The Coronavirus Disease (COVID-19) pandemic has significantly influenced a lot of organizations. Business Continuity Planning (BCP) should be developed within each organization; however, it is not effective and perplexes organizations. The COVID-19 pandemic will remain prevalent for a few years, and there is a possible future threat of other infectious diseases. Therefore, it is important to learn from this pandemic and apply this knowledge to future BCP. In this study, issues with COVID-19 BCP are clarified by analyzing an online discussion among willing participants. The following suggestions resulted from the analysis: 1. It is difficult to obtain reliable information when it is necessary. 2. Decisions must be made, not knowing whether governmental measures are appropriate or not. 3. Fear results in bias. 4. Responses may delay if one is too dependent upon the assistance and information from government and/or other sources. Based on these results, BCP during the pandemic is suggested to encourage resilience during the uncertain threat expected in the future.

Keywords: COVID-19, business continuity planning (BCP), after action review (AAR), resilience, agility

1. Introduction

Coronavirus Disease (COVID-19) has been prevalent in 2020 and significantly influenced several organizations. This infectious disease is the first worldwide pandemic since the Spanish flu during the early 20th century. As of October 2020, there are over 34 million cases and one million mortalities worldwide. Although Japan has experienced less damage than other countries, there are over 85,000 cases and 1,500 mortalities [1]. It is still difficult to determine when the pandemic will be over.

Such a pandemic is not extraordinary. In recent years, there have been cases of Ebola hemorrhagic fever in West Africa, SARS in Asia, MARS in the Middle East, and H1N1 influenza worldwide in 2009. Some researchers and experts warn that the risk of the pandemic increases with globalization [2, 3]. However, preventative measures were implemented too late because of society’s priorities of economic convenience and effectiveness along with [4] normalcy bias [5], which has led to this pandemic.

In Japan, large-scale natural disasters occur frequently after the Great East Japan Earthquake; therefore, many organizations implement Business Continuity Planning (BCP). In addition to international standards, such as ISO22301 [6], government offices issue guidelines for formulating BCP against infectious disease, using the 2009 H1N1 influenza (hereinafter referred to as “novel influenza”) pandemic as an example [7, 8]. Despite such efforts, BCP fails to function well within many organizations. Few organizations formulate infectious disease BCP and even fewer conduct infectious disease exercise drills [9]. It is also indicated that rationalization of work operations and transition to remote working have not progressed effectively within some work operations [9].

The Government response caused further confusion. Various measures and notifications are implemented such as requests for temporary closure of all schools, municipal states of emergency issued by the governors, national state of emergency declaration issued by the Government, mask distribution to all households, and stimulus packages. However, such measures are implemented on ad hoc basis and lack sufficient accountability [10]. Moreover, it is not clear who is responsible for the requests. Accordingly, many organizations are easily influenced by such measures.

On the other hand, the following process comparisons have been made between the actual COVID-19 and previous novel influenza [11]:

- The transition and periods of increase and decrease in the number of cases almost follow the assumption.
- Although it is assumed that 25% of the population would be infected by the disease, the contract rate of COVID-19 is only 0.5%.
- Although it is assumed that 40% of employees would absent from work, many organizations interrupt their
operations due to government requests and changes in demand even when there are no infected employees.

- There are shortages in masks and webcams, but less than expected for food shortage and supply chain impact.

According to these assumptions, the original response would have posed an uncertain threat due to another factor, which has become a reason of the confusion.

The author’s group has worked to spread the concept “resilience,” which has been a recent focus in the crisis management field and applied to BCP. When the pandemic spread during early March 2020, an on-line study meeting was established by willing participants of our group to share pandemic response measures and the latest information. The study meeting has continued for about six months and new information is presented daily. By reviewing the study meeting discussions, it is assumed that lessons regarding possible future threats would be derived. For example, the discrepancy between the information sought by society and actual information.

In this paper, the on-line study meeting logs are analyzed in time series, and the BCP consideration requirements are extracted. The related works are discussed in Section 2, analytical approach in Section 3, results of analysis and considerations in Section 4, and future proposals in Section 5.

