

Agile Approach and Adaptability into Complex Environment Management and Operation: A Case of Malaysia Battlement Against Covid-19

Mohamad Firdaus Mat Saad¹ and Aliza Abdul Latif²

¹Segi University and Colleges, {firdausmatsaad@segi.edu.my}

²Universiti Tenaga Nasional, {aliza@uniten.edu.my}

ABSTRACT

Covid-19 disaster management is classified as complex management due to the rapid changes of the current situation, ad-hoc methods in the dissemination of latest information to society and public knowledge, mass media control, collaboration and coordination between agencies, national economic stability, and finances that contributes to the operation complexities. Several solutions have been made by the federal or state government involving various aspects, including the development of standard operating procedures that form the basis of overall management. However, not all efforts can run smoothly and efficiently given the large aspects of control and the involvement of a large population. Therefore, in this paper, we propose for the agile process in the agile framework for flood management to be adapted to provide new solutions for Covid-19 to cater to the activity's complexity. The grounded theory is applied to construct the structure of the study by understanding the phenomena from multiple complex environments and established theories. Consequently, the suitability of the agile elements from flood management has shown a constructive relationship to be adopted into Covid-19 operational activities to support complex environmental processes.

Keywords: Covid-19, agile approach, complex environment, disaster management.

I INTRODUCTION

A novel coronavirus infectious disease (Covid-19) pandemic crisis response is classified as one of the complex managements since the operational activities are chaotic. Its management mechanism, which involves several facets, including the treatment of new and active cases, the distribution of the latest facts to the public, education and awareness of all citizens, mass media management, cooperation and coordination between agencies, national economic stability, and family finances, add to the complexity of its management, which has a significant effect on the economy and social (Althair et al., 2020; Zainon, 2020).

Several solutions have been placed in force by the Malaysian federal government to curb this epidemic's spread. Among them, the Movement Control Order

(MCO) declared by the Prime Minister of Malaysia on 16 March 2020 will take effect on 18 March 2020, followed by some subsequent phases until 12 May 2020.

During this MCO phase, all sectors involving colleges, schools, food stores, cinemas, shopping malls, and sectors considered needless to exist in their respective locations are directed to function from home, and exemptions are provided to critical sectors such as hospitals, supermarkets selling daily necessities and a variety of other prominent sectors.

However, the extended MCO had a negative influence on the national economy and led to a decision by the Prime Minister of Malaysia to enforce the Conditional Movement Control Order on 1 May 2020. It was announced on that day the new measure was to start on 4 May 2020. Due to the continued increase in the number been affected, thus Enhance Movement Control Order (EMCO) had been introduced at the specific location.

Despite all the MCO's introduction, Malaysia's prime minister declared a Recovery Movement Control Order (RMCO), where the effective date is 10 June 2020. During this time, all enterprises, social life, the economic sector, and other routine operations are permitted to function as expected.

Owing to the rapid changes' situation, emergency recovery operations have to change according to the current situation's suitability. This scenario can be compared to the agile concept practised in project management, where a quick adjustment needs to be made to adapt to the current condition of the case.

A pandemic that is not yet certain when it will end shows the effects of an uncertain infection and rapid changes that require a quick response from all affected stakeholders, including the public. It can be seen through a series of infections wherein the initial period, the active case increased, then decreased at a time, sometimes it flattened, and increased again. The ad-hoc spike can be witnessed in early October 2020 due to the State Election Campaign (PRN) and the PRN conducted on 26 September 2020 in Sabah (Bernama, 2020).

Due to non-compliance with the prescribed Standard Operating Procedure, the number of infected people

increases up to four-digit daily (Bernama, 2020). Simultaneously, some areas with red zone status, such as Tawau, Kunak, Semporna, and Lahat Datu, are indeed the critical zone of Covid-19 infection. There is no denying the number of people returning from Sabah after PRN became one reason for the spread of Covid-19 infection in peninsular Malaysia (Yazid, 2020).

In this paper, we propose the agile approaches and adaptability be adopted into another discipline of a complex environment, as proposed in Agile Information-Based Framework for Flood Management (ALFA). The ALFA Framework is a dynamic framework developed by integrating the agile aspect from system development and other complex environment guided by COBIT principles. It is a framework to manage flood disasters specifically introduce for Electricity Supply Industry in Malaysia. By knowing the fact that, managing flood activities is complex and chaotic, thus ALFA was introduced. The complex nature of the environment due to the rapid change of circumstances makes managing the situation chaotic. Therefore, agile elements need to be considered to facilitate the management of a disaster and, at the same time, enable a decision to be made quickly and improve the operational activities.

Therefore, this article is devoted to the adoption of several elements from the agile framework of flood management to the handling of Covid-19, specifically in Sabah, Malaysia. It is believed this research is to be of vital importance in improving the management of Covid-19 activities to help in reducing the impact of this pandemic.

