IMPLEMENTING A CRISIS MANAGEMENT SYSTEM
A CASE OF DR PEAS

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Abstract
A proposed system, DR PEAS, regards that type, scale, and location of crisis are three main parts of contingency plans for disaster recovery and makes the plans to manage human and physical resources, to organize task teams for crisis management, and to build the action procedures of response and recovery. It has an advantage of making contingency plans more suitable to realize by establishing a plan for the actual business unit rather than a business process. And it enables us to make more realistic plans by verifying them with the functions of training and evaluation, which are based on the simulated crisis scenarios. In addition, it assists recovery from real crises and helps business continuity by providing emergency calls using SMS (Short Message Service), and by furnishing information to respond and recover as same as in the simulation.

Introduction
Nowadays, many enterprises in the United States and Europe operate contingency plans in order to run their business continuously regardless of any kind of crisis and disaster. Crisis Management Systems are also being considered to support the plan based on systematic policies. However, most of Korean enterprises are mainly interested in backup and recovery of business transaction data and can't free themselves out of establishing only remote backup centers with regard to the method. Under such Korean business circumstances, we need crisis management systems as well as information technology more and more to continue the core business of enterprises regardless of various kinds of crises and disasters.

Crisis management aims at continuing the business of enterprises and assisting at recovering the business swiftly from the crises or disasters. The purpose itself of this crisis management is same as any place and at any time, however the content and the managerial procedure should be determined properly according to the business environment. Therefore, this paper describes a model of crisis management systems suitable for Korean business circumstances with an example of DR PEAS (Disaster Recovery Plan & Execution Automation System).

Current Systems
There are famous management systems such as Strohl's LDRPS (Living Disaster Recovery Planning Systems), SunGard's SPS (SunGard Planning Solution), COMDISCO's ComPAS (Comdisco's Plan Automation System), and SDS's PC-based EM/2000 (Emergency Manager 2000).

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LDRPS deals with the following questions based on business processes: What is critical to the company? Who will do it and how will it be done?, What resources are needed to do it?, Who should be contacted?, and Where should all this be done?

SPS shows integrated two modules. One is contingency plan, and the other is business impact analysis. SPS provides a PreCovery planning cycle on the basis of business processes.

A Proposed Model

A proposed model is shown in figure 1. The model focuses mainly on crisis type, crisis level, and an occurred location of crisis that is necessary to develop contingency plans for disaster response and recovery. The model also makes the plans to manage human and physical resources, to organize task teams for crisis management, and to build the action procedures of response and recovery. Figure 1 shows a proposed model of a Crisis Management System.

Figure 1. A Proposed Model of Crisis Management System
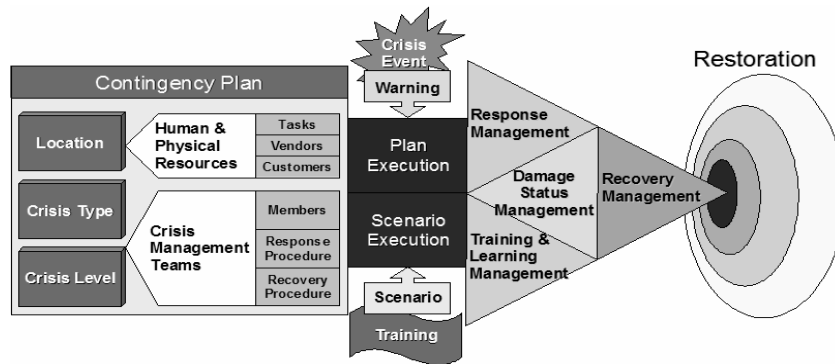
The model is categorized into contingency plan, response, recovery, and training/learning components. First, the contingency plan is developed according to type, level, and location of a crisis. This plan includes human resources, physical resources, crisis management teams, and SOP (standard of procedures). Second, response phase is conducted through crisis-based decision making. If a crisis happens, the crisis management decision maker is notifiedby SMS (short message system) and e-mail. A contingency plan is activated after he makes a decision crisis type, level, and location based on collected data. Third, the recovery phase indicates critical business process resumption and general business process recovery after completing emergency response. Data related with damaged status in terms of human resources and physical resources are gathered and action procedures of recovery are established. And resources are allocated according to occurred locations of crises. Fourth, simulated training is realistically carried out with developed scenarios from a business disruption. At this time, response and recovery activities are included in this training.

This has an advantage of making contingency plans more realitic by establishing a plan for the actual business unit (specific business location), not a plan for a business process, which is not definitely identified in Korean industries. And it enables us to make more realistic plans by verifying the plans with the functions of training/learning, which are based on the simulated crisis scenarios.

