

USE OF SIMULATION IN A FACTORY FOR BUSINESS CONTINUITY PLANNING

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Abstract

Companies can suffer significant losses as a result of unanticipated business disruptions caused by natural disasters or outbreaks of disease. In order to restore the organization's critical functions and minimize the impacts of a disruption, it is important to establish business continuity planning and recovery planning. First the risks in the external environment surrounding the companies and business continuity planning were described. Then, how the computer-based simulation technique could be utilized to establish the business continuity planning was examined under a pandemic environment. In this study, an approach of examining the operation rates and the plant-utilization rates was proposed for a factory, by applying simulation. The proposed approach was applied to a real manufacturer especially under a pandemic flu environment in order to confirm its effectiveness.

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Key Words: Business Continuity Planning, Personnel Planning, Simulation, Pandemic

1. INTRODUCTION

Companies can suffer significant financial losses as a result of the serious social and economic disruptions caused by natural disasters and outbreaks of disease [1-3]. This subject has attracted growing attention in recent years because of a series of disasters and outbreaks, including the pandemic (H1N1) influenza (2009), the Sichuan earthquake (2008, China) and the Haiti earthquake (2010, Haiti). Disasters and outbreaks, of course, cannot be anticipated, but their effects on a company may be amplified by the lack of preparedness action [4]. To cope with these types of disruptions immediately and smoothly, the approach of business continuity planning (BCP) is proposed – an approach that has received much attention in recent years [2].

In this study, data from a manufacturer that assembles machines were used in applying business continuity planning. According to a Japanese governmental report, it was expected that approximately 40 percent of company employees would be absent [5]. However, the company should be able to keep producing products ordered by customers. In establishing business continuity planning (BCP), simulation is used to forecast and evaluate the operating rate in a factory. As a result of simulation analysis, a possible policy and plan for job training and job enrichment can be established for responding especially to the pandemic influenza.

2. RISKS AND BUSINESS CONTINUITY PLANNING

As shown in Fig.1, there are various risks in the external environment surrounding the companies [6]. For example, the frequency of infectious diseases is relatively high and the

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