeemeehang Page, Isaan People's Network in the Mekhong, etc, which invited people to pin a report on the Mekhong River situation. All information will be displayed in a yearly database, i.e., the locations of all dams along the river, and water level monitoring stations in Thailand. The data during the past three years (2018-2020) indicate a rapid change in the Mekhong River and its effect on the environment, communities' ways of life, and plant and aquatic animal varieties. Accordingly, a forum entitled, "The Mekhong River will not be the same, the Hometown Offspring Can Tell," was organized for solving the Mekhong River at the Government House and the Ministry of Agriculture and Cooperatives on March 11, 2021. (The Citizen Plus, 2021)

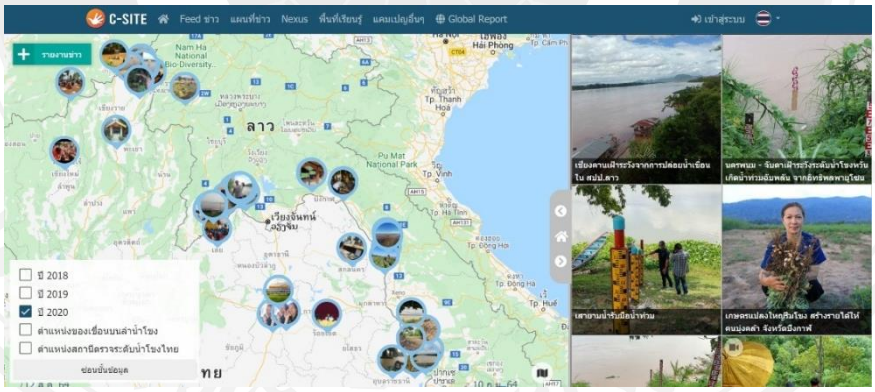

Figure 4.3 Data Display of the Mekhong River Campaign
Source: C-Site (2021).

The other case study is the campaign for surveying and analyzing the quality of Yang Na (in Thai and Dipterocarpus alatus in English) along the Chiang Mai-Lampoon Road, operated by Chiang Mai news center; the North Degree Page; Yang Na Protection Volunteers Networks; Green, Beauty, and

Fragrance Network, etc. The campaign has volunteers trained to be able to analyze plants and to pin the locations of Yang Na, before specifying detailed information about each tree, i.e., the number of a tree, illness symptoms, etc. The health of each tree is examined and the display of each result will be classified by color levels. If a map pin shows “green color,” it means “a perfect condition” of a tree, “orange” means “the state of illness”, and “red” means “needed urgent rehabilitation.” Furthermore, the length of time for continued improvement is specified. New pinning will be done to observe the development of each Yang Na tree in due time. This kind of creative conservation will facilitate local or domestic economy while improving the quality of life of people in communities. (Yangna.org, 2020, online) Besides, it is a prototype for the future use to follow up and monitor other kinds of trees, similarly to the campaign of surveying valuable trees in Songkhla province and big trees in Chiang Mai, as illustrated in Figure 4.4.

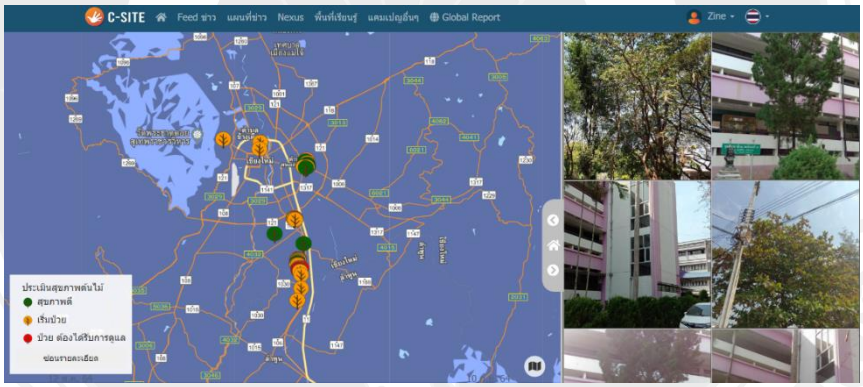

Figure 4.4 Data Display of “A Survey of Big Trees in Chiang Mai” Campaign
Source: C-Site (2021).

These campaigns facilitate communication and opinion exchanges leading to problem-solving or increasing an understanding of the problems and spatial-dimension issues increasingly. Besides, they also reflect that the Bureau of Networking and Public Participation intends to utilize and extend the collected data for the utmost benefits, not only to gather information or pieces of news only. Nevertheless, large-sized online information collection for analyzing insightfully problems has not appeared frequently.

> “The question is what we will do after the receipt of huge amount of information. What are concrete effects caused by these big data? Or in terms of issues, what kind of structure, we should have for managing resources, such as water or water streams? We have not seen this kind of information yet. Sometimes, people revealed such information so Thai PBS brought it to communication and contacted the concerned government agency to talk about it. I perceive that Thai PBS should apply its analyzed data since the received information starts to be plenty. It may help to tell that at an overall level, what has happened in Thai society.” (User No. 1, personal communication, April 9, 2021)

Additionally, the Bureau of Networking and Public Participation also developed the C-Site Automated Video for facilitating users’ usage via their mobile phones, both iOS, and Android operation systems. Besides, users can tell their stories through video clips more easily by preparing an instant template that accords with the nature of tasks or news pieces as wished by the Bureau, i.e., still pictures, video clips, and CL clips. It can make news presentation patterns to be standardized or have the same standard, as illustrated in Figure 4.5.

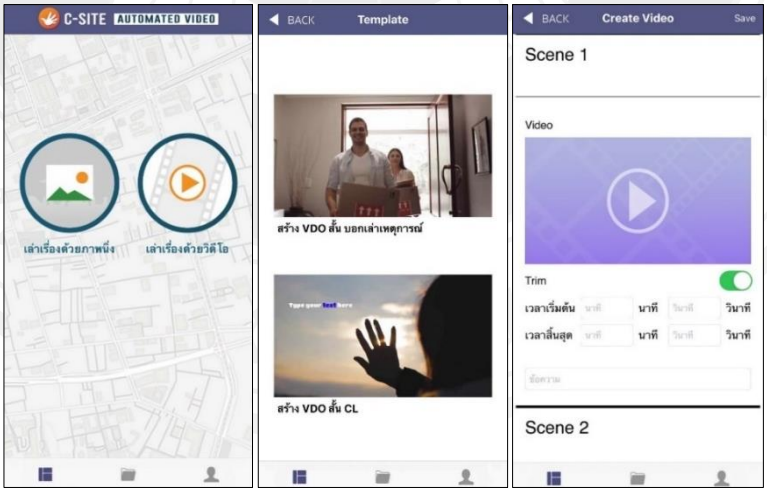

Figure 4.5 The Mobile Application of the C-Site Automated Video

Source: The C-Site Mobile Application

Furthermore, the Bureau of Networking and Public Participation developed a platform that can carry used in five languages: Thai, English, Lao, Cambodian, and Burmese. Accordingly, it does not only expand the target crowds but also a communication channel for foreign laborers as well, as illustrated in Figure 4.6.

Figure 4.6 The Samples of Languages Used in the C-Site Platform

2) Mass Media. Mass media is the use of public space through mass media, which is called by the Bureau of Networking and Public Participation “On air,” which means television programs broadcasted by Thai PBS Station, as a communication channel for publicizing the C-Site Platform, activities, and campaigns, including users’ news dissemination. From the study, TV programs can be divided into 3 major groups, as follows:

(1) A group of news programs presenting news content or news from users’ pinning on the C-Site Platform for co-news reporting, which is mostly publicized during the daily news time: morning, noon, and night. Despite no additional content, the content presentation of this group can still reflect the social phenomena of each area with various stories and perspectives, which have never appeared in other mainstream media before. These kinds of programs, i.e., A New Day of Thai PBS, the C-Site News Coordinate, Keep Eyes on Situation, Citizen Reporters, and the C-Site Citizen Reporters.

(2) A group of co-creation content between users who used to produce news pieces or micro-tasks in the Citizen Reporters Program and developed their skills with the teamwork of the Bureau of Networking and Public Participation or news agencies in user-generated news. Besides, the team of the Bureau is a coordinator and production monitor, i.e., Thee Ni Baan Rao (Here is Our Home), Klang Muang "In the Mid of a City," Localist: A life outside the city," and "Backpack Journalists."

(3) A group of programs with users' content or issues as a clue or initiating content for making news. The team of the Bureau of Networking and Public Participation or the team of news agencies develops or extends news, including interviewing with additional news resources to obtain more well-rounded news, such as Listen to Thailand's Voice, Here Is Thai PBS, etc. News or issues will also be transmitted to Program Division, Social Agenda and Public Policy Communication Center (i.e., the Active Program) or ALTV TV Station (Or Active learning TV) Channel 4, etc.

> "News issues will be selected to be broadcasted following the theme of each news program. The Teamwork will give importance to all pins and try to make all of them broadcasted or to be on air; although, they may look trivial, but have something interesting inside." (Crowdsourcer No. 1, personal communication, March 19, 2021)
>
> "There are several different on-screen programs, but all of them require collaborative planning. Besides working within our Office, we also work with the Central Office." (Crowdsourcer No. 5, personal communication, May 29, 2021)

3) Operation in the area. It is the use of physical public space, which is called by the Bureau of Networking and Public Participation "On the ground," in the form of activity organization, i.e., a workshop, collaborative working with issue-related networks (i.e., campaigns, forums, etc.) or cooperation with alliances: government, private, and civil organizations, for communication or public relations to create knowledge, understanding, and motivation for users to participate in news reporting on the C-Site Platform

> “Training is our mission. We must do it continuously by opening new groups constantly or change our training targets inclusively. For any group of which we find its available network and potential, we will let it run the activity. Then, we continue opening new networks who are interested in our activity increasingly.” (Crowdsourcer No. 2, personal communication, April 8, 2021).

From the previous training for developing citizen reporters of the Bureau of Networking and Public Participation, it was found that the trained targets or independent producers were groups who helped to produce the Bureau’s programs, such as non-fiction documentary producers, program producers, the civil society, or the groups who owned the issues or were affected from the governmental development, including the groups of interest (i.e., ethnic groups, women, labor networks, students or the youth). The training content covers the nature of television (Audio and visual), production at different phases: pre-production, production, and post-production, including editing, and channels for publicity.

However, from the interviews with some users, the Bureau’s workshop training could not motivate users to participate in news reporting on crowdsourcing increasingly. Besides, the crowdsourcers had to monitor issues or information from social media of the general public in each area. Users expected that the said training can induce a merger of stronger network parties.

> “A training was conducted for the civic society, or namely general people and students of no less than 1,000; however, eventually what happened after the training or if there was any feedback is doubtful. It seems like they need only numbers of trainees. If considering the quality of the training, it depends on to what extent your expectation is. Actually, the C-Site Platform should have got at least 100 uploads daily. However, they seemed to rely on networks working with communities instead. It is like training for students. At the end, they will get only a part of work performance but with bad quality from the number of trained people they collected.” (User No. 3, personal communication, June 16, 2021)

4.1.1.2 Process

The process involves session, crowd, content, and technology management of proposers or initiators. From the study, the Bureau of Networking and Public Participation was found to operate the following:

1) Session management. The Bureau of Networking and Public Participation was found to manage sessions by organizing agenda, determining conditions and requirements, and specifying the nature of tasks, as follows:

(1) Determine conditions and requirements for use. The Bureau of Networking and Public Participation determines conditions and requirements for using the C-Site Platform in the part of the membership subscription, which comprises users' acceptance of conditions and requirements, users' correction of conditions and requirements, a trademark and copyright, services, and connectivity with other websites, C-Site accounts and responsibility for users' accounts, personal information protection, general service use, permission and restrictions, users' content application, users' content and practices, policies of account deactivation, laws of modern digital media copyrights/Commission of Computer-Related Offences Act, B.E. 2560, users' responsibility, liability and reimbursement, transfer of rights, enforced laws, notification, and service correspondence (based on the latest revised book as of July 17, 2018). Users can select the list of a drop-down menu to display details of the stipulated conditions and requirements.

(2) Determine task descriptions. The Bureau of Networking and Public Participation by dividing tasks into 3 parts: news reporting and map pinning, nexus, and campaigns, with the following details:

(2.1) News reporting and map pinning. In this part, users can report news in the category determined by the Bureau, i.e., lifestyles, news/events, disasters, the impact of the government development projects, appeals, shop pinning, communities against COVID, or other issues users want to communicate to the public. Typically, users can select types of posts (public, unidentified, and private); specify names of situations, details, coordinates (a news map), news categorization, and hashtags; add still pictures and video clips conveniently, and choose to save drafts or post news immediately, as illustrated in Figure 4.7.

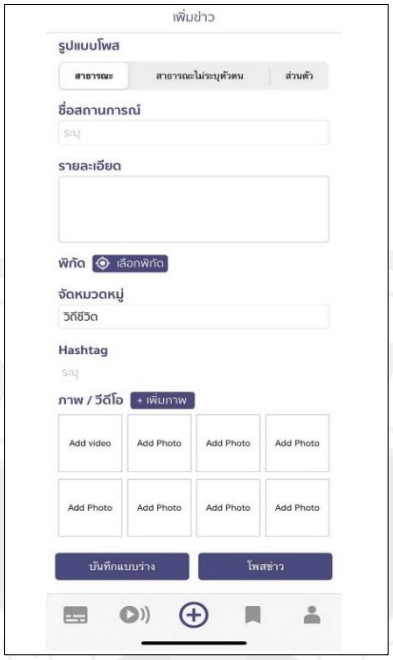

Figure 4.7 News Reporting and Map Pinning on the C-Site Mobile Application
Source: The C-Site Mobile Application (July 7, 2021).

(2.2) Nexus. Nexus is data storage by using "NexusDB" or Nexus database management system to make it a big-data online database system. The Bureau of Networking and Public Participation lets users do Nexus for surveying people's opinions on some issues, like a questionnaire. Generally, the nexus creation is collaborative working with issue-network groups, i.e., Green for Clean Air, Yang Na Protection Volunteers Networks, Beach for Life, Isaan People's Network in the Mekhong, etc., as illustrated in Figure 4.8.

Figure 4.8 Nexus

Source: C-Site (2021).

(2.3) Campaign. A campaign is news reporting of the issue determined by the Bureau of Networking and Public Participation on special occasions or important days. Users can participate in the stipulated time in the form of news reporting, map pinning, slides, and video clips inserted, which will be different in each campaign. Some campaigns may give some prizes as souvenirs. For instance, in the campaign, “A safe homing trip on Songkran,” users who report and broadcast information through the C-Site Report and online special programs, such as “A safe homing trip on Songkran,” will be rewarded, as illustrated in Figure 4.9.

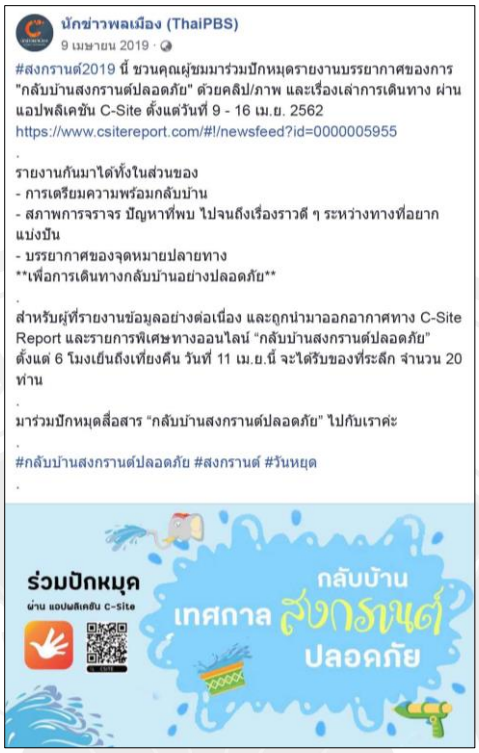

Figure 4.9 An Example of a Campaign in the Songkran Festival
Source: Citizen Reporters Facebook

Besides, in some campaigns, data are stored by the NexusDB database system. In this part, only the campaign page or both campaign and Nexus may appear. Users can know by selecting from the drop-down menu in the part of the data display of databases of different kinds of campaigns.

However, in the part of a campaign page, a list of questionnaires also appears. This part is a questionnaire for assessing users' satisfaction with the Bureau's projects or their participation in the projects; for example, the satisfaction evaluation form of participation in the citizen reporters training of the third-year students of Mahasarakham University, 2021 New Content Creator project evaluation form, the evaluation form of online north-degree producers. However, the purpose of this part of the questionnaire differs from that of the nexus part, so it might confuse users.

2) Crowd Management

(1) Crowd classification

The study indicates that the Bureau of Networking and Public Participation divides crowds into 2 groups: old and new user groups.

(2.1) A group of old users is a group of the old civic sector networks that used to coordinate with the Bureau of Networking and Public Participation, aimed to create and promote the civic networks to participate in a news process through being citizen journalists or reporters and through their participation in public communication, such as 1) groups of citizen journalists and 2) groups of civil society or issue-related networks, who are issue owners and affected by the governmental development. They can also be a group of interest, i.e., ethnic groups, Muslims, women, slum networks, labor networks, NGOs, agriculturists, etc., 3) independent producers, i.e., independent news producers, citizen's media producers, program producers, non-fiction producers, online media producers, etc., 4) the youth and students, 5) local people or people in the target communities, 6) local media, and 7) co-organizer agencies, researchers, government and private organizations.

(2.2) A group of new users is a group of new civic networks who are interested in public communication issues or want to participate in news reporting on the C-Site Platform as an individual, a civil society, issue-network groups, independent producers, local media groups, government, and private organizational groups.

Such crowd classification is important for planning strategies to create and stimulate people to participate in a public communication process on the C-Site Platform. Besides, it associates with the design and development of a tool for strengthening the potential of the civic sector properly. For example, in organizing workshop training, the Bureau of Networking and Public Participation must design time for training (one-time or continual and the number of organizing days), training methods, and activities (lecture, practice, work assignment, field visits, opinion exchanges, work presentation, work criticism, and recommendations), knowledge and skills used for training (basic training, a public- media related program, community media, citizens' media, online media, social issues or phenomena, etc.) for making new users aware of the importance of self-communication, understand clearly about the roles of citizen journalists or reporters in a community. On the other hand,

empowerment training is a program in which the target group is citizen reporters who have passed basic training and can submit their news to the Bureau of Networking and Public Participation consistently to elevate citizen journalists' ability to produce news. (Matana Charoenworng, 2019, p. 123).

(2) Requirement of membership subscription

The Bureau of Networking and Public Participation determines a membership application system on the C-Site Platform through the following steps: 1) users can apply for their membership in two ways: application through email or mobile phone numbers, 2) users specify their first and family names used for result display, 3) users choose or skip to connect to a personal Facebook account and 4) users can confirm their membership application on a mobile phone or through email, as illustrated in 4.10.

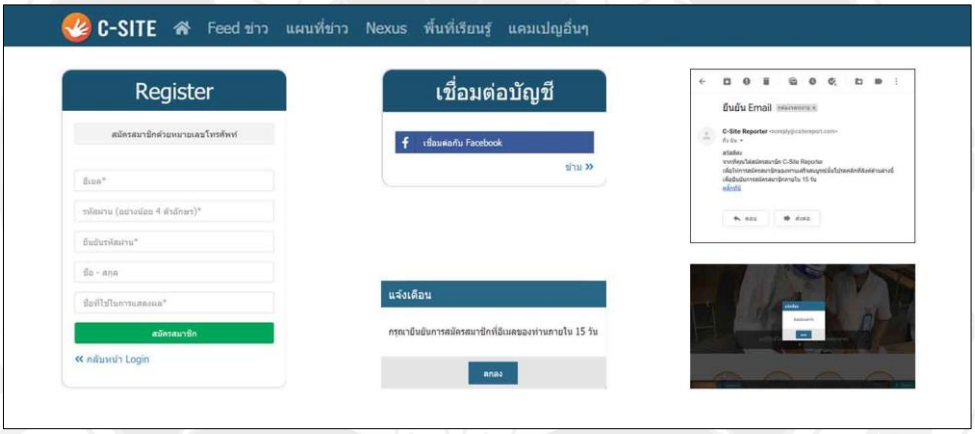

Figure 4.10 A Membership Application System on the C-Site Web Application
Source: C-Site (2021).

3) Content Management

The findings from the study on the content management process of the Bureau of Networking and Public Participation on the C-Site Platform can be summarized as follows:

(1) The gathering of information, problems, news pieces, or micro-tasks on online platforms. In this part, information gathering can be classified into 2 ways: 1) Gathering information that users report and pin a map on the C-Site Platform developed for compiling and collecting information based on the

crowdsourcing concept, and 2) gathering information that users report via social media of the Bureau, which can be daily-report issues or specific topics.

(2) The verification, screening, and monitoring of information. In this part, the verification and screening of information are conducted in two ways: the preliminary checking and screening of information by the C-site Platform system and by crowdsourcers, i.e., senior citizen media development staffs, public media network development staffs, etc., who are regular editorial committees of each news center for ensuring correct and reliable news reporting. If crowdsourcers find any incorrect information or news, they must notify users and omit such information or news from the platform. In parallel, crowdsourcers will monitor information for selecting interesting news or any news that is important or in the trend at each time.

Furthermore, besides monitoring problematic issues or news pieces or micro-tasks on the C-Site Platform, crowdsourcers also monitor interesting issues from social media of the general public in each area.

> "From online media, if we see an interesting issue, we will communicate through such media. Typically, we monitor from general people's Facebook, trends from Twitter, and even from our Page. Besides filling information on the platform, narration in the form of a scoop or developing such information to be news on websites as we have the website, The Citizen…cam be done via the screen for which we are responsible." (Crowdsourcer No. 2, personal communication, April 8, 2021)

(3) The specification of issues to be presented. In this part, the editorial board will organize news meetings for considering and selecting news issues, including editing news before production and publicity. Every day, at 9.00 a.m., the editorial board will hold a meeting via Zoom video. The meeting attendants are the public media network development managers, responsible for controlling the direction and giving the overall recommendations; and the senior citizen media development staff of each news center (at an operational level), responsible for presenting interesting issues in the area. Then, all will collaboratively consider, select, and determine issues to be presented that accord with themes of the TV programs of

the Bureau of Networking and Public Participation or other programs broadcasting on Thai PBS.

> "We work as an editorial committee and have a news meeting every day. We will discuss which issue or story is interesting. We do not work only on our platform, but we have to consider how to transmit the content to other platforms properly. Thus, we have to discuss and plan together, including daily citizen journalists, 1) how to handle with the coming pins and how to communicate them on screen, and 2) in the long term, what we should do regarding this. We have to select further tools." (Crowdsourcer No. 5, personal communication, May 29, 2021)

(4) News production. In this part, crowdsourcers will contact users who are news-content owners for their permission to have their content used in news production, including asking for additional information, still pictures, and video clips. The application of the approved content for news production can be done in three ways: 1) The application of news content or news from users' pinning on the C-Site Platform for news co-reporting, which is mostly publicized during the daily news time: morning, noon, and night, without no additional content, 2) news production from co-created content between users and the Bureau of Networking and Public Participation, and 3) the application of users' content or issue as a clue or initiating content for making news. The teamwork of the Bureau or news agencies develop issues, add more information, or interview news resources additionally to make news issues more well-rounded.

> "The editorial board will coordinate with those who send news or pin a map since some issues are contextless without any background or supporting information. Therefore, we have to make sure what news transmitters want to narrate. We may ask for additional interviews. Also, we will edit the received information to be scooped, add more pictures or content, and revise texts to make the news more complete before broadcasting. (Crowdsourcer No 1, personal communication, March 19, 2021)

(4) News dissemination via mass and online media. In this part, issues received from the civic sector will be applied for public communication through a TV program on Thai PBS and online media of the Bureau of Networking and Public Participation.

4) Technology used as a tool in a news reporting process on the C-Site Platform is as follows:

(1) The C-Site web and mobile applications in the Android and iOS operation system are the programs developed by the Bureau of Networking and Public Participation and social enterprise networks for carrying activities and communication of the civic sector on mobile communication devices, which emphasizes surrounding events and a display of coordinate at the site. (Thai Public Broadcasting Service, 2019, p. 148). When users, who are members, report news and pin a map, such programs will report and record information of all forms, i.e., texts, still pictures, video clips, etc. All information will be coded in the geocode form and displayed results on a map.

(2) Social online, i.e., Facebook Fan Page, Facebook Profile, Line, and Line Group are social media used by the Bureau as a channel for creating an online community for the issues resulting from users' participation. It helps to perceive issues, problems, or information of each region, including being a channel for inducing interaction.

(3) The C-Site Automated Video in Android and iOS operation systems developed by the Bureau for facilitating users via mobile phone and enabling them to narrate video clips more easily.

(4) "NexusDB" database management system. The Bureau uses it for data storage for developing a big-data online database system, aimed to apply information from each area for designing analytics to solve in-depth problem-solving of each area in each issue further.

4.1.1.3 Output

The output step involves output or pieces of news needed by the Bureau as guidelines for problem-solving and as users' and the organizations' benefits. The details of this step are as follows:

1) Output or News Piece

Output in the form of news pieces or micro-tasks are 1) news pieces or micro-tasks users report on the C-Site Platform, which is a complete piece, 2) news pieces or micro-tasks from co-creation between users, who have produced news as citizen journalists before, whose skills have been further developed, and the Bureau and/or other teamwork of a news agency. Besides, their news has been publicized through mass or social media, and 3) news pieces or micro-tasks whose content or issue is used as a clue or initiating content in news production. The teamwork of the Bureau or news agencies will extend the obtained issues or interview news resources additionally to acquire more well-rounded news before production and broadcasting via mass and online media further.

2) Guidelines for Problem-solving that Accord with Community or Social Contexts

Most outputs as guidelines for problem-solving have resulted from campaigns that the Bureau works with issue-related network groups in each area and information gathered in a big-data online database system from the collaboration of the civic, government, and private sectors until guidelines for problem-solving that correspond to a community or social context are acquired. Notably, the output used as guidelines for solving problems in several cases may not be plenty because of fewer campaigns, compared with all content and news pieces or micro-tasks reported on the C-Site Platform.