DR PEAS

A new crisis management system that is suitable to a Korean workplace, which is called DR PEAS, is created specifically to support business continuity on the basis of the crisis management model described at the above. Multiple modules such as code, contingency plan,

response, recovery, training/learning, damaged status, outputs, and resources operation can be integrated into the system. Figure 2 shows the main screen of DR PEAS.

Figure 2 : Main Screen of DR PEAS
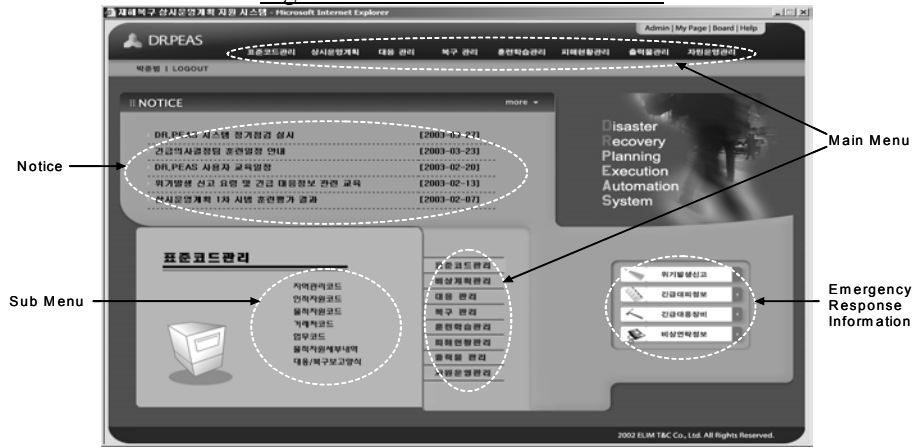
Standard Code Management

Standard codes consist of business unit code, human/physical resource code which can register resources necessary to conduct business activities, vendor code, business activity code, and document code for check list and various reports etc to be needed at response and recovery phase. Figure 3 shows a screen of code management.

Figure 3 : Screen of Standard Code Management
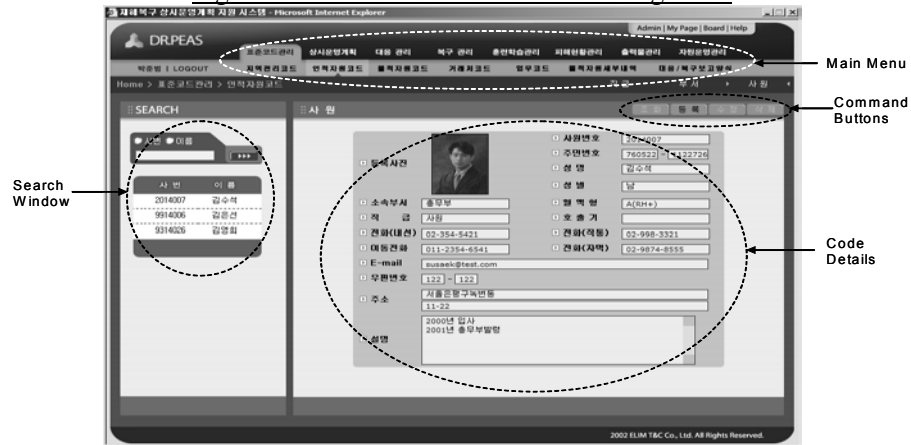
Contingency Plan Management

The plan management classifies the following six functions. First, crisis definition is a function to manage crisis type, crisis level and identifies a tree structure of contingency plan. Second, resource management manages detailed resources and allocates human/physical resources to business units. Third, emergency response manages a method to use equipments, telephone call notification tree, and emergency route of each business unit. Fourth, business continuity teams are constructed with tasks and members of each team to be made by business unit. Last, response/recovery phase includes reporting structures, response/recovery procedures, and detailed tasks described by diagram style according to crisis type and level. Figure 4 shows a screen of contingency plan management.

Figure 4 : Screen of Contingency Plan Management
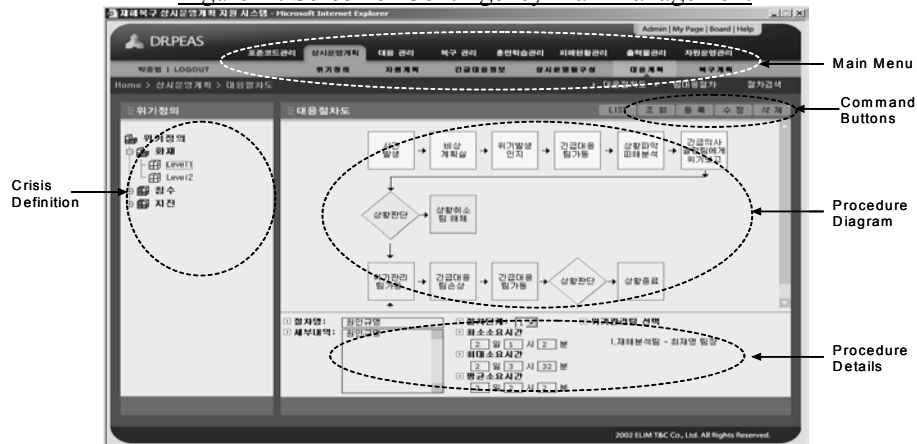
Response Management