This paper is organized as follows: in the second section, an overview of the case of pandemic management in Sabah will be elaborated. The third section will discuss the methodology used in analyzing the case with the agile framework of flood management and followed with the mapping of the agile framework with the case in Sabah. Concluding, we discuss the suitability of the framework adoption with any disaster as well as future research of the framework.

II BACKGROUND

Even as the number of active case infections continues to escalate day by day, the government's decisive action to close all entrances and exits to deter travel to or from Sabah is seen as a wise move. Screening and quarantine are also conducted in Sabah to recognize and classify the possibility of infection among the population.

Sequence from the screening carried out; the authorities experience another problem where Covid-19 screening need to be carried out in some remote regions, and these areas have not been exposed to the

real situation and the effects of the pandemic towards society and life. Therefore, the residents' involvement is not visible when medical officials call for screening, as happened in Omandal, Dernawan, and Bangau-bangau Island. All the residents fled into the forest, hid in the island and inside the house due to fear when the medical officers called them for the screening. Among the residents' concerns include being arrested by the police, nose bleeds, injection, pain during the process, and taken to hospital.

To reduce tension in the situation, a teacher who is also a resident tried to console the community by approaching them personally and explained the process relating to the Covid-19 screening. He approached the area residents, explained the problems encountered, the process to be taken, and answered all the residents' questions. With his efforts, he managed to bring almost 50 residents to undergo the Covid-19 screening test from the population of Omandal Island, where the living situation is as shown in Figure 1. The teacher explained to the medical officers that the residents' fear of being brought to the hospital which may cause them to be separated from their family and they are not familiar in living outside of the island.

The efforts and approaches made by this teacher are known as transformational leadership, which was introduced in the agile framework for flood management. He has taken appropriate measure to ensure the affected communities are screened for Covid-19 by the authorities by being a liaison person between the medical group and the community. By doing this, he managed to help in controlling the pandemic as he managed to get all residents in Omandal to be screened as part of the Ministry of Health initiative in decreasing the cases in Sabah.



Figure 1. The Living Situation of Residents in Omandal Island, Sabah

He believed the authorities are starting to understand the importance of knowing the sociology, psychology, culture and politics of local residents before any directive or instruction from the government are carried out. This story has highlighted the importance of local leadership that have more and greater understanding of how to approach the situation at the

site in achieving the objective in controlling the pandemic. The success of this approach can be seen from the increasing numbers of people coming to be screened at the local clinics after the teacher has provided an explanation to the residents.

The following section will describe the methodology used in understanding the agile approach and its adaptability with Covid-19 situation in Sabah, Malaysia.

III METHODOLOGY

As this research is allowing for exploratory and discovery-oriented to understand the phenomena and introduce a new theory of agile elements in a complex environment, a methodology of grounded theory (GT) has been adopted. GT is implemented as an inductive and comparative approach that offers structural guidance for the selection, synthesis, review and conceptualization of qualitative evidence for construction theory.

Theory-based research will start with a query or even just the collection of qualitative data. The researchers analyze evidence, see it as the ideas or principles. The researchers mark these concepts with codes that outline the concepts briefly. When further data are obtained and reexamined, codes may be categorized into definitions and divisions at the higher rank.

GT uses qualitative knowledge to describe the occurrence of a particular event. It achieves this by analyzing a series of related events and using the evidence to provide causal knowledge in various situations. Researchers change or develop new theories by researching further cases before an interpretation that suits all cases is found.

Hence, in this research, we adopt the theory under the agile process introduced in the Agile Framework for Flood Management. We followed the principle for this study to be cross-analyzed with other complex management alluded to in Covid-19.

IV DISCUSSION

In this section, we presented the idea of agile elements adaptability between different disaster environments which refer to flood and pandemic Covid-19. Two main recommendations for the successful implementation of complex environments can conclude the study as the following:

1. Some components have to consider dynamic circumstances. It will adjust according to situations and transform over time by understanding the situation and making the catastrophe meaning special. Accordingly, adaptive steps are expected during implementation.
2. To ensure uniform and orderly implementation of such functions, strict requirements must be

followed (where versatility is not permitted). Each organization must have a lean, unambiguous SOP. Nevertheless, a structural SOP is needed to control the consistency of the framework applied for the unique form of disaster management.

In this paper, we argue the implementation of some elements highlighted under point number one, where those elements can be found in the agile implementation of project management and other complex environment by integrating agile concept (Brown & Chennamaneni, 2013; Mahmoudi, Jahani, Abdi, Yaminfirooz, & Bahrami, 2018; Nawaz & Zualkernan, 2009), and it is adaptable into disaster management activities in Malaysia. The details of the agile elements are presented below:

A. Transformational Leadership

Disaster management in Malaysia is being guided by a standard or guideline known as Directive No. 20, produced by National Security Council in 1997. The activities performed in managing disaster are separated into three levels that are federal, state and district. Although Covid-19 is considered as a national issue, there is an acute challenge for the district as a local governance to manage the pandemic.