> "We insist decentralizing management power to a community since not every issue can be solved by the central office. We will not produce mass suits, but customized. We have to see if this community faces this kind of problem, what we should do. We emphasize the bottom-up voice from the region." (Crowdsourcer No. 5, personal communication, May 29, 2021)

3) Benefits Users or Crowds will Receive

The benefits users and crowds receive depend on users' goal in participating in news reporting on the C-Site Platform, i.e., usefulness for their work, need gratification in helping communities, society, and the nation, users' public mind,

and users' characteristics as an active citizen, including the development of the community or society they live.

> "At least, today we can help to solve problems or the occurring trouble of a community to respond to its needs. It includes some positive things we want to expand, such as the development of a learning or prototype source. Namely, The C-Site Platform is a medium enabling people to communicate and learn about a community, including occurring problems that were solved, which may be solved faster than problem-solving by the imposed system." (User No. 9, personal communication, April 8, 2021)

4) Benefits Task Proposers or Initiators and Organizations will Receive

Benefits task proposers or initiators and the Bureau of Networking and Public Participation receive are the openings of spaces for the civic sector comprising a diversity of people, i.e., race, ethnicity, language, culture, occupation, etc., and the elevation of the database of the civic sector to be knowledgeable to the public. It was found that all through 2020, more than 14,000 people joined in driving their stories and social agencies through the C-Site Platform, and produced more than 7,000 communication outputs, part of which were broadcasted during the news reporting time of the civic sectors' movements on Thai PBS. (Thai Public Broadcasting Service, 2020, p. 78). Furthermore, guidelines for improving the quality and effectiveness of the C-Site Platform from users who participated in news reporting were acquired directly.

> "Is it popular? The answer is maybe not. However, in terms of changes or how we see the need of citizen media networks to participate in the platform as active citizens, the answer is yes. We are still working with several networks continuously. Personally, I think we can witness more communicators, not only in the areas we know. Though we work in the northeastern area, we cannot know every area, every village, or every group. However, after we developed the C-Site Platform, we have other groups we have never known before. They tried to pin to join us. Still, we have to consider their quality,

then the issue.” (Crowdsourcer No. 5, personal communication, May 29, 2021)

In short, the news reporting process on the C-Site Platform of the Bureau of Networking and Public Participation consists of three major sub-processes: 1) Input is the process of distributing problem issues or new pieces needed by the organization, including creating crowds’ motivation to participate in news reporting on the C-Site Platform. The organization operates its task via three kinds of public space: virtual public space, public space in mass media, and physical public space. 2) Process is a process in which the organization operates on the session, crowd, content, and technology management. 3) Output is the part of the completed output, which provides guidelines for problem-solving and benefits for the crowds and organization.

4.1.2 The Process of News Reporting on the Hatyai City Climate Platform

The Hatyai City Climate Platform is operated by the Southern Cities Climate Change Resilience Networks Foundation, the civic sector (the civil society) that provides an opportunity for the civic sector to participate in reporting flooding situations in Songkhla Province, aimed at self-surveillance and forewarning. From the interviews and documentary analysis, the process of the Hatyai City Climate Platform of the Southern Cities Climate Change Resilience Networks Foundation (SCCCRN) composes of input, process, and output, as illustrated in Figure 4.11.

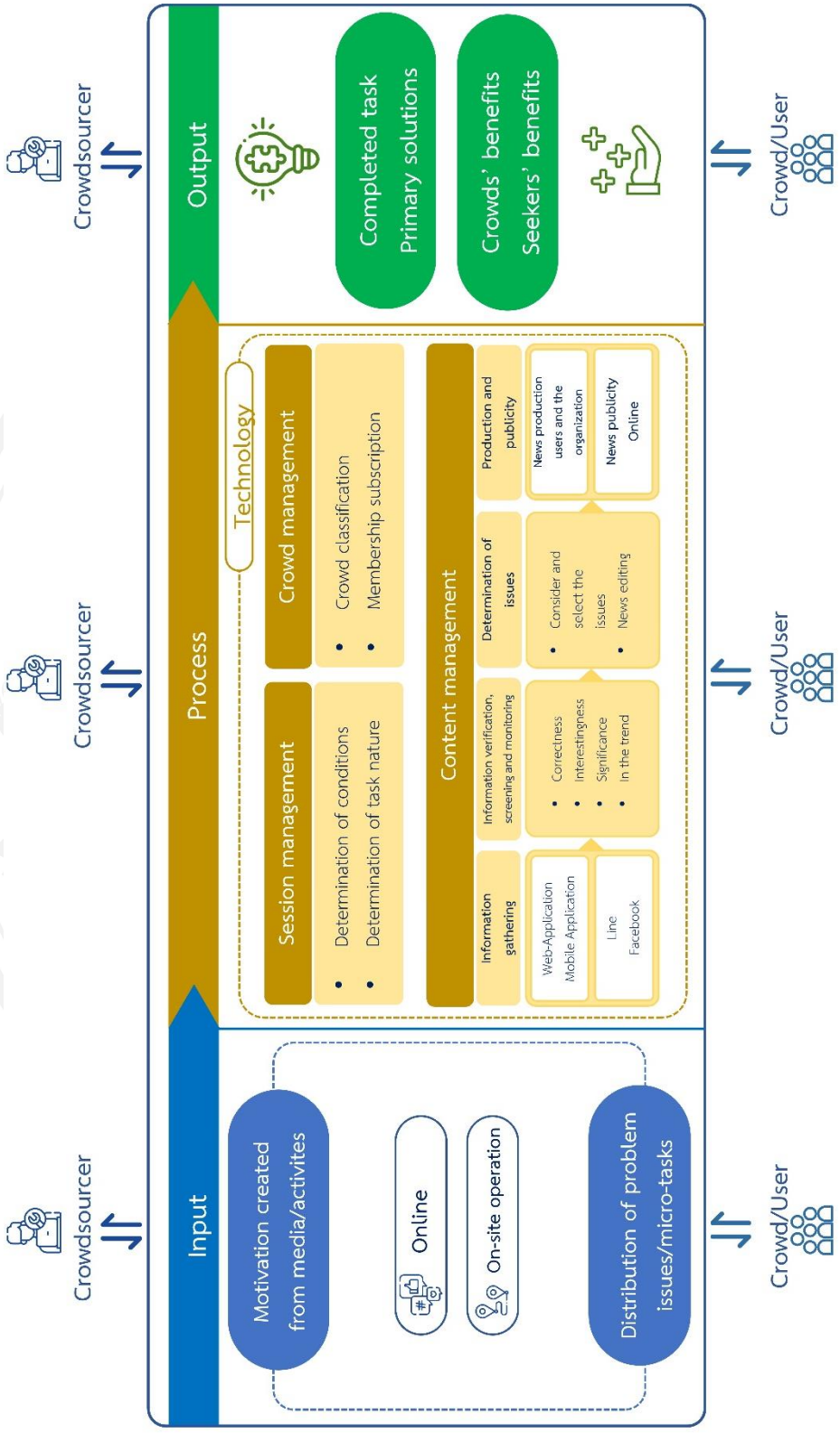

Figure 4.11 The Process of News Reporting on the Hatyai City Climate Platform

4.1.2.1 Input

The step of input factors is the application of information for distributing problem issues or news pieces/micro-tasks as needed by the Southern Cities Climate Change Resilience Networks Foundation and creating users' motivation to participate in news reporting on the Hatyai City Climate Platform. The study found that the Foundation aims toward participatory flooding management in 2 kinds of the public sphere: The virtual public sphere and the physical public sphere, with details as follows:

1) Online media is the use of virtual public space via online media, namely web, and mobile applications, as a channel for motivating users to participate in reporting flooding situations in the U-tapao canal watersheds, Songkhla Province, including for publicizing related information and knowledge and being a channel for interaction. Thus, it leads to what is called, "Danger warning without actual warning" through information integration and network connectivity to facilitate all concerned parties or sectors to deal with flooding situations promptly. The kinds of media used are banners, animation, newsletters, books, handbooks, presentation files, Closed Circuit Television systems or CCTV, presented in real-time, TMD weather radar images, satellite images, and video clips. The examples are a video clip entitled, "Floods Literacy with ACCCRN;" a video clip called, "The Coping with Disasters of Community Networks;" a book named, "Hat Yai City Resilience against Climate Change;" and a newsletter on the topic of "The Adaptation of the City to Climate Change," etc.

From the documentary analysis, the only mediums that appear on the Hatyai City Change Platform are "CCTV images" presented in real-time, which are weather and rain radar images from the Sathing Phra Radar Station, whose information is supported by Southern Eastern Meteorological Center, and "daily satellite images," supported by the Meteorological Center, which updates and adds information all the time. Remarkably, most of the other media are the media produced at the initial stage of the project only.

Still, the Hatyai City Climate Platform opens public space on its web and mobile applications, including social media all the time for preparing readiness for both flooding and normal situations. Moreover, it performs as a

communication channel for enhancing interactions to keep members' relationships and membership in the networks.

> "Disasters or floods are not with us every day, but only in the rainy season. Thus, in the normal period, people will not enter the website or applications, unlike Line or Facebook that they use daily. Truly, we always keep adjusting our platform. For instance, in the Line Group, we have a rule that during the rainy season, we will forewarn and notify people through banners. Flowers and stickers are not permitted to be sent in the Line Group. However, they can do during the normal situation to keep the platform alive so in the next rainy season, we do not necessarily call for new volunteers. Therefore, we allow them to send anything as wished. We also allow government agencies to publicize their work or activities through our Line. However, in the rainy season, if we receive this kind of information too much, it is difficult for us to collect the useful information." (Crowdsourcer No. 6, personal communication, April 7, 2021)

2) Operation at the site or in the area is the use of physical public space in the form of activities organized for communication, public relations, creation of knowledge and understanding, and motivation creation for persuading users to participate in news reporting on the Hatyai City Climate Platform. The examples are a roadshow activity, workshops, group discussion, presentation in the forum, "Hat Yai Strength…Fight against Floods," including participation as a sub-committee of Songkhla situation assessment, integrated collaboration with other concerned organizations and agencies, and the rehearsal of flooding coping plans, as illustrated in Figure 4.12.

Figure 4.12 An Example of the Foundation's Operation in the Area
Source: Hatyai City Climate (2021).

> "Mostly, when we will organize training, we will choose a school mainly. We work with young people. This group is more adept than adults. The other group is networks. We have the surveillance networks in hand, namely two networks. The first group is the government networks, i.e., agencies related to water resources, which have networks for monitoring rain water in the area, such as Meteorological Center. The other group is local people networks who gather in groups. Thus, we train these networks and provide knowledge about the surveillance and assistance during the floods." (Crowdsourcer No. 7, personal communication, April 8, 2021).

The organization works deeply with the target groups in the area by organizing group discussions with local people in the area despite their poor ability in using information technology since, in their normal life, they seldom use any communication technology via the internet networks. However, they are people who know well about their community, and neighboring areas. Therefore, such operations at the site will help to increase these users' knowledge and understanding of news reporting and map pinning on the Hatyai City Climate Platform. Moreover, it will facilitate users as much as possible. In case some users cannot report news by themselves, the organizational teamwork or other users in the area who have technological fluency will be news reporters or pin a map for them. (Panumas

Nontapan, 2014, p. 64). Therefore, it is the design of activities that are suitable for the context of the areas and the target users.

> "When we got to an area, we found that people who volunteered to work for us are general people. They are not fluent in technology. Thus, the concept of working with volunteers had to be adjusted. These people have information in hand, but they cannot do by themselves so we had to organize a focus group interview and ask others (the organizational teamwork) to help them in pinning. By this way, it makes the process easier, while we can obtain substantial information from each area." (Crowdsourcer No. 7, personal communication, April 8, 2021)

The operation in the area in which the Foundation participates regularly is the Forum called, "Hat Yai Strength…Fight against Floods," operated by the Southern Natural Disaster Research Center, and the Research and Development Office, The Prince of Songkla University, Hat Yai, in collaboration with other related agencies, i.e., the Southern Eastern Meteorological Center, Royal Irrigation Department No. 16, Songkhla, the Department of Disaster Prevention and Mitigation No. 12, Songkhla, the Office of Water Resources No. 8, Hat Yai Municipality, etc. The purpose is to stimulate all sectors to be prepared to cope with possible floods by providing knowledge through lectures and brainstorming among concerned people of all sectors to make people cautious of possible problems yearly and search for ways to solve problems. The organizers will summarize and give recommendations to concerned agencies for consideration and further operation.

> "In 2011, we held forums for three times and the result was MOU to solve flooding problems collaboratively, namely the project "Hat Yat Strength: Fight against Floods," since 2010 up to last year. Lately, it becomes the symbol of Hat Yai that upon the rainy season, the forum for opinion exchanges will be organized to discuss how each individual, group, and agency should prepare, and what kinds of new technologies are required." (User No. 8, personal communication, June 2, 2021)

The main obstacle to the Foundation's operation in the area is budget since when the budget for the project of the Asian Cities Climate Change Resilience Network (ACCCRN) was terminated, the old working group had to continue the task by establishing the Southern Cities Climate Change Resilience Networks Foundation. Thus, the Foundation must support itself financially. This causes insufficient budgets for running an operation in the area. From the interviews, it was found that the Foundation's operation emphasizes horizontal relationships with the civil society, people in the area, government, and private organizations, which are its major supporters in driving and enabling any activity to be possible and to be powerful for continuing the project further. For instance, the request for collaboration in using buildings or places for organizing workshops or training or the result or knowledge expansion to the pilot areas as a prototype model in managing floods, coordinating with various sectors in the related activities. Moreover, the Foundation has vertical relationships in some cases; for instance, when the working committee of the Foundation and the users of the Hatyai City Climate Platform participates in the sub-committee for evaluating water situations in Songkhla, and forewarning disasters, windstorms, and landslides in Songkhla. All of these roles are major mechanisms in assessing natural disasters closely: weather forecast, water situation of the main river or basin of Songkhla, water management, forewarning systems, and public relations for informing people and reporting to the city governors, including passing the information to concerned offices for preparation during the rainy season.

> "After the completion of the project, our Foundation ran out of money. Therefore, we talked to the provincial municipality and drew it to be a part of our network. In some activities, we did not spend money at all since the municipality provided us places, people brought their food, trainers from various agencies asked money or their travel cost from their affiliate since they knew that we had no budget. All of these reflect horizontal relationships that we have been developing for many years" (Crowdsourcer No. 6, personal communication, April 7, 2021)

> "We do not work alone...As a foundation, the main responsibility is to tie relationships among agencies. Therefore, when something happens, it does not mean that we have to operate all by ourselves, but we will coordinate

people involved to make such an activity happen by using the potential of each agency. In other words, we try to make all people see the common picture and work collaboratively, so many tasks use other agencies' potential for helping us. Likewise, when we developed the Hatyai City Climate Platform, we had several agencies involved, i.e., the Meteorological Department, Department of Water Resources, Royal Irrigation Department, and the Provincial Administration. This enables our work to move. Besides, there are sub-networks of each agency of which we can make use." (Crowdsourcer No. 7, personal communication, April 8, 2021)

4.1.2.2 Process

The process involves session, crowd, content, and technology management of proposers or initiators. From the study, Southern Cities Climate Change Resilience Networks Foundation was found to operate by dividing roles and responsibilities. The crowdsourcers on web and mobile applications are webmasters, while the crowdsourcers on social media are volunteers who were former regular staff of community plans of the Asian Cities Climate Change Resilience Network (ACCCRN), Hat Yai. The details of the process are as follows:

1) Session management. Southern Cities Climate Change Resilience Networks Foundation was found to manage sessions by organizing agenda, determining conditions and requirements, and specifying the nature of tasks, as follows:

(1) Determine conditions and requirements for use. Southern Cities Climate Change Resilience Networks Foundation determines conditions and requirements for using the Hatyai City Climate Platform on the first page of the platform to make everybody understand. The content consists of the objectives of the platform, and the request for permission for use or for publicizing images or content, which requires references every time. (The Permission Contract of Creative Commons)

(2) Determine the nature of tasks. Southern Cities Climate Change Resilience Networks Foundation divides the nature of tasks into 2 parts:

Notification of situations and map pinning, and web boards, with the following details:

(2.1) Notification of situations and map pinning. The Southern Cities Climate Change Resilience Networks Foundation determines users to fill in the details of rainfall or floods, incident places, coordinates (for map pinning), date and time of an incident and added still pictures on the platform. However, users can cancel or post news instantly, as illustrated in Figure 4.13.

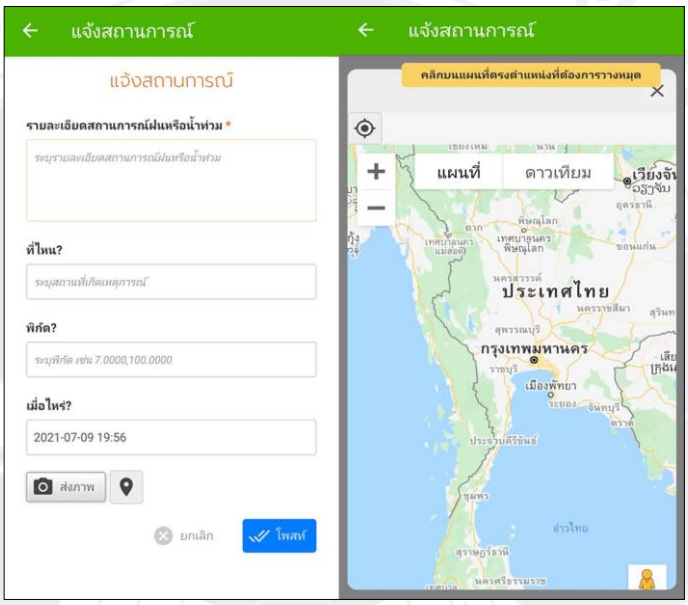

Figure 4.13 The Notification of Situations (News Posts) on the Mobile Application of the Hatyai City Climate Platform

Source: The City Climate Mobile Application

> "We think the important mechanism that keeps the platform alive must include human factors, so we emphasized volunteers as the main principle in making a website. After getting knowledgeable volunteers, we started to elevate the level of our community-based operation plans. Then, we considered about how to open a central space for people in communities or volunteers to communicate with us. It thus induced the website menu, which is another communication channel in notifying danger to people. Then, our webmaster, who graduated with a master's degree, established a crowdsourcing system by

map pinning, which is an additional function on the website.” (Crowdsourcer No. 6, personal communication, April 7, 2021)

(2.2) Web board. The Southern Cities Climate Change Resilience Networks Foundation allows users for forum posts, additional images, additional supplementary documents, opinion expression, and pressing Like, Share, and bookmark on the web board, as illustrated in Figure 4.14

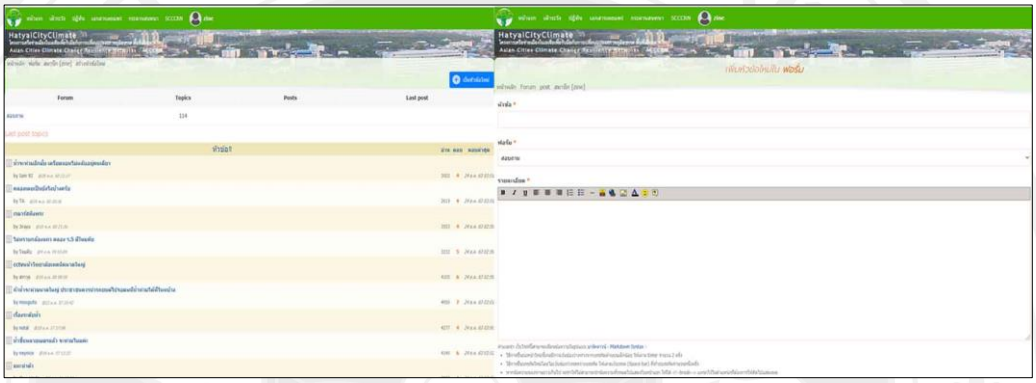

Figure 4.14 Web Board on the Hatyai City Climate Web Application
Source: Hatyai City Climate (2021).

2) Crowd Management

(1) Crowd Division

From the study, Southern Cities Climate Change Resilience Networks Foundation divides crowds into 3 groups: alliances, volunteers or watersheds networks, and general users.

(2.1) An alliance group is a group of related government organizations, i.e., the Meteorological Department, Southern Eastern Meteorological Center, the Office of Water Resources of sector 8, Department of Disaster Prevention and Mitigation, local administrative organizations (such as the Municipality of Hat Yai City, Kho Hong, Klong Hae, Khuanlang, Patong, etc.), which is the top-priority group of users to whom crowdsourcers pay importance since it is the group of credible organizations.

(2.2) The volunteers or watersheds networks group is a group of the civic sector's networks that are used to coordinate with the Asian Cities Climate Change Resilience Network (ACCCRN), Hat Yai, which is the network of floods management in the U-tapao canal watersheds. The civic sector's networks are invited to participate in a news process on the Hatyai City Climate Platform for inducing disaster-warning awareness without actual disaster warning. The group consists of local or the target community people, mentors in alleys, volunteers in the upstream, midstream, and downstream areas, and the Red or Citizen-Band Radio (CB-245 MHz) Network for U-Tapao Canal Hazard Forewarning, organization, and private organizations.

(2.3) A general-user group is a group of the civic sector networks who are interested in the issue of flooding problems in Songkhla or want to participate in news reporting on the Hatyai City Climate Platform, i.e., individuals, groups, the civil society, local media groups,

Crowd division is important for strategic planning for creating perception and stimulating people to participate in a public communication process on the Hatyai City Climate Platform. Besides, it is related to the design and development of proper tools for empowering the civic sector, i.e., map pinning. Typically, the design of tools must reduce complexities and hierarchy of working to the lowest level or the smallest units, namely simply pinning and feeding necessary information, through task sub-division. (Panumas Nontapan, 2014, p. 5) or through organizing a group discussion that is suitable for the characteristics of the group of users who are local people. Therefore, crowd division facilitates the Foundation to be able to design approaches and activities for operation in the area that is congruent with the target users' competence or potential in using information technology.

(2) Requirement for membership application

The Southern Cities Climate Change Resilience Networks Foundation determines membership application on the Hatyai City Climate Platform through the following steps: 1) Users can apply for their membership in two ways: On electronic mail or E-mail and mobile phone, 2) users identify their name, family name, and name used in the result display, and 3) users confirm their application on their mobile phone or email, as illustrated in Figure 4.15.

Figure 4.15 Membership Application System on the Hatyai City Climate Web Application

Source: Hatyai City Climate (2021).

3) Content Management

The analysis of interview findings reflects a content management process of the Southern Cities Climate Change Resilience Networks Foundation on the Hatyai City Climate Platform, as follows:

(1) The gathering of information, problem issues, or news pieces or micro-tasks on online platforms, which can be divided into 3 groups: Information gathered from users' news reporting and map pinning, which covers daily reports and specific issues, especially during the flooding situation in Songkhla areas, 2) Images from CCTV, presented in the real-time, and 3) information from alliances, such as images of weather and rain radar from the Sathing Phra Radar Station (Southern Eastern Meteorological Center) and satellite images of daily weather (The Meteorological Department)

(2) The verification, screening, and monitoring of information. In this step, the roles and responsibilities of two key crowdsourcers are specified and divided clearly. The crowdsourcers on web and mobile applications are webmasters, while the crowdsourcers on social media are volunteers who were former regular staff of community plans of the Asian Cities Climate Change Resilience Network (ACCCRN), Hat Yai.

Generally, crowdsourcers will prioritize types of information as follows: 1) Information from CCTV will not be checked and screened

since it is images of the real situations in real-time; 2) information from alliances, which are related government organizations, such as the Meteorological Department, Southern Eastern Meteorological Center, Department of Water Resources, Section 8; 3) information from volunteers or watersheds networks, (i.e., upstream, midstream, and downstream), and 4) information from general member-users. This is to ensure that news reporting on the platform is correct and reliable. If crowdsourcers found any wrong information or issues, they will warn users and omit such information or issues from the platform. In parallel, crowdsourcers also monitor information for selecting important or trendy news that interested people during that period.

> "Information in the system composes of three parts: Information from alliances agencies, which requires no screening, similarly information from CCTV, which is high-priority, and information from our networks, which will be monitored as determined. If general users want to write in the system, the priority may be lower. The last part is information prepared by our team." (Crowdsourcer No. 7, personal communication, April 8, 2021)

(3) The determination of issues to be presented. In this part, the Foundation will not have any news or editorial board meeting, but webmasters and volunteers will consider and select the issues to be presented, including editing, for publicizing on the platform, as assigned.

> "I'm responsible for monitoring Line Group, designing formats for news reporting via Line Group, checking documents and name s of reporters to avoid rumors, and collecting all information of every agency, using it for making banners and sending it to Line Group every day during the crisis in which there are a lot of rainfalls and water. However, under a risky situation, it will be sent more frequently or hourly." (Crowdsourcer No. 6, personal communication, April 7, 2021)

(4) News production. In this step, crowdsourcers will contact users who are news owners for their permission to have their news produced, including asking for more information, still pictures, or video clips. The application of content for news production is under the operation of crowdsourcers only.

> "Banners have been responded very well as they reflect southern identities, such as southern language, a shadow play as a cartoon character for communicating how the weather of today is, or if there is little or heavy rain. General people can access it easily, while government agencies can also see such information." (Crowdsourcer No. 6, personal communication, April 7, 2021)

(5) News dissemination via online media. In this part, information or issues are presented via online media of the Southern Cities Climate Change Resilience Networks Foundation. Interestingly, most publicized information belongs to alliance agencies and volunteers of watersheds networks.

Thus, the content management of the Southern Cities Climate Change Resilience Networks Foundation emphasizes the content from alliance and volunteers or watersheds networks mainly. Owing to a clear division of roles based on crowdsourcers' knowledge, ability, and experience, it makes its operation flow fluently, especially during the flooding situation in an area.