Response management is composed in two components. Confirmation of notification of crisis occurrence, activation of proper contingency plan, modification of response activity, and decision about response completion are integrated into the first component.

The second thing is to evaluate response activity of each team and each business unit, and spent time based on contingency plan. The plan will be reorganized using the results. An example of response management is shown in Figure 5.

Figure 5 : Screen of Response Management
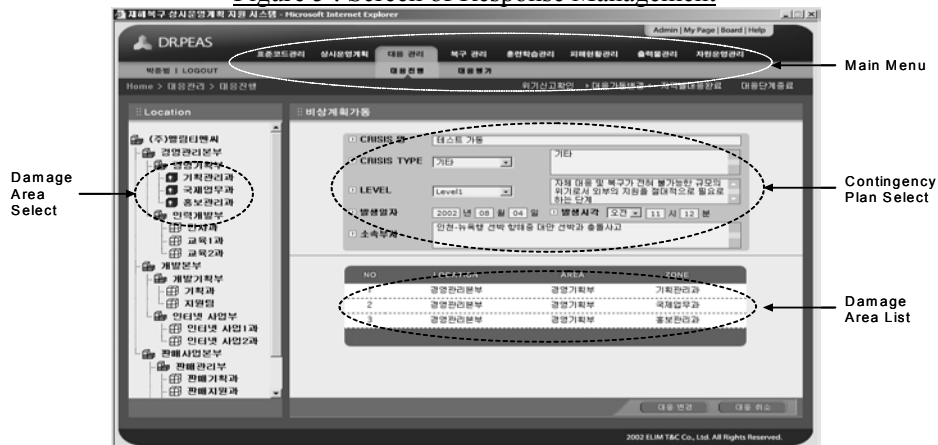
Recovery Management

There are recovery plans and recovery progress tracking in the recovery management. At the recovery plan, resource damage status for each business unit is collected, and human/physical resources are allocated to each business unit during recovery period. At the recovery progress, recovery activity and recovery about damage are conducted and recovery completion is declared. Figure 6 shows a screen of recovery management.

Figure 6 : Screen of Recovery Management

Training/Learning Management

The simulated training includes a plan of being able to train, scenario development under a specific crisis type related with organization, and prospective damaged area and damaged status of human/physical resources.   The training progress refers to training conduct. The third function is to evaluate response activities of each team with trained contents in a scenario. Figure 7 shows a screen of training/learning management.

Figure 7 : Screen of Training/Learning Management
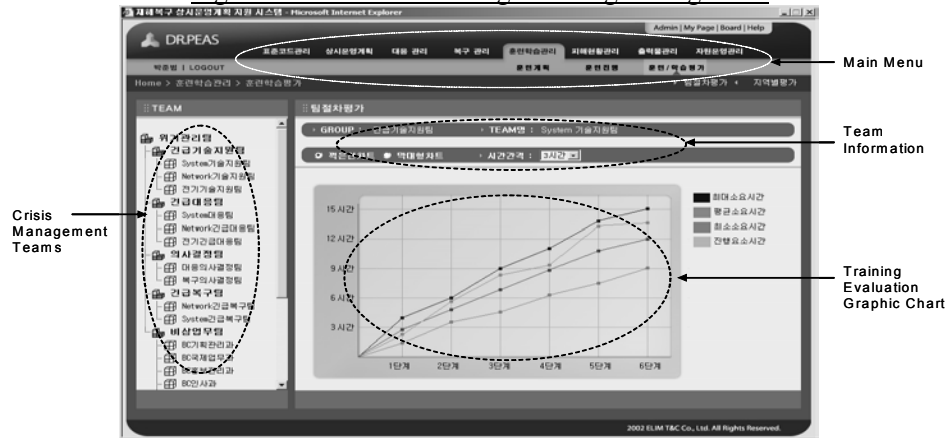
Damaged Status Management

This is divided into six functions. The first function is to register damaged resources allocated to each business unit at the contingency plan. The second is to provide structure of crisis management team on each business unit, tasks of each team, and procedure diagrams. The third function is a progress report that indicates report and sign to be needed at each step of recovery procedures of each team. The fourth refers to monitoring of damaged status that shows damage of human/physical resources and recovery progress status using graph function, and detailed contents to be needed a decision-making. The last function is to access information about emergency route and emergency call, usage method of emergency equipments according to each business unit. Figure 8 shows a screen of damaged status management.

