DISASTER RECOVERY

CAN YOUR BUSINESS REALLY RECOVER?

Presented by:

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1. INTRODUCTION

DISASTER RECOVERY PLAN: A collection of well planned and tested procedures and data assembled into a single document which, when used, will direct the re-establishment of ALL functions necessary to support day to day business operations, which have been interrupted or rendered inoperative by some uncontrollable event.

One can cite many technical and business reasons for developing and maintaining a disaster recovery strategy, but the fact of the matter is that the subject rarely comes up, and when it does it always gets the lowest priority. In fact, however, it should be first and foremost on the minds and in the planning efforts of the top management of all companies. Trite as it may sound, most companies today can do very little business, if any at all, without the capabilities provided by their computers and networks. Being without a computer is comparable to not having anyone to answer the telephone.

Corporate management and the Boards of Directors are directly liable to the owners and shareholders for the stewardship of the company, and as such are constantly reminded by their auditors that they should maintain a reliable Business Recovery Plan, which includes the complete recovery of all computing facilities available for business operations. One may be led to believe that this type of admonition would cause more companies to put a high priority on developing such a plan, but unfortunately, the advice goes unheeded or gets the lowest of all priorities.

For those that heed the admonition of their auditors and shareholders more advice can be passed along. A business recovery plan is not something that can be developed overnight, scribbled into a 5 page document and then stuffed into the DP Manager's center desk drawer, merely to satisfy the auditor's request in his management report. It is a very serious facet of corporate management's responsibilities. It involves the entire company (personnel, equipment, facilities, profits, etc.) and should receive as much attention as would be given to the development of a major business system.

Preparation of the Business Recovery Plan should also follow the same procedures that are used to develop other systems. Definition, preparation, testing, implementation, and maintenance are the majors areas of concern, and the requirements, as well as the necessary project steps, are the subject of this paper.

Each portion of the development phase is important in its own right, but without the proper planning and definition, none of the other phases can be properly executed. Figure 1.1 illustrates the relative importance of these phases and tasks. Once Phase 1 or the Detailed Requirements Definition is properly completed, the remaining phases become very easy to accomplish and the time for their execution will have been greatly reduced.

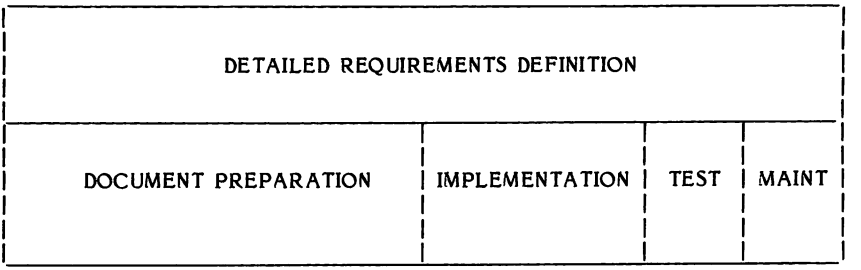

Figure 1.1

2. DETAILED REQUIREMENTS DEFINITION

There are at least eleven major tasks that must take place in order to complete the major definition of the direction and scope of the Business Recovery Plan. Just as in systems design, the more effort put into the requirements definition phase, the more complete and efficient the Plan will be. These tasks are not all encompassing, but are considered essential to a good plan. They are detailed here to give the developer some guidance and insight into the development process.

2.1 Definition of Scope

How inclusive should the recovery plan be? Document ALL areas of the business that should be included in the plan. This list should include all computer sites to be covered (mainframes, mini's and micros). Other areas of the corporation which are considered critical to its existence should be covered in the plan.

2.2 Catastrophic Events

What types of calamities should be expected? Prepare a list of all possible catastrophic events which could disrupt the operations of the business facilities previously identified.

2.3 Results of Catastrophic Events

What disruptions can be expected as a result of the previously identified calamities? A list must be prepared, detailing specific disastrous results to be expected from each catastrophe that has been identified. In addition, the impact of each catastrophe on the various areas of the corporation should also be defined.