4) Technology used as a tool in a news reporting process on the Hatyai City Climate platform is as follows:

(1) Hatyai City Climate web and mobile applications in the Android operating system are an initial program developed under the project of Asian Cities Climate Change Resilience Network (ACCCRN), Hat Yai, by having Panumas Nontapan as a webmaster. During that time, she was pursuing her M.S. degree in the field of Health System Management, at the Prince of Songkla University. She conducted action research by applying the concept of crowdsourcing and developed a tool and a map of surveillance and assistance of hazard-victim networks in Songkhla. At present, she is a crowdsourcer on the Hatyai City Climate web and mobile application. When users or members report news and pin a map, the

program will record all information, i.e., text, still pictures, video clips, etc. in the form of Geocode and display results on the map.

(2) Social media, i.e., Facebook Fan Page/Facebook Profile, Line, and Line Group are social media the Southern Cities Climate Change Resilience Networks Foundation uses as a channel for creating an online communication of the issues as a result of users' participation, which helps to see problems and flooding situations in the area, including being a channel for enhancing interactions.

4.1.1.3 Output

The output step involves output and news pieces or micro-tasks the Southern Cities Climate Change Resilience Networks Foundation needs as guidelines for problem-solving, including benefits users and the organization will obtain. The details are as follows:

1) Output

Output in the form of news pieces or micro-tasks are 1) news pieces or micro-tasks users report on the Hatyai City Climate Platform, and 2) news pieces or micro-tasks that are cumulated for the detailed explanation, production, and dissemination via web applications and social media.

2) Guidelines for Problem-solving that Accord with Community or Social Contexts.

Problem-solving guidelines focus on "guidelines for managing to flood in U-tapao canal watersheds, Songkhla province," by the collaboration of several sectors: Civic, government, and private, in the area. Previously, Hat Yai Municipality was successful in its operation at the end of 2011 and the beginning of 2012, which satisfied people to a great extent as its inclusive communication could reduce life and property loss more than ever. It is considered to be a great success in hazard warning; thus, the Municipality was awarded "the national best government services" in 2012, and as a prototype of the best practice in people-service quality development. (The Office of the Public Sector Development Commission, 2012, online). Furthermore, such problem-solving guidelines are also a prototype model of the "Hat Yai Model" for managing flooding areas and a prototype for government organizations, especially at a local level, to be applied in their areas.

> "Lately, several agencies applied the "Hat Yai Model," and installed their camera. We think it is the right direction as we do not have budgets for installing cameras and surveillance in every area. It is very costly for maintenance and expenses. Each year, it requires a lot of expenses, electricity, internet signal, etc., approximately 100,000 baht. We could not find budgets for supporting our operation so we talked to the Municipality to adopt the model." (Crowdsourcer No. 6, personal communication, April 7, 2021)

3) Benefits Users or Crowds will Receive

Benefits users or crowds will receive that respond to the problem paid the highest attention by people is problem-solving in flooding situations since an enormous amount of rainfall causes floods and incurs life and property damage. (Asian Cities Climate Change Resilience Network, Hat Yai, 2014, online). Accordingly, the Hatyai City Climate Platform is a communication channel in flooding situations and enables crowds to assess coming risks by themselves. They then know how to surveillance and assist during the situation. Besides, the platform functions as a channel for users (people with a public mind and active-citizen users) to report flooding situations to other people in the affected areas and adjacent areas that might be affected later. Besides, it is a channel for data collection from which users can apply for operations in their area.

> "We could reduce huge losses. Formerly, we spent a lot on fixing cars and everything caused by floods, but up to now we have never witnessed such losses since we created our websites and networks. The Hatyai City Climate Platform can forewarn people in Sadao District, down to other lower districts and villages. We could reduce 70-80% of property losses. We never get life losses." (User No. 5, personal communication, April 19, 2021)

4) Benefits Task Proposers or Initiators and Organizations will Receive

The major benefit that task proposers or initiators and organizations will obtain is the opening of a unified, rapid, genuine, and credible channel to which people can reach and see the overall picture of occurring hazards all

24 hours. Besides, they will be informed of situational tendencies and prepared to cope with them promptly. Accordingly, the opening of the Hatyai City Climate Platform is the connectivity of communication information systems and the warning, which is critical during the flooding situations (Community Disaster Management Network of Songkhla, 2014, online). Furthermore, the obtained information or news pieces or micro-tasks can apply to planning proper operations that are suitable for each area in the future.

Briefly, a news reporting process on the Hatyai City Climate Platform of the Southern Cities Climate Change Resilience Networks Foundation comprises three parts: 1) Input is the process of distributing problem issues or news pieces or micro-tasks needed by the organization, including creating crowds' motivation to participate in news reporting on the platform via two kinds of the public sphere: virtual and physical. 2) Process involves session, crowd, content, and technology management. 3) Output is the step of the acquisition of completed workpieces, and problem-solving guidelines, and benefits crowds and the organization will receive.

4.1.3 Similarities and Differences of the News Reporting on the C-Site and Hatyai City Climate Platforms

From analyzing the similarities and differences of the news reporting process on the C-site Platform of the Bureau of Networking and Public Participation, Thai Public Broadcasting Service, and the Hatyai City Climate Platform of the Southern Cities Climate Change Resilience Networks Foundation, it is found that a news reporting process on the crowdsourcing platforms is a process designed for enhancing the interaction between a proposing or initiating organization and users for public benefits mainly under three operational processes: Input, process, and output. Their similarities are found as follows:

1) The creation and maintenance of relationships with online and offline users. Both platforms play a role in strengthening their networks as a consequence of the operation based on horizontal relationships through mutual support, learning exchanges, and resource sharing for collaborative operations. On the other hand, vertical relationships with alliances are also established for some collaborative activities, i.e., joint projects and research, participation as a sub-

committee, etc. Besides, some users had worked with proposing organizations before their platform membership; thus, the relationship occurs in these interactions.

2) will help to build trust and increase motivation to collaborate on the platform.

3) The use of crowdsourcing platforms in combination with social media facilitates the operation to occur easily. The development of crowdsourcing platforms, especially for news reporting, gained from the case studies will help the crowd management towards systematic participation all through the process, i.e. screening, organizing, classifying, and verifying the obtained information. Therefore, it ensures users' content presentation is clear, correct, complete, and credible. On the other hand, crowd markets with an enormous number of online crowds on social media should not be neglected as well. Therefore, the studied organizations do not use crowdsourcing platforms for news reporting only but also integrate with the use of social media, such as Facebook Fan Page, and Line Group, as the main space for creating engagement with online users, including for facilitating them to access the platforms under diverse environments everywhere and every time more conveniently. Consequently, the groups of users have been expanded and participated in news reporting increasingly.

4) The flexibility of the content or news issues presentation is another factor that motivates users to participate in news reporting all through the process of the projects. Despite clearly determined goals and issues, which are key principles of news reporting by the crowd, these issues can be adjusted by contexts, situations of the problems, social agenda, or users' needs at a certain time flexibly. Besides, sets of information are also diversified, which may lead to new information that has never appeared or has been reported before.

Although, both the Bureau of Networking and Public Participation and the Southern Cities Climate Change Resilience Networks Foundation highlights the civic sector's participation and operations for public benefits, they are also different in some aspects, as summarized in Table 4.1.

Table 4.1 A Comparison of a News Reporting Process on the C-Site and Hatyai City Climate Platforms

Aspects	BNPP	SCCCRN
Type of the organization	• Public sector • (A government agency) • Public Media work in parallel with citizen media support	• Civic sector (The civil society) • Public work at a community level
Organizational media and activities	• Online media • Mass media • Operation in the area	• Online media • Operation in the area
Nature of tasks or news issues needed by the organization	No definite issue, but focusing on communicating local stories to the public	Focusing on reporting flooding situations in Songkhla areas for surveillance and warning
Types of users	• Old users • New users	• Alliances • Volunteers or watersheds networks • General users
Size of groups	National level (The Kingdom of Thailand, The Republic of the Union of Myanmar, People's Democratic Republic of Laos, Kingdom of Cambodia)	Provincial-level (Songkhla Province)
Issue selection and editing	The editorial board and news editing meeting, following a journalistic process of mass media professional organizations	Issue selection and editing based on crowdsourcers' consideration, experience, knowledge, and capability.

Table 4.1 explains as follows:

1) Type of the organization. The Bureau of Networking and Public Participation, Thai Public Broadcasting Service, as a public sector (a government agency), functions as “a public medium,” with public-benefits oriented, and manages and regulates the organization based on the Public Broadcasting Organization of Thailand Act, B.E. 2551, and the Regulations on the Ethics of the Media Profession, in parallel to working with the civic sector for promoting the civic sector’s participation in a news reporting process as citizen journalists or reporters and independent news producers under each community’s or society’s concept for upgrading citizens’ database to be public knowledge. Accordingly, the Bureau performs two parallel tasks, namely tasks under the condition of the public media operation system and media users’ behaviors in Thai society for supporting citizen media. Hence, crowdsourcers have to impose a clear operation framework to make an understanding to both organizations and general people to prevent citizen media from being dominated by public media. On the other hand, the Southern Cities Climate Change Surveillance Network Foundation, as a civic sector (The civil society) is the government’s alliance in serving public benefits at a community level and is owned by communities or the civic sector. Therefore, the management and regulations follow the Provisions of Civil and Commercial Code, B.E. 2535, Regulations of the Ministry of Interior, and regulations of the registered foundation under the mission of flood self-forewarning. The Civic sector has an opportunity to participate in reporting flooding situations in each area, while the Foundation operates under the condition of public benefits at a community level. However, from the study, it was found that the organization faced budget problems. Therefore, the organizational operations require horizontal relationships between organizational personnel and users, including the collaboration with other agencies in combination with local people’s knowledge and experience so that the management and problem-solving in the flooding situations by information on the Hatyai City Climate can be operated with good quality and responding to the goals determined by the organization.

2) The use of organizational media and activities. Due to the nature of mass media professional organization and the state of being public media of Thai Public Broadcasting Service, the Bureau of Networking and Public Participation can

employ its potential as mass media in distributing problem issues or News pieces or micro-tasks and creating users' motivation to participate in news reporting and broadcasting their tasks to the public via Thai PBS TV Station. Concurrently, a variety of online media is also selected and used suitably for the operation area in each region of Thailand. The operation is also continual through all channels, differently from the Southern Cities Climate Change Surveillance Network Foundation, which is the civic organization or the civil society focusing on online operations mainly with some operations in the area. Mostly it operates with the civil society, government, and private sector in the area. From the study, the use of mass media was not found in this part. However, local mass media may be used occasionally during the initial stage of the project, such as Hat Yai University Radio Station (FM 88.0 MHz.) and National Broadcasting Services of Thailand as a request for cooperation to have space or a channel for publicizing the platform and disseminating information. Accordingly, the organization cannot have continual strategic planning or design the use of mass media and operations in the area like the Bureau of Networking and Public Participation.

3) Nature of tasks. News reporting and map pinning are prescribed on both the C-Site and Hatyai City Climate Platforms as major features of crowdsourcing platform development for gathering and storing information in the geocode form and a display of results on a map. However, the distinctive difference is problem issues or news pieces (Micro-tasks) needed by both organizations. The Bureau of Networking and Public Participation does not specify needed issues clearly despite its classification of news for users' selection, but it is just information organization for easy searching and storage. On the contrary, the Southern Cities Climate Change Resilience Network Foundation emphasizes only the issue of flooding situations in the U-tapao canal watersheds of Songkhla Province for surveillance and forewarning mainly. Therefore, the nature of the Bureau's tasks is more diverse, i.e., preparing questionnaires with area-issue networks, participation in campaigns during festivals or important days, etc.

4) Groups of the crowd or users. Owing to different target groups, both organizations classify their crowds differently. The Bureau of Networking and Public Participation classifies its crowds into old and new users for easy strategic planning in

creating the civic sector's perception and stimulating it to participate in news reporting to expand the crowd size in the nation and Southeast Asia. On the other hand, the Southern Cities Climate Change Resilience Network Foundation classifies its crowds into 3 groups: Alliances, volunteers or watersheds networks, and general users. Besides, it also prioritizes information received from different groups, but surprisingly general users' information is ranked the last in order of importance. It thus reflects that the Foundation gives a priority to information from its alliances and volunteers mainly since communication issues during a crisis require accurate and credible information, including information completeness and rapidity in communication.

5) The editorial board meeting and news editing. Issue selection of both organizations is eminently different. The Bureau of Networking and Public Participation follows a journalistic process of mass media professional organization, namely organizing daily news or the editorial board meeting for choosing news to be presented, including editing, producing, and publicizing news through the channels of the Bureau, news agencies, and program divisions. Typically, news meeting is among public media network development managers who are responsible for controlling the direction and providing the overall recommendations, senior citizen media, and public media network development staff at each news center who is responsible for proposing interesting issues of each area. All the meeting participants will consider issues together and the news editing board will finalize the result. For the Southern Cities Climate Change Resilience Network Foundation, issues to be presented and news editing are up to crowdsourcers' consideration, experience, knowledge, and capabilities mainly. Besides, tasks are divided clearly. Namely, webmasters edit issues from the web and mobile applications, while volunteers edit them from social media.

4.2 Factors Affecting Users' Participation in News Reporting on Thai Crowdsourcing Platforms

4.2.1 Personal Motivation

From the interviews, personal motivation is found to affect users' participation in news reporting on the C-Site and Hatyai City Climate Platforms. Personal motivation comprises intrinsic motivation, i.e., users' interest, objective, and public mind, and extrinsic motivation, i.e., group or social acceptance, monetary and non-monetary rewards, as illustrated in Table 4.2.

Table 4.2 The Findings of the Analysis of Personal Motivation Factors Affecting Users' Participation in News Reporting on the C-Site and Hatyai City Climate Platforms

Personal Motivation	Key Informants																					Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Intrinsic motivation																						
Users' Interest																						
Issues are interesting	✓		✓	✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓				✓	**14**
Issues are proximal to and affect the community or society	✓		✓	✓	✓	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	**17**
Users perceive the importance and benefits of participation		✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	**15**
Users' objective																						
To acquire information				✓										✓			✓				✓	**4**
To communicate issues to be informed widely	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	**17**
To develop a community database or support	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	**19**

Personal Motivation	Key Informants																		Total
guidelines or policies for problem-solving or community development																			
Users' Public Mind																			
Volunteer and assist the community or society with willingness.				✓								✓	✓	✓		✓			**5**
The contribution of time, physical strength, money, and wisdom for the community or society.				✓	✓							✓	✓	✓	✓	✓			**7**
<u>Extrinsic Motivation</u>																			
Group or social acceptance	✓	✓		✓		✓	✓	✓	✓			✓	✓		✓		✓		**11**
Non-monetary rewards			✓												✓		✓		**3**
Monetary rewards											✓								**1**

From the findings of in-depth interviews, documentary analysis, and related studies, personal motivation affecting users' participation in news reporting on Thai crowdsourcing platforms can be concluded as follows:

4.2.1.1 Intrinsic Motivation

Intrinsic motivation is users' desire to participate in news reporting on crowdsourcing platforms without expecting any reward or without external pressure. Intrinsic motivation is found to consist of users' interests, objectives, and public mind.

1) Users' interest consists of the following indicators: users' interest in the issue; issues' proximity and effect on users, community, and society; and users' perception of the importance and benefits of participation.

Users' interest in the issue Incidents or news issues can interest users. Some users may pay attention to what happens to human fellows or living creatures in the world, incidents that induce common feelings, or seeming success.

> "Mainly, it is a way of living matter, such as economy, ethnicity, etc., which are issues in which people are interested." (User No. 3, personal communication, June 16, 2021)

> "It is the creation of crowds' online communities with a common interest and the importance of the issue or story to which people pay attention commonly. This strong desire can drive people in a community to participate consistently. (Scholar No. 1, personal communication, March 15, 2021)

The key informants who are scholars in the field of digital journalism expressed some additional interesting perspectives that besides task proposers' attention to news issues, which is a specific-group interest, they should give importance to people's current interests or unexpected issues as well.

> "Generally, there are several topics in which people are interested. However, the fact is there are also a lot of problems too, i.e., the classification of issues, issue arrangement, etc. Thus, it is necessary to weigh the importance of issues too. Some issues are for the masses, and some for niches. Is a niche necessary? The answer is yes. On the other hand, we should draw masses of people to participate as well, even in a simple issue like the issue of big trees in a city

that are going to be cut. It can attract people to get involved on this platform." (Scholar No. 4, personal communication, June 4, 2021)

The issues' proximity and effect on users' community or society. The proximity of an incident or a news issue can be measured in terms of geographic and psychological proximity, such as proximity to the incident site, mental attachment, close relationships with a person in news, or problems affecting users' community or society, both directly and indirectly, or something a community concerns about. The factors found in this study are reflected in all groups of the key informants.

"Disasters are common issues of everybody as a part of his/her life. Each year, people will face a timeline that affects their ways of living. When floods occur, business loses its money or products cannot be sold. Property, life, and everything are damaged, but it is their daily life and the effect that they must face. Simply, the issues we can drive people have to affect their life and existence. Then, they will pay attention to them. This is the main principle." (Crowdsourcer No. 6, personal communication, April 7, 2021)

Users' awareness of the importance and benefits of participation is a state of perception and understanding of the importance of communication in the public sphere and the benefits received from participation in news reporting on crowdsourcing platforms. Mostly, users are an active audience who want to participate in communication and pay attention to occurring problems in their community or society. At the same time, task proposers or initiators must develop integrated communication by using proper and effective media and activities for public relations so that users can reach communication channels in the public sphere concurrently.

"We see the importance of communication. It has been useful since the initial use. The acquired information proves that it can be functional well. Especially, we perceive its benefits for coastal beaches." (User No. 1, personal communication, April 9, 2021)

> "We perceive it as a platform for gathering information from practitioners to the central part…It is a good real-time communication channel that we can send and distribute to general people who deserves to get factual information." (User No. 6, personal communication, April 22, 2021)

2) Users' objective is users' intention or needs to participate in news reporting on crowdsourcing platforms, comprising the following: information acquisition, communication of issues to be informed widely the development of a community database, or support of practices or policies leading to problem-solving and community or social development.

Information acquisition Users play a role in the surveillance and reporting of what is happening in the community or society, both positive and negative news. Examples are situations or incidents happening in a community, public hazards and forewarning, the inheritance of culture, tradition, art, and local wisdom of a community, problems of inequality, environmental issues, etc.

> "It is a tool for people in the area to try their narration; although, it is just a part of their community's story. However, when we combine stories of several places together, we can witness all that happens in our community. The compiling of all stories makes it more powerful." (Crowdsourcer No. 4, personal communication, April 26, 2021)

Communication of the issues to be informed widely. It is users' need to introduce issues to the society to be informed, extended, and discussed widely, which may lead to the mobilization towards social or policy changes. The more dispersed and rapid communication is, the more opportunities it can become a social agenda. In other words, users can set information agenda for people's perception. Besides, it can reflect wider perspectives than what is presented in the media. Moreover, it is the sphere for some issues overlooked by society to be raised to the public as an important issue. (Sakulsri Srisarakham, 2017, p. 245)

> "When communication networks communicate through their Facebook, the dissemination of information is in a narrower scope. When they change to pin in our C-site Platform, we have our channels, and the major

channel is Thai PBS, which helps to support our information sharing. We have on-air screens that help people access more quickly…We also try to upload clips or present the areas to show their performance. Comments are sent back to ensure them that their tasks have been communicated, not only the presentation via the C-Site sphere only." (Crowdsourcer 3, personal communication, April 8, 2021)

"When people are assured or witness that the information from their experience or what they truly experienced is reported or is a part of news to the society widely, they will participate on the platform increasingly." (Scholar No. 3, personal communication, March 23, 2021)

The development of a community database or support for practices or policies leading to community problem-solving and development is the need to use a tool for gathering community information in a reliable online database system towards the utmost benefits to support the guidelines or policies that facilitate problem-solving and development of the community or society.

"Besides, gaining community information, it is a tool that can enhance a community's self-development. It is the recording of stories of local people, a tool for local people's operation, which enables them to see the empirical data and spatial information, and a tool for producing information to communicate with government agencies… Some issues can even be depicted at a policy level. We can also draw the issues to our production team or we may visit the site to make detailed scoops. Some possible issues at a policy level are raised for discussion and some issues are elaborated from a small point, which is ignited by local people." (Crowdsourcer No. 4, personal communication, April 26, 2021)

"Importantly, journalists themselves must connect their engaged journalism to solution journalism. In other words, from problem-solving presented in their news, they can make people on the platform ensure that their participation on this platform really works." (Scholar No. 4, personal communication, June 4, 2021)

The key informants perceive that the challenge of using crowdsourcing platforms as a big database of a community, leading to guidelines or policies for problem-solving and development of communities and the society involves or requires the collaboration of several sectors, especially government organizations and crowdsourcing platform service providers. All of these organizations have to realize the value of information from the civic sector and its benefits. Most of all, the data analysis of big data or macro-tasks must be useful for problem-solving and the development of the community and society.

> "By working on the platform, we can see the problems of trees, dust, black smoke, etc., that lead to the government's management and problem-solving… However, without true problem-solving, it will become useless." (User 1, personal communication, April 9, 2021)

3) Users' public mind. It is the concern of common public benefits, and adherence to public benefits, without concern about personal benefits. It includes users' understanding of their and others' rights without destroying or exploiting individuals, society, culture, nation, and the environment. The indicators of users' public mind are volunteering and assisting a community or society with willingness, the contribution of time, physical strength, spirit, money, and wisdom for a community or society, as follows:

Volunteering and assisting a community or society with willingness is users' feeling in participating in news reporting with understanding and willingness by wishing to assist a community or society while realizing that public benefits are more than important than personal ones.

> "I just want to sacrifice doing something without expecting anything in return. That's it. We have been working for supporting human fellows as consistently as we could. We think that we are at a higher level, and we have chances to do something to save our human fellows, so we should do it to reduce the loss of our friends at a lower level…so we are happy to work for the community…We feel proud deeply for what we have done for public benefits." (User No. 5, personal communication, April 19, 2021)

The contribution of time, physical strength, spirit, money, and wisdom for a community and wisdom is users' readiness for devoting themselves to public benefits in various ways: time, physical strength, spirit or encouragement, money, or wisdom willingly without expecting anything in return.

> "We have public mind for helping society. The first thing is to understand that doing something like this is a sacrifice. We must have an intention to help society and our land. However, the establishment of people participation needs time, and requires self-sacrifice, i.e., physical strength, money, or several other things. Still, what we do makes us happy and get merit. That's all I think of." (User No. 9, personal communication, April 9, 2021)

Remarkably, intrinsic motivation in terms of users' public mind was reflected in the opinion of users who used to participate in news reporting on the Hatyai City Climate Platform, which is the platform developed by civic organizations (the civil society), emphasizing flooding problems in U-tapao canal watersheds, Songkhla Province, which is the problem to which local people give the highest importance.

4.2.1.2 Extrinsic Motivation

Extrinsic motivation is an individual's condition, stimulated by external stimulus, towards his/her goal, which leads to his/her behavior. From the study, extrinsic motivation is found to compose of group or social acceptance, monetary and non-monetary rewards, as follows:

1) Group or social acceptance is an individual's behavioral expression to achieve group membership or social acceptance, in terms of being accepted to be a group or societal member and being admired or respected by other group or social members, i.e., admiration, praise, a commemorative certificate, the appointment to be a committee, reference, or accredited pieces of work.

> "When we got feedback, sometimes they told us that they had viewed our task and praised that it's good. Although, they did not press likes or anything, we were happy and proud, and had power to continue working on it." (User No. 9, personal communication, April 8, 2021)

> "Some kinds of motivation…may not be monetary since news or journalistic organizations cannot pay everyone who provides information for them. Some people may be motivated by achievement needs, some value what they do is valuable, and some want to be a part of doing beneficial things for society. Besides, some people participate because they value their work and want to play some roles in society, or to have the feeling that certain problems were resolved because of their participation. Some need to be accepted by others…Those who participate will feel that they are heroes behind those changes." (Scholar No. 2, personal communication, March 18, 2021)

2) Reward relates to an individual's behavioral expression to be rewarded or receive direct remuneration, which comprises non-monetary and monetary rewards as indicators.

The non-monetary reward is a non-monetary motivator or something that has psychological value or can enhance individuals' value or indicate individuals' derived fame or honor (Such as souvenirs, commemorative certificates, positional promotion, etc.) that arouses them to behave in certain ways.

> "Despite people's enthusiasm, the government sector seldom increases their motivation by honoring or encouraging them. Some people are the Municipality's employees, District representatives, village chiefs, or even ordinary people. How should they be promoted to get some honors for stimulating them towards increased morale and motivation in working." (User No. 7, personal communication, May 10, 2021)

Monetary reward is a monetary motivator, i.e. prizes, internet fees, travel costs, etc.) that arouses an individual to behave in certain ways. However, in this study, there was only one user who is a news reporter on the crowdsourcing platform regularly and continually and reflected the monetary reward as extrinsic motivation. Moreover, most news pieces or micro-tasks of this user were presented through mass media, as an independent producer, which belongs to a group that produces news for TV programs as well.

> “Notably, no remuneration was given. Actually, we should be paid for something, such as internet fees or some trivial costs, but here we receive nothing. We always say that some monetary returns should be given. “Some” here means something reasonable, depending on the consideration of how much should be provided, but there should be some monetary rewards to stimulate people to participate.” (User No. 3, personal communication, June 16, 2021)

4.2.2 Perceived Usefulness of the System

From the interviews, the perceived usefulness of the system affecting users’ participation in news reporting on the C-Site and Hatyai City Climate Platforms is found to comprise usefulness for tasks and usefulness for communities or the society, as illustrated in Table 4.3

Table 4.3 The Findings of the Data Analysis of the Perceived Usefulness of the System Factors that Affect Users' Participation in News Reporting on the C-Site and the Hatyai City Climate Platforms

Perceived Usefulness	**Key Informants**																				**Total**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	
Usefulness for tasks		✓	✓	✓		✓	✓					✓	✓	✓		✓	✓	✓	✓			**12**
Usefulness for the community or society		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	**17**

4.2.2.1 Usefulness for tasks. Users believe that crowdsourcing platforms are useful for increasing working effectiveness and tend to accomplish tasks well. Such perception influences users' technology acceptance directly.