2. Related Work

2.1. Response to COVID-19

The Ministry of Health, Labor, and Welfare transmits information on the “new normal/new lifestyle” and incorporates infection control measures into everyday activities based on expert opinions on lifting the state of the emergency [12]. In response, infection prevention guidelines are implemented in every type of business [13]. Despite such efforts, events that attract large crowds are reduced and canceled. Therefore, many organizations are exploring how to reopen events.

The temporary nationwide closure of all schools from March 2020 to spring break was requested, and the school closures have continued until the state of the emergency ends. The universities are excluded from the above-mentioned request, but postponement of new semesters and transition to distance learning have progressed rapidly at many universities. The National Institute of Informatics (NII) organizes the symposium on distance learning and promotes information exchange on practical examples of distance learning at each school [14].

The remote work environment has improved for companies mainly in the Tokyo Metropolitan area. For example, “Telework Days” were held through 2019 to alleviate congestion from the Tokyo Olympics and Paralympics [15]. However, it seems that most companies are not influenced by this situation.

2.2. After Action Review

In disaster response, it is useful for the improvement of future responses to review the result and response process. The United States Army systematizes the After Action Review (AAR) as a learning method after military exercises and battles [16]. The AAR compares what was done and what should have been done and utilizes a causal analysis to coordinate future responses. In the United States, this method is adopted by the armed forces and crisis response offices such as Federal Emergency Management Agency (FEMA).

During a large disaster or accident, the AAR is extensively conducted by a third-party organization to derive the lessons. As for COVID-19, a private provisional investigation commission conducts the hearing and interviews the Japanese government officials for verification [10].

There is also the AAR method that involves writing the response logs and chronology at the time of the disaster. Akitomi et al. analyze the chronology of the medical team during the Great East Japan Earthquake from the operational information and support function perspectives to analyze the responses of the Disaster Medical Assistance Team [17, 18].

2.3. Analyzing Method

During the AAR, various ways of thinking and thinking support tools (analyzing method) are used practically. This study aims to analyze the study meeting records and clarify the requirements in considering BCP in the future. There are three requirements necessary for this analysis, namely (1) grasp of the contents of discussion, (2) creation of time series transition of the topics of each discussion, and (3) identification of the important events in the time series transition of discussion and analysis of the factors.

As for (1), the Affinity diagram [19] and Grounded Theory (GT) [20] methods are mentioned. The Affinity diagram is a method to label ideas and opinions and group the labels with similar content and illustrate them from bottom-up. In addition, it is possible to aggregate opinions from various perspectives and grasp the contents of discussion. However, because grouping the contents are not always similarly categorized, this method is not appropriate to follow the time series discussion according to each category. Furthermore, this method does not recommend how to label sentences, such as interview. On the other hand, GT is a method that creates text data from structured or semi-structured interviews and processes the text data using the three operations (open coding, axial coding and selective coding) to clarify the cause of phenomenon from arbitrary interview text through the explainable theory and relations. However, the objective of this method is to clarify the causal relation of factors and construct the theory to explain social phenomenon. Therefore, it might not be fit to grasp the contents of discussion using GT. Like the Affinity diagram, GT is based on the study meeting discussion using GT. Like the Affinity diagram, GT is based on experts' opinions on lifting the state of the emergency.
on bottom-up; therefore, it is not suited to follow the discussion in time series according to each category.

As for (2), the time series event relation diagram based on Improvement SAFER (ImSAFER) [21] is also mentioned. The Time series event relation diagram is a method that uses the time axis as the vertical axis and the player (actor) as the horizontal axis and identifies the problem by following the process of each event as time passes. This method is appropriate for identifying problematic, extraordinary areas of each actor’s behavior. However, this method does not aim to follow the transition of each point of discussion in a time series. Thus, it is necessary to develop an effective method related to the horizontal axis.

As for (3), “the background factor relation diagram according to ImSAFER,” m-SHEL and AcciMap are mentioned [21–23]. The background factor relation diagram is a method that extracts and analyzes a factor from the problem identified in (2). This is also termed Root Causation Analysis. This method aims to fundamentally resolve the problem that cannot be directly resolved. However, because a factor is analyzed using intuition in this method, it is difficult to clarify the overall positioning and comprehensiveness of the factor. m-SHEL is used as a method to support the extraction of the factors and arrange them. In this method, categories are prepared in a classification library to provide the extraction of a factor (Guide Word) and make the overall positioning and comprehensiveness of the factor easier. Nevertheless, once a factor is allocated to an arbitrary category, the factor is not further analyzed. For this reason, this method may be combined with the Root Causation Analysis. AcciMap is a method that reveals that an event is a human problem, but organizational and social factors also contribute to the occurrence of events. This method makes it easier to understand the overall positioning of the factor. While m-SHEL handles humans and their environments, AcciMap is further applied to organization, law, government, and society.