How long should it take to recover? Determine the time required to recover from the results of each catastrophic event that has been defined. Each result of a catastrophic event should be considered individually and an estimate of the time that will be required to return to normal operation for each event should be completed.

2.4 Methods of Recovery

How will we recover? This is decision that must be made by top management. In order for them to make the decision, all alternatives must be documented and presented (Hot sites, cold sites, mutual agreements, dual sites, etc.). Each alternative should be accompanied by a broad range of associated costs.

2.5 Critical System Definition

What recovery priority should be given to each system? This is probably the lengthiest and most important aspect of the detailed requirements definition phase. Each system must be examined in light of being impacted by the defined exposures and by the resulting impact on the corporation's existence. Standard risk analysis programs are available for this process. Having determined the risk, each system should be given a priority and ranked accordingly. This list will greatly influence the definition of the recovery objectives.

2.6 Resource Requirements

What resources are required to execute each system? All resources required by each system must be identified. This includes manual systems as well as those that are automated. Resources include hardware requirements, communication requirements, special operating software, personnel, special supplies, special facilities, vendor participation, outside services, etc. The final document will be a matrix of applications and resources. It will also be used in the definition of the recovery objectives.

2.7 Plan Objectives

Based on the information that has been gathered and refined in the above project steps, a detailed statement of recovery requirements must be composed. This statement, in detail, must set forth all contingency or recovery plan objectives, all areas or functions that will be affected, and a statement concerning the importance of each function's continued operation.

After a complete review of this document, it should be presented to Management for their concurrence.

2.8 Current Plan Review

Is the existing recovery plan, if one exists, still current? If a plan exists, it must be reviewed and compared with the requirements that have been developed in this current exercise. The results of this review will be a schedule identifying the existing plan's strength for each of the currently defined critical systems. These strengths will be considered for entry into the new recovery plan.

2.9 External Services and Products.

What types of products and services are available to accommodate all requirements? In order to accomplish this task, a list of services and products that are required to ensure the plan's success, must be completed. A determination can then be made regarding vendor organizations which can

supply these services and products. Meetings should be scheduled with each reliable vendor to determine the scope of each particular service or product and to gather other pertinent information. After the meetings are concluded, a schedule must be prepared listing all requirements which can be satisfied with a particular vendor's product or service. A second schedule will list all requirements not satisfied with external services or products.

2.10 Internal Services

Are there services within the company which will satisfy some requirements? A schedule should be prepared, identifying all processing alternatives which may be available within the organization. Once this is accomplished, a determination may be made as to the capacities required and those available to absorb the processing loads. A schedule can then be prepared showing all costs related to internal processing alternatives.

Finally, a list must be prepared showing all requirements that have not been satisfied with either external or internal services.

2.11 Alternative Summary

The final process that must be accomplished in the detailed requirements definition is the preparation of analysis schedules for each critical system or area of the company, identifying all requirements and all available alternatives. All costs should also be included in the schedule.

In addition, all unsatisfied requirements must be identified and resolved, by determining possible methods, techniques or services which can be utilized to meet the requirements.

Finally, these requirements and their specific solutions must be evaluated, alternatives recommended and documented for a presentation to management. The presentation should result in management's approval to proceed with the actual preparation of a Business Recovery Document.

3. DOCUMENT PREPARATION

All of the detail requirements that have been approved by management must now be translated in detailed procedures and lists which will become the actual document, called "The Business Recovery Plan" or "The Contingency Plan". Figure 3.1 indicates the structure of the document. While this may not exactly fit every company's needs, it represents the very basic elements of a plan which can be tailored to fit any company.

3.1 Table of Contents

This, of course, is the very last section that is completed. It merely indicates the sections and all sub sections with their respective reference numbers. If the plan is developed using a good word processing package, this section will be generated automatically. The table of contents should list procedure numbers rather than page numbers.