> "We want to have a channel for communicating our issue to mass media or general people. Previously, when we have any issue, we must hire freelance journalists who help to sell our news to the mainstream media…However, when we use the C-Site Platform, we can cut news-selling cost…We now can write our news and share it…Our news editing staff also help to expand it and make the news bigger, which is useful for developing our work." (User No. 2, interview, May 27, 2021)

4.2.2.2 Usefulness for the community or society. Users believe that crowdsourcing platforms can create value for communities or society as a tool for collecting community information and supporting the establishment of guidelines or policies that facilitate community or social problem-solving and development.

> "We can see an effort in collaborative protection of local people, scholars, and local agencies, who fight with capitalists. The result of the most recent effort can be witnessed that the protected areas possess very good ecology with rare birds and plants. Then, they started to think that they should use this platform for collecting community data, which should help to support them." (Crowdsourcer No. 2, personal communication, April 8, 2021)

> "The Hatyai City Climate Website does not help us about rainfall or floods only, but also agriculture and ways of living of people. For example, our people may see the sky is clear, but the radar can pick up some precipitation, so people will not do rubber tapping. This can reduce damage." (User No. 5, personal communication, April 19, 2021)

4.2.3 Perceived Ease of Use

From the interviews, factors of perceived ease of use are found to affect users' participation in news reporting on the C-Site and Hatyai City Climate Platforms, which comprise easy, simple, and convenient use of the system; and users' quick understanding and learning of how to use the system, as illustrated in Table 4.4.

Table 4.4 The Findings of the Analysis of Perceived Ease of Use Factors Affecting Users' Participation in News Reporting on the C-Site and Hatyai City Climate Platforms

Perceived Ease of Use	Key Informants																					Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
- Easy, incomplex, and convenient system for use	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	**17**
- Users' quick understanding and learning of how to use the system.				✓	✓		✓							✓								**4**

4.2.3.1 Easy, incomplex, and convenient system for use. Users believe that the system of crowdsourcing platforms is easy, simple, and convenient for use for reading and searching information, membership application, opening the system, importing data, images, and video clips, and finding locations from map pinning, including correcting, deleting, and sending data. All of these features are consequences of planning and design that concern user experience (UX) to be received to satisfy users with the operating system as much as possible. Therefore, user experience is very vital for the success or failure of the system. (Egkarin Watanyulertsakul, 2021, p. 29)

> "Tools or platforms must be easy without complexity because if users feel they are difficult, they don't want to use them." (Scholar No. 2, personal communication, March 18, 2021)

4.2.3.2 The use of a system that can be understood and learned quickly. Users believe that they can understand and learn how to use the system rapidly despite no learning before. They can do it by self-learning from a handbook, instruction video clips, or consultation by a proposing organization.

Although "the ease of the system use" was designed based on user experience (UX), which aims toward problem-solving or responding to users' needs as much as possible, it still requires a format that users can use easily and conveniently without any complexity. Users can understand and learn how to use it quickly. Such properties are more important than their beautiful outlook. Still, beauty cannot be neglected. Generally, the system must be designed in connection with the user interface (UI), which is the connection part between users and the system for carrying data import and sending feedback to users, i.e., the design of platform layout and a display of results (such as a menu, fonts, color, image positioning, graphic, sound, etc.) It must look beautiful, simple, and attractive to achieve the utmost level of user satisfaction (Egkarin Watanyulertsakul, 2021, p. 28), or the so-called "User friendly system."

> "Now, it may not look so attractive, but nowadays we keep changing and considering if it looks interesting or attractive. Are colors and fonts easy to read? Is it easy to use? How to make all buttons, language or words easy to

access and look the simplest? All of these have constantly been modified." (Crowdsourcer No. 5, personal communication, May 29, 2021)

Notably, from in-depth interviews with the key informants, it was found that the said system development and design have not gratified users' needs or solved their problems yet, especially in the aspect of easy and convenient use of the system.

"The platform is very good in terms of loading information, details, and images. However, the C-Site Platform has not reached general people due to some limitations and its inconvenient use. Besides, it has not been public like Line or Facebook. Therefore, users send their images to our Page…as it is required to upload all determined information so it is quite difficult." (User 1, personal communication, April 9, 2022)

"The problem often occurs on the website is when someone writes long news that takes time, it cannot be uploaded…but for the application, it's ok and easy." (User No. 2, personal communication, May 27, 2021)

4.2.4 The Interaction between Crowdsourcers and Users

From the interviews, the interaction between crowdsourcers and uses is found to affect users' participation in news reporting on the C-Site and Hatyai City Climate Platforms, which comprises consistent communication, both online and offline, and the interaction during the operation in the area, as illustrated in Table 4.5

Table 4.5 The Findings of the Analysis of the Effect of the Interaction between Crowdsourcers and Users on Users' Participation in News Reporting on the C-Site and Hatyai City Climate Platforms

Interaction between Crowdsourcers and Users	**Key Informants**																					**Total**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	
Regular communication, both online and offline	✓	✓	✓	✓	✓	✓	✓		✓	✓				✓		✓	✓		✓		✓	**14**
Interaction during the operation in the area.	✓	✓		✓	✓	✓	✓		✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	**16**

4.2.4.1 Regular communication, both online and offline is the creation of engagement and interaction with communities. Online interaction is the interaction between organizational personnel and online users who operate on the internet, i.e., comments, recommendations, communication on a web board, sending retrospective video clips to users, etc. Offline interaction is the interaction between organizational personnel and users who do not work through the internet, but through the telephone for following an issue, asking for additional information, and verifying or checking an issue together.

> "A part of Facebook is to empower the networks to participate on our space increasingly…We have tried to upload their work, send our feedback or comments, etc. to ensure that their tasks have been communicated. It is not just the use of space on the C-Site Platform only. Another part is we contact offline. Actually, the percentage of offline contact is higher." (Crowdsourcer No. 3, personal communication, April 8, 2021)

4.2.4.2 The interaction during the operation in the area is the creation of engagement and interaction between organizational personnel and users in the physical public space during their operation in the area, i.e., workshops, roadshow activities, group discussion, working with issue-related networks, collaboration with alliances, such as government, private, and civic sectors.

> "We do not only work with data, but we have a chance to be with them. For example, in 2019, we faced heavy rain, and we anticipated that the area would be flooded in three hours. At that time, the Royal Irrigation Department did not believe so, so we invited its staff to have coffee with us and see if it would be flooded or not. Mostly, we develop horizontal relationships that can mobilize and make our platform alive and powerful. On the other hand, with every jigsaw: The civic sector, local people, and government agencies, we also have top-down operations. (Crowdsourcer No. 6, personal communication, April 7, 2021)

4.2.5 Organizational Factors

From the interviews, organizational factors are found to affect users' participation in news reporting on the C-Site and Hatyai City Climate Platforms, which comprises organizational goals/mission, credibility, transparency, and sincerity, including users' trust in the organization, as illustrated in Table 4.6

Table 4.6 The Findings of the Analysis of Organizational Factors Affecting Users' Participation in News Reporting on the C-Site and Hatyai City Climate Platforms

Organizational Factors	**Key Informants**																					**Total**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	
Organizational goals/mission				✓	✓				✓	✓	✓	✓			✓	✓						**8**
Organizational credibility			✓	✓						✓						✓						**4**
Users' trust in the organization			✓	✓	✓		✓		✓	✓	✓					✓						**8**
Organizational transparency and sincerity						✓		✓							✓							**3**

4.2.5.1 Organizational goals/mission. An organization should have a clear goal and mission for developing a crowdsourcing platform for news reporting, such as to create and support the public sphere and participation of the civic sector, strengthen the civil society or create democratic participation**,** and mobilize problem issues to be social agenda, etc. Remarkably, what the key informants agree with the most is that a proposing organization must give importance to the civic sector's issues or information by applying the information of each area for analysis towards insightful guidelines for solving problems of each area.

> "Don't ever do it because it is a trend. Once it is created, the question is what it should be operated. Therefore, it must be designed how the received information will be used, which is important. Finally, the question of the editorial board is what its goal is. Before applying a crowdsourcing process, a clear standpoint is needed. For what purpose will a crowdsourcing process be operated? After gathering information, what will be done next? Thus, the goal must be clear." (Scholar No. 2, personal communication, March 18, 2021)

Besides organizational goals, the key informants who are scholars in the field of digital journalism expressed their opinions that the driving of organizational personnel toward the common goals and the perceived value and importance of the concept of crowdsourcing are also key success factors. Organizational personnel must accept that the stimulation of people's interest and participation in news reporting is a part of their missions. (Matana Charoenwong, 2019, p. 109)

> "People who create the platform must understand and see the importance of information in crowdsourcing platforms as well…They must believe that people can be an important part in a communication process. It thus depends on their main concept. If their main concept believes in the information derived from non-professional people, but ordinary people, they must try everything to approach people and listen to them. This involves a mindset of a journalist, which is hard to change, especially for people working in this career for a long time. Therefore, we need to change their mindset considerably to be able to continue our task. Otherwise, we will circulate in the old loop.

Technology can facilitate us." (Scholar No. 4, personal communication, June 4, 2021)

4.2.5.2 Organizational credibility is the general people's acceptance and trust in an organization, as a consequence of their perception of an organization's actions and behaviors, which affects an organization's reputation and leads to users' trust.

"Another factor is the matter of organizational credibility derived from the nature of the organization as a public media organization or a mediating or central organization that connects with relevant agencies. Supposing local people and the government agency have some conflicts (which in reality there might be or might not be) we, as a joint, must play a role of a mediator and invite the two parties to negotiate for mutual understanding. Alternatively, we should give a feeling that our information does not come from scholars or local people representatives, we are also reference sources or we can conduct a matching." (Crowdsourcer No. 4, personal communication, April 26, 2021)

4.2.5.3 Users' trust in the organization comes from the public's perception of the organization's expressed action and behaviors, i.e., accountability, the maintenance of jointly-used data, and keeping of users' security.

"The Hatyai City Climate Platform can operate because of its relationships and trustworthiness in co-working. When crowdsourcing is operated, people cannot see where the workers are so there is no offline relationships, but only online ones. However, as our work is related to the area, we use such relations as a facilitator. Therefore, we have both online and offline relationships." (Crowdsourcer No. 7, personal communication, April 8, 2021)

"For any piece of news or information users will send to us, they have to be assured that they will be secure from sending such information, i.e., information about corruptions. If they are in a government agency and witness some kinds of information, what should we do to make them trust and confident that the transmitted message will not affect them in any way. On the

contrary, users have to be assured that their information can facilitate problem-solving or point out the cause of problems. If so, they will create trust for people you will send any information to the concerned office." (Scholar No. 4, personal communication, June 4, 2021)

4.2.5.4 Organizational transparency and sincerity is an organization's honest and transparent management and operation, systems, and rules, including open, straightforward, and sincere operation and communication.

"Transparency and sincerity of activity organizers can be expressed through their straightforward revelation to the crowd that they will ask for information exchanges. Such information will be presented If the crowd submits the needed information or some specific news that respond to the crowd's needs." (Scholar No. 1, personal communication, March 15, 2021)

In short, factors affecting users' participation in news reporting on crowdsourcing platforms comprise 1) personal motivation, 2) perceived usefulness, 3) perceived ease of use, 4) the interaction between crowdsourcers and users, and5) organizational factors. Such findings from the interviews were used for creating questions in the questionnaire to analyze factors affecting users' participation in news reporting on Thai crowdsourcing platforms, which will be presented in the next chapter.

CHAPTER 5

THE FINDINGS OF QUANTITATIVE RESEARCH

The study, “The Process and Users’ Participation in News Reporting on Thai Crowdsourcing Platforms, was conducted by quantitative research with a survey questionnaire to examine factors affecting users’ participation in news reporting on Thai crowdsourcing platforms, which leads to the development of a proper structural equation model of factors affecting users’ news reporting on Thai crowdsourcing platforms that is congruent with the empirical data. The findings were analyzed and presented in two parts, as follows:

Part 1: The findings of descriptive data

1) General information of the questionnaire respondents
2) The system usage and frequency
3) Factors affecting users’ participation in news reporting on Thai crowdsourcing platforms.
4) Users’ participation in news reporting on Thai crowdsourcing platforms.

Part 2: The findings of the structural model

1) Data validation before the structural model analysis
2) The analysis of the measurement model
3) The analysis of the structural model

Symbols and Abbreviations Used in Data Analysis

For a common understanding of data presentation and interpretation, the following symbols and abbreviations are used:

1) Symbols representing statistical values

Mean	means Mean
SD	means Standard Deviation
MAX	means Maximum
MIN	means Minimum

S.E.	means Standard Error
C.R.	means Critical Ratio (t-value)
CR	means Composite Reliability
AVE	means Average Variance Extract
α	means Cronbach's Alpha
R^2	means Coefficient of Determination
p	means at a statistical significance level
RMR	means Root Mean Square Residual
GFI	means Goodness of Fit Index
AGFI	means Adjusted Goodness of Fit Index
NFI	means Normed Fit Index
RFI	means Relative Fit Index
IFI	means Incremental Fit Index
TLI	means Tucker Lewis Index
CFI	means Comparative Fit Index
PNFI	means Parsimony Normed Fit Index
RMSEA	means Root Mean Square Error of Approximation
RMR	means Root Mean Square Residual
DE	means Direct Effect
IE	means Indirect Effect
TE	means Total Effect

2) Abbreviations for variables

MO	means Motivation (Latent variable)
PU	means Perceived usefulness (Latent variable)
PE	means Perceived ease of use (Latent variable)
IN	means Interactive (Latent variable)
OR	means Organization (Latent variable)
BI	means Behavioral intention (Latent variable)
PA	means Participation (Latent variable)
MO1	means Intrinsic motivation (Manifest variable)
MO2	means Extrinsic motivation (Manifest variable)

PU1	means Perceived usefulness for tasks (Manifest variable)
PU2	means Perceived usefulness for communities and the society (Manifest variable)
PE1	means Perceived ease of the system use (Manifest variable)
PE2	means Perceived system usage (Manifest variable)
IN1	means Conversation and opinion expression (Manifest variable)
IN2	means Activity participation (Manifest variable)
IN 3	means Participation in the operation or a task (Manifest variable)
OR1	means Organizational goals (Manifest variable)
OR2	means Organizational credibility (Manifest variable)
OR3	means Organizational transparency (Manifest variable)
BI1	means an intention to share, press likes, and comment. (Manifest variable)
BI2	means Intention to report news (Manifest variable)
BI3	means Intention to persuade or tell others (Manifest variable)
PA1	means News reading (Manifest variable)
PA2	means Sharing, pressing likes, and giving comments (Manifest variable)
PA3	means Participation in news reporting (Manifest variable)
PA4	means Participation in developing issues/ producing news with the organization. (Manifest variable)

5.1 The Findings of Descriptive Analysis

5.1.1 General Information of the Respondents

From data collection of 100 questionnaires, the respondents' general information is analyzed by descriptive statistics, namely frequency and percentage to describe the general information of the respondents, classified by sex, age, education level, occupation, and the province of current residence. The findings are as follows:

Table 5.1 Frequency and Percentage of the Samples Classified by Sex

Sex	Frequency (Persons)	Percentage
Male	55	55
Female	44	44
Others	1	1
Total	**100**	**100.00**

From Table 5.1, it is found that 55% of all 100 samples are male, while 44 % are female and 1% are others respectively.

Table 5.2 Frequency and Percentage of the Samples Classified by Age

Age (Years Old)	Frequency (Persons)	Percentage
18-20	2	2.00
21-30	17	17.00
31-40	38	38.00
41-56	36	36.00
57-66	7	7.00
Total	**100**	**100.00**

From Table 5.2, almost all samples are of the working age or generations X and Y. From analyzing ranges of age, most samples (38%) are aged 31-40 years old, followed by 41-56 years old (36%), and 21-30 years old (17%) respectively.

Table 5.3 Frequency and Percentage of the Samples Classified by Education Level

Education Level	Frequency (Persons)	Percentage
Lower than a bachelor's degree	11	11.00
A bachelor's degree	65	65.00
Higher than a bachelor's degree	24	24.00
Total	**100**	**100.00**

From Table 5.3, almost all samples are students at a higher education level. More than half of the samples (65%) study with a bachelor's degree, followed by those higher than a bachelor's degree (24%) and lower than a bachelor's degree (11%) respectively.

Table 5.4 Frequency and Percentage of the Samples Classified by Occupation

Occupation	Frequency (Persons)	Percentage
Students	5	5.00
Government officers/state enterprise employees	35	35.00
University employees	6	6.00
Private employees	7	7.00
Agriculturists	6	6.00
Entrepreneurship/commerce/hireling	30	30.00
Others, i.e., NGOs, mass media, monks, etc.	11	11.00
Total	**100**	**100.00**

From Table 5.4, more than half of the samples are salarymen, namely university, a private company, and government, or state enterprise employees. Classifying by occupations, it is found that most samples (35%) are government/ state enterprise employees, followed by entrepreneurship, commerce, or hireling (30%), and others, i.e., NGO, mass media, and monks (11%) respectively.

Table 5.5 Frequency and Percentage of the Samples Classified by the Province of Current Residence

Province of Current Residence	Frequency (Persons)	Percentage
Bangkok	13	13.00
Krabi	2	2.00
Khon Kaen	1	1.00
Chainat	1	1.00
Chiang Mai	1	1.00
Trang	2	2.00
Tak	1	1.00
Nakhon Si Thammarat	2	2.00
Nonthaburi	1	1.00
Nan	3	3.00
Bueng Kan	1	1.00
Pathum Thani	2	2.00
Prachuap Khiri Khan	2	2.00
Phra Nakhon Si Ayutthaya	1	1.00
Phayao	1	1.00
Phatthalung	2	2.00
Phichit	1	1.00
Phitsanulok	1	1.00
Phrae	1	1.00
Phuket	3	3.00
Si Sa Ket	1	1.00
Sakon Nakhon	1	1.00
Songkhla	43	43.00
Satun	2	2.00
Samut Prakan	1	1.00
Saraburi	1	1.00
Singburi	1	1.00

Province of Current Residence	Frequency (Persons)	Percentage
Suphanburi	1	1.00
Surat Thani	1	1.00
Surin	1	1.00
Amnat Charoen	1	1.00
Udon Thani	1	1.00
Uttaradit	1	1.00
Ubon Ratchathani	2	2.00
Total	**100**	**100.00**

From Table 5.5, the samples live scatteringly in every region, but most samples live in Songkhla (43%) and Bangkok (13%).

5.1.2 The System Usage and Frequency

From data collection of 100 questionnaires, the system usage and frequency are analyzed by descriptive statistics, namely frequency and percentage for describing their usage of the system and usage frequencies by classifying into membership duration, types of the system used and frequencies, and social media used for sending news or contacting the organizations and frequencies. The findings are as follows:

Table 5.6 Frequency and Percentage of the Samples Classified by Membership Duration

System	Less than 1 Year	1-2 Years	3-4 Years	Over 5 Years
C-Site	16 (19.00%)	35 (41.00%)	34 (40.00%)	-
Hatyai City Climate	4 (12.00%)	12 (34.00%)	6 (17.00%)	13 (37.00%)

From Table 5.6, more than half of the samples have a membership duration of less than 1-4 years and only 37% over 5 years. It is found that the samples of the C-Site System have 1-2 years membership duration the most (41%), followed by 3-4 years (40%), whereas the samples of the Hatyai City Climate System have over 5 years membership duration the most, followed by 1-2 years duration.

Table 5.7 Frequency and Percentage of Types of the System Used and Usage Frequency

Type of the System Used	**Usage Frequency**						
	Never	**Every Day**	**5-6 Days/ Weekly**	**3-4 Days/ Weekly**	**1-2 Days/ Weekly**	**2-3 Times/ Monthly**	**Once A Month**
Web application	9 (9.00%)	21 (21.00%)	13 (3.00%)	7 (7.00%)	24 (24.00%)	12 (12.00%)	14 (14.00%)
Android operation system Mobile application	34 (34.00%)	19 (19.00%)	9 (9.00%)	9 (9.00%)	13 (13.00%)	8 (8.00%)	8 (8.00%)
iOS operation system Mobile application	48 (48.00%)	17 (17.00%)	7 (7.00%)	6 (6.00%)	4 (4.00%)	8 (8.00%)	10 (10.00%)

From Table 5.7, the samples' usage frequency of each type of the system is as follows:

Web application. The samples use the web application 1-2 days weekly (24%), followed by every day (21%), and once a month (14%) respectively.

Mobile application on the Android operation system. Most samples never use a mobile application on the Android operation system (34%), followed by every day (19%), and 1-2 days weekly (13%) respectively.

Mobile application on the iOS operation system. Almost half of the samples never use a mobile application on the iOS operation system (48%), followed by every day (17%), and once a month (10%) respectively.

Table 5.8 Frequency and Percentage of the Samples Using Social Media for Sending News or Contacting the Organizations and Usage Frequency

Social Media Used	Usage frequency				
	Never	**Once a day**	**2-3 times daily**	**4-5 times daily**	**More than 5 times daily**
Facebook	11 (11.00%)	18 (18.00%)	18 (18.00%)	10 (10.00%)	43 (43.00%)
Line	15 (15.00%)	14 (14.00%)	22 (22.00%)	9 (9.00%)	40 (40.00%)

From Table 5.8, the samples use social media for sending news or contacting the organizations every day, starting from 1 time to more than 5 times daily. Almost half of them use Facebook (43%) and Line (40%) more than 5 times daily in sending news or in contacting organizations. 11% of them never use Facebook for sending news or contacting the organizations, and 15% never use Line.

5.1.3 The Findings of Factors Affecting Users' Participation in News Reporting on Thai Crowdsourcing Platforms

From data collection of 100 questionnaires, factors affecting users' participation in news reporting on Thai crowdsourcing platforms are analyzed by descriptive statistics, namely mean and standard deviation for describing the level of the samples' opinion or perception on the factors affecting users' participation in news reporting on Thai crowdsourcing platforms by classifying into factors of personal motivation, perceived usefulness, perceived ease of use, the interaction between crowdsourcers and uses, and organizational factors. The findings are as follows:

Table 5.9 Mean and Standard Deviation of Personal Motivation Factors

Personal Motivation	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
1. Perception of the interestingness of incident/news issues	4.40	.636	Highest
2. Perception of the community-related incident/ news issues.	4.43	.640	Highest
3. Perception of the effect of incidents/ news on the respondent/ community/ society	4.37	.787	Highest
4. Perception of the importance and usefulness of communication in the public sphere through web/ mobile applications for community/society	**4.56**	**.701**	**Highest**
5. Needs to obtain information/ movement reports of the community/society	4.44	.686	Highest
6. Needs to distribute information to be widely informed	4.44	.743	Highest
7. The increased size of online community information storage source	4.09	.793	High
8. Needs to make use of big data in the system for supporting the establishment of guidelines and policies for problem-solving and community development	4.32	.665	Highest
9. Needs to volunteer to report the news with a willingness	4.23	.777	Highest
10. Readiness for devoting time, physical strength, encouragement, and wisdom to news reporting without expecting anything in return	4.16	.775	High

Personal Motivation	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
11. Readiness for providing financial support for news reporting	3.73	.920	High
12. Needs to be known among community or societal members increasingly	3.85	.892	High
13. A feeling of self-worth and self-pride in helping the community/society	4.31	.734	Highest
14. Perception that rewards, souvenirs, and commemorative certificates should be given to news-reporting members regularly	3.89	.909	High
15. Perception that monetary rewards and remunerations should be given to news reporting members regularly	3.66	1.047	High
The overall mean	**4.19**	**.513**	**High**

From Table 5.9, the overall samples have personal motivation to participate in news reporting on Thai crowdsourcing platforms at a high level (X = 4.19). From analyzing each statement, the samples are motivated toward news reporting on the crowdsourcing platforms because of their perception of “the importance and usefulness of communication on public sphere through web/ mobile applications for community/society” (X = 4.56), followed by “needs to provide information and report community and social movements,” and “need to distribute information to be widely informed,” at the highest level equally (X = 4.44), “perception of community-related incidents or news issues” at the highest level (X = 4.43) respectively.

Table 5.10 Mean and Standard Deviation of Perceived Usefulness Factors

Perceived Usefulness of the System	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
1 The system helps to increase working effectiveness	4.14	.636	High
2 The system helps to accomplish task objectives	4.07	.640	High
3 The system helps to facilitate big data storage.	4.16	.677	High
4 The system helps to apply big data for extending or creating guidelines or policies for problem-solving and community development.	**4.25**	**.626**	**Highest**
The overall mean	**4.16**	**.537**	**High**

From Table 5.10, the overall samples perceive the usefulness of Thai crowdsourcing platforms at a high level (X = 4.16). From analyzing each statement, the samples perceive that crowdsourcing platforms help to apply bid data for extending or creating guidelines or policies for problem-solving and community development the most (X = 4.25), followed by “the system can help to facilitate big data storage at a high level (X = 4.16), and “the system can help to increase working effectiveness” at a high level (X = 4.14) respectively.

Table 5.11 Mean and Standard Deviation of Perceived Ease of Use Factors

Perceived Ease of Use	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
1. The system is equipped with clear and simple sequences of content without the complexity	4.03	.643	High
2. The system can make users understand and use it without too much effort.	4.03	.717	High
3. Users can learn how to use the system quickly	**4.06**	**.617**	**High**
The Overall Mean	**4.04**	**.575**	**High**

From Table 5.11, the overall samples perceive easy usage of Thai crowdsourcing platforms at a high level (X = 4.04). Classifying into each statement, the samples perceive that crowdsourcing platforms as “a system that users can learn how to use quickly” the most (X = 4.06), followed by “the system is equipped with clear and simple sequences of content without complexity,” and “users can understand and use the system without too much effort” at a high level equally (X = 4.03) respectively.

Table 5.12 Mean and Standard Deviation of the Factors of the Interaction Between Crowdsourcers and Content

Interaction between Crowdsourcers and Users	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
1. Communication or additional information request through telephone and online is regular	3.84	.861	High
2. Organizational opinion expression and recommendation provision help	4.07	.728	High

Interaction between Crowdsourcers and Users	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
to increase the need for news reporting development			
3. Participation and training help to know and be familiar with the organization increasingly.	**4.19**	**.748**	**High**
4. The organization participates in working and planning tasks	4.02	.765	High
5. The organization participates in working and planning with the community	3.97	.858	High
The overall mean	**4.02**	**.669**	**High**

From Table 5.12, the overall samples have a high level of opinions on the interaction between crowdsourcers and users at a high level (X = 4.02). From analyzing each statement, the samples perceive "participation in activities and training help to know and be familiar with the organization increasingly," (X = 4.19) the most, followed by "organizational opinion expression and recommendation provision help to increase needs towards better news reporting development," at a high level (X = 4.07), and "the organization participates in working and planning tasks" at a high level (X = 4.02) respectively.