3. Approach

3.1. COVID-19 Online Study Group

The online study meeting to discuss COVID-19 began on March 9, 2020. During that time, concerns about the pandemic increased. For example, on February 28, 2020, the first state of emergency is independently declared in Hokkaido, and the temporary closure of schools in Japan is requested subsequently. In response to the appeal, nine willing participants attended the meeting. Due to the worries of the participants and others regarding the pandemic measures and reliable information, the meeting continued from the previous week. As a result, the meeting has been regularly held weekly for over six months. Although the members may participate in the meeting freely, about ten willing participants regularly attend. The members consist mainly of those who are interested in resilience, crisis management, and BCP. However, the members’ have various careers, such as researcher, manager of BCP, consultant, and student.

The discussion plan and goals are not strict, and the discussion is mainly on the topics that interest participants. The discussion is not guided to certain organizations, and the information is exchanged neutrally. Accordingly, it is assumed that information and business needs are reflected in each discussion.

Due to the urge to speak freely during the discussion, the minutes are summarized and shared via e-mail to meeting members. In the analysis, the minutes are used as the data for the AAR from the BCP perspective.

3.2. Timeline

Since March 9, 2020, the online study meeting has been held for about two hours almost every Monday except holidays. For the analysis, the period when the study meeting is held is classified as the “Incident action plan against novel influenza” [11] as shown in Table 1 and Fig. 1.

On April 7, 2020, a state of emergency was declared for seven prefectures in Japan. The period prior to April 7, 2020, is called the Infection Spread Period, and the period after that date is called the First Wave. On May 25, 2020, the state of emergency is lifted in Japan; this is considered as the boundary between the First Wave and Lull Period. Since July 10, 2020, measures such as alleviating restrictions on attendance numbers at events have been taken. After that date, the number of cases exceeded 300 again around the Tokyo metropolitan area. Therefore, the period after that date is considered the Second Wave. The study meeting has continued through September 28, 2020.

Table 1. Classification of time series.

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Period</th>
<th>Timeline in [11]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection spread period</td>
<td>3/9–4/6</td>
<td>Domestic infection period (3rd stage)</td>
</tr>
<tr>
<td>First wave</td>
<td>4/13–5/18</td>
<td></td>
</tr>
<tr>
<td>Lull period</td>
<td>5/25–7/6</td>
<td>Lull period (4th stage)</td>
</tr>
<tr>
<td>Second wave</td>
<td>7/13–8/24</td>
<td>Relapse period</td>
</tr>
</tbody>
</table>

Fig. 1. Correspondence of time series classification with number of cases.^

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However, the discussion has become fixed and biased because the authors are conscious of the implementation of the AAR. Thus, the discussions after the end of August 2020 are excluded from the analysis.

3.3. Analyzing Approach

The methods mentioned in Section 2.3 have merits and demerits, and one method cannot meet the three requirements. For this reason, the analysis is conducted by combining and improving a part of these methods.

The Affinity diagram is an effective method to overlook the contents of discussion. To meet the requirements, a new framework is devised by combining the Affinity diagram with other existing methods (i.e., ImSAFER, m-SHEL, and AcciMap). The flow of the framework is described below.

(1) Preparation of analysis subject: the proceedings of each discussion are prepared.
(2) Labelling: the labels are created from the proceedings by applying Open Coding of GT.
(3) Creation of Affinity diagram: the created labels are grouped by applying Affinity diagram.
(4) Creation of hierarchical category: the hierarchical categories corresponding to the themes are created with reference to AcciMap and m-SHEL.
(5) Fusion of Affinity diagram and hierarchical category: the group names and label names of the Affinity diagram are classified according to each hierarchical category. Adjustments are made to the Affinity diagram and hierarchical category, if necessary.
(6) Creation of time series diagram: in reference to the time series event relation diagram based on ImSAFER, the time series diagram is created by transitioning the vertical axis and assigning the hierarchical category to the horizontal axis. At that time, the group names and label names are picked up from the Affinity diagram and described in the time series diagram.
(7) Identification of important events: the important events, such as problems, are picked up from the time series diagram.
(8) Factor analysis: the factors are dug deeper into and the causes are analyzed by referring to the Affinity diagram and proceedings.