DISASTER RECOVERY PLAN STRUCTURE	
Section 1 - - -	Table of contents
Section 2 - - -	Organization
Section 3 - - -	Team Definitions
Section 4 - - -	Backup Procedures
Section 5 - - -	Recovery Procedures
Section 6 - - -	Off-Site Recovery Facilities
Section 7 - - -	Lists/Inventories
Section 8 - - -	Specifications and Testing
Section 9 - - -	General Items

Figure 3.1

3.2 Organization

This section deals mainly with the organization of the plan, maintenance responsibility, and the overall structure of a recovery effort. It should contain entries detailing at least all of the following procedures and definitions:

A statement of objectives developed in the detailed requirements definition and formatted for inclusion in the document.

A definition of the number of copies to be distributed and the location and owner of each copy.

A procedure for the on-going maintenance of the plan, with the name and phone number of those responsible.

A form listing all revisions that have been made to the original plan.

A bar chart or gantt chart depicting each event in the recovery process as it relates time wise to all other events.

A procedure detailing the initiation of the recovery plan in the event of a disaster and for the notification of all parties affected by the disaster or participating in the recovery effort.

3.3 Teams

The successful execution of the business recovery plan depends upon the personnel assigned to carry out the various tasks defined in the procedure section of the plan. Figure 3.2 lists many of the various areas requiring some sort of team effort. Each of these areas should have a page in the plan listing the names of a team captain, an alternate captain, and team members. The responsibilities of each team must also be listed on the team page. These responsibilities will be expanded on in procedural form later in the document.

These are just a few of the essential teams needed for effecting a business recovery. Some companies may decide to name the teams differently or to subdivide others to more closely match their own situation. The smaller the business, the fewer number of teams, but the essential functions still remain the same.

DISASTER RECOVERY - TEAM REQUIREMENTS
Recovery Management
Damage Assessment
Facilities Recovery
Operations Recovery
Software Recovery
Communications Recovery
Input Recovery
Special Forms
Logistics

Figure 3.2

3.4 Backup Procedures

Most businesses have a portion of this topic under control, but more than likely it only relates to computer data and programs. The scope of total backup is much broader than computer data and programs. It should cover peripheral systems, documentation, special forms, remote site data, original data, micro computer data and programs, etc.

This section should contain procedures for all backup scenarios, including frequencies and methods for storing or filing of all backup data. All systems design should consider backup as a part of the original design project, thus insuring that the programs and the data are automatically insured against a disaster.

All areas of a business must also consider backup as a part of the normal way of conducting business. Original documents must be marked and stored for easy retrieval, and personnel must be trained in the execution of both the backup as well as the recovery procedures.

3.5 Recovery Procedures

The engine that makes the recovery plan run properly is the recovery and restoration procedure section. Procedures are required for each recovery team as well as for a variety of other recovery related tasks. Figure 3.3 lists a number of procedures that should be included in the plan. This list is by no means complete, but those procedures listed are considered essential.

Each procedure should be written in script form, lelative to each responsible party. No detail should be spared or omitted. A walk-through should be conducted for each procedure before it is included in the plan.

DISASTER RECOVERY - RECOVERY PROCEDURES	
Recovery Management	Alternate Site Recovery
Damage Assessment	Micro Computer Recovery
Facilities Recovery	Return of Backup Materials
Operations Recovery	Emergency Shutdown
Software Recovery	Halon System
Communications Recovery	Peripheral Subsystem Recovery
Input Recovery	Evacuation
Special Forms	Salvage
Logistics	

Figure 3.3

3.6 Off-site Recovery Facilities

Even if a decision has been made not to employ a hot-site for recovery purposes, certain information relative to off-site recovery processes is essential. Information regarding contracts and other negotiations or agreements should be located in this section. Each off-site location should be described in detail, complete with names and phone numbers of contacts, maps of the immediate area as well as maps of the location itself, and a detailed listing of all available equipment and services.