Table 5.13 Mean and Standard Deviation of Organizational Factors

Organizational Factors	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
1. Clear operational goals related to the system development and usage	4.10	.611	High
2. Organizational credibility and reputation, and people's acceptance	**4.32**	**.618**	**Highest**
3. Users' trust in the organizational	4.27	.548	Highest

Organizational Factors	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
operations in information maintenance for common use.			
4. Users' trust in the organizational operations in keeping users' security	4.24	.605	Highest
5. Users' trust in the organizational operations that are transparent, sincere, and disclose factual information	4.26	.597	Highest
The overall mean	**4.24**	**.509**	**Highest**

From Table 5.13, the overall samples have a level of opinion on organizational factors at a high level (X = 4.24). From analyzing each statement, the samples perceive "organizational credibility and reputation, and people's acceptance" at a high level (X = 4.32) the most, followed by "trust in organizational operations in information maintenance for common use," at a high level (X = 4.27), and "trust in the organizational operations that are clear, sincere, and disclose factual information," at a high level (X = 4.26) respectively.

Table 5.14 Mean and Standard Deviation of the Factors of Intention to Participate

Intention to Participate	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
1. Intention to share interesting news or news that is beneficial for communities and society.	**4.41**	**.552**	**Highest**
2. Intention to press likes to information or news that is interesting or useful for communities and society	4.40	.569	Highest
3. Intention to express opinions or post issues on a web board.	3.84	.775	High

Intention to Participate	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
4. Intention to report news, post news images and scoops, upload news clips, and pin a map.	4.15	.672	High
5. Intention to report news continually in the future	3.91	.726	High
6. Intention to persuade or tell family members, friends, or acquaintances to apply for membership.	4.03	.643	High
The overall mean	**4.12**	**.493**	**High**

From Table 5.14, the overall samples have a level of opinion on the intention to participate at a high level (X = 4.12). From analyzing each statement, the samples "intend to share information or news that is interesting and useful for communities and society" at the highest level (X = 4.41), followed by "intention to press likes to information or news that is interesting and useful for communities and society at the highest level (X = 4.40), and "intention to report news, post news images and scoops, upload clips, and pin a map" at a high level (X = 4.15) respectively.

Table 5.15 Mean and Standard Deviation of Factors Affecting Users' Participation in News Reporting on Thai Crowdsourcing Platforms

Factors Affecting Users' Participation in News Reporting on Crowdsourcing Platforms	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
Personal motivation factors	4.19	.513	High
Perceived usefulness factors	4.16	.537	High
Perceived ease of use factors	4.04	.575	High
Factors of the interaction between crowdsourcers and users	4.02	.669	High
Organizational factors	**4.24**	**.509**	**Highest**

Factors Affecting Users' Participation in News Reporting on Crowdsourcing Platforms	Level of Opinion		
	Mean	**S.D.**	**Interpretation**
Intention to participate factors	4.12	.493	High
The overall mean	**4.13**	**.085**	**High**

From Table 5.15, the overall samples have a level of opinion on factors affecting users' participation in news reporting on crowdsourcing platforms at a high level (X = 4.13). From analyzing each factor, the samples have a higher level of opinion on "organizational factors" than other factors at the highest level (X = 4.24), followed by "personal motivation factors", both intrinsic and extrinsic, at a high level (X = 4.19), and "perceived usefulness" of the system at a high level (X = 4.16) respectively. Notably, the factors of the interaction between crowdsourcers and users are found to have a lower level of opinion than other factors.

5.1.4 The Findings of Users' Participation in News Reporting on Thai Crowdsourcing Platforms

From data collection of 100 questionnaires, users' participation in news reporting on Thai crowdsourcing platforms are analyzed by descriptive statistics, namely mean and standard deviation for describing users' level of opinion on their participation in news reporting on Thai crowdsourcing platforms. The findings are as follows:

Table 5.16 Mean and Standard Deviation of Users' Participation in News Reporting on Thai Crowdsourcing Platforms

Participation in News Reporting on Thai Crowdsourcing Platforms	Level of Participation		
	Mean	**S.D.**	**Interpretation**
1. Reading news, maps, and clips	**3.95**	**.796**	**High**
2. Sharing news, maps, and clips	3.78	.883	High
3. Sharing news, maps, and clips by expressing an additional opinion	3.60	.921	High

Participation in News Reporting on Thai Crowdsourcing Platforms	Level of Participation		
	Mean	**S.D.**	**Interpretation**
4. Pressing likes for favorite or interesting information or news	3.93	.844	High
5. Expressing opinions or posting issues on a web board	3.47	1.049	High
6. Reporting or posting the edited and arranged news/ images/ clips	3.79	.977	High
7. Participating in developing issues or producing news pieces or micro-tasks with the organization for publicity via various media.	3.77	1.024	High
The overall mean	**3.72**	**.162**	**High**

From Table 5.16, the overall samples have a high level of participation in news reporting on Thai crowdsourcing platforms (X = 3.72). From analyzing each statement, the samples participate in "reading news, maps, and clips on the web and mobile applications" more than other types of participation (X= 3.95), followed by "pressing likes for favorite or interesting issues or news," (X = 3.93), and "reporting and posting the edited and arranged news, clips, maps, and scoops" at a high level (X = 3.79).

5.2 The Findings of the Structural Model Analysis

In this part, the relationships between variables are analyzed by 1) confirmatory factor analysis to test the relationship between the manifest and latent variables, and 2) path analysis to test the causal relationship between latent variables, which are the causal variable and the latent variables that are dependent in the model to verify the congruence between the hypothesized or developed a model with the empirical data. The findings are presented in 3 parts, as follows:

5.1.1 Data validation before the structural model analysis

5.1.2 The analysis of the measurement model

5.1.3 The analysis of the structural model

5.2.1 Data Validation Before the Structural Model Analysis

In this part, fundamental statistics of the manifest variables are analyzed to explain the findings of the test of the preliminary agreement of the structural model analysis, with details as follows:

1) Data completeness

Information was collected from the samples by a survey questionnaire until reaching the number of the questionnaires was determined by the criteria. All 100 questionnaires were checked or validated for completeness to prevent missing data until data of all variables could be coded completely.

2) Data Normality

From analyzing the skewness and kurtosis of information for ensuring that the data are drawn from a population that has a normal distribution of all 19 manifest variables. The findings show that the skewness is between -1.073 and 0.076, the kurtosis f -0.598 and 3.092, and the overall normality fall between -2 and +2, which can be concluded that almost all manifest variables have a normal distribution. (Tabachnick & Fidell, 2007)

Table 5.17 The Skewness and Kurtosis of the Manifest Variables

Manifest Variables	Skewness		Kurtosis	
	Statistics	Std. Error	Statistics	Std. Error
1. Intrinsic motivation (Mo1)	-1.073	0.241	3.092	0.478
2. Extrinsic motivation (Mo2)	-0.246	0.241	-0.212	0.478
3. Perceived usefulness for tasks (PU1)	0.076	0.241	-0.598	0.478
4. Perceived usefulness for communities and society (PU2)	-0.276	0.241	-0.312	0.478
5. Perceived ease of the system (PE1)	-0.492	0.241	1.074	0.478
6. Perceived system-usage methods	-0.107	0.241	-0.009	0.478

Manifest Variables	Skewness		Kurtosis	
	Statistics	Std. Error	Statistics	Std. Error
(PE2)				
7. Conversation and opinion expression (IN1)	-0.82	0.241	2.435	0.478
8. Activity participation (IN2)	-1.065	0.241	2.521	0.478
9. Working participation (IN3)	-0.895	0.241	1.927	0.478
10. Organizational clear goals (OR1)	-0.325	0.241	0.799	0.478
11. Organizational credibility (OR2)	-0.115	0.241	-0.33	0.478
12. Organizational transparency (OR3)	-0.157	0.241	-0.499	0.478
13. Intention to share, press likes, and express opinions (BI1)	-0.016	0.241	-0.003	0.478
14. Intention to report news (BI2)	-0.199	0.241	-0.086	0.478
15. Intention to persuade and tell others (BI3)	-0.027	0.241	-0.525	0.478
16. Reading news (PA1)	-0.522	0.241	0.031	0.478
17. Sharing, pressing likes, and opinion expression (PA2)	-0.343	0.241	-0.546	0.478
18. News reporting (PA3)	-0.69	0.241	0.12	0.478
19. Issue development/news production with the organization (PA4)	-0.848	0.241	0.492	0.478

3) Correlation Analysis

From the correlation analysis by Bartlett's test, all variables are correlated at a statistical significance level of .05. Then, after testing the appropriateness for variables to be used for analyzing a confirmatory factor analysis by Kaiser-Meyer-Olkin, MSA (Measure of Sampling Adequacy) is .834, and for Barrett's Test of Sphericity with approximate distribution, Chi-Square is 1340.199 at a statistical significance level of .01. From analyzing each variable, the correlation is

.673-.913, which is greater than .50 (Hair et al., 2019). Thus, it can be concluded that the variables to be studied are appropriate for confirmatory factor analysis.

Table 5.18 The Results of the Correlation Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.834
Bartlett's Test of Sphericity	Approx. Chi-Square	1340.199
	Df	171
	Sig.	.000

5.2.2 Measurement Model Analysis

In this part, the findings from the test of the congruence of the measurement model of 7 latent variables by a confirmatory factor analysis before the analysis of the structural equation model, classified by each variable, are as follows:

5.2.2.1 The Measurement Model of Personal Motivation Variables (MO)

The model consists of two manifest variables: Intrinsic motivation (MO1) and extrinsic motivation (MO2).

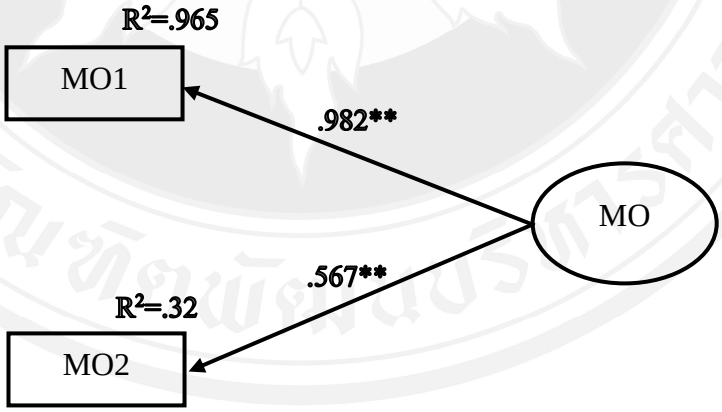

Figure 5.1 The Factor Loading of Personal Motivation Variables

From the measurement model analysis of the latent variable, comprising two manifest variables, after the modification of the structural model by a double-

headed arrow link between variable errors, following the recommended modification indices (MI) (Yuth Kaiwan, 2013), the overall statistics are considered as acceptable, with details as follows:

Table 5.19 Congruence Indices between the Measurement Model and Personal Motivation Variables and the Empirical Data after the Model Modification

Congruence Measurement Statistics The Measurement Model of Personal Motivation Variables	**Congruence Acceptable Value**	**Modification Indices**	**Congruence of the Model**
1. Chi-Square	p-value > 0.05	.994	Congruent
2. Chi-Square/df	< 3	.000	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	1.000	Congruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	1.000	Congruent
5. Comparative Fit Index (CFI)	> 0.95	1.000	Congruent
6. Normed Fit Index (NFI)	> 0.95	1.000	Congruent
7. Tucker Lewis Index (TLI)	> 0.95	1.028	Congruent
8. Root Mean Square Residual (RMR)	< 0.05	.000	Congruent
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.000	Congruent

Table 5.19 presents the results of the congruence test of the measurement model of personal motivation variables and the empirical data by 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the analysis of other indices, all congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of personal motivation variables is congruent with the empirical data.

Table 5.20 The Factor Loading, Composite Reliability, Average Variance Extracted, and Cronbach's Alpha Coefficient of Personal Motivation Variables

Manifest Variables of Personal Motivation Variables	**Loading**	**CR**	**AVE**	α
Intrinsic motivation (MO1)	.982	0.771	0.643	.939
Extrinsic motivation (MO2)	.567			

From Table 5.20, the manifest variable that has the highest factor loading is intrinsic motivation (= .982), followed by extrinsic motivation with a factor loading of .567. The composite reliability of the measurement model of personal motivation variables is 0.771, which is higher than 0.7. (Hair et al., 1998), while the average variance extracted is 0.643, which is higher than 0.5, and Cronbach's alpha is .939, which is higher than 0.8. Therefore, the measurement model of personal motivation variables has an appropriate level of structural reliability.

5.2.2.2 The Measurement Model of Perceived Usefulness Variables (PU)

The model consists of two manifest variables: Perceived usefulness for tasks (PU1) and perceived usefulness for communities and society (PU2).

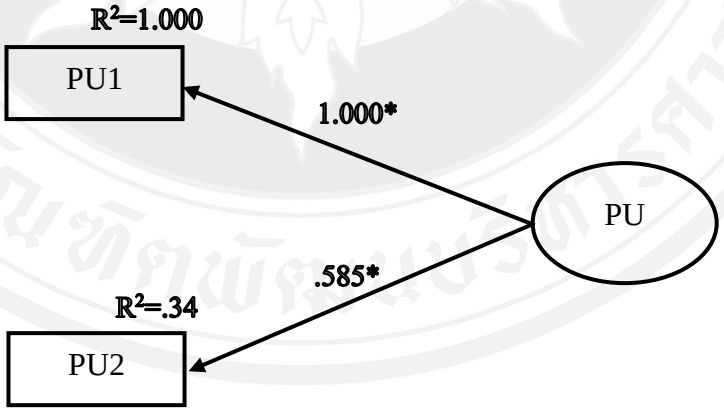

Figure 5.2 The Factor Loading of Perceived Usefulness Variables

From the analysis of the measurement model of the latent variables comprising two manifest variables, it is found that after the model modification by a double-headed arrow link between variable errors per the recommended Modification Indices (MI) (Yuth Kaiwan, 2013), the overall statistics are at an acceptable level, with details as follows:

Table 5.21 The Congruence Indices between the Measurement Model of Perceived Usefulness Variables and the Empirical Data after the Model Modification

Congruence Measurement Statistics Perceived Usefulness Variables	**Congruence Acceptable Value**	**Modification Indices**	**Congruence of the Model**
1. Chi-Square	p-value > 0.05	.997	Congruent
2. Chi-Square/df	< 3	.000	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	1.000	Congruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	1.000	Congruent
5. Comparative Fit Index (CFI)	> 0.95	1.000	Congruent
6. Normed Fit Index (NFI)	> 0.95	1.000	Congruent
7. Tucker Lewis Index (TLI)	> 0.95	1.025	Congruent
8. Root Mean Square Residual (RMR)	< 0.05	.000	Congruent
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.000	Congruent

Table 5.21 presents the results of the congruence test of the measurement model of perceived usefulness variables and the empirical data by 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the analysis of other indices, all congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of perceived usefulness variables is congruent with the empirical data.

Table 5.22 The Factor Loading, Composite Reliability, Average Variance Extracted, and Cronbach's Alpha Coefficient of Perceived Usefulness Variables

Manifest Variables **Perceived Usefulness Variables**	**Loading**	**CR**	**AVE**	**α**
Perceived usefulness for tasks (PU1)	1.000	0.793	0.671	.857
Perceived usefulness for communities and society (PU2)	.585			

From Table 5.22, the manifest variable that has the highest factor loading is perceived usefulness for tasks (= 1.000), followed by perceived usefulness for communities and society with a factor loading of .585. The composite reliability of the measurement model of perceived usefulness variables is 0.793, which is higher than 0.7. (Hair et al., 1998), while the average variance extracted is 0.671, which is higher than 0.5, and Cronbach's alpha is .857, which is higher than 0.8. Therefore, the measurement model of perceived usefulness variables has an appropriate level of structural reliability.

5.2.2.3 The Measurement Model of Perceived Ease of Use Variables (PE)

The model composes of two manifest variables: Perceived ease of the system (PE1) and perceived usage methods (PE2).

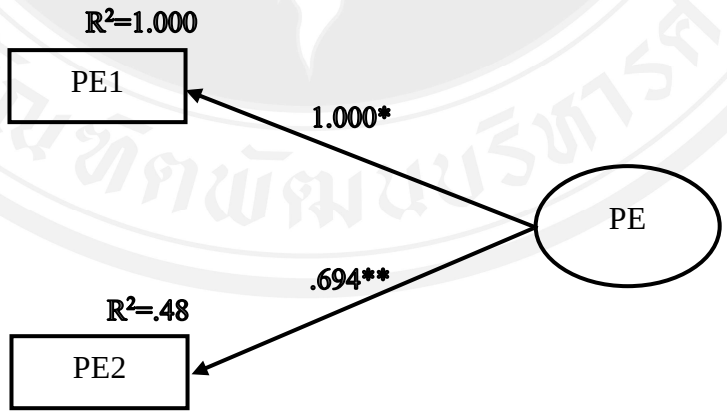

Figure 5.3 The Factor Loading of Perceived Ease of Use Variables

From the measurement model analysis of the latent variable, comprising two manifest variables, after the modification of the structural model by a double-headed arrow link between variable errors, following the recommended modification indices (MI) (Yuth Kaiwan, 2013), the overall statistics are considered as acceptable, with details as follows:

Table 5.23 Congruence Indices between the Measurement Model and Perceived Ease of Use Variables and the Empirical Data after the Model Modification

Congruence Measurement Statistics Perceived Ease of Use	**Congruence Acceptable Value**	**Modification Indices**	**Congruence of the Model**
1. Chi-Square	p-value > 0.05	.972	Congruent
2. Chi-Square/df	< 3	.001	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	1.000	Congruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	1.000	Congruent
5. Comparative Fit Index (CFI)	> 0.95	1.000	Congruent
6. Normed Fit Index (NFI)	> 0.95	1.000	Congruent
7. Tucker Lewis Index (TLI)	> 0.95	1.016	Congruent
8. Root Mean Square Residual (RMR)	< 0.05	.001	Congruent
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.000	Congruent

Table 5.23 presents the results of the congruence test of the measurement model of perceived ease of use variables and the empirical data by 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the analysis of other indices, all congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of perceived ease of use variables is congruent with the empirical data.

Table 5.24 The Factor Loading, Composite Reliability, Average Variance Extracted, and Cronbach's Alpha Coefficient of Perceived Ease of Use Variables

Manifest Variables	Loading	CR	AVE	α
Perceived Ease of Use				
Perceived ease of use of the system (PE1)	1.000	0.847	0.741	.845
Perceived usage methods (PE2)	.694			

From Table 5.24, the manifest variable that has the highest factor loading is the perceived ease of the system (= 1.000), followed by the perceived usage method with a factor loading of .694. The composite reliability of the measurement model of perceived ease of use variables is 0.847, which is higher than 0.7. (Hair et al., 1998), while the average variance extracted is 0.741, which is higher than 0.5, and Cronbach's alpha is .845, which is higher than 0.8. Therefore, the measurement model of perceived ease of use variables has an appropriate level of structural reliability.

5.2.2.4 The Measurement Model of the Interaction between Crowdsourcers and Users (IN)

The model consists of three manifest variables: Communication and opinion expression (IN1), activity participation (IN2), and task participation (IN3).

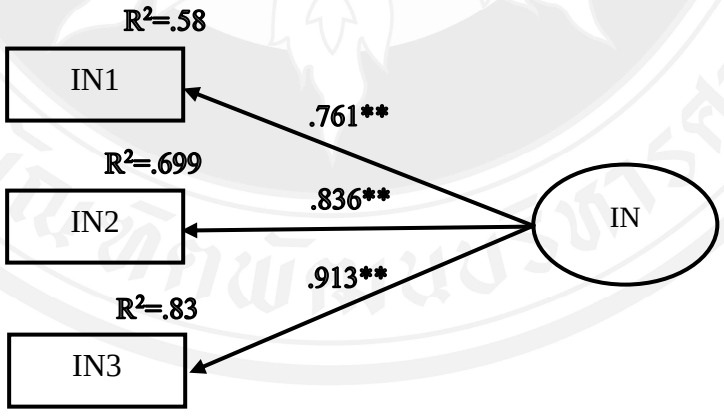

Figure 5.4 The Factor Loading of The Interaction Between Crowdsourcers and Users

From the measurement model analysis of the latent variable, comprising three latent variables, after the modification of the structural model by a double-headed arrow link between variable errors, following the recommended modification indices (MI) (Yuth Kaiwan, 2013), the overall statistics are considered as acceptable, with details as follows:

Table 5.25 Congruence Indices between the Measurement Model and the Variables of the Interaction between Crowdsourcers and Users and the Empirical Data after the Model Modification

Congruence Measurement Statistics The Measurement Model of the Interaction Between Crowdsourcers and Users	**Congruence Acceptable Value**	**Modification Indices**	**Congruence of the Model**
1. Chi-Square	p-value > 0.05	.992	Congruent
2. Chi-Square/df	< 3	.000	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	1.000	Congruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	1.000	Congruent
5. Comparative Fit Index (CFI)	> 0.95	1.000	Congruent
6. Normed Fit Index (NFI)	> 0.95	1.000	Congruent
7. Tucker Lewis Index (TLI)	> 0.95	1.019	Congruent
8. Root Mean Square Residual (RMR)	< 0.05	.000	Congruent
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.000	Congruent

Table 5.25 presents the results of the congruence test of the measurement model of the variables of the interaction between crowdsourcers and users and the empirical data by 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the

analysis of other indices, all congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of the variables of the interaction between crowdsourcers and users is congruent with the empirical data.

Table 5.26 The Factor Loading, Composite Reliability, Average Variance Extracted, and Cronbach's Alpha Coefficient of the Variables of the Interaction between Crowdsourcers and Users

Manifest Variables of the Interaction between Crowdsourcers and Users	**Loading**	**CR**	**AVE**	**α**
Communication and opinion expression (IN1)	.761	0.876	0.704	.874
Activity participation (IN2)	.836			
Task participation (IN3)	.913			

From Table 5.26, the manifest variable that has the highest factor loading is task participation (IN3) (= .913), followed by activity participation (IN2) with a factor loading of .836, and communication and opinion expression (IN1) with the factor loading of .761 respectively. The composite reliability of the measurement model of the variables of the interaction between crowdsourcers and users is 0.876, which is higher than 0.7. (Hair et al., 1998), while the average variance extracted is 0.704, which is higher than 0.5, and Cronbach's alpha is .874, which is higher than 0.8. Therefore, the measurement model of the variables of the interaction between crowdsourcers and users has an appropriate level of structural reliability.

5.2.2.5 The Measurement Model of Organizational Factors (OR)

The model consists of three manifest variables: Organizational clear goals (OR1), organizational credibility (OR2), and organizational transparency (OR3).

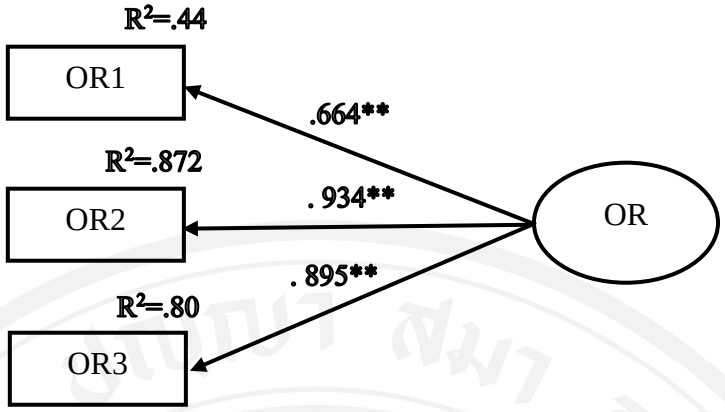

Figure 5.5 The Factor Loading of Organizational Factors Variables

From the measurement model analysis of the latent variable, comprising three manifest variables, after the modification of the structural model by a double-headed arrow link between variable errors, following the recommended modification indices (MI) (Yuth Kaiwan, 2013), the overall statistics are considered as acceptable, with details as follows:

Table 5.27 Congruence Indices between the Measurement Model and Organizational Factors Variables and the Empirical Data after the Model Modification

Congruence Measurement Statistics The Measurement Model of Organization Factors	**Congruence Acceptable Value**	**Modification Indices**	**Congruence of the Model**
1. Chi-Square	p-value > 0.05	.955	Congruent
2. Chi-Square/df	< 3	.003	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	1.000	Congruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	1.000	Congruent
5. Comparative Fit Index (CFI)	> 0.95	1.000	Congruent
6. Normed Fit Index (NFI)	> 0.95	1.000	Congruent
7. Tucker Lewis Index (TLI)	> 0.95	1.018	Congruent

Congruence Measurement Statistics The Measurement Model of Organization Factors	Congruence Acceptable Value	Modification Indices	Congruence of the Model
8. Root Mean Square Residual (RMR)	< 0.05	.000	Congruent
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.000	Congruent

Table 5.27 presents the results of the congruence test of the measurement model of organizational factors variables and the empirical data by 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the analysis of other indices, all congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of organizational factors variables is congruent with the empirical data.

Table 5.28 The Factor Loading, Composite Reliability, Average Variance Extracted, and Cronbach's Alpha Coefficient of Organizational Factors Variables

Manifest Variables of Organizational Factors	Loading	CR	AVE	α
Organizational clear goals (OR1)	.664	0.875	0.705	.944
Organizational credibility (OR2)	.934			
Organizational transparency (OR3)	.895			

From Table 5.28, the manifest variable that has the highest factor loading is organizational credibility (= .934), followed by organizational transparency with a factor loading of .895, and organizational clear goals with a factor loading of .664. The composite reliability of the measurement model of organizational factors variables is 0.875, which is higher than 0.7. (Hair et al., 1998), while the average variance extracted is 0.705, which is higher than 0.5, and Cronbach's alpha is .944,

which is higher than 0.8. Therefore, the measurement model of organizational factors variables has an appropriate level of structural reliability.