In the procedure (4), combining the Affinity diagram and time series diagram and clarifying the positioning of the category in the whole process of discussion devises the “hierarchical category” (Table 2). First, the superordinate categories are extracted using the organizational and social factors by applying AcciMap, and the subordinate categories are extracted using the factors of humans and their environments by applying m-SHEL. Second, the group name of Affinity diagram is applied to the subordinate category, and adjustments are made to determine an appropriate category name. The detailed procedures of (4) based on the above are described below.

(4-1) Creation of superordinate class: the superordinate class corresponding to the theme is created with reference to AcciMap.

<table>
<thead>
<tr>
<th>Superordinate class</th>
<th>Subordinate class</th>
<th>Final category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause</td>
<td>Virus</td>
<td>Information collection</td>
</tr>
<tr>
<td>Influence on individual/environment</td>
<td>Human</td>
<td>Psychology</td>
</tr>
<tr>
<td>Influence on society</td>
<td>Management of organization</td>
<td>BCP and business challenges</td>
</tr>
<tr>
<td></td>
<td>Organization</td>
<td>Industry, school and hospital</td>
</tr>
<tr>
<td></td>
<td>Central and local government</td>
<td>Infection prevention measures</td>
</tr>
<tr>
<td>Overseas</td>
<td>Case study</td>
<td></td>
</tr>
</tbody>
</table>

It is possible to create the time series diagram by fusing the results of Affinity diagram with hierarchical category combining AcciMap and m-SHEL in ImSAFER.

(4-2) Creation of subordinate class: the superordinate class is further classified with reference to m-SHEL.

(4-3) Classification of Affinity diagram: the temporary category is created by applying the group name of Affinity diagram to the subordinate class.

(4-4) Fine arrangements: the final category is determined by repeating the rearrangement of label and the creation of new name of group in the procedure (4-3).

4. Evaluation and Discussion

Important events are developed from the above-mentioned framework and four categories (information collection, infection prevention measures, psychology, and BCP and business challenges) are focused on to analyze the problems and factors (Table 3). The remaining categories do not apply to certain businesses or daily routines, so they are excluded from the analysis.

4.1. Information Collection

As a result of the analysis the following events are extracted:

- There is no significant difference between the infection spread period and first wave in the quality of the acquired information. During both periods, the information is unclear and lacks reliability in many cases. Information was unreliable due to discrepancies from previous knowledge, such as highest infectivity immediately before the appearance of the disease, and positive retests for COVID-19 even after recovery.
- Since the lull period, the information has increased on the papers published by the researchers and the reports about therapy, antibodies, and vaccine effectiveness are also discussed. During the second wave,
Table 3. Analysis results.

<table>
<thead>
<tr>
<th>Category</th>
<th>Infection spread period</th>
<th>First wave</th>
<th>Lull period</th>
<th>Second wave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information collection</td>
<td>Information with a lot of unclear points and lack of credibility</td>
<td></td>
<td>Increase of number of the papers on drug for treatment, vaccine and antibody test</td>
<td>Clarification of the characteristics of COVID-19 and the information on the measures against COVID-19</td>
</tr>
<tr>
<td>Infection prevention measures</td>
<td>Essentials are avoidance of the Three Cs (Crowded places, Close-contact settings and Confined and enclosed spaces) including the measures against cluster infection and ventilation</td>
<td>Doubt of the mass media and the United States of America about the PCR test in Japan</td>
<td>Avoidance of the Three Cs</td>
<td>Avoidance of the Three Cs</td>
</tr>
<tr>
<td>Psychology</td>
<td>The strong fear due to the infection spread overseas and unknown number of cases and occurrence of the damage caused by rumors and discrimination</td>
<td>The physical and mental disorder caused by the stress of remote work and voluntary restraint of activities</td>
<td>Sense of alienation</td>
<td>Increase of social discrimination such as self-appointed pandemic police, pressure to confirm and apology by the infected persons</td>
</tr>
<tr>
<td>BCP and business challenge</td>
<td>Insufficient BCP against infectious disease and following of the information transmitted from the experts and the Government</td>
<td>The short-term funding and settling account of the small and medium businesses</td>
<td>Discussion on the exit strategy</td>
<td>The unpaid wages due to suspension of business and lack of the foreign technical intern trainees due to the border closure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Independent efforts by organization with imagination and agile decision-making</td>
<td>The organizational management method, the measures for the assets and finance and shift to other businesses</td>
</tr>
</tbody>
</table>