Covid-19 in Sabah has increased since the beginning of October 2020, and it was considered the third wave of the pandemic in Malaysia. The rapid increase in new cases in Sabah are contributed to the existing health constraints and socio-economic vulnerabilities that the state has been facing even before the pandemic. The access to basic medical resources remains uneven compared with other states which dampen the effort of tracing, testing, isolating and monitoring the infections. In this situation, local governance or district authorities' role in bridging the gap between the national initiatives and local realities is crucial as it is responsible for coordinating responses and efforts to manage Covid-19 (Dutta & Fischer, 2020). Local governance entities include both the authorities and local actors who are more knowledgeable and understand the local needs.

Local actors that act as the leader in dealing with Covid-19 in a rural area has the authority and power to motivate other people to work together in achieving specific goals. For Covid-19, the aim is to persuade all residents to get screened or tested for the disease. Transformational leadership is a critical aspect of disaster management. Leadership transformation is defined as an individual who has in-depth knowledge of a particular geography, phenomenon, settlement or other aspects that can help disaster management committee solving problems related to the disaster. This individual is likely to be a resident in the area surrounding the place who better understand the surrounding community's way of life.

In the case in Sabah, the individual that acts as the leader is a teacher who has lived in the area for several years and understand the culture and sociology of the island residents. The teacher who becomes the leader is the main reference point for the residents, and they rely on him for information or directions. He is believed to be a transformational leader as he was able to respond and take leads to unexpected changes when the residents refused to be screened by the authorities. He is responsible for the proactive and reactive plans, where he explained the best approach in tackling the locals' residents to the medical officers. The leader understands that it is vital to building trust on the ground in ensuring the coordinated efforts plan by the authorities can be implemented by the community.

B. Skills and Experienced People

The case emphasized the teacher as a transformational leader that able to provide guide and directive to the local residents. A leader in a chaotic environment such as pandemic should also have proper skills and experiences as it is one of the requirements for an agile process to be successfully executed. Experience and knowledge can be utilized in making timely decisions and to minimize the impact on the problems encountered promptly. The quality of knowledge, skills, and experience achieved by each individual also contributes to the value of expertise development in the affected areas, especially during the time to face emergencies such as the pandemic.

Knowledge, skills and experience gained in handling Covid-19 is a critical strength in overcoming any potential problems in managing the disaster. The nature of Covid-19 infections varies according to location and communities, which requires different and dynamic actions. The ability to manage and respond to events require individuals to be equipped with optimal knowledge in the relevant field. Although the leader background is a teacher, he equipped himself by having proper communication with medical authorities to understand about Covid-19 and the right kind of information to be disseminated to the local residents.

C. Quick Respond

Agile requests for quick response over the process based on the situation. Quick responses in agile can be categorized as mentally and physically fast. Mentally quick individuals can think rapidly and clearly, while physically quick is someone who able to move their body fast and steady. To be physically quick, a strong and skilled workforce is required. A strong and skilled workforce is someone that knowing what to do and how to do it correctly, at a correct time, with a correct knowledge and execution process. A strong, skilled workforce should have the exact knowledge and understanding of the situation in dealing with a Covid-

19 by identifying and choosing the best solution for the problems. Information can only be converted into knowledge when the person in charge had experience and memories, to either serve as an onsite committee during the Covid-19 activities or experience it as one of the victims. Thus, in any event of a disaster, quick response to the issues arise is mandatory to ensure holistic management in the disaster.

V CONCLUSION

As a conclusion, a complex environment requires a dynamic approach in operation where some flexibility must be observed and allowed. The idea is to increase flexibility by improving the management operation while promoting efficiency and effectiveness of the process, in dealing with a complicated situation. At the same time, agile provides increase productivity, increase transparency, higher quality deliverables, decrease the risk of missed objectives and increase stakeholder engagement and satisfaction. In this paper, we have presented the relationship of the agile process proposed in flood management to be adopted in covid-19 operational management, where both have shared the same characteristics of the complex environment. Results have bought to the mapped of (i) transformational leadership where it is an adaptive aspect to allows any person who experiences and knowledgeable of managing the situation. Second (ii)skills and experienced people is to promote better decision making or even spontaneous action to react to the emergency. While (iii) quick response is a crucial action in an emergency to mitigate or reduce the risk.

It is proven that some agile aspects are the alternative that can improve emergency operation while dealing with a complex environment as based on the finding above. Hence, we argue a consideration on the agile element's implementation in policy or framework development or even any practices and discipline of complex environments to improve the effectiveness and efficiency of the operation. Future research of those elements highlighted in this study and another agile process as introduced in the agile framework for flood management into another complex environment, hopefully, could bring substantial justification and advantages in the execution process.

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