5.2.2.6 The Measurement Model of Behavioral Intention to Participate (BI)

The model composes of three manifest variables: Intention to share, press likes, and comment (BI1), intention to report news (BI2), and intention to persuade and tell others (BI3).

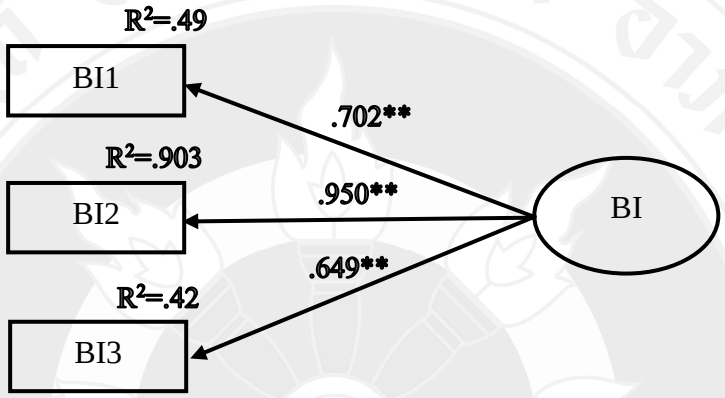

Figure 5.6 The Factor Loading of Behavioral Intention to Participate Variables

From the measurement model analysis of the latent variable, comprising three manifest variables, after the modification of the structural model by a double-headed arrow link between variable errors, following the recommended modification indices (MI) (Yuth Kaiwan, 2013), the overall statistics are considered as acceptable, with details as follows:

Table 5.29 Congruence Indices between the Measurement Model and Behavioral Intention to Participate Variables and the Empirical Data after the Model Modification

Congruence Measurement Statistics The Measurement Model of Behavioral Intention to Participate Variables	**Congruence Acceptable Value**	**Modification Indices**	**Congruence of the Model**
1. Chi-Square	p-value > 0.05	.984	Congruent
2. Chi-Square/df	< 3	.000	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	1.000	Congruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	1.000	Congruent
5. Comparative Fit Index (CFI)	> 0.95	1.000	Congruent
6. Normed Fit Index (NFI)	> 0.95	1.000	Congruent
7. Tucker Lewis Index (TLI)	> 0.95	1.029	Congruent
8. Root Mean Square Residual (RMR)	< 0.05	.000	Congruent
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.000	Congruent

Table 5.29 presents the results of the congruence test of the measurement model of behavioral intention to participate variables and the empirical data by 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the analysis of other indices, all congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of behavioral intention to participate variables is congruent with the empirical data.

Table 5.30 The Factor Loading, Composite Reliability, Average Variance Extracted, and Cronbach's Alpha Coefficient of Behavioral Intention to Participate Variables

Manifest Variables of Behavioral Intention to Participate	**Loading**	**CR**	**AVE**	**α**
Intention to share, press likes, and comment (BI1)	.702	0.817	0.606	.861
Intention to report news (BI2)	.950			
Intention to persuade and tell others (BI3)	.649			

From Table 5.30, the manifest variable that has the highest factor loading is an intention to report news (= .950), followed by the intention to share, press likes, and comment with the factor loading of .702, and the intention to persuade and tell others with the factor loading of .649. The composite reliability of the measurement model of behavioral intention to participate variables is 0.817, which is higher than 0.7. (Hair et al., 1998), while the average variance extracted is 0.606, which is higher than 0.5, and Cronbach's alpha is .861, which is higher than 0.8. Therefore, the measurement model of behavioral intention to participate variables has an appropriate level of structural reliability.

5.2.2.7 The Measurement Model of Users' Participation in News Reporting Variables (PA)

The model consists of four manifest variables: reading news (PA1), sharing, pressing likes, and opinion expression (PA2), news reporting (PA3), and issue development and news production with the organization (PA4).

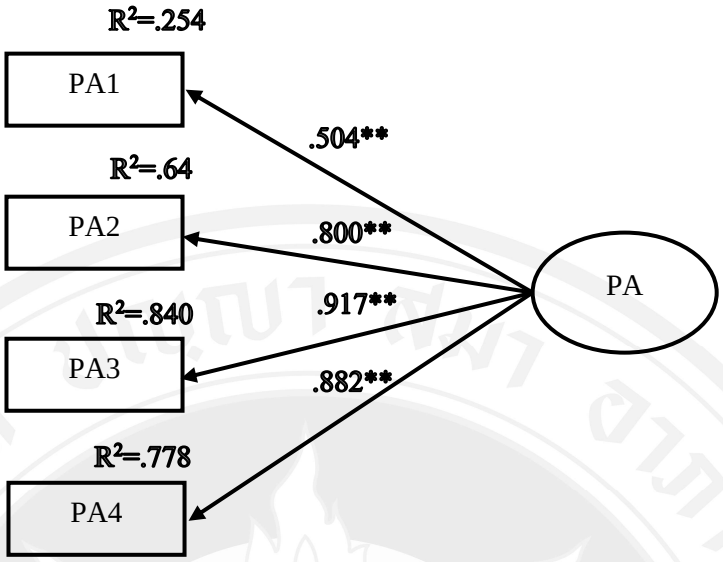

Figure 5.7 The Factor Loading of Users' Participation in News Reporting Variables

From the measurement model analysis of the latent variable, comprising four manifest variables, after the modification of the structural model by a double-headed arrow link between variable errors, following the recommended modification indices (MI) (Yuth Kaiwan, 2013), the overall statistics are considered as acceptable, with details as follows:

Table 5.31 Congruence Indices between the Measurement Model and Users' Participation in News Reporting Variables and the Empirical Data after the Model Modification

Congruence Measurement Statistics The Measurement Model of Users' Participation in News Reporting Variables	**Congruence Acceptable Value**	**Modification Indices**	**Congruence of the Model**
1. Chi-Square	p-value > 0.05	.082	Congruent
2. Chi-Square/df	< 3	2.505	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	.976	Congruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	.880	Incongruent

Congruence Measurement Statistics The Measurement Model of Users' Participation in News Reporting Variables	Congruence Acceptable Value	Modification Indices	Congruence of the Model
5. Comparative Fit Index (CFI)	> 0.95	.989	Congruent
6. Normed Fit Index (NFI)	> 0.95	.982	Congruent
7. Tucker Lewis Index (TLI)	> 0.95	.966	Congruent
8. Root Mean Square Residual (RMR)	< 0.05	.020	Congruent
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.123	Incongruent

Table 5.31 presents the results of the congruence test of the measurement model of users' participation in news reporting variables and the empirical data by 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the analysis of other indices, 7 congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of users' participation in news reporting variables is congruent with the empirical data.

Table 5.32 The Factor Loading, Composite Reliability, Average Variance Extracted, and Cronbach's Alpha Coefficient of Users' Participation in News Reporting Variables

Manifest Variables Users' Participation in News Reporting Variables	Loading	CR	AVE	α
Reading news (PA1)	.504	0.866	0.628	.952
Sharing, pressing likes, and opinion expression (PA2)	.800			
News reporting (PA3)	.917			
Issue development/ news production with the organization (PA4)	.882			

From Table 5.32, the manifest variable that has the highest factor loading is news reporting (= .917), followed by issue development and news production with the organization with the factor loading of .882; sharing, pressing likes, and opinion opinions with the factor loading of .800; and reading news with the lowest factor loading of .504. The composite reliability of the measurement model of users' participation in news reporting variables is 0.866, which is higher than 0.7. (Hair et al., 1998), while the average variance extracted is 0.628, which is higher than 0.5, and Cronbach's alpha is .952, which is higher than 0.8. Therefore, the measurement model of users' participation in news reporting variables has an appropriate level of structural reliability.

5.2.3 The Structural Model Analysis

5.2.3.1 The Analysis of the Congruence Indices of the Overall Model

From testing the congruence of the structural model with the empirical data after the model modification by a double-headed arrow link between variable errors, following the recommended modification indices (MI) (Yuth Kaiwan, 2013), the overall statistics are at an acceptable level, with details as follows:

Table 5.33 Congruence Indices of the Structural Model After the Model Modification

Congruence Measurement Statistics of the Overall Model	Congruence Acceptable Value	Modification Indices	Congruence of the Model
1. Chi-Square	p-value > 0.05	.170	Congruent
2. Chi-Square/df	< 3	1.122	Congruent
3. Goodness of Fit Index (GFI)	> 0.95	.883	Incongruent
4. Adjusted Goodness of Fit Index (AGFI)	> 0.95	.814	Incongruent
5. Comparative Fit Index (CFI)	> 0.95	.988	Congruent
6. Normed Fit Index (NFI)	> 0.95	.907	Incongruent
7. Tucker Lewis Index (TLI)	> 0.95	.984	Congruent
8. Root Mean Square Residual	< 0.05	.028	Congruent

Congruence Measurement Statistics of the Overall Model	Congruence Acceptable Value	Modification Indices	Congruence of the Model
(RMR)			
9. Root Mean Square Error of Approximation (RMSEA)	< 0.05	.035	Congruent

Table 5.33 shows that the structural model is congruent with the empirical data after the model modification, based on the accepted main principle that the model must be congruent with the empirical data by considering 9 congruence indices. The results show that Chi-Square has no statistical significance, which means the model is congruent. For the analysis of other indices, 6 congruence indices pass the statistical criteria. Therefore, it can be concluded that the measurement model of users' participation in news reporting variables is congruent with the empirical data.

5.2.3.2 The Analysis of Causal Relationships of the Model of Users' Participation in News Reporting on Thai Crowdsourcing Platforms

The research findings show that the structural equation model, developed by the researcher, is congruent with the empirical data; however, the corrections yield no effect, based on theoretical concepts before the model modification, as illustrated in Figure 5.8.

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
BI	<---	MO	1.000				
BI	<---	PU	-.388	.294	-1.322	.186	
BI	<---	PE	.242	.159	1.520	.128	
BI	<---	IN	.071	.135	.523	.601	
BI	<---	ORx	.250	.201	1.246	.213	
PA	<---	BI	.872	.259	3.372	***	
PA	<---	ORx	.140	.157	.892	.372	
PA	<---	MO	.285	.333	.857	.391	

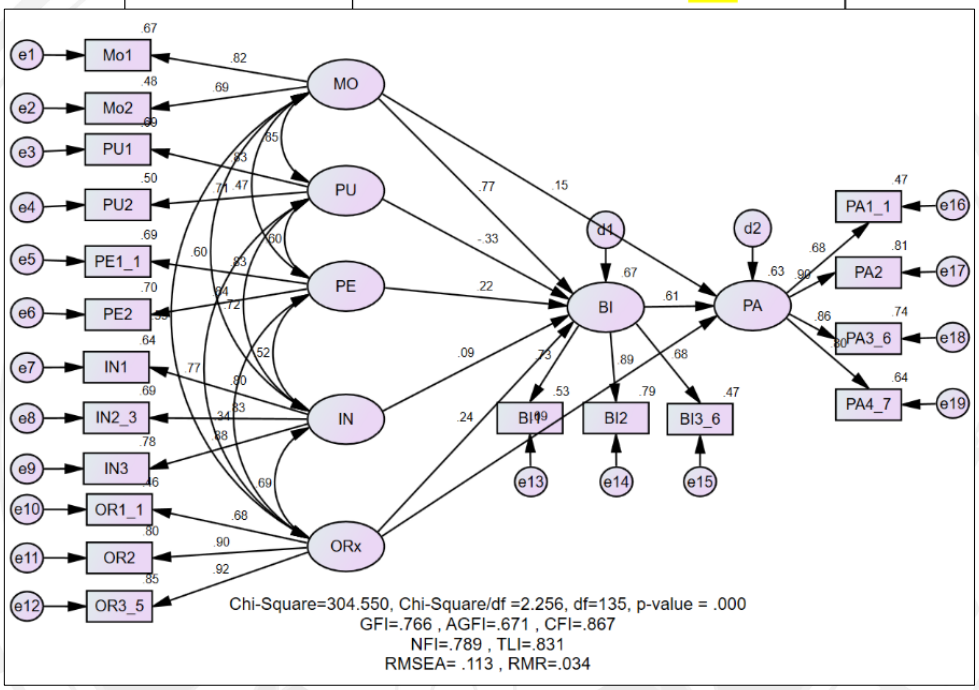

Figure 5.8 The Analysis Findings Before the Model Modification

			Estimate	S.E.	C.R.	P	Label
BI	<---	MO	1.754	1.722	1.018	.309	
BI	<---	PU	-.508	.356	-1.428	.153	
BI	<---	PE	.357	.260	1.371	.170	
BI	<---	IN	.143	.125	1.144	.253	
BI	<---	ORx	.204	.207	.990	.322	
PA	<---	BI	1.032	.264	3.908	***	
PA	<---	ORx	.041	.177	.234	.815	
PA	<---	MO	.476	.347	1.372	.170	

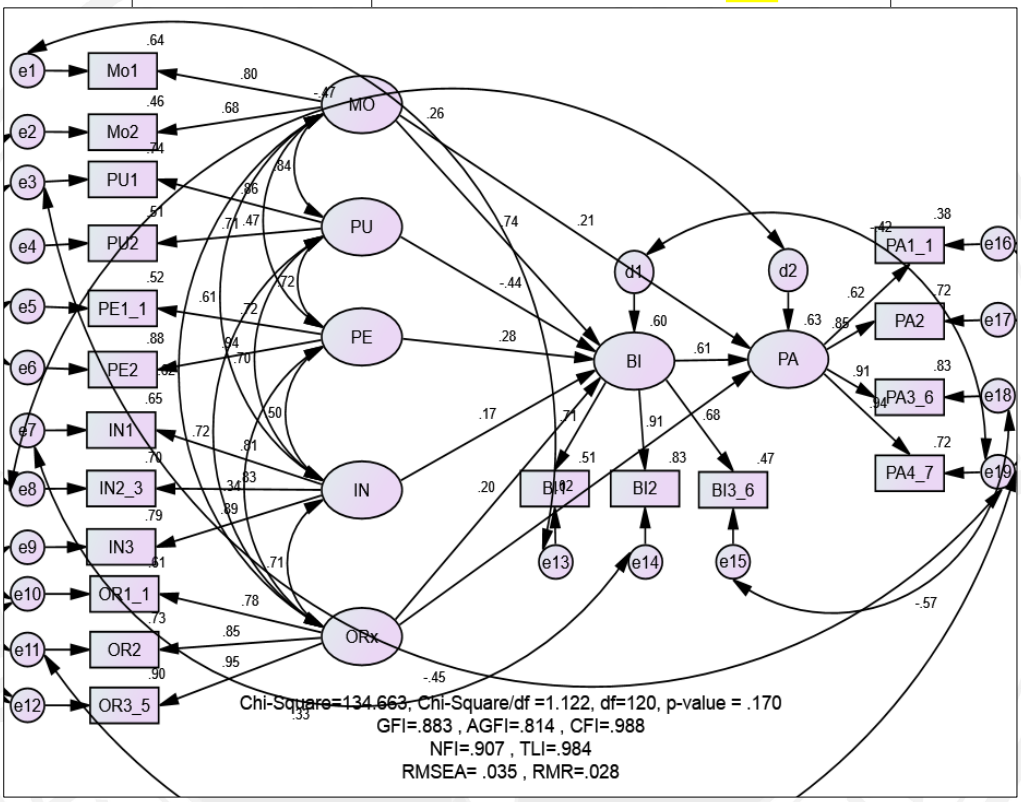

Figure 5.9 The Analysis Findings after the Model Modification by Linking 16 Lines of Covariances

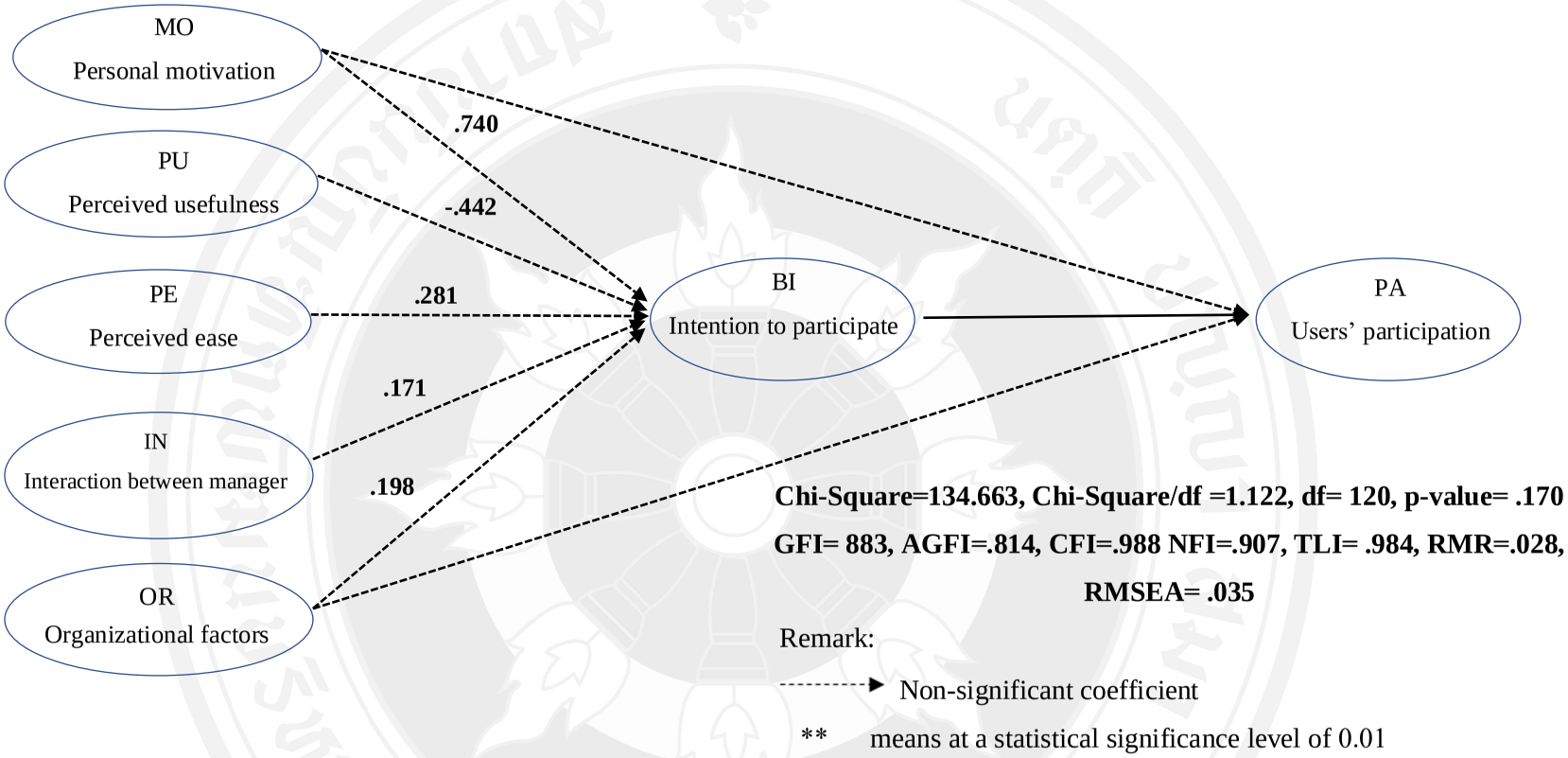

Figure 5.10 Path Coefficients of the Structural Model of Users' Participation in News Reporting on Thai Crowdsourcing Platforms

Table 5.34 The Causal Relationships of the Variables of the Structural Model

No	Causal Relationship Pair	Path Coefficient	S.E.	C.R. t–values	Interpretation
1	MO ----> BI	.740	1.722	1.018	No effect
2	PU ----> BI	-.442	.356	-1.428	No effect
3	PE ----> BI	.281	.260	1.371	No effect
4	IN ----> BI	.171	.125	1.144	No effect
5	OR ----> BI	.198	.207	.990	No effect
6	BI ----> PA	.614	.264	3.908**	Positive relationship
7	OR ----> PA	.024	.177	.234	No effect
8	MO ----> PA	.210	.347	1.372	No effect

Note: * means at a statistical significance level of 0.05 ($1.960 \leq$ t–value < 2.576)

** means at a statistical significance level of 0.01 (t–value ≥ 2.576)

From Figure 5.10 and Table 5.34, only “intention to participate” has a positive relationship with users’ participation in news reporting on Thai crowdsourcing platforms at a statistical significance level of 0.01.

5.2.3.3 The Analysis of Direct, Indirect, and Total Effect of the Variables in the Structural Model

In this part, the findings from the analysis of the direct, indirect, and total effects of the variables in the structural model are displayed in Table 5.35.

Table 5.35 The Findings from the Analysis of Direct, Indirect, and Total Effect of the Variables in the Causal Relationship Model of Users' Participation in News Reporting

Dependent Variables	**BI**			**PA**		
Causal Variables	**TE**	**DE**	**IE**	**TE**	**DE**	**IE**
MO	.740	.740	-	.664	-	.455
PU	-.442	-.442	-	-.271	-	-.271
PE	.281	.281	-	.172	-	.172
IN	.171	.171	-	.105	-	.105
OR	.198	.198	-	.145	.024	.122
BI	-	-	-	**.614****	**.614****	-
R^2		**.597**			**.632**	
Chi-Square=134.663, Chi-Square/df =1.122, df= 120, p-value= .170 GFI= 883, AGFI=.814, CFI=.988 NFI=.907, TLI = .984, RMR=.028, RMSEA= .035						

Note: DE means Direct effect
IE means Indirect effect
TE means Total effect

Table 5.35 displays the findings of the analysis of the causal relationship model of users' participation in news reporting based on the following congruence indices: Chi-Square/df =1.122 (According to the criteria, it must be lower than 3), CFI = 988, TLI = .984 (According to the criteria, all these three indices must be > .95), RMR =.028, and RMSEA = .035 (According to the criteria, these two indices must be lower than .05). Thus, among the 6 indices, there are only GFI = .883, AGFI (= .814) and NFI (= .907), which are lower than the determined criteria (Schumacker and Lomax, 2004). Accordingly, it can be concluded that the causal relationship model of users' participation in news reporting, developed in this study,

is congruent with the empirical data, by having only one causal variable, namely "intention to participate (BI)," which has a positive direct effect on users' participation in news reporting at a statistical significance level of .01.

CHAPTER 6

SUMMARY, DISCUSSION, AND RECOMMENDATION

The research, "The Process and Users' Participation in News Reporting on Thai Crowdsourcing Platforms," is aimed to study 1) a news reporting process on the organizational crowdsourcing platforms, 2) factors affecting users' participation in news reporting on Thai crowdsourcing platforms, and 3) the development of a structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms. The summary, discussion, recommendation, and limitation of the study are divided into 3 parts, as follows:

Part 1 Research findings summary

1) The findings of qualitative research
2) The findings of quantitative research

Part 2 Discussion

Part 3 Recommendation and limitations of the study

6.1 Research Findings Summary

6.1.1 The Findings of Qualitative Research

The process of news reporting on crowdsourcing platforms summarized from the case studies is a designed process for the interaction between proposing organizations and users, which is a reciprocal relationship, under three operational procedures. 1) Input: A proposing organization must know what it is looking for (news issues) and how or through which channel such news should be distributed (online, mass media, on-site operations), including how to use media and activities to create users' motivation. 2) Process: A proposing organization must plan a working process and manage session or session agendas by specifying the nature of work (basic or creative work), classifying the crowds, designing and managing content (gathering, verifying, screening, and monitoring information, determining issues to be

presented, producing and disseminating news) to induce effective and smooth news reporting on Crowdsourcing platforms, including acquiring solutions or needed outcome from the crowds. 3) Output: A proposing organization must know what kind of output or news pieces the organization needs (user-generated content, co-created content, content that can be used as a clue or igniting issue in news production), and how the output can be applied towards problem-solving guidelines, and what will be the common benefits of both the organization and users.

From the study, the news reporting process on crowdsourcing platforms of both organizations, namely the C-Site Platform of the Bureau of Networking and Public Participation, Thai Public Broadcasting Service (Thai PBS), and the Hatyai City Climate Platform of the Southern Cities Climate Change Resilience Network Foundation, have some similarities, as follows: 1) The establishment and maintenance of the relationship with both online and offline users, 2) the use of crowdsourcing platforms in combination with social media, and 3) the flexibility of content and news presentation. However, they are also different in some aspects, as follows:1) Types of the organizations, 2) organizational use of media and activities, 3) the determination of job description, 4) the determination of the crowd, and 5) meetings of the editorial board and news editing.

Factors affecting users' participation in news reporting on the C-Site and the Hatyai City Climate Platforms are 1) personal motivation, namely intrinsic motivation (users' interest, objective, and public mind), and extrinsic motivation (group of social acceptance, non-monetary and monetary rewards); 2) perceived usefulness: usefulness for tasks and communities and society; 3) perceived ease of use, i.e., easy and convenient operational systems without complexity, and users can understand and learn how to use the system rapidly, 4) the interaction between crowdsourcers and users, i.e., regular communication, both online and offline, interaction during the on-site operation, and 5) organizational factors, i.e., organizational goals, credibility, transparency, and sincerity, including users' trust in the organization.

6.1.2 The Findings of Quantitative Research

6.1.2.1 Summary of Descriptive Analysis

1) General information of the respondents

Of 100 questionnaire respondents, most of them are male, aged between 31-40 years old, studying for a bachelor's degree, are government or state enterprise employees, and live in every region of Thailand, especially in Songkhla Province.

2) Information about the use of the system and frequency

Most samples are members of the C-Site Platform and have used it for 1-2 years, followed by those of the Hatyai City Climate Platform who have used it for over 5 years. Most of them use web applications 1-2 days weekly and never use mobile applications, of either Android or iOS operation system. Most samples use social media for sending news or contacting the organization every day and almost half of them use Facebook and Line more than 5 times daily. Only a small number of users never use social media for sending news or contacting the organization.