Information on the characteristics of coronavirus and the measures against COVID-19 has become clearer.

From the above, it can be understood that the highly reliable information on the current disease could not be obtained until the end of the COVID-19 pandemic. People experience fear because it is difficult to obtain reliable information, and people do not know which measures to take until new reliable information is released. For example, it is recommended that the reliable information on the disease in the past are used practically.

4.2. Infection Prevention Measures

As a result of the analysis, the following events are extracted:

- The infection prevention measures in Japan mainly consist of avoiding the three C’s (crowded places, close-contact settings, and confined and enclosed spaces), such as cluster containment and ventilation, during all four periods. During the lull period, the Japanese model of infection prevention measures are introduced as a success story abroad. However, during the infection spread period and first wave, part of the mass media and even the United States of America consider the PCR test in Japan insufficient and have doubt about the measures and reports in Japan.
- Since the lull period, guidelines have been published by the Government according to the type of business, but there are many standards and the decision how to use them is left to the citizens.
- During the second wave, the cases of aggravation of sequela are reported, and there is alarm regarding the lack of vigilance of infection prevention.

It seems that the infection prevention measures of the Government function well in the end. However, the standards and guidelines are published too late, and it cannot be determined whether the Government responses are correct, which is a problem during the prevalence of infection. Because this judgement changes depending on fear and the media, there should be a focus on the fact that people consider the remarkable cause important, triggering a psychological bias (Causal attribution).

4.3. Psychology

As a result of the analysis, the following events are extracted:

- During the infection spread period, the fear of COVID-19 has increased due to the infection spread overseas, unknown number of cases, damage caused by rumors, and discrimination toward infected persons and medical workers occur.
- During the first wave, physical and mental disorders caused by the stress of remote work and voluntary restraint of activities appear.
- During the lull period, a sense of alienation accompanied by remote work and voluntary restraint of activities and the problem on privacy accompanied by the infection control of organization occur.
- During the second wave, new problems of discrimination such as self-appointed pandemic police, pressure to confirm, and apologies by the infected persons have spread in the society.

As the object to be influenced psychologically has spread from individual through organization to society, new discrimination is caused by the fear to infection. This phenomenon is attributed to the Behavioral Immune System [24]. There is an issue related to reducing fear and shifting to the policy, which would provide people with a sense of security in an early stage.
As for individuals, the reduction of stress is suitable for individuals. In the case of a serious physical and mental disorder, completely blocking of information causing fear and rest are necessary [25]. For organizations, the reliability of organizations is needed to provide people with a sense of security. It is important to continue to implement the measures which emphasize the following three factors, especially (3): (1) Competency that acknowledges whether there is competence, experience, and qualifications; (2) Motivation that acknowledges fairness, sincerity, and seriousness; and (3) Salient Value Similarity (SVS), which means that if you feel a partner shares the same value, you trust the partner [26]. The formulation of these concrete measures is an issue.

4.4. BCP and Business Challenge

As a result of the analysis the following events are extracted:

(1) BCP against infectious disease
- During infection spread period, BCP against infectious disease has not been formulated at many companies except for a part of large ones. As a result, such companies behave following the information transmitted from the experts and the Government.
- During first wave, while the measures are considered referring to the standards made in foreign and local governments, the discussion becomes serious on the exit strategy toward the end of pandemic.
- During the lull period, although the guidelines are formulated according to the type of business, BCP has to be formulated and reviewed originally by an organization. It is understood that a prompt decision should be made by covering a lack of the information with imagination.
- During the second wave, work methods must be changed significantly in “new normal,” but the efforts are shared to adjust the existing BCP such as management of the headquarters for disaster control to “new normal.”