3.7 Lists and Inventories

Perhaps the most difficult portion of the recovery plan is the collection of all the lists and inventories required to support the many procedures in the recovery section. These lists are varied and any particular list may have many parts, such as the Inventory Checklist. Figure 3.4 contains some of the many lists and inventories necessary for a well thought out recovery plan.

3.8 Specifications and Testing

This portion of the plan should contain specifications describing the construction requirements for the recovery library or off-site storage facility. It should also contain a list of all the required contents. This list will be used in the auditing procedure, which must also be included. The audit procedure should detail the frequency of audits and a method for evaluating the audit results.

The most important part of this section, however, is the procedure for initiating and evaluating tests of the recovery plan.

3.9 General Topics

This section is a catch all for anything that doesn't fit in any of the other sections, such as a procedure for the use of plastic equipment covers.

DISASTER RECOVERY - LISTS & INVENTORIES	
Contact Checklists	Data Entry Backup Facilities
Employees, Users	Hot Site/Shell Facilities
Vendors, Contractors	Printing Services
Inventory Checklists	Travel and Transportation
Hardware, Software	Agencies, Accommodations
Special Forms, Facilities	Delivery Services
Off-site Storage Facilities	Facility Layouts
Locations, Contents, Maps	Emergency/First Aid
Insurance Information	Equipment, Personnel
Coverage, Pictures	Radio & TV Stations
Recovery Headquarters	Emergency Phone Numbers

Figure 3.4

4. IMPLEMENTATION AND TESTING

Now that the recovery plan has been researched, proceduralized and put on paper, it can be installed properly. This is accomplished through training, a final pass to check for inaccuracies, and a thorough test cycle. Without any of these three elements, the recovery plan is totally incomplete.

4.1 Training

To properly insure that all parties involved with the recovery operation are fully informed and versed in the procedures, it is mandatory that orientation and training sessions be conducted prior to full acceptance.

The trainers must first prepare a training course outline, covering both orientation sessions for management and others who need only to be aware of the major functions of the plan, as well as full training sessions for those who will be involved in the execution of all procedures. All training course materials must be prepared for both types of sessions, followed by a schedule for all courses and sessions. Once the courses are completed, the plan is ready to be fully tested.

4.2 Implementation

Before testing commences, a quality assurance test should be made of all required items in the plan. The following assurances should be tested:

That all contracts for alternate processing sites have been negotiated and signed.

That all systems and programming changes that were to be implemented as a result of the plan have been completed.

That all additional equipment has been delivered and installed.

That all additional communications services have been or will be delivered and installed on time.

That all construction, resulting from the plan, has been completed.

That all required supplies and materials have been ordered and will be delivered on time.

4.3 Testing

The final phase of the business recovery plan, before the final stamp of approval can be issued, is the testing phase. Without a proper and conclusive test the plan is nothing but a book, but with the proper testing, management can rest assured, knowing that their business can rise from the ashes of a disaster.

The two most important steps in the testing phase are the "walk-through" and the "test audit". The walk-through will acquaint all parties with their responsibilities, without a large expenditure, and the audit will provide an outside opinion of the viability of the entire plan. Figure 4.1 details some of the items to be included in the testing phase.

DISASTER RECOVERY - TESTING PHASE
Prepare procedures for testing the recovery of all systems
Prepare a test schedule for all systems
Assemble all test materials
Conduct a user "walk-through" to review all test plans
Conduct the test
Record problems and resolve procedures and methods where necessary
Distribute corrections
Notify all parties of formal implementation

Figure 4.1

5. CONCLUSION

If you have followed and completed all the items referred to in this paper, you will have spent a great deal of time and effort for a worthy cause. You probably will have discovered a few weaknesses in some of your systems and hopefully will have corrected them. You have also had to review your hardware situation, your communication network and your micro computer proliferation, and you have probably had to make some adjustments in all three. But, for all your work, your management can rest easier now and the stockholders can feel a little more secure about their investments.