3) Information on the factors affecting users' participation in news reporting on Thai crowdsourcing platforms

(1) Personal motivation comprises intrinsic and extrinsic motivation. From the overall findings, the samples have a high level of opinion on the effect of personal motivation on news reporting on Thai crowdsourcing platforms. Considering each statement, it is found that the samples have the highest level of motivation in news reporting on the public sphere like web and mobile applications because of the perceived importance and usefulness of the applications for communities and society the most at the highest level.

(2) Perceived usefulness of Thai crowdsourcing platforms consist of perceived usefulness for tasks and for communities/society, which the samples have the overall perception at a high level. Considering each statement, it is found that the samples perceive that the platforms can yield big data that can be extended or used for creating guidelines or policies for problem-solving or community development the most at the highest level.

(3) Perceived ease of using Thai crowdsourcing platforms comprises perceived ease of the system and perceived usage methods. As a whole, the samples have a high level of the opinion of the perceived ease of use, but from considering each statement, the samples perceive that crowdsourcing platforms are the systems that they can learn how to use rapidly the most at a high level.

(4) The interaction between crowdsourcers and users composes of communication and opinion expression, activity participation, and task participation. As a whole, the samples have a high level of opinion on the interaction between crowdsourcers and users, but from considering each statement, the samples perceive that activity participation and training make them know and be familiar with the organization the most at a high level.

(5) Organizational factors comprise organizational clear goals, credibility, and transparency. As a whole, the samples have a high level of opinion on the organizational factors, but from considering each statement, the samples perceive that the organization is credible, well-known, and accepted by general people the most at the highest level.

(6) Intention to participate consists of the intention to share, press likes, and comment, including persuading and telling others. As a whole, the samples have a high level of opinion on intention to participate, but from considering each statement, the samples have an intention to share information or news that is interesting or useful for communities and society the most at the highest level.

(7) Participation in news reporting on Thai crowdsourcing platforms consists of reading news; sharing, pressing likes, and expressing opinions; reporting news, and developing issues or producing news with the organization. As a whole, the samples have a high level of opinion on participation in news reporting on Thai crowdsourcing platforms, but from considering each statement, the samples participate in reading news, maps, and watching clips the most.

6.1.2.2 Summary of the Structural Equation Model Analysis

1) Data validation before the structural model analysis

(1) Data completeness. Data of every variable are found to be completely coded.

(2) Data normality. Almost all manifest variables are found to have a normal distribution with the skewness value from -1.073 to 0.076, and kurtosis from -0.598 to 3.092, while the overall is from -2 to +2.

(3) Correlation analysis. All variables are found to be correlated at a statistical significance level of .05. The studied variables are also found to be appropriate for confirmatory factor analysis.

2) The Measurement Model Analysis

(1) The measurement model of personal motivation variables is found to be congruent with the empirical data by having 9 congruence indices pass the determined statistical criteria. The manifest variable that has the highest factor loading is intrinsic motivation. Besides, from the analysis of composite reliability, average variance extracted, and Cronbach's alpha coefficient of personal motivation variables, the measurement model of personal motivation variables has an appropriate level of structural reliability.

(2) The measurement model of perceived usefulness variables are found to be congruent with the empirical data by having 9 congruence indices pass the determined statistical criteria. The manifest variable that has the highest factor loading is perceived usefulness for tasks. Besides, from the analysis of composite reliability, average variance extracted, and Cronbach's alpha coefficient of perceived usefulness variables, the measurement model of perceived usefulness variables has an appropriate level of structural reliability.

(3) The measurement model of perceived ease of use variables is found to be congruent with the empirical data by having 9 congruence indices pass the determined statistical criteria. The manifest variable that has the highest factor loading is the perceived ease of the system. Besides, from the analysis of composite reliability, average variance extracted, and Cronbach's alpha coefficient of perceived ease of use variables, the measurement model of perceived ease of use variables has an appropriate level of structural reliability.

(4) The measurement model of the variables of the interaction between crowdsourcers and users is found to be congruent with the empirical data by having 9 congruence indices pass the determined statistical criteria. The manifest variable that has the highest factor loading is participation in the

operation/tasks. Besides, from the analysis of composite reliability, average variance extracted, and Cronbach's alpha coefficient of the variables of the interaction between crowdsourcers and users, the measurement model of the variables of the interaction between crowdsourcers and users has an appropriate level of structural reliability.

(5) The measurement model of organizational factors variables is found to be congruent with the empirical data by having 9 congruence indices pass the determined statistical criteria. The manifest variable that has the highest factor loading is organizational credibility. Besides, from the analysis of composite reliability, average variance extracted, and Cronbach's alpha coefficient of organizational factors variables, the measurement model of organizational factors variables has an appropriate level of structural reliability.

(6) The measurement model of intention to participate variables is found to be congruent with the empirical data by having 9 congruence indices pass the determined statistical criteria. The manifest variable that has the highest factor loading is an intention to report the news. Besides, from the analysis of composite reliability, average variance extracted, and Cronbach's alpha coefficient of intention to participate variables, the measurement model of intention to participate variables has an appropriate level of structural reliability.

(7) The measurement model of the variables of users' participation in news reporting is found to be congruent with the empirical data by having 7 out of 9 congruence indices pass the determined statistical criteria. The manifest variable that has the highest factor loading is news reporting. Besides, from the analysis of composite reliability, average variance extracted, and Cronbach's alpha coefficient of the variables of users' participation in news reporting, the measurement model of the variables of users' participation in news reporting has an appropriate level of structural reliability.

3) The findings of the structural model analysis

The structural model of the factors affecting users' participation in news reporting on Thai crowdsourcing platforms is found to be congruent with the empirical data by having 6 out of 9 congruence indices pass the determined statistical criteria, namely 1) Chi-Square: $\boldsymbol{x}^2$ = .170 (> or = 0.05) has no statistical significance, which means the model is appropriate and congruent with the empirical data, 2) $\boldsymbol{x}^2$ /df

= 1.122 (< or = 3.00), 3) Comparative Fit Index (CFI) = .988 (> or = 0.95), 4) Tucker Lewis Index (TLI) = .984 (> or = 0.95), 5) Root Mean Square Residual (RMR) = .028 (< 0.05), and 6) Root Mean Square Error of Approximation (RMSEA) = .035 (< 0.05)

From the analysis of direct, indirect, and total effect of variables in the structural model, it is found that the causal model of users' participation in news reporting on Thai crowdsourcing platforms, developed by the researcher, is congruent with the empirical data, and only one causal variable, namely intention to participate, has a positive direct effect on users' participation in news reporting at a statistical significance level of 0.01.

6.2 Research Discussion

The findings of the research "The Process and Users' Participation in News Reporting on Thai Crowdsourcing Platforms" can be discussed, following the research objectives as follows:

6.2.1 The Process of News Reporting on Thai Crowdsourcing Platforms

6.2.1.1 The Process of News Reporting on Crowdsourcing Platforms Complies with the Nature of the Organizations, Tasks, and Users' Characteristics

The process of news reporting on the C-Site Platform of the Bureau of Networking and Public Participation, Thai Public Broadcasting Service, and the Hatyai City Climate Platform of the Southern Cities Climate Change Resilience Network Foundation or SCCCRN has operated based on the crowdsourcing process, which comprises three sub-processes: "input" or the importing information for distributing problem or news issues and creating users' motivation to participate in news reporting, "process" which is a process of the session, crowd, content, and technology management of a proposing or an initiating organization, and "output," which is a part involving the consequences of crowdsourcing, namely output or news pieces desired by the organization, guidelines for solving problems related to a

community or social context, and benefits users and the organization will acquire. (Ghezzi et al., 2018, p. 346; Karlsson & Martinsson, 2014, p. 14)

Notably, the processes of news reporting on crowdsourcing platforms of both organizations are distinctly different due to their different organizational nature, task nature, and users' characteristics, especially differences in the channels of importing information for distributing problem issues or news pieces, ways for creating users' motivation to participate in news reporting, content and technology or platform, including operating with the occurring output, with details as follows:

1) The nature of the organizations. The Bureau of Networking and Public Participation as a public media (a government agency) of Thai Public Broadcasting Service (Thai PBS) has the potential to diffuse problem issues and news pieces, including motivating users to participate by bringing their workpiece or news pieces to the public sphere via Thai PBS TV Station in combination with publicizing through the use of diverse online media. On the contrary, the Southern Cities Climate Change Resilience Network Foundation is only an organization for the public interest, as a part of the civic sector or the civil society, which focuses on online media mainly despite broadcasting through some local mass media at the early stage, such as the Prince of Songkla University, Hat Yai Radio Station (FM 88.0 MHz); the National Broadcasting Services of Thailand (NBT), Songkhla, etc. The operation requires cooperation for supporting space or channels for publicizing its platform; thus, it cannot have continual strategic planning or design for the use of mass media. Especially, in content management, which is one of the distinctive differences between the two organizations. The Bureau of Networking and Public Participation follows a professional journalistic process and has daily editorial board meetings for selecting and determining news issues, editing, producing, and publicizing news. On the contrary, the SCCCRN manages its content and news editing by crowdsourcers' consideration, experience, knowledge, and ability. Nevertheless, the content management of the SCCCRN is also advantageous in the way that it increases the flexibility in task operation and management, especially during the flooding situation in each area, which serves the purpose of the organization to use the Hatyai City Climate Platform as a unified, rapid, truthful, and reliable communication channel. People can access it and see the overall happening of any disaster or hazard all 24

hours. This accords with the finding from the study of Chonlathip Poonsiriwong (2016), which found that the communication patterns during crises must be able to respond to the situations rapidly, accurately, and openly for ensuring stakeholders' trust in the organization.

The different nature of the organizations is also related to the ownership and sources of funds. Thai PBS has been financially supported by organizational dues, collected from taxpayers under the Tobacco and Alcohol Administration Act, enacted in the Thai Public Broadcasting Service Act, B.E., 2551 (2008). Differently, the income of SCCCRN, established to serve public benefits, is derived from donations or other possible sources, such as interests, project participation fees, joint-research support, etc. Thus, it has limited funds, human resources, and accessibility to mass media. Accordingly, the nature of the organizations (classified by social sectors, ownership and financial sources, and organizational goals) affects the process of news reporting on crowdsourcing platforms directly since it determines the operational direction of organizational teams. The findings are supported by the study of Alam and Campbell (2012), which found that motivation in outsourcing crowds of the GLAM (Galleries Libraries Archives Museums) in a non-profit context is both similar to and different from that in a for-profit context.

2) The nature of work. The determination of users' news reporting on crowdsourcing platforms in the form of texts, still pictures, video clips, map pins, and hashtags is a basic task without complexity or specialized skills. It can be a small piece of work that can be done easily while users can operate their work independently, which is a fundamental pattern of users' online work in the digital age. Correspondingly, Karlsson and Martinsson (2014) found that tasks in a crowdsourcing project should be small, easy, simple, and enjoyable, without any complexity, but should spend users' working time in balance with their free time to increase their task effectiveness. It will be better If task proposers can sub-divide work into simple micro-tasks and operate them freely with each individual's free time. The necessity for doing so is not that crowds are not smart, but they are too busy. (Howe, 2011; Sloane, 2011; Grier, 2013) Similarly, Panumas Nontapan (2014) found that the principle of designing a program for preparing surveillance and

disaster-victim assistance network, developed by the crowdsourcing concept emphasizes the smallest task that one can do, and the reduction of the complexity of data-feeding as much as possible. The sequence of data collection consists of the search of locations on the map, map pining, details feeding, and coding, while the data field consists of who, what, when, where, and how, including coordinates of map pining. All of these features are sufficient for supporting disaster management to some extent, while other needed information can be operated and compiled at a proper time.

Besides the aforementioned basic work, the Bureau of Networking and Public Participation also determines the characteristics of creative work, as a result of the co-creation of content among users who used to produce news pieces when they were citizen journalists until they could develop their skills with the organization teamwork, leading to an open journalist process between mass media (proposers) and the main target audience (users) (Aitamurto, 2013), with the main purpose for producing and publicizing workpieces via television programs of Thai PBS TV Station. Accordingly, it can affect directly the design of a news reporting process on Crowdsourcing platforms, especially stimulating users to participate in news reporting, as supported by the study of Sunun Sumataagesorn (2013), which found that different nature of work (basic, creative, complex tasks) affects motivation for promoting general people to participate in problem-solving for the company via different social networks. Besides, from the study by Aitamurto (2013), it was found that the co-creation of a magazine in the form of open journalism from case studies is disappointing for both journalists and users because of failure in the process of content integration. The findings point out that co-creation is a more challenging process for mass media people than crowdsourcing in the form of data collection purely.

3) Users' characteristics. From the findings of the studied organizations, news reporting on crowdsourcing platforms both requires users who are "insiders" or who were affected or will be affected by the disasters or what happened or will happen. They must be local people who live at the scene. Besides, they must concern about problems or what will happen to their communities or society and have a public mind with a desire to participate and operate their tasks

willingly. All of these are essential characteristics of crowds based on the concept of crowdsourcing. (Brabham, 2013). These characteristics of users are supported by the study of Nantaporn Techaprasertsakul. (2013), which found that the content appearing on Facebook, Twitter, and websites of Thai Floods Group or the Information Center for Assisting Flood Victims during the Severe Flooding in 2011, is in the form of opinion expression, text posting and tweeting, reporting of situations on a crisis map, and information notification via online platforms. The study found that the content is user-generated or imported by general users. (people on-site, users on the route, victims or witnesses, and supporters) the most (88.36%), which is more than four-fifths of the total content. Similarly, the research of Panumas Nontapan (2014) indicates that data collection for preparing a map of surveillance and assisting disaster victims, Songkhla, requires volunteers who are knowledgeable in each subject or issue as they will be the persons who know their area the best: They can tell all roads and places. These crowds can express their concerned knowledge by pointing to a location on a map correctly, quickly, and easily with low operational costs as they use only computers and smartphones. Moreover, internet networks are also sufficient for drawing the crowd's knowledge to be collected rapidly and lead to a successful project operation.

The acquisition of information from users who are people in the area is very vital as it is instant and congruent with what happens in the area. Moreover, from this study, the user classification following the rules of crowdsourcing is also found. (Howe, 2001; Sloane, 2011). Such classification of users helps the organizations to choose users appropriate for each needed task, which affects strategic planning for creating perception and stimulating users to participate in news reporting on crowdsourcing platforms. For instance, SCCCRN organized a focus group with users or local people to facilitate users as much as possible. The organization also chose to present its content in the southern language, which is used by most on-site users. Besides, media was designed concerning users' identity and lifestyle. All of these make the content more interesting for users. Another example is a basic training activity for new users, organized by the Bureau of Networking and Public Participation to make them realize the importance of self-communication, and understand their roles as citizen journalists. On the other hand, old users who have passed basic training and sent their news to the Bureau consistently were invited to

attend empowerment training to elevate their capability in producing workpieces. Accordingly, marketing and public relations plans related to crowdsourcing must be communicated properly based on users' characteristics to attract them to participate on the platforms as much as possible. (Sharma, 2010)

Furthermore, the determination and classification of users are related to the design and development of tools for empowering users properly. To illustrate this, map pinning on the Hatyai City Climate Platform has been designed with the least complexity and operational procedure. Instead, only necessary detailed information is fed. The other example is the development of online video editing equipment for facilitating new users to be able to narrate their stories on video clips more easily and in the same standard. Moreover, the web application was developed to carry out any task in 5 languages to be suitable for migrant workers, who are new users of the organization. Thus, it indicates that understanding the target users of each particular characteristic is essential and affects the design of news reporting on crowdsourcing in every step, starting from the distribution of problem issues or news pieces, motivation creation, and the management of session, crowds, content, and technology, up to the output of news pieces and gained benefits.

6.2.1.2 "Alliances and Networks" are Still Major Users

Since news reporting on Thai crowdsourcing platforms is relatively new and used rather little. The collaboration with alliances and networks can empower the participation because every party is determined to participate from the beginning, i.e., having common goals, benefits, and agreements for collaborative operations to accomplish the needed goals. Accordingly, "alliances and networks" become important users in the news reporting process on crowdsourcing platforms of both organizations. The study by Sharma (2010) found that if an organization can inform its vision properly, it will lead to support from the government, companies, and concerned people. Furthermore, the received support can guarantee wider collaborations and increase the clarity of any creation to ensure the receipt of collaboration from the crowds.

Besides, to tie a bond or the relationship towards collaboration at an integrative stage is the strongest level. (Saowanee Chatkaew, 2009, pp. 252-254). In other words, it means that the organization that developed a crowdsourcing

platform, and its alliances and networks should collaboratively determine goals, missions, and involved personnel clearly and concretely for operation in the news reporting process on the crowdsourcing platform. For instance, top executives of the alliance and network organizations may participate as a committee or working group in the developing-platform organization by imposing common goals, policies, planning, operational procedures, and coordination (Seri Phongphit, 2005, p. 9) and bringing out the best in each organization to fulfill news reporting on the platform towards the imposed goals successfully, not just collaboration as financial supporters, donors, or exchange learners

Nevertheless, if any organization pays high attention to or limits users to only alliances and networks without general people or crowds, it will not comply with the concept of crowdsourcing since a crowdsourcing process must come from the participation of diverse crowds, i.e., different background, residence, knowledge level, experience, or specialized expertise. (Estellés-Arolas and González-Ladrón-De-Guevara, 2012; Scholar No. 2, personal communication, March 18, 2021; and Scholar No. 4, personal communication, June 4, 2021). The operation also requires connectivity and mediating information technology and communication, which is called “a network society.” (Asawin Nedpogaeo, 2018). Therefore, a challenge is how to attract an enormous amount of crowds to the online space to participate in news reporting and merge to be a strong online community, which will affect the organizational management and problem-solving at all levels: Community, societal, and national.

6.2.1.3 “Periodization,” A Criterion for Dividing News Reporting on Crowdsourcing Platforms

From the study, it is found that “periodization” is a criterion for dividing a news reporting process on crowdsourcing platforms into two periods: “Normal Period,” which is the reporting of daily news, incidents, or factual information, and “Crisis Period,” which is the period in which some disasters or hazards occur. (Kanjana Kaewthep & Sritorn Rojanasupot (2013, pp. 235-236). Therefore, “periodization” affects a news reporting process on a crowdsourcing platform constantly, especially in the content management process. To illustrate this, during the crisis period in Songkhla areas, crowdsourcers of the Hatyai City Climate

Platform prioritized information by emphasizing the information from its watershed alliances and networks (i.e. upstream, midstream, and downstream) mainly since under a crisis, the most accurate or correct information is needed so the organization must rely on information from users who have knowledge, expertise, and credibility. This notion accords with the study of Patthama Sukthong (2012), which states that the quality of users affects the quality of information. Namely, if users are qualified (users' experience, knowledge, capability, expertise, and credibility, it can ensure the quality of obtained information as well.

According to Sturgeon's rules, only 10% of everything (especially, the user-generated content) has good quality. (Howe, 2011; Sloane, 2011; Panumas Nontapan, 2014). Concurrently, Thanikun Chantra (2021) found that one of the digital volunteers' problems in disaster management was the lack of audited information before publicity and its credibility, which caused subsequent problems. For example, disaster victims or information followers received incorrect or useless information from digital volunteers for disaster mitigation. Some statements or texts on Twitter were re-tweeted several times; although, victims had already been rescued.

Still, information from users who are generally people is no less important since, during public hazards, the presentation of facts from only one group may not be complete or does not cover all distant areas that are affected. The study of Song, Zhang, and Dolan (2020) found that involved actors in self-administered crowdsourcing during the disaster, comprise initiators, digital volunteers, on-site volunteers, and the government or government organizations responsible for disaster management. Therefore, besides data filtering of the platform system, data cleansing and data validation are also needed for reducing errors before applying information. (Supattra Puttinaovarat, 2021, p. 77). Therefore, the assessment of users' effectiveness is thus important as it is an indicator of their expertise and credibility. The notion accords with the study of Bhatti, Gao, and Chen (2020), which found that practitioners or workers should be selected and preliminary assessment should be conducted before their participation. Typically, workers can be classified into 5 types: Reliable worker, ordinary worker, sloppy worker, partial spammer, and random or uniform spammer.

Besides the validation of the information by its field and attributes that are determined in the user interface, such as workers are required to work at least one option from all given options and allowed for only information in the authorized form. (Bhatti, Gao, & Chen, 2020). The guideline for selection is the use of human discretion since micro-tasks require human wisdom in information processing. (Grier, 2013) Accordingly, crowdsourcers can evaluate the obtained information from users by examining the correctness of their previously-delivered information or news pieces by considering the outcome, quality, award, and participation. The ranking of users' reputation or setting users' status may be organized in the system for accessing the system better. (Puah, Bakar, & Ching, 2011). The other alternative is to raise questions about the obtained information to find additional information to terminate doubts. (Sakulsri Srisaracam et al., 2007), or to assess it by experts (Amrollanhi, 2015), including allowing general users to participate in an assessment. The study of Amrollahi (2015) found that crowds' or users' responsibility are not only to feed information into the system, but also to rank, filter, correct, and display opinions of other information. The main purpose is to eradicate any possible errors in the transmitted information. For the news production from the co-creation of content, crowdsourcers may test users for selection (Amrollahi, 2015), or let users show their profiles by uploading them on crowdsourcing platforms to verify their expertise and skills. However, the profile display to demonstrate users' working history or background is mostly suitable for macro-tasks that requires individuals' expertise or skills and for paid workpieces (Grier, 2013). Thus, it may make users expect to receive rewards (monetary or non-monetary) after their news reporting or completing their news pieces. Consequently, it is crowdsourcers' responsibility to post the request, and offer their needs, and remuneration users will obtain clearly.

Another interesting issue is that the Hatyai City Climate Platform has no editorial committee or board, but only crowdsourcers who play a role in selecting issues to be presented and editing news. Therefore, they can manage flexibly during the crisis period. Likewise, the selected content to be presented and presentation methods may be different from those during the normal period. Typically, crisis communication will occur when an organization or stakeholders "are facing" threats at a severe level or is going to confront such threats soon. Therefore, it is a process

that takes a shorter time than communication in the normal period as it requires an immediate interactive response and focuses on an effort in sending a message (providing information, recommendations, assistance, etc.) to the target receivers. Hence, the delivery of news or information must be designed properly for the target receivers' security. (Smith Boonchutima & Querida Khotcharee, 2016, p. 1)

6.2.1.4 A Process Designed for the Interaction Between a Proposing Organization and Users

The news reporting process on crowdsourcing platforms from two case studies is a process designed for the interaction between a proposing organization or an initiator and users before the participation (the input step), during the participation (the process step), and after the participation (the output step). From the study, it was found that most users who are members with some previous relationships with the organizations in the form of coordinated and connected networks, i.e., Watershed Networks Group, the Red or Citizen-Band Radio (CB-245 MHz) Network for U-Tapao Canal Hazard Forewarning, Citizen Journalist Group, issue-related Group, Independent Producers Group, etc., which are the relationships occurring before the step of participation. The relationships during and after participation involve direct communication between a proposing organization or an initiator and users in the form of coordination to ask permission for using information for news production, request for additional information, still pictures, and video clips, including task management and news publicity. The study of Phattra Burarak and Samatcha Nilaphatama (2019) found that the use of citizens' news is a tool for establishing relationships with citizens, which can occur upon the interaction between the organization and a news-piece owner, either before the use or after the publicity. Additionally, the study of Torsangrasmee Teetakaew (2010) found that citizen journalists who worked with Thai PBS TV Station in the first period were mostly the networks of NOGs and local networks who used to work with the news editor or chief of citizen journalists before working for Thai PBS. Similarly, Karlsson and Martinsson (2014) found that almost all participants explained that they used to work with the initiator or the organization who owned the project before, which was an interaction before they decided to participate or before the step of participation. However, during the participation step, there was no interaction between the initiator and participants; thus, it yielded

negative relationships and affected the quality of the participants' work or affected the output step. Although the level of interaction increased after the process step, it was insufficient for improving the damaged relationships occurring earlier. Therefore, it reflects that the effect on relationships in every step affects users' participation in crowdsourcing activities, which accords with Sudarat Disayawattana Chantrawatanakul and Chakkrish Permpool (2014) who indicate that the establishment of engagement with online communities is a major part of making crowds participate on a crowdsourcing platform since the step of listening and participating in communicating with the target, i.e., opinion expression, chats or sharing information. The study of Panumas Nontapan (2014) also found that the design of an initial process for preparing a map for surveillance and assisting disaster victims requires a working group with good relations with the target crowd since such a relationship can induce trust and motivate the crowd to participate in creating sufficient information as a reference example. Accordingly, it reflects that working relationships are very essential and affect participation in news reporting on crowdsourcing platforms.

6.2.1.5 Crowdsourcing Platforms are Public Sphere, But Incomplete

Both the Bureau of Networking and Public Participation and the Southern Cities Climate Change Resilience Network Foundation has tried to create public spaces, open for everyone, to participate in presenting information and public opinion Citizens, as a part of actors) use such a public space for reporting information, and situations, and exchanging their ideas interactively, which causes information circulation and induces discussion for everyone equally. The public sphere yields power for communicating with society. However, such a public sphere is a virtual space involving communication, the creation of a feeling of collectiveness, and public benefits. However, according to the concept of a public sphere of Habermas (Kanjana Kaewthep & Somsuk Hinviman, 2010), the public sphere "is not yet a complete public sphere," due to organizational conditions in managing a news reporting process on crowdsourcing platforms. Specifically, it is required that crowdsourcers still play a vital role in crowd management and controlling information flow or direction. They will decide which news should or should not be publicized to the general public, including prioritization of information, issue selection, content editing, and adding

needed content from social media. Therefore, news reporting on Thai crowdsourcing platforms is related to the power relations of crowdsourcers or staff on the editorial board. They perform like a gatekeeper who screen information for general people. Accordingly, at the moment, it is difficult to mobilize people to participate in Thai crowdsourcing platforms in the public sphere at a policy-making level as planners or policy-makers who can bring about consequent changes. The notion is supported by the study of Jantana Suttijaree and Worrapong Trakarnsirinont. (2020), "Public space on social media and the citizenship role: The case study of Korrum Subdistrict, Uttaradit Province," which found that although the Korrum Sub-District Administrative Organization organized an official public forum for opinion exchanges between the government agencies and Korrum citizens, which was the level of creating collaboration, collaborative planning, and participation all through a decision-making process, the decision was still in the power of the government sector in implementing policies or conducting any project eventually.