(2) Business challenge
- During the infection spread period, there are challenges such as the short-term funding and settling account of the small and medium businesses.
- During the first wave, alternative business continuity, such as remote work, has proceeded partly, but the unpaid wages due to suspension of business and lack of the foreign technical intern trainees due to the border closure occur.
- During the lull period, the problems also appear on the organizational management method in “new normal,” the measures for the assts and finance at the companies which suspend their businesses, discontinue their business, and shift to other businesses because of large reduction of the market.
- During the second wave, complex disasters and damage caused by rumors also become a problem. Because the infected persons appear, the demand in the future is not recovered and an active risk communication is needed. The establishment of remote work in “new normal,” the shift to job-focused employment and the concerns about such shifting also can be seen. Cases of coordination among the different types of businesses under the principle of the right person for the right job are also mentioned (i.e., temporary transfer from hotel and tourism to agriculture).

There is a tendency to rely on the central and local government too much when a solution is unclear. However, too much reliance gives rise to the harmful effect that the measures would delay without the guidance of the central and local government (overdependence on governments) [27]. It is also possible that the situation is underestimated due to normalcy bias and cognitive dissonance as a sign of a sense of unease so that the measures would be taken too late. Preparations, such as information collection, training, coordination with other organizations at ordinary times, recognizing the situation, and taking action based on one’s own judgement is an issue.

The change of market (decrease of use of transport facilities, reduce and closure of shop and increase of online business etc.) and the change of workstyle (sift to remote work and job-focused employment etc.) in the “new normal” is an issue.

5. Proposals to Improve BCP Against Uncertain Threat

The analysis reveals that current risk management has vulnerability to uncertain threats and resilience should be strengthened.

5.1. Gradational Change and Fuzzy Progress

By examining the causes of the above analysis and points, it can be understood that in the current COVID-19 pandemic, the onset and ending of threat cannot be distinguished clearly, as in the case of an earthquake. There are various stages between them, and the boundary cannot be distinctively discerned. The transition between the stages can be confirmed after the event and cannot be distinguished during the process of the event (Section 4.1). It is difficult to determine the triggers, such as onset and ending. The knowledge from the experience in the past cannot be used practically. It is difficult to respond to the situation independently, and the overprotection by the Government (Section 4.1) and industry sector’s guidelines are easily depended upon.

In an uncertain threat because of its uncertainty the situation progresses fuzzily in a gradational mode and it should be assumed that the quality and quantity of the treat would sometimes change.

Even if the strategy and response are decided based on the own judgment of an organization, BCP should not be managed rigidly. However, it is necessary to learn the new knowledge and lessons as the situation progresses
and manage BCP while modifying it flexibly, continuously, and agilely. Supposing the condition where the risk would not become zero and continue in the long run, care should be taken to the fatigue and stress caused by the “new normal” (Section 4.3).

To ensure the reliability of judgment, it is important for information collection to avoid Causal Attribution by observing the collected information objectively and select accurately. In an organization, efforts should be made to enhance Salient Value Similarity and provide people with a sense of security to assure the reliability for the organization under the situation where anxiety can be felt in the society (Section 4.3).

To enhance the effectiveness of BCP against uncertain threat, it is necessary to adapt the variation of new exercise scenarios as the outcome of workshops, in addition to disaster scenarios described in the exiting BCP.

5.2. Demonstration of Leadership for Fostering Common Recognition

In previous disasters, such as earthquakes, it is easier to foster the common recognition of the degree of damage and exit strategy by visual inspection after the occurrence of damage. Contrarily, as mentioned above, if a situation progresses fuzzily in a gradational mode in the case of an uncertain threat, information from various sources becomes tangled, and it is difficult to judge the situation and the degree of damage and estimate the end of pandemic. Therefore, confusion is expected in fostering the common recognition, which would cause the delay of the responses. Furthermore, too much reliance on the success story in the past leads to lack of flexibility.