Figure 8 : Screen of Damaged Status Management

Outputs Management

This system produces various outputs in terms of contingency plan and detailed contents of response, recovery, and training phase. Also, the results of response, recovery, and training can be provided as a PDF file or a print form. Figure 9 shows a screen of outputs management.

Figure 9 : Screen of Outputs Management
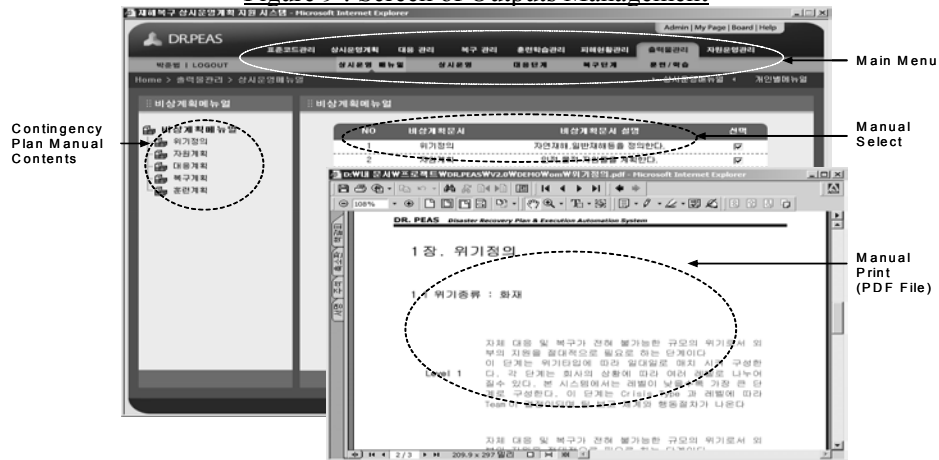
Resource Operation Management

This function is to manage human resource and physical resource daily. Specifically, it refers to monitoring of status of human resources, and the malfunction and maintenance of physical resources. The results displays on resource management of response and recovery phase in contingency plan. Figure 10 shows a screen of resource operation management.

Figure 10 : Screen of Resource Operation Management
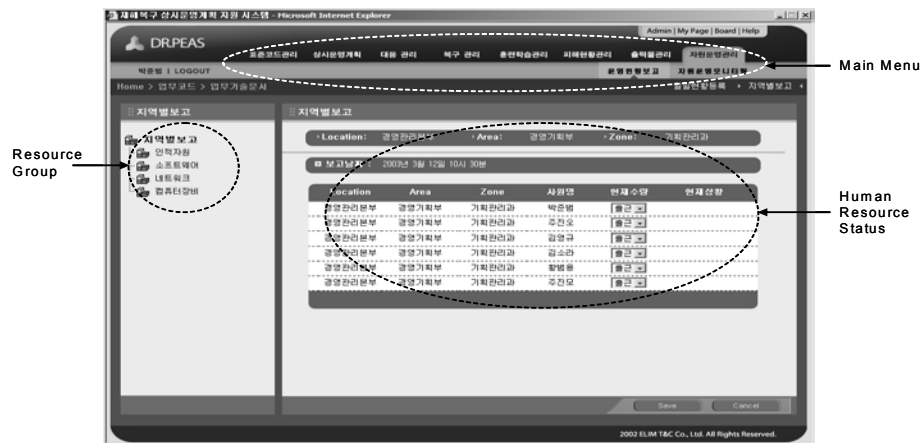
Expected Effects

The development of DR PEAS provides two important effects. First, it is possible to use and update contingency plans easier than the printed manuals used currently. Second, the system is able to evaluate effectiveness of contingency plans through a live training/learning carried out regularly. It will also make decisions faster in the case of a real crisis by supporting response and recovery activities.

The great advantage of DR PEAS is that we can apply it for a real crisis, since it is based on the real data. Many contingency plans are using superficial data. DR PEAS it makes it easier to develop contingency plans much easily. It is because a new model of contingency plans is applied with the focus on the crisis, which overcomes the theoretical differences in business reality and in crisis management.

Conclusion

The most important thing is currently to shift a paradigm from disaster recovery on dimension of information technology to crisis management on dimension of business continuity as a crisis happens in the Korean corporate business. However, it is difficult to apply a model of crisis management focused on business process to Korean business environment because of cultural difference. Accordingly a new model which is centered on crisis type, crisis level, and crisis-occurred location is developed. DR PEAS is created on the basis of the model and is able to support response, recovery, and training including contingency plan development

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