6.2.1.6 Thai Crowdsourcing Platforms

"In the public dimension at a community level, it focuses on horizontal relationships and informal connectivity through a community's body of knowledge mainly."

Thai society perceives the importance of the creation of democratic ways in the public participation dimension, and expects Thai people to have an attitude that participation has something to do with you, it is not irrelevant. People have a right to express their opinions and participate under the legal framework. Correspondingly, people possess characteristics of participatory communication in the democratic system, in combination with the shared feeling of locality, community orientation, and people's power. This can help to drive issues from the civic sector to communicate their stories, problems, ways of living, and lifestyles of different regions and contexts. Such a democratic system does not only introduce the occurrence of Thai crowdsourcing platforms but also affects the news reporting process on crowdsourcing platforms. For example, the interaction between crowdsourcers and users will emphasize information relationships structure highly, which is horizontal relationships like friends or siblings who depend on one another. Different from the western organizational structure, which is the pattern of formal relationships, based on

their status or positions and the line of authority to ensure that workers will understand who is responsible for what, and to what extent the scope of their work or responsibility is. From the study of Puchit Puripanik (2014), several world-leading TV stations opened a presentation channel for those who desired to submit their news to the stations for selection only, without establishing engagement with the audience or having any concern if the stations' decision will hurt the feeling of people who sent their news pieces to the stations or not. Oppositely, the Thai PBS TV station played a role as a citizen journalism supporter, so it might have some bias in considering workpiece to be broadcasted and might result in latent benefits for some groups subsequently.

Remarkably, the news reporting process on Thai crowdsourcing platforms, especially at a community level, is not equipped perfectly with the western concept of organizational management due to limited operational costs and unreadiness, i.e., human resources, information, technology, and capital. Therefore, the initiators must collaborate with local administrative organizations, community networks, private organizations, government agencies, and on-site volunteers in the form of cooperative operations following the commonly-imposed goals, information sharing, technological and communication support, including supporting places for organizing activities, which reflect horizontal relationships. Besides, it can help to lower the cost for an initiating organization, such collaboration is a major part in prolonging Thai crowdsourcing platforms due to the need for collaborative working and mutual support. It is not for materialistic benefits, but a desire to participate in solving problems. (Seri Phongphit, 2005). Moreover, it requires the knowledge and experience of people in a community to support the operation of crowdsourcing platforms as well. It can be witnessed in the case of a crowdsourcer of the Southern Cities Climate Change Resilience Network Foundation who applied knowledge from his master's degree to extending and developing the Hatyai City Climate Platform. Similarly, users who had worked in the group of the Red or Citizen-Band Radio Network for U-Tapao Canal Hazard Forewarning before could apply their knowledge and experience in surveillance, forewarning, and preparing to cope with floods well. Such knowledge and experience are indicators of the quality and credibility of news

pieces, which lead to management and problem-solving in disaster situations through the body of knowledge derived from collective intelligence genuinely.

6.2.2 The Measurement Model of the Variables Affecting Users' Participation in News Reporting on Thai Crowdsourcing Platforms

From the study, the measurement model of all latent variables is congruent with the empirical data, which reflects that the measurement model of all seven latent variables can measure each variable. However, it is notable that each measurement model has a latent variable with a different level of significance based on the factor loadings, which can be discussed as follows:

6.2.2.1 The Measurement Model of Personal Motivation Variables

From the study, the measurement model of personal motivation variables is congruent with the empirical data, and the manifest variable that has the highest factor loading is intrinsic motivation, which accords with the level of the samples' opinions on personal motivation. Namely, 1) the samples have the highest motivation in communication in the public sphere, i.e., web or mobile applications as they perceive its importance and benefits for communities and society, followed by 2) needs to provide information and movements of communities or society and needs to spread information to be informed widely equally, and 3) their perception that the incidents or news are related to their community. All these top three motivations are indicators of intrinsic motivation following the study of Alam and Campbell (2012), which found that the stimulus that affects users' participation in correcting statements on the Australian newspaper website under the concept of GLAM (Galleries, Libraries, Archives, and Museums) is intrinsic motivation or personal motivation, comprising personal interest or volunteers' goals, trust, adherence to tasks, commitment for help, preference in a challenging task, and interest in an issue. It is found that both personal motivation and motivation from a community are igniting motivations and utmost important factors in driving users to participate in text correction. Besides, the findings from the study of Bhatti, Gao, and Chen (2020) point out that intrinsic motivation stimulates users to operate on the crowdsourcing system as they do not expect to get monetary rewards or remuneration, but they may need entertainment, self-improvement, or want to be a moral person who helps others in a

crisis or emergency with goodwill for society, i.e., providing support or assistance, rescuing, mitigating, or bettering their society. Similarly, the study of Panumas Nontapan found that proper intrinsic motivation that could induce people to participate in preparing a network map for surveillance and assisting disaster victims in Songkhla is volunteers' self-pride in contributing to benefits for their community. Therefore, to make an understanding of crowds' motivation can provide guidelines for an initiating organization to attract people to participate, based on the rules of crowdsourcing that the important component of most successful crowdsourcing projects is the determination and enthusiasm of a community. (Howe, 2011; Sloane, 2011)

6.2.2.2 The Measurement Model of Perceived Usefulness Variables

From the study, the measurement model of perceived usefulness is congruent with the empirical data and the manifest variable that has the highest factor loading is perceived usefulness for tasks, which is supported by the study of Rungsun Kiatpanon (2015), which found that users have a high level of accepting the technology of the innovative information management process from the crowd's report during the crisis period. One of the main factors enhancing such acceptance is "perceived usefulness of the system, i.e., faster working, increased working effectiveness, enhanced capability in producing an outcome, facilitating goal accomplishment, and usefulness for their task. From the qualitative research of this study, the main users are "alliances and networks," which integrated their works collaboratively, i.e., concerned government agencies (such as the Department of Disaster Prevention and Mitigation, Southern Eastern Meteorological Center, the local administrative organization, etc.), citizen journalists, issue-related networks, independent news producers, etc. According to the crowdsourcing concept, the crowd will receive returns in the form of benefits they value. (Estellés-Arolas & González-Ladrón-De-Guevara, 2012, p. 197; Rungsun Kiatpanon, 2015, p. 24). Here is the usefulness of their task. Concurrently, Bhatti, Gao, and Chen (2020) studied, "General framework, opportunities, and challenges for crowdsourcing techniques: A Comprehensive Survey" and found that for a successful crowdsourcing process, workers and initiators will gain common benefits.

6.2.2.3 The Measurement Model of Perceived Ease of Use Variables

From the study, the measurement model of perceived ease of use is congruent with the empirical data, and the manifest variable that has the highest factor loading is perceived ease of the system, which accords with the qualitative research findings that users perceive the operational system as easy, simple, and convenient for use for reading and searching for data, membership application, entering the system, importing data in the form of texts, images, or video clips, finding the location from a map pinning, correcting and deleting data, and sending information for users. The findings are supported by the study on the technology acceptance of information management systems from the crowd's report during the crisis period of Rungsun Kiatpanon (2015) that users, who are practitioners of the Information Office, the Department of Disaster Prevention and Mitigation, Disaster Surveillance Center, Friend in Need of Pa Foundation, Disaster Mitigation Office of the Thai Red Cross Society, etc., have a high level of technology acceptance, and one of the main factors induces such acceptance is perceived ease of the system use. Namely, the system is clear and easy to understand. Similarly, the study of Panumas Nontapan (2014) found that the main principle for designing the surveillance network and assisting disaster victims map, following the concept of crowdsourcing, is its convenience and ease. Additionally, the study by Patthama Sukthong (2012) found that users' perceived quality of the system (i.e., the quality of information, users, and a system) affects their intention to participate in using crowdsourcing, especially perceived quality of a system, which must be easy and convenient in accessing general browsing webs, which is a consequence of well-planned and well-designed system by concerning about user experience (UX) for increasing users' satisfaction with the system use as much as possible. Accordingly, user experience is a key to a crowdsourcing system's success or failure. (Egkarin Watanyulertsakul, 2021, p. 29)

6.2.2.4 The Measurement Model of the Variables of the Interaction between Crowdsourcers and Users

From the study, the measurement model of the interaction between crowdsourcers and users is congruent with the empirical data and the manifest variable that has the highest factor loading is participation in working, due to the nature of online media that facilitates the interaction to be easier, more convenient,

and faster, across time and places (Nitida Saengsingkaew, 2018). Besides, Phattra Burarak and Samatcha Nilaphatama (2019) further found that generally, news reporters interact with workpiece owners, i.e., by asking for permission, requesting additional information, or sending news to be publicized, which can establish relationships with citizens through their news pieces as a tool while working together. Furthermore, the study of Karlsson and Martinsson (2014) yielded the findings in the same direction. Namely, users' motivation will occur from the interaction between initiators and participants in a crowdsourcing process. The relationship in every step of the process affects participation in crowdsourcing activities. Thus, it reflects that working relationship is very vital. Besides, the study also found that during the process step, if initiators and users have no interaction, it will yield negative relationships and affect the quality of participants' tasks as well. Therefore, initiators must recommend and coordinate with participants during this step. Although the level of interaction may be increased after the process step, it is insufficient for healing the damaged relationships occurring in the process step. Therefore, a lack of initiators' interaction will affect participants' satisfaction negatively and increasingly. It confirms the finding of Karlsson and Martinsson (2014) that participants' motivation will occur after the interaction between initiators and participants in every step of a crowdsourcing process, namely input, process, and output steps.

6.2.2.5 The Measurement Model of Organizational Factors Variables

From the study, the measurement model of organizational factors is congruent with the empirical data and the manifest variable that has the highest factor loading is organizational credibility, which is accepted and trusted by the general public, as a consequence of their perception of an organization's expressed actions and behaviors, and its effect on organizational reputation. Such findings accord with the analysis of the samples' level of opinion on organizational factors, which found that the samples are motivated to participate in the system because of their perception of the credibility, reputation, and people's acceptance at a high level. Besides, the study of Bhatti, Gao, and Chen (2020) found that users will participate in the crowdsourcing system in which requesters are honest or well-known, especially during the crisis period when people need information and assistance. If initiators or proposers are credible organizations, they will trust that such organizations are

prepared in assisting disaster victims. Similarly, the study by Sharma (2010), “Crowdsourcing critical success factor model: Strategies to harness the collective intelligence of the crowd,” found that organizational credibility can increase the crowd’s trust. For instance, the Ushahidi Crowdsourcing Platform was very popular during the crisis period and was supported by the Harvard Humanitarian Initiative (HHI), which is a project related to humanity and human rights projects of Harvard University and the Organization for Economic Co-operation and Development (OECD. The support from these external global organizations increased the platform’s credibility and upgraded the organization to be more well-known throughout the world.

6.2.2.6 The Measurement Model of Intention to Participate Variables

From the study, the measurement model of intention to participate is congruent with the empirical data and the manifest variable that has the highest factor loading is an intention to report news, following the concept of Jiraporn Tangkittipaporn (2013), which explains that one of the major factors influencing human expressed behaviors is “intention.” Intention affects an activity operation’s success. Individuals with high intention are found to be motivated to do activities higher than those with low intention. Such notion is congruent with the findings from the qualitative research of this study that most users participate in news reporting, despite their contribution of time, physical strength, spirit, finance, and wisdom, because of their intention and determination in news reporting that is believed to help or find guidelines for solving problems for communities or society. It also accords with the study of Pimporn Chewananth and Sumalee Sawang (2021), “The Structural Equation Modeling of Factors Affecting Financial Contribution Intention and Behavior Via Investment Crowdfunding in Social Enterprise in Thailand,” and found that the factor influencing financial contribution behavior the most is the intention of financial support. Such a finding is supported by the study of Zheng, Li, and Hou (2011) that the intention to participate is a predictor of the efficiency in participating in problem-solving via the crowdsourcing platforms of the People’s Republic of China.

6.2.2.7 The Measurement Model of Users' Participation in News Reporting Variables

From the study, the measurement model of users' participation in news reporting is congruent with the empirical data and the manifest variable that has the highest factor loading is news reporting, influenced by the growth of internet networks in Thailand, especially the complete entrance of websites towards Web 2.0, which facilitates internet users to co-create and import their content into the system, including sharing information in all forms: Texts, sound, still pictures, moving pictures or video-clips, easily. (Pirongrong Ramasoota, 2013). Besides, it accords with the study of Díaz et al. (2012), which found that Web 2.0 plays a role in promoting people's participation as citizens widely, especially in the emergency in which people will modify their behaviors to be more enthusiastic (or more positive attitude) to participate independently. Thus, it leads to the fusion of citizens towards a differentiation and situation assessment process, goal imposition, and strongly-coordinated operation to reduce the impact of a disaster. (Nantaporn Techaprasertsakul, 2013). This type of users' news reporting participation follows the goal of crowdsourcing platform development, which gives importance to the sharing of information, knowledge, and experience of the civic sector, leading to the mobilization of problem-solving guidelines, and is considered the second level of participation or participation as a sender or news producer, (Asawin Nedpogaeo, 2021; Puangchompu Chai-arla Seangrungruengrot, 2013), in an open journalism process in which the civic sector participates in a news reporting process, not for monitoring or drawing information from online media only. (Aitamurto, 2013)

Still, the important goal of the output gained from participation in news reporting is to obtain problem-solving guidelines that accord with the context of a community or society through public participation as planners and policymakers, which is the highest level of participation where people can make decisions in a media organization, i.e., the determination of proper content, time, plans, and policies. However, from the qualitative research, an interesting finding is that participation at the highest level seldom occurs on Thai crowdsourcing platforms. Accordingly, making people interested, concerned, and feel like a part of a problem can increase people's participation or common agreement to participate in solving such a problem.

(Parichat Walaisathian et al., 1999; Merrill-Sands, 1983, as cited in Narinchai Pattanapongsa, 2004).

6.2.3 The Development of the Structural Equation Model of the Factors Affecting Users' Participation in News Reporting on Thai Crowdsourcing Platforms

From the study, the structural equation model developed by the researcher is found to be congruent with the empirical data; however, no correlations are found, based on theoretical theories, before the model modification. From analyzing the effect of the variables in the structural equation model, users' intention to participate is found to be the only variable that has a positive effect on users' participation in news reporting on Thai crowdsourcing platforms. It thus indicates that users' intention to participate is the main cause inducing the crowd or users, who are platform members, to participate in news reporting on Thai crowdsourcing platforms, as noted by Jiraporn Tangkittipaporn (2013) that intention affects activity operation's success. Individuals with high intention will have a higher level of doing activities than those with low intention. Since "intention" is a variable used to describe and predict individuals' actions or behaviors, it is a criterion for judging if an individual will behave or not behave. If an individual intends to do something useful or proper for his/her capability, he/she will intend to do such a thing successfully. (Pimporn Chewananth & Sumalee Sawang, 2021). Such remarks accord with the study of Zheng, Li, and Hou (2011), which found that intention to participate is a predictor of efficient participation in solving problems via the crowdsourcing platforms of the People's Republic of China.

Notably, most variables are found to have neither direct nor indirect effect on users' participation in news reporting on Thai crowdsourcing platforms, possibly because the model emphasizes the analysis of factors that are psychological variables, namely personal motivation, perceived usefulness, perceived ease of use, and attitude towards organizations. However, from analyzing external factors that are social factors surrounding users, it can be discussed as follows:

6.2.3.1 The Situational Context During Data Collection

Since data collection for this study was conducted during the epidemic of COVID-19, the critical public health situation that has been affecting the world population severely, including their mentality widely, especially negative psychological state, i.e., anxiety, fear, sadness, anger, and frustration. It is caused by their confrontation with uncertainty, which is a sudden and severe threat (Worrathai Rawinit, 2013). Therefore, from the study, although users feel that crowdsourcing platforms of both organizations are easy to use and useful, and they have a positive attitude towards the organizations developing such platforms, they do not participate in news reporting so much, possibly because there has been more urgent and crucial crisis before them. Users have to evaluate how and to what extent what is happening affects them and the people surrounding them, including the effort of finding ways for solving problems that have occurred. According to the Existence Relatedness Growth Theory of Clayton P. Alderfer, the more human needs at a low level have been gratified, the more human beings will ask for needs at a higher level. (Jiraporn Tangkittipaporn, 2013; Sitthichok Waranusantikul, 2003). Thus, under the COVID-19 situation, needs for existence, which is the lowest-level need, will be gratified at a low level and consequently causes a low level of participation in news reporting on Thai crowdsourcing platforms, which is higher need, i.e., relatedness and growth needs. Such an explanation accords with the study of Panumas Nontapan (2014), which found that key success factors of preparing the surveillance and assistance of disaster victims network map by the application of a crowdsourcing process depend on proper timing, based on the situational background that can stimulate the crowd to participate.

Contrarily, from the qualitative research, it is found that during early 2019 when tropical storm Pabuk took place, a lot of people joined in reporting the situation and pinning map on the C-Site Platform. However, the epidemic of COVID-19 is different since it is one of the world's biggest epidemics of virus infection and is still an unsolved contagious disease being analyzed in the laboratory. Accordingly, United Nations Development Programme (UNDP) raises this public health crisis as the most impactful challenge human beings have been facing since the Second World War. It is not only the world's public health crisis but also incurs the most severe

economic and social crisis in human history. (Wichuta Kruthen, 2020). Therefore, people focus on this epidemic while following the situation for their assessment, decision-making, and anticipation of the possible impact in the future rather than focusing on participation in news reporting. Parichat Walaisathian et al. (1999) and Merrill-Sands (1983, as cited in Narinchai Pattanapongsa, 2004) express their opinion that motivating people to participate, requires supporting economic and physical environmental conditions. Consequently, from the quantitative research of this study, on the Hatyai City Climate Platform, which has been operated since 2011, as a communication channel for Hat Yai areas, Songkhla Province, during the flooding crisis, users who are members for over 5 years have not participated in news reporting so much as there have been no big floods happening again since then.

Accordingly, despite users' personal motivation influenced by perceived usefulness, perceived ease of use, and positive attitude towards the organization, the epidemic of COVID-19 may be a situational factor that makes the assumed predicting variables do not affect users' participation in news reporting. Jiraporn Tangkittipaporn (2013) remarks that situations in a different environment may induce different motivations. Some situations may make people excited or encourage them to do an activity, while some make them confused, depressed, or discouraged. Therefore, a situational context is considered another important factor that motivators should concern about when they want to mobilize people to perform some behaviors.

6.2.3.2 Crowdsourcing Competition Context During the Epidemic of COVID-19

Despite users' perception of the platforms' usefulness and ease of use, other platforms are having similar operations that can respond to people's needs during such a crisis as well. Hence, both the C-Site and Hatyai City Climate Platforms have to compete with other platforms while serving people's needs simultaneously. Comparably, as above mentioned, although both platforms are perceived as functional and convenient, they cannot respond to people's needs during the epidemic, which is a risky and uncertain situation. From the survey, it is found that several other crowdsourcing platforms have been developed and facilitated users to handle the COVID-19 situation effectively, including helping to reduce several risks, i.e.,

coordinates and details of the infected in Thailand, the display of risky areas, coordinates of important places (i.e., field hospitals, waiting for centers, inspection sites, temples for cremation), SOS, and volunteer applications, such as Jitasa. care Platform (https://www.jitasa.care/) of the Thai Care Volunteers Project, in which users can request help (i.e., preliminary information, coordinates, and contact numbers), including assistance provision. Fight COVID Platform (https://www. verblick.org/covid19/#) is another crowdsourcing platform on which users can add information and coordinates of places of surgical face masks and alcohol distribution so needed people can buy them by themselves without wasting time searching for these things. Accordingly, the C-Site and Hatyai City Climate Platforms have not been chosen to be used during the epidemic period. Consequently, they are found to have no effect on users' participation in news reporting since people will decide to choose the best way for their utility maximization. Therefore, the other variable that can lead to further use of the platforms is an expectation that a platform can respond to people's needs and make them satisfied.

Nevertheless, it is remarkable that the crowdsourcing platforms developed during the COVID-19 epidemic may not be a permanent platform that can maintain users' participation in the long term like the Hatyai City Climate Platform found in this study. Correspondingly, what should be further studied is whether and how the studied factors, i.e., personal motivation, perceived usefulness, perceived ease of use, the interaction between crowdsourcers and users, and organizational factors affect users' participation in news reporting on Thai crowdsourcing platforms during the normal period.

6.2.3.3 The Perception that "Big Data" in the Crowdsourcing System is Useful and Practical.

From the quantitative research, the samples are found to have a high level of the opinion of the perceived usefulness of Thai crowdsourcing platforms, and when analyzing by each statement, the samples perceive the most that the crowdsourcing platform helps to have big data, enabling to be extended or employed for setting practical guidelines or policies for problem-solving and community development. However, from the qualitative research, such output is not much as expected, considering all content issues and news pieces reported on the platforms.

The notion accords with the finding from in-depth interviews with users that if big data are collected without using them for making guidelines or policies, such big data will become useless. Therefore, a proposing organization or an initiator has to create people's perception that a crowdsourcing platform for news reporting is a major database that everybody can access and make use of because it can identify coordinates of the areas, which are connected with geographic and local-incident information. Thus, it can reflect a compilation of problems and needs of people in each area. Most of all, people must understand that these big data will be analyzed for the public benefit of solving problems and developing communities and society. Without effective communication to create a conscience of this common database as a crucial resource, general people will continue posting and sharing their preferred issues on social media as they perceive no value or usefulness of news reporting on a crowdsourcing platform. Enhancing people's perception of its value and importance is one of the guidelines for inducing participation as noted by Parichat Walaisathian et al. (1999) and Merrill-Sands (1983, as cited in Narinchai Pattanapongsa, 2004).

6.3 Research Recommendation and Limitation

6.3.1 Research Recommendation

6.3.1.1 Recommendation from the study

1) The application of the crowdsourcing concept in the news reporting context, both in the normal and crisis periods, should consider organizational potential, the nature of needed tasks, users' characteristics, and situational context since these factors can bring about the design of a users' participatory process in news reporting on crowdsourcing platforms.

2) Utility of information and news pieces for the long term is still limited in several aspects: The design and storage of big databases, database retrieval, and in-depth data analysis. Therefore, a proposing organization or an initiator has to prepare needed resources in advance for a higher-level operation. Planning and equipment investment plans are required for carrying big data towards maximal benefits.

3) During the crisis period, crowdsourcers may organize content into 2 groups: Information provision and information request, in combination with coordination with the government agencies involving in public hazard or disaster management, i.e., the Department of Disaster Prevention and Mitigation, the Ministry of the Interior (i.e., prevention, support of necessary facilities, surveillance, and rehabilitation planning), the Ministry of Social Development and Human Security (i.e., providing temporary houses, developing permanent houses or residence for disaster victims), the Ministry of Public Health (i.e., mental healing), Provincial or Local Administrative Organization (i.e., gathering help and restoring communities or solving problems in a long term), etc., in collaboration with the private and civic sectors, i.e., in the form of a foundation or public charity organization, etc. for providing a short-term assistance, i.e., monetary support, donation of money or necessities for fundamental existence, volunteer, etc., to drive operational mechanism in a crowdsourcing process in the context of public hazards to assist hazard victims rapidly and effectively.

On the other hand, it should be aware that assistance provision in the context of public hazards or disasters is a complex issue. How effective it will be will depend on the collaboration of every sector mainly. Thus, a responsible agency or a local administrative organization should establish an inclusive operational mechanism and pattern, including determining roles, coordination, and cooperation with platform developers, users, and volunteers clearly to avoid overlapping and chaos during the assistance operation, while being able to induce creative cooperation and promotion of information sharing among all concerned parties: The government, private, and civic sectors.

6.3.1.2 Recommendation for Further Studies

1) The sample size of users should be increased to cover users with a low level of participation, users who are members without interaction with crowdsourcers, and crowds who do not participate in news reporting to validate the relationship between a proposing organization or an initiator and users, both online and offline of these three groups and find guidelines for establishing relationships with users towards increased participation in news reporting.

2) One of the findings from studying a news reporting process on Thai crowdsourcing platforms is the interaction among users, i.e., pressing likes, shares, and comments, including interactions during the on-site operations, which makes users need to create new networks for strengthening and extending their work. Therefore, insightful studies on the interaction among users may be conducted to examine if and how it can be a predicting variable of users' participation in news reporting on crowdsourcing platforms.

3) A crowdsourcing process is the initial part of an open journalism process. Hence, a pilot study on the content creation from the target group's alternatives and needs should be conducted, including the co-creation between a proposer and the target group (users) to reflect an open journalism process in the Thai context.

4) The research findings indicate that the structural equation model of factors affecting users' participation in news reporting on Thai crowdsourcing platforms is congruent with the empirical data since all seven variables of the measurement model are congruent with the empirical data and each variable can be measured. However, only "users' intention to participate" is found to have a positive effect on users' participation. Thus, it is recommended that for the futures studies, the order of exogenous and mediator variables should be switched or modified to test which variable or factor can have a direct or indirect effect on users' participation in news reporting on Thai crowdsourcing platforms to confirm the findings of this study and to achieve more inclusive findings.

6.3.2 Research Limitations

1) Owing to the research conduction during the situation of the COVID-19 epidemic in the fourth period where on-site operations were prohibited to comply with the requirements issued under Section 9 of the Emergency Decree on Public Administration B.E. 2548 (No. 45), the researcher could not conduct a non-participant observation at the operation sites of the Southern Cities Climate Change Resilience Network Foundation and newsroom of the Bureau of Networking and Public Participation; thus, no findings related to this part can be analyzed in

combination with the findings from other research methods to examine a news reporting process on crowdsourcing platforms more broadly.

2) Although the collection of quantitative data by online questionnaires is proper for the epidemic of COVID-19 period in which social distancing is compulsory, and also suitable for respondents who live in all regions of the country, the population of this study is limited to only those who applied as the members of the studied organizations, the response rate is rather low, especially in the case of the Hatyai City Climate Platform, which has been operated since 2011 as a communication channel during the flooding situation, but no floods have occurred for over 10 years since then.

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