In reference to earthquakes and typhoons, there is the clear objective of business continuity and business recovery after the damage and the progress can be seen easily. However, in the case of COVID-19 the progress of the situation can be recognized with significant difficulty and the BCP in operation and the business shrinking during the spread of infection are frequently observed. Information needs to be frequently updated, and relying on previous information would result in misjudgment. In fact, it is observed that the judgement delays by waiting for the response of the Government (Section 4.4).

It seems that for the leadership sought under the circumstances not only the objective judgment and analysis based on the data but also the decision-making by intuition is needed. Grey Klein advocates “Naturalistic Decision Making” [28] as a mechanism of intuitive decision-making in a state of emergency, which is considered as an important capability under the chaotic situation this time.

Moreover, not only decision-making but also agile action of it that is agility is important. For this purpose, the emotion of the people involved should be moved. And for the leadership “Emotional Intelligence (EI)” [29] to recognize, manage and use the emotion of oneself and others is also essential.

5.3. From BCP to Business Resilience

Regarding COVID-19, the authors would like to propose the necessity of challenges from Disaster Recovery and Business Continuity against certain threat to “Business Resilience” covering multiple threats and business issues as well.

Business Resilience means not only restoring business to previous condition but also shifting to a better condition than before suffering environmental change caused by disaster etc. In COVID-19, as seen in the new lifestyle [12] presented by the Ministry of Health, Labor, and Welfare, it has become common understanding in society that the condition would not return to before COVID-19. The business continuity under these circumstances means a business should adjust to a new environment. Business Resilience is required from the perspective of business strategy and existing business restoration.

To obtain Business Resilience, organization should have capabilities of image various scenarios even in a chaotic situation (Section 5.1), judge the response proposed optimally among the scenarios intuitively and implement with agility (Section 5.2). In enterprise business management, it is required not only defensive factors but also offensive ones. The aim of Business Resilience is not restoring previous business like existing BCP. Furthermore, it is continued tenaciously with an optimistic view to “new normal.” Our next challenge is to establish a methodology for identifying and developing the leadership competencies described in Section 5.2 to advance Business Resilience.

6. Conclusion

This study aims to clarify the challenges of BCP accompanied by COVID-19 through the AAR to the process of discussion at the online study meeting held by willing participants and extract the requirements to be considered for BCP in the future against the possible uncertain threats, such as spread of new type of infectious disease and occurrence of the damage beyond the assumption caused by natural disaster.

From the analysis results, the tendencies are obtained that the reliable information cannot be acquired when it is necessary; the determination must be made without knowing whether the measures of the Government are appropriate. People are easily influenced by prejudice from the fear, and the responses are delayed if there is too much dependance on the Government and other information sources. Accordingly, the opinions are offered on the necessity of the response to the gradationally changing threat, leadership with agility, and progress from BCP to Business Resilience.

Finally, if an organization recognizes Business Resilience, in other words, a “Resilient Organization” were constructed, the organization could respond to an uncertain threat in a sustainable manner. In the future, the authors aim to introduce this idea into BCPs of various orga-
ations, evaluate the effectiveness of the recommendations through the exercise, and spread Business Resilience as a standard for BCP during the “new normal.”

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Study of New Normal Business Continuity to Improve Resilience Against Uncertain Threat

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Selected Publications:  
• “Study on Disaster Medical Response During the Great East Japan Earthquake Disaster Based on Essential Elements of Information – Nine Days at Iwate Prefecture from Hyperacute Phase to Subacute Phase –,” J. Disaster Res., Vol.14, No.8, pp. 1115-1126, 2019.  
• “Study on Disaster Medical Response During the Great East Japan Earthquake Disaster Based on Emergency Support Function – Nine Days at Iwate Prefecture from Hyperacute Phase to Subacute Phase –,” J. Disaster Res., Vol.15, No.1, pp. 41-52, 2020.

Academic Societies & Scientific Organizations:  
• Information Processing Society of Japan (IPSJ)  
• Institute of Electrical and Electronics Engineers (IEEE)  
• Resilience Research Council of Japan (RRCJ)

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Selected Publications:  

Academic Societies & Scientific Organizations:  
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Selected Publications:  

Academic Societies & Scientific Organizations:  
• International Coaching Foundation (ICF)  
• Disaster Recovery Institute International (DRII)  
• Resilience Research Council of Japan (RRCJ)